Idaho Power Company
Brownlee–Oxbow #2 Transmission Line Project

# Environmental Assessment

**OR 035-03-01**

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U.S. Department of the Interior
Bureau of Land Management
Baker Resource Area
Baker, OR 97814

# Table of Contents

# Tables



# Figures

# List of Appendices

# SUMMARY

## *Proposed Action*

The Idaho Power Company (IPC) proposes to construct, operate, and maintain the Brownlee–Oxbow #2 230kV Transmission Line Project (Project), an 11-mile, double-circuit transmission line extending from the Brownlee Switchyard to the Oxbow Switchyard. Corten steel poles would range in height from 85 feet to 120 feet with average spans of 700 to 1000 feet. The Project extends over lands under the jurisdiction of the Vale District of the Bureau of Land Management (BLM) and in private ownership. The Project would be constructed within a BLM designated utility corridor replacing an aging 69kV transmission line.

The proposed Project would expand transmission capacity and allow for increased import of electrical power from other Northwest generation sources. In addition, a new transmission line would create a third circuit between Brownlee and Oxbow, thus a more reliable system in the event of a double circuit line outage.

## *BLM Right-of-Way Process*

In June 2001, IPC applied for a Right-of-Way (ROW) grant with the BLM to proceed with the Project. Granting a ROW to construct a 230kV transmission line on public lands managed by the BLM requires that BLM comply with the National Environmental Policy Act (NEPA) of 1969 and assess environmental impacts associated with the project.

As required by NEPA, the BLM conducted scoping activities to identify potentially significant issues to be analyzed in the EA. The public scoping process determined the range of issues and the depth of analysis to be included in the document. The BLM reviewed existing data and sent scoping letters to interested agencies and tribal representatives. IPC conducted a public scoping meeting in Halfway, Oregon to identify issues, concerns, and opportunities. The information gathered from these activities helped to identify alternative actions, impact assessment, and mitigation planning for the Project.

The key issues and concerns raised during the scoping process included the following:

- Impacts to visual resources
- Impacts to wintering or nesting bald eagles
- Impacts to big game
- Impacts to recreation sites and access
- Impacts resulting from increased soil erosion in the steep canyon are

## *Alternatives to the Proposed Action*

To fulfill the stated Purpose and Need of providing efficient and economical power to its system area while accommodating load growth, IPC evaluated the proposed Project and seven alternatives:

- System Alternatives
- New Generation

- Alternative Technologies
- Alternative Voltages
- Energy Conservation and Load Management
- Routing Alternatives
- Alternative Construction Methods / Helicopter Construction
- No Action

The first seven of these alternatives were considered but eliminated for one or more of the following reasons: 1) the alternative did not meet IPC's Purpose and Need to improve system reliability or improve regional interconnections; 2) the alternative had considerable expense; 3) the alternative had lengthy timeframes for permitting; 4) the alternative had potential for considerable environmental impacts.

The remaining actions are the No-Action Alternative and the alternative to construct and operate a 230kV transmission line and associated substation upgrades. Under the No-Action Alternative no new right-of-way (ROW) would be granted by the BLM to allow construction and operation of the Project and the existing 69kV transmission line would remain in place with its associated maintenance.

# *Affected Environment*

The proposed Project would be located entirely within Baker County, Oregon except for the southern termination point at the Brownlee Substation, which is on the border of Adams and Washington Counties in Idaho. The Hells Canyon area between Brownlee Dam and Oxbow Dam is part of a hydroelectric complex owned by IPC including the Brownlee and Oxbow hydroelectric dams, a transmission system (e.g., 69kV, 138kV, and 230kV), powerhouses, substations and ancillary facilities.

The terrain in the area of the proposed Project is mostly steep and rocky. The Project route crosses side drainages and tributaries of the Snake River. Vegetation within the study corridor consists of shrub-steppe species with some riparian habitat in the tributaries and along Oxbow Reservoir. A number of special status plant and animal species were determined to occur or have potential to occur within the study corridor.

# *Resource Impacts*

The analysis completed during preparation of the EA found the following impacts to the below-mentioned key resources would occur with construction and operation of the proposed Project.

## Visual Impacts

The proposed transmission line would impact visual resources from construction activities and long-term operation of the proposed Project. The visibility of transmission structures and associated access roads from key observation points (residences, recreation areas, and Oxbow-Brownlee Road) would be the main source of visual impacts. Corten steel poles and non-specular conductors would be used to reduce visual contrast. IPC worked closely with BLM during the preliminary design phase to determine a route that would minimize impacts potentially caused by new access roads and other Project facilities contrasting with the existing landscape.

## Bald Eagle

Known bald eagle nesting and wintering habitat does exist in the proposed Project area along the Oxbow Reservoir. Disturbance from construction activities and increased access from new roads could potentially

impact this species, however the transmission line would be routed to avoid the one known nest site, see figure 3-2 in Chapter 3. Limiting construction activities during wintering months would avoid impacts to wintering eagles, see figure 3-3 in Chapter 3.

### Big Game

The proposed Project area is known habitat for bighorn sheep and wintering mule deer. Bighorn sheep use the area for lambing in the spring. Disturbance from construction activities and increased access from new roads could potentially impact big horn sheep and mule deer; however construction timing would allow for avoidance of impacts during lambing.

### Recreation

Two developed recreation areas are located adjacent to the proposed Project area and much of the area is used for dispersed recreation (e.g., hunting, fishing, camping, wildlife viewing). The Project would not directly impact the developed recreation areas or change the availability of areas used for dispersed recreation. The Sheep Mountain WSA and Sheep Mountain ACEC are adjacent to the proposed Project, and may be indirectly impacted by increased access with the construction of new access roads. IPC would work with BLM to block access and revegetate these new access roads as needed to mitigate this impact.

### Soil Erosion Hazard

Temporary soil surface disturbance would likely result from proposed Project construction causing some increased wind and water erosion rates and compaction levels. The potential for large-scale erosion may be increased in areas because of severe slopes and highly erodible soil types. In areas where potential impacts to water resources and wetlands are possible, mitigation measures committed to by IPC would be expected to be effective in reducing or eliminating those potential impacts.

### Other Resource Impacts – Noise and Air

In addition to the key resource impacts, local concern was expressed for noise and air quality. A summary of these concerns follows: Temporary generators would be employed for intermittent use at the Duke and Halfway Substations in Oregon. These generators may cause short-term noise and air pollution impacts. The increase in noise would be temporary for three months and would not exceed the state standards for noise. The increase of air emissions is expected to be negligible, as the generators would only be called on to operate under 1000 hours meeting ODEQ requirements.

## *Public Review of EA*

The EA will be available for a 30-day public review and comment period. If no significant impacts are identified and the proposed action is approved, BLM will issue a Finding of No Significant Impact (FONSI) for federal lands crossed by the Project. If the BLM determines that the EA does not sufficiently address alternatives and potential impacts, an Environmental Impact Statement (EIS) may be required for the Project to proceed.

# CHAPTER 1
# PURPOSE AND NEED

## 1.1 Introduction

Idaho Power Company (IPC) is proposing to construct a 230kV transmission line along the Idaho-Oregon border to connect the Brownlee Substation to the Oxbow Substation (See Figure 1-1). The Brownlee-Oxbow 230kV #2 Transmission Line Project (proposed Project) is approximately 11 miles in length with 6.7 miles on public lands managed by the Bureau of Land Management (BLM), 4.2 miles on private land and 0.1 miles spanning the reservoir, which is designated as U.S. Army Corps of Engineers (USACE) administered Waters of the U.S. To allow construction and operation on BLM-administered land, IPC has made an application for a right-of-way (ROW).

IPC owns and operates hydroelectric generating facilities on the middle Snake River dams, of which Hells Canyon, Oxbow, and Brownlee are a part. This proposal and ROW application is not part of a Federal Energy Regulatory Commission (FERC) project.

To consider granting a ROW across public lands to IPC for the proposed Project, BLM must comply with the National Environmental Policy Act (NEPA). Information gathered from scoping activities associated with the NEPA process helped to identify issues, develop alternatives, assess impacts, and plan mitigation for the proposed Project. Issues are summarized later in this and following chapters as part of assessing the impacts of the proposed Project and proposed Project alternatives.

## 1.2 Purpose and Need for Proposed Action

### 1.2.1 Accommodate Load Growth

The demand for new electrical hookups and expanded service will soon exceed IPC's current capacity to reliably serve its customers. IPC currently has approximately 310,000 households within its service territory, and that number is expected to increase to 380,000 by 2011 (IPC 2002). IPC's most rapid load growth is occurring in the Treasure Valley (i.e., Boise and surrounding area), with the Treasure Valley accounting for over half of IPC's total load. More than half of the electrical power currently serving the Treasure Valley is generated by IPC's three Hells Canyon hydroelectric facilities.

The IPC system load is growing at about 30-50 MW per year with a median load for 2011 forecast at 2,097 MW. Median load in 2002 is 1714 MW. IPC has identified several actions within its Integrated Resource Plan as necessary to meet growing electrical needs within its service territory. The Brownlee-Oxbow Transmission Project is one of these actions.

If these plans are not realized, IPC could be deficit of electrical resources as early as 2004. Although the total capacity of the double circuit 230kV transmission line would be 700MW (see Table 2-1), IPC's planning analysis indicates that the proposed Project would increase capacity by 100 MW due to other constraints on the electrical system. IPC's planning analysis also indicates that the proposed Project would be a cost-effective alternative to new generation. The proposed Project would expand transmission capacity and import electrical power from other Northwest generation sources through the interconnected transmission line grid. The Bonneville Power Administration (BPA) and the U.S. Department of Energy both support proposed system reinforcements to maintain the Northwest–Idaho import capability.

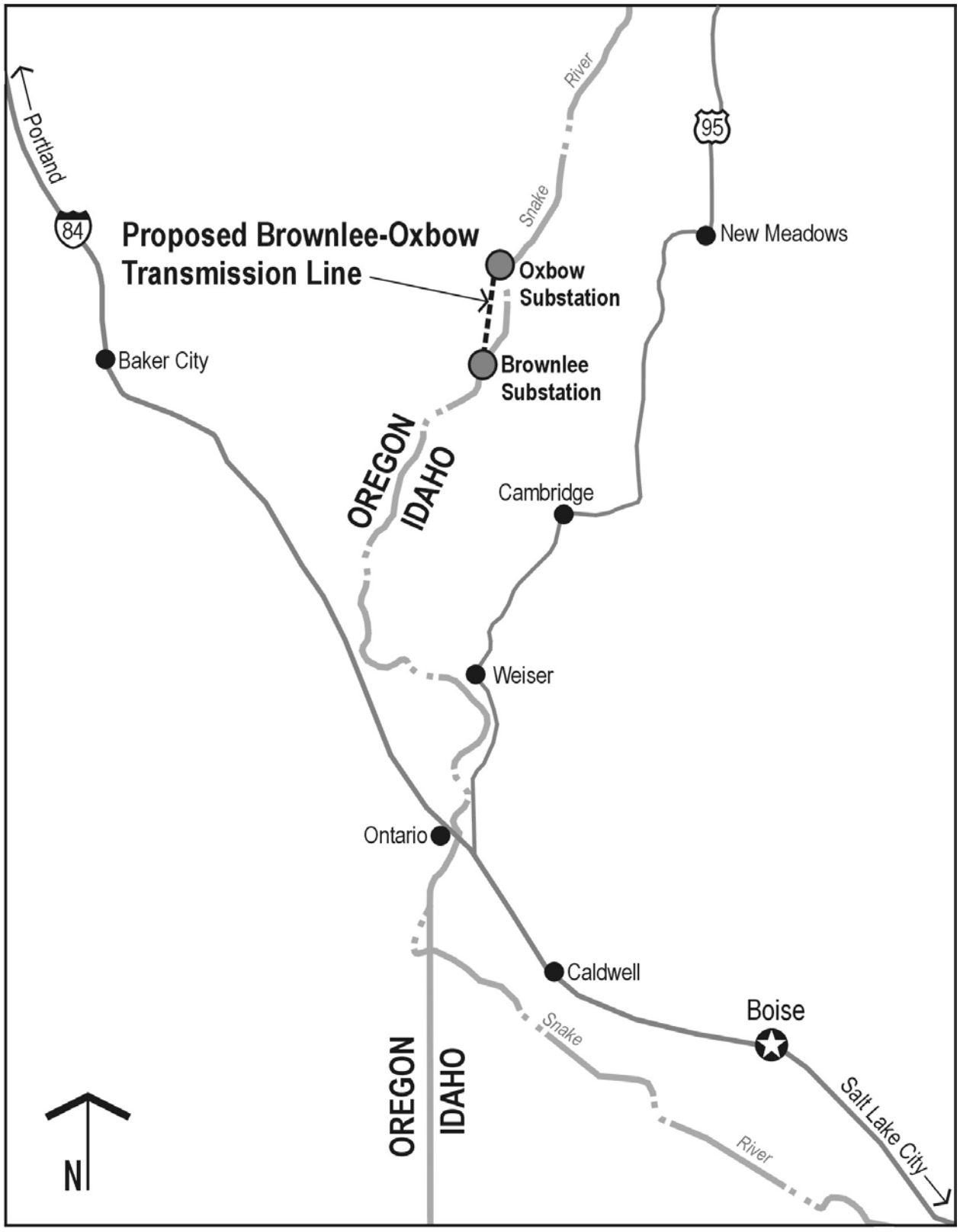


**Figure 1-1 Map of proposed Project Area**

### 1.2.2 Provide Efficient Regional Interconnection

The electric systems in the western part of North America are interconnected directly and indirectly and operated according to various agreements among these systems. While the primary responsibility of an individual system is to provide electrical power to its own customers, surplus power can be transferred to other systems. This allows systems with diverse electrical generating characteristics to operate jointly in a manner that increases overall operating efficiencies. Resource coordination agreements benefit the participating utilities by reducing their operating expenses and potentially deferring their need to build new generating resources. The Western Electrical Coordinating Council (WECC) coordinates power transfers under these arrangements.

In 2001, IPC completed the Brownlee–Paddock 230kV Transmission Line Project, a major transmission expansion between Brownlee and the Treasure Valley area (e.g., Boise), which included three substantial substation improvements and 75 miles of new transmission line or transmission line additions (Figure 1-2).

Prior to Brownlee–Paddock, the last backbone transmission expansion in the northwest occurred in 1981 with the completion of the Midpoint–Summer Lake line and the Jim Bridger Project in Wyoming, both partially owned by IPC. Since then, southwestern Idaho has benefited from surplus power generated at the Jim Bridger Project, which has deferred the need to expand IPC's west-side transmission system. However, recent power demands in Utah and Wyoming have shifted the historical east-to-west transfers, and that surplus is no longer assured. To maintain adequate service to existing customers, IPC must be able to maximize resources from Pacific Northwest utilities on the west side of its system.

Currently, IPC's ability to import power from Pacific Northwest utilities (BPA, Pacificorp, Avista) is constrained by its existing transmission system (Figure 1-2). The transmission path north of Brownlee does not provide sufficient capacity to import the additional power required to maintain full service to IPC customers when the Hell's Canyon Project (Brownlee, Oxbow, and Hells Canyon dams) is at maximum generation. Since the summer outages of 1996, the import capability across the Brownlee North path has, at times, limited the use of IPC's Northwest–Idaho import capability.

The proposed Project would allow efficient use of Northwest imports, while maintaining compliance with WECC's reliability criteria, and providing additional capacity for load growth.

### 1.2.3 Increase Transmission System Reliability

As a member of the WECC, IPC must comply with the council's Operating and Planning Criteria, which have become more rigorous since the power outages in the summer of 1996. The WECC's "N minus 2" (N-2) criteria specifies that the transmission system must be able to continue service in the event of a simultaneous outage of two circuits with a common mode of failure (i.e., a double contingency outage). So, according to WECC N-2 criteria, the circuits must be built sufficiently apart from one another to avoid one catastrophic event (e.g., fire, hill slides, or storm) taking both circuits out of service.

IPC's existing transmission system between Brownlee and Oxbow consists of one double circuit (2 circuits on one tower) 230kV transmission line. Under the WECC criteria, the loss of these two circuits simultaneously would be considered a N-2 outage. If a single event took out both circuits of this line, power would have to flow completely around IPC's system, significantly straining other northwest utilities' transmission systems. A new transmission line in a separate corridor would create a third circuit between Brownlee and Oxbow, thus a more reliable system in the event of the double circuit line outage.

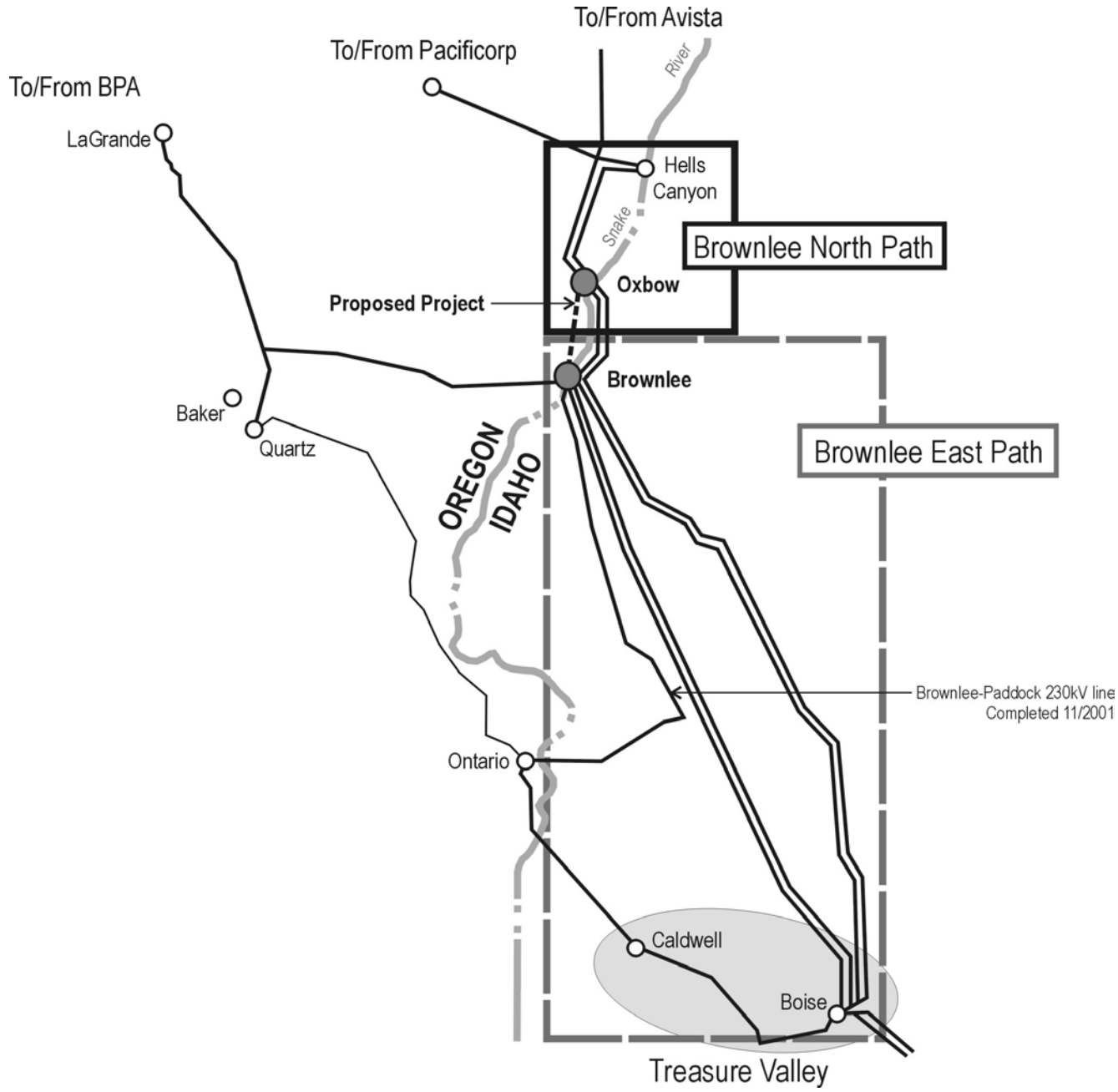


**Figure 1-2 IPC Transmission System –Brownlee East Path and Brownlee North Path**

## *1.3 Consistency with Management Plans*

Existing published and unpublished environmental data, plans, maps, reports, and statements for the proposed Project area were reviewed and evaluated for consistency. The most relevant information is included below. Additional documents utilized for this report are referenced in proceeding chapters.

### 1.3.1 Baker Resource Management Plan

Management direction for the analysis area are set forth in the Baker Resource Management Plan (RMP) and Record of Decision (ROD), 1989. The proposed Project lies within the Sheep Mountain and Baker County Miscellaneous Geographic Units, which are two of 14 units identified in the ROD. Specific resource condition objectives for these units can be found on pages 91 thru 94 and 110 thru 120 in the RMP.

Management direction for rights-of-way state "All utility/transportation corridors identified by the Western Regional Corridor Study are currently occupied and will be designated without further review. The corridors are displayed on Map 6." Refer to the ROD, page 23 for this description. Map 6 shows the proposed Project route as a utility corridor and the existing 69kV line owned by IPC currently occupying it. However, since this ROW was removed from the FERC license, it is not authorized with a ROW grant.

The ROD also directs ROWs to avoid Wilderness Study Areas (WSAs) and Areas of Critical Environmental Concern (ACECs). Both are in the vicinity. Also, direction is given to follow existing corridors wherever practical and to avoid proliferation of separate ROWs.

The proposed Project area is currently classified as Visual Resource Management (VRM) Class II, which is considered an area where new actions should not detract from the current condition. The ROD also states "Activities that will result in significant, long term adverse effects in areas of high visual quality such as the Burnt River, Powder River or Snake River (canyons) shown on Map 5 will not be permitted."

### 1.3.2 Oregon Statewide Planning Goals and Guidelines

The State of Oregon has 19 statewide planning goals. The goals express the (State's) policies on land use and on related topics, such as citizen involvement, housing, and natural resources. Most of the goals are accompanied by "guidelines," which are suggestions about how a goal may be applied. Oregon's statewide goals are achieved through local comprehensive planning.

### 1.3.3 Baker County Comprehensive Plan

The Baker County Comprehensive Plan was adopted on March 9, 1983 and acknowledged on April 24, 1986. A Conditional Use Permit is required for major utility facility development in Baker County. The request involves a public hearing before the Planning Commission and must address how the proposal meets the Conditional Use Permit Approval Criteria. Conditional Use Permits issued by Baker County apply to non-federal lands within the county.

### 1.3.4 FERC Relicensing Documents

Currently applications are being prepared for the Hells Canyon hydroelectric facilities (Brownlee, Oxbow and Hells Canyon) as part of the FERC relicensing process. IPC expects to submit the draft Hells Canyon application to FERC in July 2003. The application includes numerous studies identifying existing resources in the vicinity of the three-dam complex, some of which include the proposed Project area for this Environmental Assessment (EA). IPC also developed the Hells Canyon RMP–a guideline for management of IPC lands in the area. Studies were used as background information where applicable and

are referenced individually in the resource sections. The management plan is discussed in Chapter 3 - Land Use. Studies and the resource plan would be available to the public following the draft submittal.

### 1.3.5 Other Related NEPA Documents

The study corridor for the Brownlee–Paddock 230kV Transmission Line EA (BLM and FS, 1999) included the Hells Canyon area adjacent to the Brownlee Dam. The Brownlee–Paddock line, though considerably longer than the proposed Project, had many resource issues in common, such as visual, biological and cultural resources. Any applicable information pertaining to resources in common to both projects was utilized for this EA.

## *1.4 Authorizations, Permits, Reviews and Approvals*

The proposed Project would conform to all related federal, state, and local statutes, regulations, and plans. Table 1-1 documents the required federal, state, and local agencies' approvals, reviews, and permitting for the proposed Project. Management plans are discussed below in Section 1.7.

**Table 1-1 Proposed Project-related Actions Requiring Permits, Reviews, and Approvals**

| Action Requiring Permit, Approval or Review | Permit/Approval | Accepting Authority/ Approving Agency | Statutory Reference |
|---|---|---|---|
| | **FEDERAL** | | |
| Construction and Operation on Public Lands Managed by BLM | ROW Grant (Notice to Proceed) | BLM | FLPMA 1976 (PL94-579) USC 1761-1771 and 43 CFR 2800 |
| National Environmental Policy Act (NEPA) Decision to Grant ROW | Environmental Assessment (EA) (FONSI) | BLM | NEPA, CEQ 40 CFR Part 1500-et. seq. |
| Grant of ROW by BLM | Section 7 Consultation under the Endangered Species Act | U.S. Fish & Wildlife Service | Endangered Species Act of 1973 |
| Grant of ROW by BLM | National Historic Preservation Act Compliance Section 106 | BLM, in consultation with State Historic Preservation Office | National Historic Preservation Act of 1966, 36 CFR part 800, 16 USC 47 |
| Tower location and height relative to air traffic corridors | Notice of Proposed Construction or Alteration | Federal Aviation Administration (FAA) | 49 USC 1501<br>13 CFR 77 Objects Affecting Navigable Airspace |
| Fill in a Wetland | 404 Nationwide Permit | U.S. Army Corps of Engineers | Clean Water Act Section 404 (33 U.S.C. 1341) |

| Action Requiring Permit, Approval or Review | Permit/Approval | Accepting Authority/ Approving Agency | Statutory Reference |
|---|---|---|---|
| Aerial Crossing of Navigable Water | Section 10 Permit - Rivers and Harbors Act | U.S. Army Corps of Engineers | Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) |
| **STATE OF OREGON** | | | |
| Disturbance of 5 or more acres of land | Storm Water Discharge General Permit | Oregon Department of Environmental Quality | Federal Water Pollution Control Act, ORS 468B.035, and ORS 468B.050, and in accordance with OAR 340-040 and OAR 340-045. |
| Obstructions to Air Flight | Notice of proposed construction | Oregon Department of Aviation | Stat. Auth.: ORS 183 & 197 |

## 1.5 BLM Right-of-Way Process

The EA process began with IPC's June 18, 2001 filing of a ROW application (OR 56711) with the BLM to construct a transmission line from Brownlee Substation to the Oxbow Substation. Granting a ROW to construct a 230kV transmission line on public lands managed by the BLM requires that BLM comply with NEPA and assess environmental impacts associated with the proposed Project.

Species lists were requested from the U.S. Fish and Wildlife Service (FWS) for the proposed Project area to comply with the Endangered Species Act (1973) and the implementing regulations for Section 7 consultation. These requests were followed up by phone calls and email to Oregon Department of Fish and Wildlife (ODFW), Idaho Department of Fish and Game (IDFG), Nature Conservancy, BLM, and FWS resource specialists for specific information relating to wildlife and botanical issues in the proposed Project area.

## 1.6 Decision to be Made

The deciding officer (Baker Field Manager) must consider the needs of all resources in the analysis area and the appropriate management actions that will best meet those needs. Based on the EA, the Baker Field Manager may choose to approve or modify IPC's ROW application or to defer action (i.e., opt for the "no action" alternative).

The deciding officer will also determine if the proposed Project is a "major federal action" requiring the development of an Environmental Impact Statement (EIS) by assessing the significance of the proposed Project based on context and intensity (40 CFR 1508.27).

## 1.7 Scoping

Several issues were identified as a result of interdisciplinary team discussions, input from IPC, and public scoping. BLM and IPC conducted a public scoping meeting in Halfway on March 13, 2002 to identify issues, concerns, and opportunities. A notice of the meeting was published in local newspapers and a letter and map describing the proposed Project, requesting input on the proposed Project, and identifying the meeting time and place, were sent to the following groups:

- Agencies having jurisdiction and/or specific interest within the proposed Project area
- Landowners within the proposed Project area
- Recreationists who had been interviewed in the Oxbow Reservoir area adjacent to the proposed Project during the Hells Canyon relicensing process

Public comments were recorded on flipcharts during the open house and from comment forms available at the meeting. Comments were also obtained through phone conversations with interested citizens.

The information gathered from these activities helped to identify issues, develop alternatives, assess impacts, and plan mitigation for the proposed Project. The following is a description of those issues. Key issues identified will be assessed throughout the analysis of effects. Details relating to alternatives considered for this proposed Project are included in Chapter 2.

- A Pine Creek routing alternative would have undesirable visual impacts
- New roads along Pine Creek could cause increased access/vandalism/trespass
- Electric and magnetic fields (EMF) effects of a transmission line could be harmful to public and wildlife
- Building within the existing 69kV corridor is preferred over Pine Creek Route because transmission line and road disturbance is already along the reservoir
- Power lines could depreciate the value of private property
- The Pine Creek area is relatively undisturbed/unspoiled and should stay that way
- Bridges over Pine Creek would increase access and create trespass problems
- Need to assess an alternative route in Idaho
- Need clear explanation if an Idaho Route is not reasonable
- Some private landowners along Pine and Muncie creeks oppose a line across their land
- Process for choosing route should be open to public opinion
- Limit development so more transmission lines are not needed
- Landowners should be getting more direct communication from an IPC representative

As part of the scooping process and to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966, a letter requesting input on the proposed Project and a proposed Project map were sent to the Oregon and Idaho State Historic Preservation Offices and the following tribal governments with an interest in the Hells Canyon area:

- Confederated Tribes of the Umatilla
- Confederated Tribes of the Warm Springs
- Nez Perce
- Colville Confederated Tribes
- Burns Paiute
- Shoshone Bannock
- Shoshone Paiute.

Further information about the Brownlee-Oxbow 230kV #2 Transmission Line is also available on the IPC website (see www.idahopower.com).

### 1.7.1 Key Issues to be Addressed

As a result of the scoping process for the proposed Project, the BLM identified several key issues to be analyzed in detail in the EA. These key issues are summarized below and discussed in more detail in Chapter 3–Affected Environment and Chapter 4–Environmental Consequences.

#### Visual Impacts

The proposed Project would potentially impact visual resources from construction activities and long-term operation of the proposed Project. The visibility of transmission structures and associated access roads from key observation points (residences, recreation areas, and Oxbow-Brownlee Road) would be the main source of impacts.

#### Listed Species

The FWS reported three listed animal species either known to occur or have a potential for occurrence in the vicinity of the proposed Project: bald eagle (*Haliaeetus leucocephalus*), Canada lynx (*Felis rufus*), and bull trout (*Salvelinus confluentus*). The proposed Project area does not provide adequate habitat for lynx; however, there is known bald eagle nesting and wintering habitat. Disturbance from construction activities and increased access from new roads could potentially impact this species. Additionally, there is proposed critical habitat for bull trout that includes the waters of the Snake River through Brownlee, Oxbow and Hells Canyon reservoirs as well as Pine and Wildhorse Creeks.

#### Big Game

The proposed Project area is known habitat for bighorn sheep and wintering mule deer. Bighorn sheep use the proposed Project area for lambing in the spring. Disturbance from construction activities and increased access from new roads could potentially impact bighorn sheep and mule deer.

#### Recreation

Two developed recreation areas are located adjacent to the proposed Project area and much of the area is used for dispersed recreation (e.g., hunting, fishing, camping, wildlife viewing). New roads within the proposed Project area may allow for increased public access to BLM public lands and increased dispersed use of the proposed Project area. The Sheep Mountain WSA and Sheep Mountain ACEC are adjacent to the proposed Project, and may be indirectly impacted by increased access.

#### Soil Erosion Hazard

Temporary soil surface disturbance would likely result from proposed Project construction causing some increased wind and water erosion rates and compaction levels. The potential for large-scale erosion may be increased in areas because of severe slopes and highly erodible soil types.

# CHAPTER 2
# ALTERNATIVES INCLUDING THE PROJECT

## 2.1 Introduction

To fulfill the stated Purpose and Need of providing efficient and economical power to its system area while accommodating load growth, Idaho Power Company (IPC) evaluated the proposed Brownlee – Oxbow 230kV #2 Transmission Line Project (proposed Project) and seven alternatives to the proposed Project:

- System Alternatives
- New Generation
- Alternative Technologies
- Alternative Voltages
- Energy Conservation and Load Management
- Routing Alternatives
- Alternative Construction Methods / Helicopter Construction
- No Action

## 2.2 Alternatives Considered but Eliminated

### 2.2.1 System Alternatives

Two other transmission system alternatives were considered in addition to the proposed Project:

- A new double circuit Brownlee–Pallette 230kV transmission line and substation
- A new Brownlee–McNary 230kV transmission line

#### Brownlee–Pallette Junction 230kV Transmission Line Project

This alternative would consist of approximately 30 miles of double circuit 230kV transmission line from the Brownlee Substation to a new substation at Pallette Junction, approximately 8 miles west of Hells Canyon Dam on the Imnaha River (Figure 2-1). This alternative would also involve re-configuring two existing 230kV transmission lines in this area.

Similar to the proposed Project, this system alternative would alleviate the transmission constraints caused by the combination of imported power from the Pacific Northwest and power from Hells Canyon and Oxbow hydro generation facilities, all flowing onto the Brownlee East Path (i.e., transmission system east of Brownlee Dam). The Brownlee East Path supplies power to the Treasure Valley from the Hells Canyon hydro facilities (Brownlee, Oxbow, and Hells Canyon) and imports out of the Pacific Northwest. Figure 1-2 in Chapter 1 illustrates the existing IPC transmission system in this area. Limits on the transmission system are especially problematic during the summer months when the Hells Canyon and Oxbow hydroelectric generating facilities are at full capacity, but additional imports are still needed over the transmission system to meet the heavy summer load in the Treasure Valley.

Both the Brownlee–Pallette Junction alternative and the proposed Project (Brownlee–Oxbow) would allow greater power imports from the Pacific Northwest, and both would therefore improve the transmission constraint issues. While the proposed Project would provide a somewhat lower amount of

imports, the cost is estimated to be significantly lower (approximately 2-3 times) and would likely take much less time to permit than Brownlee–Pallette. Also, Brownlee–Pallette would be approximately three times longer than the proposed Project.

The Brownlee–Pallette Junction alternative would alleviate the transmission constraints caused when both Oxbow and Hells Canyon generation are fully operating. The proposed Project would only alleviate constraints from Oxbow generation fully operating. However, Oxbow generation is the more significant constraint to importing additional power.

Environmental impacts to construct the Brownlee–Pallette Junction alternative would also be greater than those anticipated for the proposed Project. Sensitive resources within the area studied for this alternative include Wilderness Areas, Wilderness Study Areas, Wild and Scenic Rivers, sensitive plants and animals, old growth areas and the Hells Canyon National Recreation Area. The Hells Canyon National Recreation Area could not be avoided if this alternative were constructed and operated.

This alternative would meet IPC's Purpose and Need, however, because of the long length of this transmission line alternative and its associated costs, environmental impacts and lengthy permitting time, it was eliminated from further consideration.

## Brownlee–McNary 230kV Transmission Line Project

The second system alternative considered to the proposed Project was a new Brownlee–McNary 230kV transmission line to increase imports from the Pacific Northwest by several hundred MW. The Brownlee–McNary alternative would consist of building approximately 165 miles of 230kV transmission line from the Brownlee Substation to Bonneville Power Administration's (BPA) McNary Substation near Hermiston, OR (Figure 2-1).

This alternative, like the Brownlee–Pallette alternative described above, would improve transmission import capacity in the transmission system that is currently constrained when power is imported from the Pacific Northwest and power is moved from generation at Hells Canyon and Oxbow. However, this alternative would allow for more capacity to flow into the IPC transmission system (i.e., Brownlee East Path) than could currently be handled without overloading the system. Additional upgrades would be required from Brownlee to the Treasure Valley to accommodate this alternative.

This alternative would partially meet IPC's Purpose and Need, however, because this transmission line alternative would be much longer (165 miles) and would require extensive upgrades to IPC's transmission system between Brownlee and the Treasure Valley, the costs would be prohibitive. The lengthy transmission line would also have many associated environmental impacts and permitting time would be considerable. As a result, it was eliminated from further consideration as a means of meeting the Purpose and Need.

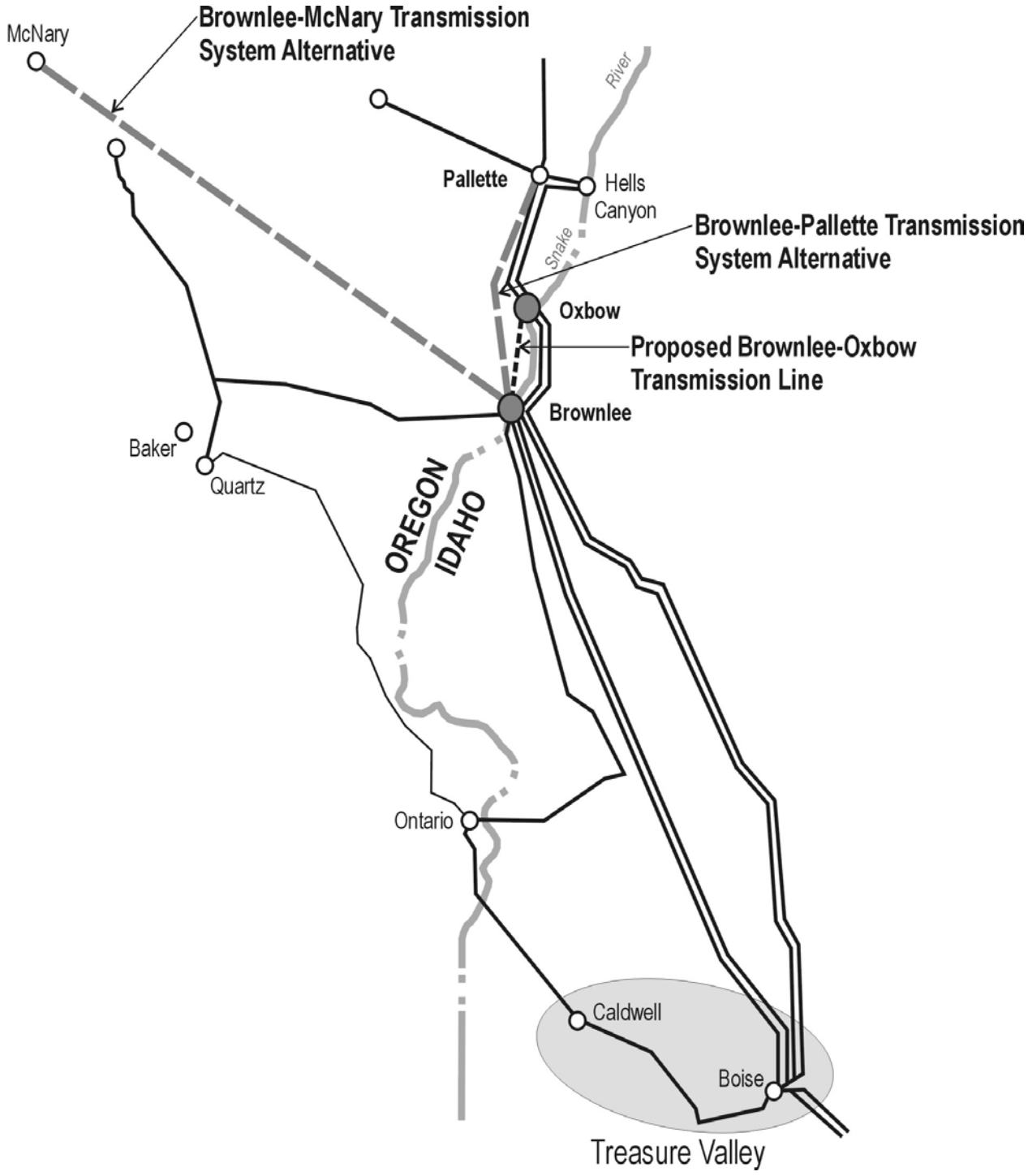


**Figure 2-1 System Alternatives to the Brownlee–Oxbow 230kV #2 Transmission Line Project**

### 2.2.2 New Generation

New generation is already part of the IPC mix of strategies in the 2002 IRP (Integrated Resource Plan) (IPC 2002) to meet load requirements in the five-year planning period. The 2002 IRP identified the need to add generation resources near the Treasure Valley load center beginning in June 2004. The Garnet Energy LLC (Limited Liability Corporation) near Middleton was selected as the preferred option, but delays have pushed the commercial operation date beyond 2005. IPC currently is evaluating other options to meet load requirements in 2004.

IPC analyzed the possibility of including new gas-fired and coal-fired generation, and renewable generation technologies such as hydropower, solar, geothermal, wind power, and fuel cells in the 2002 IRP. Of these options for new generation, a 100-200 MW simple cycle gas-fired combustion turbine power plant was selected for the 3rd and 4th strategy in the 2002 IRP. A 64MW upgrade to the Shoshone Falls plant is also part of these strategies.

Despite the plans to add generation to the system, new generation would not allow IPC to maximize its existing Westside import ratings nor would it enhance their ability to meet Western Electrical Coordinating Council's (WECC's) N-2 outage mandate. Therefore, alternative generation would not meet IPC's Purpose and Need to improve system reliability or improve regional interconnections. In addition, this alternative has considerable expense, lengthy timeframes for permitting, and potential for considerable environmental impacts. For these reasons, new generation was eliminated from further consideration.

### 2.2.3 Alternative Technologies

Underground transmission systems in the United States have been built since the late 1920s. Usually, underground construction is used for lower voltage distribution lines in urban areas. High voltage, (115kV or above) short-distance, underground installations have been constructed where overhead lines were not feasible (e.g., in the vicinity of airports, urban centers).

High voltage underground transmission lines have markedly different technological requirements than lower voltage underground distribution lines. The components of a typical solid dielectric cable consist of a stranded copper or aluminum conductor, conductor shield, solid dielectric insulation, insulation shield, moisture barrier sheath, and a protective jacket. Each conductor would be approximately four inches in diameter. Switch stations are often required on underground transmission systems to control the circuit voltage, depending on length and voltage class.

The majority of the cable would be installed in conduit using open-cut trenching techniques. The trench for the cable/conduit would be a minimum of five feet deep and four feet wide along the entire length of the underground sections. Manholes would be required along the entire length of the route for cable installations and cable splicing approximately every 1000 feet. All splices would be in manholes to allow bi-annual inspection. Manholes would be encased in concrete with approximate dimensions of 20-25 feet long by 7-10 feet wide. Termination structures would be used for the solid dielectric cable to allow the transition from underground to overhead line sections or above ground equipment. The interior of the termination would be filled with dielectric fluid.

The basic cost of undergrounding a high voltage transmission line would be several times more expensive than the cost of overhead construction. The relatively high cost and installation requirements prohibit the application of underground transmission systems for long distance electric transmission.

While underground transmission lines are relatively immune to weather conditions, they are vulnerable to cable/splice failure, washouts, seismic events, and incidental excavation. Outages for underground lines

generally last days or weeks while the problem is located, excavated, and repaired. Typically, failures in overhead lines can be located and repaired in a matter of hours. Long-term outages would be unacceptable for a circuit carrying bulk power.

During construction, the environmental impacts of an underground transmission line would be similar to those for major pipeline construction. Potentially greater adverse environmental impacts could be expected because the entire right-of-way (ROW) would be disturbed. In undeveloped areas, the ROW would be cleared of all trees, brush, and ground cover in order to establish the line alignment and to permit construction. Whereas, overhead transmission line construction typically would result only in disturbances at individual tower sites, and at the ancillary facilities associated with access to the ROW. Following underground installation, shallow-rooted ground covers (grass and small shrubs) could be planted over the line. However, trees and deep-rooted brush could not be replanted over the duct system because they could create a variety of problems that could cause cable failure if the roots grow around the duct bank or work their way into the duct bank.

The principal environmental advantage of undergrounding a transmission line would be the mitigation of adverse visual impacts of the poles or towers. However, an underground transmission line would still require aboveground ancillary facilities on or adjacent to the ROW and would disturb more land area than above ground options.

An underground transmission line would be technically feasible and have few above ground structures and thus, weaker visual contrast than above ground transmission lines. However, this alternative would create considerable adverse visual impacts from the necessary trenching required during construction and the much larger area needing to be rehabilitated. Because of the technical complications, economic and environmental costs, and accessibility, an underground system was not considered a viable alternative, and was eliminated from further consideration.

### 2.2.4 Alternative Voltages

IPC's backbone transmission system is 230kV and both Brownlee and Oxbow Substations currently have 230kV transformers and facilities. To achieve an equivalent rating for future capacity would require numerous 138kV transmission lines or many more 69kV lines, as well as new Substation facilities at Brownlee and Oxbow.

The use of a higher voltage, such as 500kV, would only be justified if there were a need for the magnitude of capacity that a large voltage line required. Higher voltage construction than 230kV would be much more expensive because of the costs associated with step-up and step down facilities at the termination points of the line. IPC's needs justified the use of a 230kV line, as it fit the existing voltages at the station and termination point for the proposed Project. On October 1, 1997, IPC formed a regional planning forum to discuss transmission needs and determine if there were any other commercial interests. No other parties expressed interest at the time.

With the technical infeasibility of lower voltages, this alternative does not meet IPC's Purpose and Need. Although higher voltages (e.g., 500kV) could meet IPC's Purpose and Need, because of the economic costs and extensive system upgrades required for a higher voltages system, consideration of other voltages was eliminated from further consideration.

### 2.2.5 Energy Efficiency and Demand-Side Management

IPC offers a number of energy conservation programs for customers that offer financial incentives for installing specific, energy-efficiency measures. To make customers more aware of their energy usage and ways to conserve, IPC provides programs such as information and public education, online energy

profiling and in-home energy audits. These programs do create energy savings and play an important role, but even with the increased emphasis on energy and demand savings the programs currently have, these savings are far from what will be needed over the coming years to meet forecasted load.

In 2001, IPC filed a formal Demand-Side Management program with the Idaho Public Utilities Commission (IPUC) based on PUC Order Number 28722. Demand-side management programs are defined as any program that reduces peak electricity demand or has the primary effect of shifting demand from the time periods of peak demand to non-peak times. Some of these programs are summarized below:

Northwest Energy Efficiency Alliance - The Northwest Energy Efficiency Alliance was formed by fourteen investor-owned and public utilities to promote energy efficient products in the Pacific Northwest by conducting market research, and providing information and technological assistance to commerce and industry.

Northwest Power Planning Council Regional Efficiency – The Northwest Power Planning Council (NWPPC) has developed goals to conserve energy in the Pacific Northwest through company and customer conservation measures that amount to 300 megawatts (MW) per year. The Council would like to see IPC contribute approximately 3% of that conservation amount.

BPA Conservation and Renewable Discount Program – IPC distributes energy efficiency brochures and compact fluorescent bulbs to low income and high use customers through a program by the BPA aimed at furthering energy efficiency in the region.

Public Purpose Programs – IPC conducts a number of programs with its customers, including Low-Income Weatherization Assistance, Oregon Commercial Audit Program, and the Oregon Residential Weatherization.

Energy Efficiency Promotion Activities – On a continuous basis, IPC promotes the wise use of electrical energy by its customers through workshops, audits, power quality assistance, consulting services, and financial programs.

The demand savings from energy conservation programs represent only a fraction of the capacity to be supplied by the proposed Project. In addition, there is no certainty regarding the future nature of these programs, future program policies and directions or program savings.

Load reduction that results from demand-side management programs cannot be considered either reliable or long term for purposes of transmission system planning. While considered useful, demand-side management programs inherently lack persistence, because the participant has the option of dropping out at any time by foregoing the incentive payment. This can happen if the opportunity to the customer is greater by operating than the incentive to not operate. Demand-side management programs are also dependent on funding each year to pay incentives to customers to reduce load. Participants are only committing to reducing load for a given incentive during a given year. It is unclear what, if any, program will exist in the future, or what it would produce in terms of actual load reduction in the future.

As a stand-alone alternative to the proposed Project, use of energy conservation and demand-side management programs does not meet IPC's Purpose and Need and were considered and eliminated from further consideration.

## 2.2.6 Routing Alternatives

### Pine Creek / Muncie Creek Route

During proposed Project planning, a potential alternative route was identified for the 230kV transmission line from Brownlee Substation to Oxbow Substation along the Oregon side of the Oxbow Reservoir high above the canyon rim (Figure 2-2). The route would leave Brownlee Substation, follow an existing 230kV transmission line west up the canyon wall, proceed north across the rim to Muncie Creek and follow Pine Creek and Highway 86 for the remainder of the route to Oxbow Substation. This route would cross the road and Pine Creek in several locations to avoid boundaries of the Homestead Wilderness Study Area (WSA). This route was termed the Pine Creek Route.

A preliminary engineering study revealed that the Pine Creek Route would be only slightly longer than the proposed Project. The Pine Creek Route would potentially have more favorable terrain for transmission line construction compared to the proposed Project. However, with no bridge in the vicinity of the Pine Creek Route, crossing Pine Creek at convenient locations was considered problematic.

A public scoping meeting was held to identify potential concerns with a new 230kV transmission line in this location (i.e., Pine Creek Route) and along the reservoir (proposed Project). During the public scoping meeting, several landowners expressed concern over an alternative route along Pine Creek. Concerns centered on the current lack of development in the Pine Creek area and trespass associated with creating additional access to areas around their property and in the un-roaded areas along Pine Creek.

Other issues associated with the Pine Creek Route involved the location of the Homestead and Sheep Mountain WSA boundaries. The WSA boundaries extend to the Highway 86 ROW connecting large blocks of the WSAs both north and south of the highway. Only the highway ROW is excluded from the WSAs. The line would have to be within the highway ROW through the WSA for a distance of over 1000 feet. Though siting within the Highway 86 corridor might be possible, safety concerns associated with highway motorists would make this siting infeasible by IPC standards.

Also, Highway 86 is part of the Hells Canyon Scenic Byway, which is one of only 15 byways designated as an All-American Road. To receive an All-American Road designation, a road must possess multiple intrinsic qualities that are nationally significant and contain one-of-a-kind features that do not exist elsewhere (FHWA 2000). The road must provide an exceptional traveling experience so recognized by travelers that they would make a drive along the highway a primary reason for their trip. A 230kV transmission line would potentially be in conflict with these criteria.

Finally, construction along the Pine Creek Route would result in the construction of roads in a mostly un-roaded area. Also construction along Pine Creek due to the location of WSA boundaries would require ground-disturbing activities within a Riparian Habitat Conservation Area (RHCA) for Pine Creek. As a result, unacceptable impacts to sensitive plants and animals, especially the threatened bull trout present in Pine Creek, would make this route less acceptable than the proposed Project, which would be within a designated utility corridor.

As a result of the preliminary assessment of the Pine Creek Route, it was determined to potentially meet IPC's Purpose and Need. However it was eliminated from further consideration because of landowner concerns, potential conflicts with National Scenic Byway and All-American Road criteria, ground disturbance in un-roaded areas, and potentially causing environmental impacts to T&E species, such as bull trout.

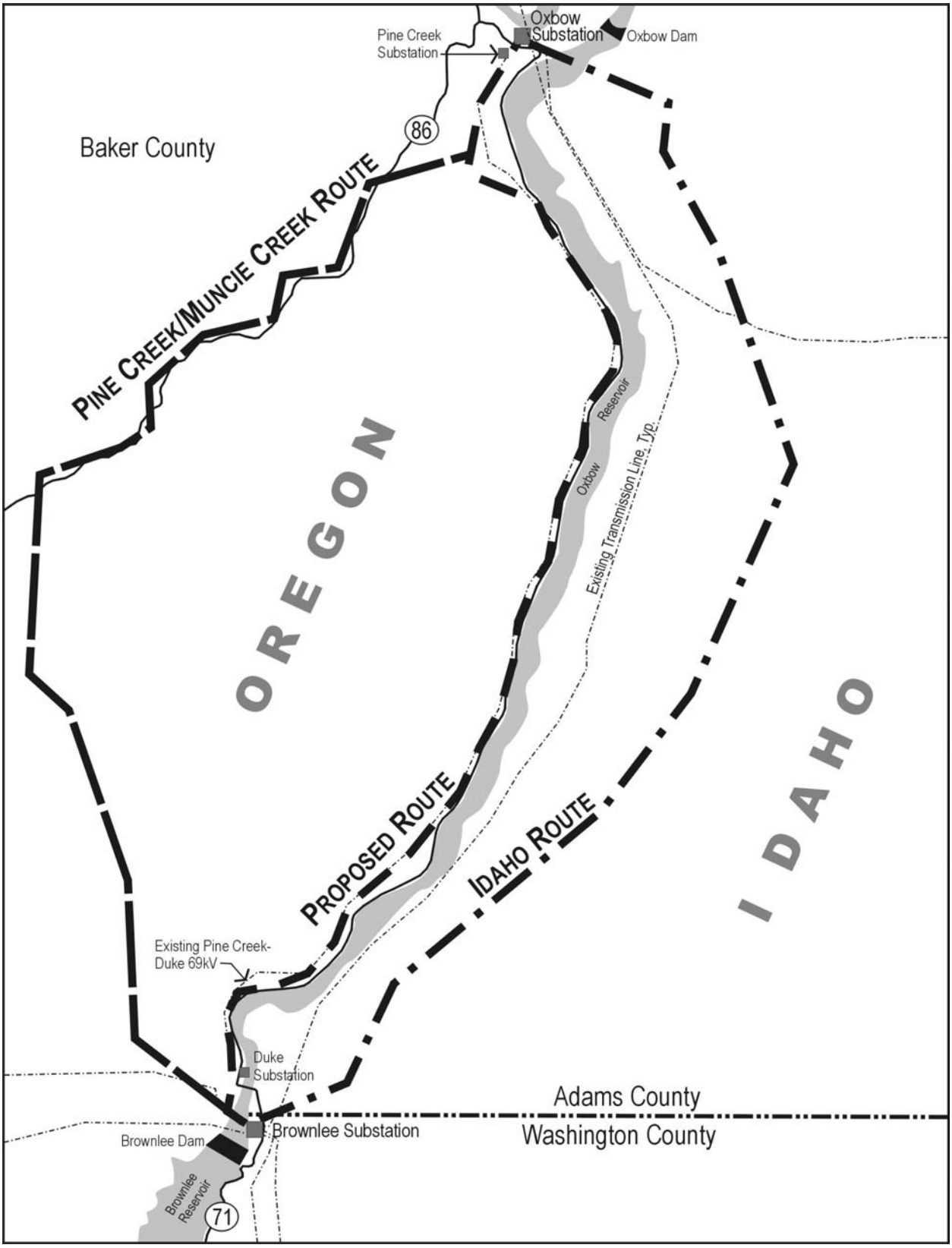


**Figure 2-2 Proposed Project Routing Alternatives**

### Idaho Route

As a result of issues identified in the public scoping meeting in Halfway, Oregon, an alternative route on the Idaho side of the reservoir was examined. In April, IPC conducted a helicopter reconnaissance and survey on the Idaho side of the Oxbow Reservoir and identified an 11.6-mile route from the Brownlee Substation to the Oxbow Substation, approximately one half to one mile above and east of the existing Brownlee–Oxbow #1 Transmission Line (Figure 2-2).

Although roads were constructed across the ridges and drainages for the Brownlee–Oxbow #1 Transmission Line, the area most suitable to construct a new 230kV transmission line is primarily un-roaded. Thus, an extensive new road system would need to be built across this rugged ridge and drainage landscape to construct, operate, and maintain the proposed Project.

Reliability was also a major concern for this alternative. A route located closer to IPC's existing Brownlee–Oxbow 230kV #1 Transmission Line would not meet the stated Purpose and Need for reliability of the proposed Project. Reliability concerns are heightened beyond the normal ½ mile separation criteria because of the geography and topography of the Hells Canyon area, specifically, the concern that a fire started at the Oxbow Reservoir burning on the Idaho side and fanned by westerly winds, would burn uphill to the east and toward the transmission lines. A fire could burn through the existing double circuit Brownlee–Oxbow 230kV transmission line, then continue uphill and burn through the proposed Brownlee–Oxbow 230kV transmission line, if built in this location. A fire burning beneath the transmission lines could cause the outage of both transmission lines, thus resulting in the unacceptable outage scenario of losing three circuits.

To determine if the Idaho Route should be evaluated in detail in the Environmental Assessment (EA) or eliminated from further consideration, existing land use, visual, botanical, wildlife, and cultural resources data from previous IPC studies and Bureau of Land Management (BLM) management plans were reviewed and mapped. Potential environmental issues were identified and ground disturbance was estimated.

The Idaho Route alternative was eliminated from further consideration because of reliability (i.e., potential loss of three 230kV circuits in a fire) and constructability concerns that would keep it from meeting IPC's Purpose and Need. In addition, ground disturbance would result in impacts to a known Research Natural Area (RNA) for protected plants and un-roaded areas used by big game for wintering habitat.

## 2.2.7 Alternative Construction Methods / Helicopter Construction

Helicopter construction was considered as an alternative to conventional construction that requires access roads. The primary purpose of the helicopter construction was to eliminate views of new access roads from viewpoints thereby reducing overall visual impacts. While access roads would not be visible, the proposed Project's poles would still be visible in foreground from viewpoints within the canyon. Therefore, this alternative was eliminated from further consideration because visual impacts would not be substantially reduced.

## *2.3 Alternatives Evaluated in Detail*

### 2.3.1 No Action Alternative

The Council of Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) require consideration of a "no action" alternative. Under this alternative no new ROW would be granted by the BLM to allow construction and operation of the proposed Project. The existing 69kV transmission line would remain in place with its associated maintenance. Because of the age of this transmission line, more maintenance is required as compared to a new transmission line. Under the no action alternative, IPC would need to employ additional measures to compensate for the anticipated shortfall in the supply of electrical power within its service territory.

Advantages of the No Action Alternative would include:

- No adverse environmental impacts from the construction and operation of the proposed Project; and
- Eliminating financial costs associated with construction and operation of a 230kV transmission and distribution lines and associated Substations.

However, any monetary savings could be lost through costs incurred to meet the continuing energy needs of the service territory as outlined in Chapter 1 - Purpose and Need, and Chapter 2 - Alternatives Considered But Eliminated.

To meet anticipated load growth without the proposed new transmission facilities, IPC would become dependent on imported power from uncertain markets to the east and south of the system, specifically Wyoming, Utah, Colorado, and Arizona where power demand is high. These markets, by themselves, could not supplement the growing electrical load demand in the IPC system.

Under the No Action Alternative, IPC would become less able to diversify its fuel sources. Generation from existing and future fossil, oil, and gas-fired generation facilities would be a consideration, thereby maintaining fossil, oil, and gas consumption at or above present levels.

In addition, an interruption to the fuel supply could seriously affect IPC's ability to provide electrical power within its service territory. Locally generated power would probably need to be increased, which could add to the air quality problems within the vicinity.

Without improvements, IPC's transmission system could not carry generated power from the Hell's Canyon complex concurrently with imports from the system's west-side (BPA). In addition, economic bulk purchases and sales of power would not occur because non-peak generation would not be available on the system. Overall, the reliability of the IPC's electrical system that would be gained through the proposed Project would not be realized under the No Action Alternative.

The disadvantages of the No Action Alternative include:

- Loss of potential tax revenues to local tax districts from proposed Project construction and ROW.
- Adverse environmental, socioeconomic, and electric service impacts resulting from compensating actions taken to ensure an adequate, affordable, and reliable energy supply to IPC's customers.
- Inability to take advantage of future seasonal power exchange capabilities between the Northwest and Southwest due to limited capacity of existing transmission lines.
- Existing transmission limits remain unchanged.

## 2.3.2 The Proposed Action

### Overview

The Proposed Action (proposed Project) is to grant a ROW on BLM administered public land for a new IPC 230kV transmission line, associated fiber optic line and access roads (BLM ROW Application # OR 56711). The proposed Project would also include moving the existing 69kV circuit to the new 230kV structures and removing the 69kV wood poles. The 11-mile long transmission line would extend from the existing Brownlee Substation to the existing Oxbow Substation located on the Snake River on the borders of Idaho and Oregon (Figure 1-1 in Chapter 1). The proposed Project would include rights-of-way on approximately 7 miles (136 acres) of public lands managed by the BLM (Baker Field Office; Baker, Oregon; Vale District). An additional 4 miles (78 acres) is on private lands and would be obtained in perpetual easements. Every reasonable effort would be made to purchase all the land rights on private lands through reasonable negotiations with the present owners. The land rights would be obtained in the name of IPC.

The proposed Project would follow the corridor (although not the exact line location) of an existing 69kV transmission line – the Oxbow-Pine Creek–Duke-Halfway 69kV transmission line. The existing 69kV transmission line traverses near the Brownlee Substation on the Idaho side of Oxbow Reservoir for approximately ½ mile before crossing over the Snake River into Oregon and traversing along the Canyon wall approximately 10.7 miles to the Pine Creek Substation, and then another 1500 feet into Oxbow Substation.

Also included in the proposed Project would be the abandonment of a portion of the existing Brownlee-Halfway 69kV transmission line. The crossing of Oxbow Reservoir would be the portion of the Brownlee-Halfway 69kV transmission line that would be removed. That portion of the ROW would also be relinquished (approximately 0.2 miles). A connection would then be made between the Brownlee-Halfway 69kV transmission line and the proposed 230kV transmission line near Duke Substation (see Figure 2-3). The portion of the existing ROW from Duke Substation to the existing Pine Creek – Duke 69kV transmission line would also become part of the proposed Project ROW grant (see Figure 2-3).

Electrical characteristics of the proposed Project are summarized in Table 2-1. Proposed Project components include corten (rust-finished) tubular steel poles, a 230kV circuit (downhill side), a 69kV circuit (uphill side), a 12kV circuit (underbuilt for a portion of the line), temporary work areas, permanent and temporary access roads and equipment upgrades to Brownlee and Oxbow Substations. The design, construction, operation, and maintenance of the proposed Project would meet or exceed the requirements of the National Electrical Safety Code (NESC), U.S. Department of Labor, Occupational Safety and Health Standards, and IPC's requirements for safety and protection of landowners and their property.

The relocated 69kV line would be designed to accommodate a future bundling and energization to 230kV at a future date to be determined by IPC. Only Substation additions would be required within IPC's existing facilities to accommodate this future 230kV energization.

Construction would be appropriately staged, given mitigation and other constraints, over the two year period, 2003 through 2004. IPC would complete the line survey, construction documents, environmental compliance and permitting issues, and revise and update the proposed Project's Plan of Development (POD) to reflect the engineering design and environmental mitigation and protection plans based on a surveyed alignment.

#### *Abandonment of Existing Facilities*

The existing Pine Creek – Duke 69kV line would be abandoned and dismantled. Additionally, the segment of the existing Brownlee – Halfway 69kV line to the east of its junction with the newly

constructed 69kV line, amounting to approximately 650 feet, would be abandoned and dismantled, and that portion of BLM grant of ROW ORE 05129 would be relinquished.

The conductor and hardware would be removed and wood poles cut off at ground level. Those poles that are accessible by existing roads, or by roads to be constructed to give access to the proposed line, would be removed. Those not accessible would be left lying on the ground onsite. No roads would be constructed solely for the purpose of removing poles on the abandoned lines.

**Table 2-1 Electrical Design Characteristics of the Proposed Project**

| Feature | Description |
|---|---|
| Line Length | Approximately 11 miles |
| Type of Structure | Double circuit corten tubular steel poles |
| Structure Height | 85-120 feet |
| Span Length | 700 to 1000 feet average span |
| Number of Structures per Mile | 5 to 8 |
| Transmission Line ROW | 160 feet (ROW would be at the edge of the WSA boundary, when boundary is within 160 feet) |
| Structure Work Areas | Tangents: 150 feet x 75 feet; Deadends: 150 feet x 200 feet |
| Pulling/tensioning Sites | 5 - 100 feet x 300 feet |
| Access Roads | 14 feet travel way - estimated 12.3 miles |
| Voltage | 230,000 volts AC (new circuit); 69kV (rebuild existing circuit) |
| Capacity | 700 MW (new 230kV circuit, see Section 1.2.1) |
| Circuit Configuration | Double circuit 230kV, two-conductor bundle per phase; Uphill side energized at 69kV |
| Conductor Size | Double bundled 954 kcmil (1.196 in. diameter) ACSR, 230kV circuit; 954 kcmil single wire for 69kV circuit |
| Maximum Anticipated Electric Field at Edge of ROW | 4 kV/m |
| Maximum Anticipated Magnetic Field at Edge of ROW | 60 milli-Gauss (mG) |
| Ground Clearance of Conductor | 27 feet minimum at 194 F |
| Tower Foundations | Drilled piers - cast-in-place concrete suitable for possible future double 230kV |

**Figure 2-3 Brownlee – Halfway 69kV**

## Transmission Line Specifications

***Structures***

The proposed structures for the 230kV transmission line would be double circuit tubular steel poles, with a corten surface that develops a rust-colored patina over time. The proposed structure configurations and designs are identified in Table 2-1 and illustrated in Figure 2-4. Spacing between poles would be approximately 700-1000 feet. Two of these steel poles placed approximately 30 feet apart would be used as dead-end structures for angles greater than 30 degrees.

Typical pole heights for both the tangent and dead-end structures would range from 85 to 120 feet. The steel poles would be installed on drilled pier concrete foundations to a depth of approximately 25 feet depending on terrain. Pole diameter would be approximately five feet, depending on the angle to adjacent poles.

A 12kV distribution line is currently under built on a portion of the existing 69kV transmission line between miles 7.0 and 10.2 of the proposed Project (from the Duke Substation to the IPC Trailer Court). The 12kV line provides electrical service to residential customers in that area. The 12kV line would be relocated to the new 230kV poles (under built) to allow for continued service to these areas without the need for an additional set of poles.

***Work Areas***

Work areas of approximately 150 feet by 75 feet would be required at each pole site to facilitate the safe operation of equipment, and construction operations. The size of the work area is driven by the need to lay down the pole sections and assemble them to the full length (85-120 feet). The two-pole dead end structures require larger work areas of 150 by 200 feet. Any work areas that would extend beyond 160 feet ROW would require a Temporary Use Permit. Within these work areas, the permanent disturbance associated with each pole foundation would be approximately 6 feet in diameter. The work area outside of the permanent disturbance would be cleared of vegetation only to the extent necessary to allow for equipment to maneuver. Grading would only occur where the topography was too steep or uneven to allow safe operation of equipment. After line construction, all work areas would be restored as identified in the proposed Project's Revegetation Plan to be submitted as part of the final POD.

Pulling and tensioning sites for stringing the conductor would result in an additional temporary disturbance of 100 feet by 300 feet with an estimated five sites required for the entire transmission line.

***Access Roads***

The proposed Project would use existing roads and trails wherever feasible for access to minimize new disturbance. An estimated 12.3 miles of new or improved roads would be required. Some of the access roads would be located within the 160 foot ROW for the transmission line. However, portions of the access roads would need to be located outside of this ROW. Temporary disturbance would be approximately 14 feet wide for the access roads. Roads constructed in terrain exceeding 30% slope and along narrow terraces would cause more temporary disturbance. This could result in a disturbed cross section of up to 50 feet, including both cut and fill backslopes. Approximately eight miles of the proposed Project route would be in areas of greater than 30% slope.

Access roads would be used during construction to access work areas and during periodic maintenance of the completed transmission line throughout the life of the proposed Project. Access roads would be revegetated with grass and forb species following construction, but the road prism would remain intact for access during routine patrols and maintenance activities, and for future access if the 69kV line were

upgraded to 230kV. If this action were taken in the future it would be pursued as separate action with the BLM. The proposed Project's Revegetation Plan would be approved by BLM as part of the final POD prior to the start of construction.

### *Fiber Optic Cable*

The fiber optic system would consist of an optical ground wire (OPGW) with 24 fibers. The cable diameter would be approximately 0.6 inches. This fiber optic cable would be installed in place of the overhead static wire (lightning protection wire) along the transmission line from the Brownlee Substation to the Oxbow Substation to provide safety and relay control between the Substations. The fiber optic lines would be the sole ownership and use of IPC.

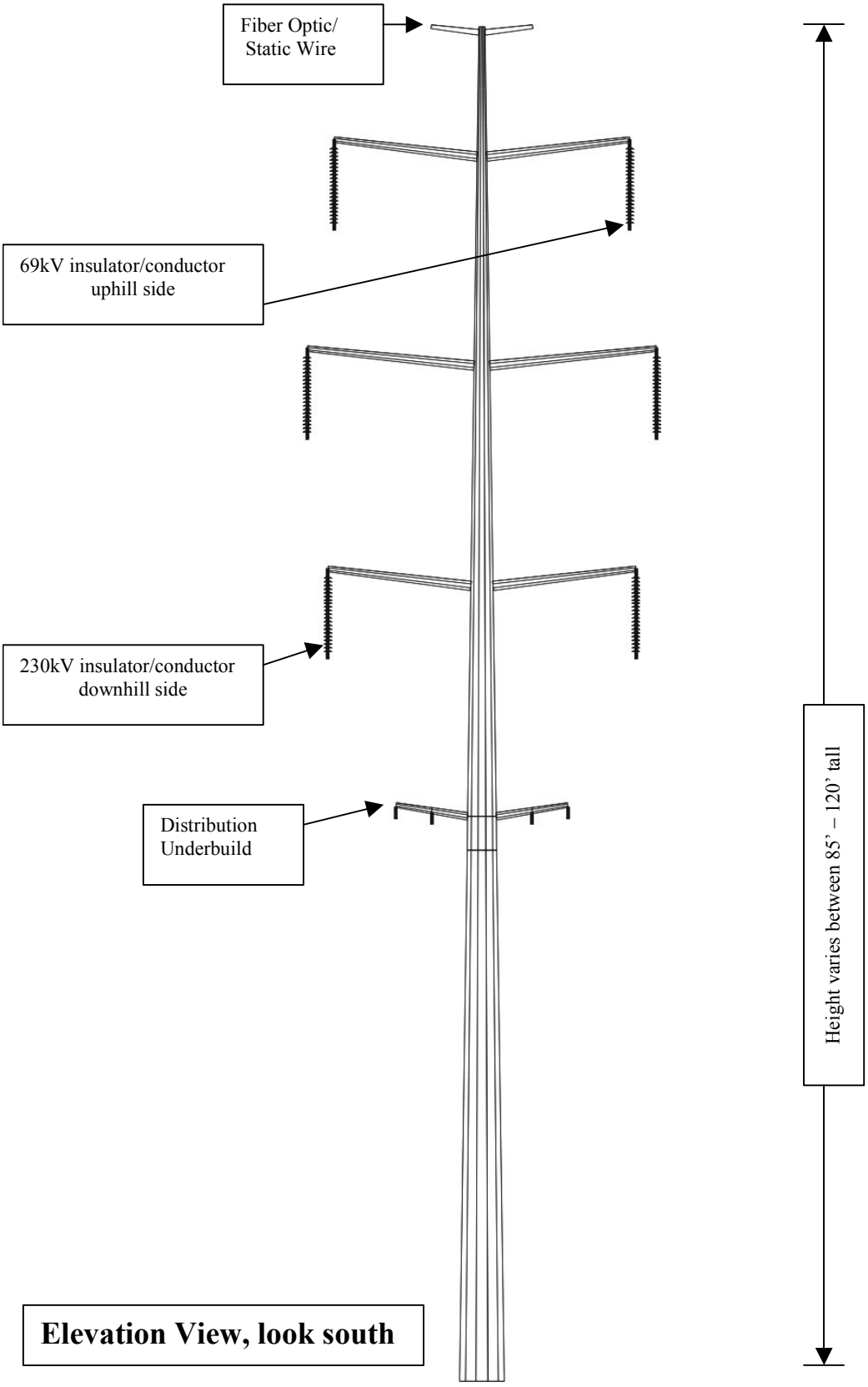


**Figure 2-4 Proposed 230kV Steel Pole Design**

## Substation Upgrades

The following are descriptions of improvements and supporting facilities necessary at Brownlee and Oxbow Substations to incorporate a new 230kV transmission line into the grid.

### *Brownlee Substation*

The new transmission line would enter the northwestern edge of the Brownlee Substation next to the river. All new equipment would be installed within the existing Substation fence. A new H-frame terminal structure, approximately 50 feet tall and similar to existing Substation equipment, would be required. The foundations needed to support this structure are approximately 5 feet diameter by 20 feet deep. Two new line breakers would be installed, each requiring an approximately 10-foot square pad foundation. New switches and other equipment would be installed on five new structures. Each of these two-legged steel structures would be approximately 15 feet tall by 24 feet long, requiring two foundation footings of approximately 4 feet diameter by 12 feet deep. Various bus connections and other minor equipment would be installed, as well as wiring within the control building to incorporate the new line into the interconnected grid.

### *Oxbow Substation*

The Oxbow Substation would be expanded to make room and incorporate the new line. All expansion would occur on IPC property. The planned expansion would encompass approximately 150 x 400 feet of property around which the existing Substation fence would be connected. The expansion would occur on the southeast side of the existing Substation. The H-frame structure, line breakers, switches, foundations and wiring would be the same as that described in the above section for Brownlee Substation.

## Transmission Line Construction

### *Sequence of Activities*

IPC would not initiate any construction or other surface disturbing activities on the public land portion of the ROW until after issuance of the BLM grant by the Authorized Officer. Such authorization would consist of a written Notice to Proceed (Form 2800-15). IPC would conduct all activities associated with the construction and operation of the ROW within the authorized limits of the ROW and in strict conformity with the POD. A copy of the complete ROW grant, including all stipulations and approved POD, would be made available on the ROW during construction.

The construction of the proposed Project would follow the sequence of: 1) centerline surveyed and staked; 2) access roads built; 3) work areas cleared as needed; 4) foundations installed, towers erected and installed; 5) fiber optic or traditional ground wire, conductors, and ground rods installed, and 6) the site would be cleaned-up and reclaimed. The number of workers and types of equipment required to construct the proposed Project are shown in Table 2-2. Various phases of construction would occur at different locations throughout the construction process. This would likely require several crews operating at the same time at different locations. The preliminary construction schedule is shown in Table 2-3.

**Table 2-2 230kV Transmission Line Construction – Estimated Personnel and Equipment**

| Activity | People | Quantity of Equipment | |
|---|---|---|---|
| Survey | 3 | 1 | pickup truck |
| Road Construction | 3 | 2 | 1Bulldozers (D-8 Cat), 1 Excavator |
| | | 1 | motor graders |
| | | 1 | pickup trucks |
| | | 1 | water/gas trucks |
| Foundation Installation | 8 | 1 | hole diggers |
| | | 2 | trucks |
| | | 1 | concrete trucks |
| | | 2 | pickup trucks |
| | | 1 | carry alls |
| | | 1 | hydro crane |
| Structure Steel Haul | 4 | 1 | steel haul trucks |
| | | 1 | pickup trucks |
| | | 2 | yard and field cranes |
| | | 1 | fork lift |
| Structure Assembly<br>Per crew - 1 crews total | 6 | 1 | pickup trucks |
| | | 1 | carry alls |
| | | 1 | cranes (rubber tired) |
| | | 1 | trucks (2 ton) |
| Structure Erection<br>Per crew - 1 crews total | 5 | 1 | cranes (200 Ton) |
| | | 1 | trucks (2 ton) |
| | | 2 | pickup trucks |
| | | 1 | carry all |

| Activity | People | Quantity of Equipment | |
|---|---|---|---|
| Wire Installation | 10 | 1 | wire reel trailers |
| | | 2 | diesel tractors |
| | | 2 | cranes (19-Ton, 30-Ton) |
| | | 1 | trucks (5 ton) |
| | | 2 | pickup trucks |
| | | 1 | splicing trucks |
| | | 1 | 3-drum pullers (1 medium, 1 heavy) |
| | | 1 | Single Drum Puller (large) |
| | | 1 | Double bull-wheel tensioner (heavy) |
| | | 1 | sagging equipment (D-8 Cat) |
| | | 1 | static wire reel trailer |
| | | 1 | water trucks |
| Wire Clean-Up | 3 | 1 | trucks |
| | | 1 | pickup trucks |
| | | 1 | (D-6 Cat) |
| Road Rehabilitation (ROW restoration) | 2 | 1 | motor graders |
| | | 1 | pickup trucks |

**Maximum total personnel required considering all tasks (actual personnel at any one time would be less) 44**

Note: Depending on schedule requirements multiple crews may be required.

**Table 2-3 Preliminary Construction Schedule 2003**

| Task | Time Frame - Months | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Contractor Selection and Mobilization | 4/1 – 5/15 | | | | | | |
| Access Roads | | | 5/15-7/15 | | | | |
| Foundations | | | 6/1 – 8/1 | | | | |
| Structure Installation | | | | 7/1 – 9/1 | | | |
| Wire Installation | | | | | 8/1– 10/1 | | |
| Clean up and Rehab | | | | | | | 10/1 – 11/1 |

***Surveying***

Construction survey work for the proposed Project consists of determining centerline location, specific pole locations, ROW boundaries, work area boundaries and access roads to work areas. The preliminary locations of the centerline, structures, work areas and areas where access roads are not possible have been identified. Final design plans would be submitted with the final POD.

The specified ROW boundaries, work areas, access roads and other proposed Project features would be marked with painted laths or flags. These would be maintained until final cleanup and/or reclamation is completed, after which they would be removed.

Any relocation of plants within the work areas would be addressed in the BLM-approved Restoration and Revegetation Plan as part of the POD.

***Access Road Construction***

The utility corridor has many existing trails and roads in the vicinity of the proposed Project. However, the existing road network would require upgrading in order to allow access of construction equipment into the transmission line corridor. This may involve clearing vegetation and re-grading. Construction crews would utilize disturbed areas from maintenance and operation of the existing Oxbow-Pine Creek–Duke–Halfway 69kV transmission line for as much of the access to the poles and work areas as is feasible. A set of final design plans detailing the location of work areas and new and existing access roads would be approved with the final POD prior to the start of construction.

Equipment to construct the access roads would include hand tools, bulldozers, graders and crew-haul vehicles. The road construction work force is anticipated to number no more than 44 individuals at any one time (Table 2-2). Specific actions would be implemented to reduce construction impacts. Standard design techniques such as installing water bars and dips to control erosion would be included. In addition, measures would be taken to minimize impacts in specific locations and during certain periods of the year. Such conditions could arise during heavy rains or high winds. To prevent impacts during such periods, construction activities would be restricted or curtailed.

### *Foundation Installation*

Excavations for foundations would be made with power auger equipment (Figure 2-5). Where the soil permits, a vehicle-mounted power auger would be used. The foundation excavation and installation requires equipment access to the foundation sites. If rocky areas are encountered, foundations may require blasting. The foundation excavation and installation, except where a helicopter will be used, requires access to the site by a power auger or drill, a crane, material trucks, and ready-mix trucks. Concrete for use in constructing foundations would be obtained from commercial sources or from a remote batch plant on private land, depending on contractor needs. Table 2-2 lists the equipment and personnel necessary for foundation work.

Foundation holes left open or unguarded would be covered and/or fenced where practical to protect the public and wildlife. Soil removed from foundation holes would be stockpiled on the work area and used to backfill holes. All remaining soil not needed for backfilling would be spread on the work area. Concrete trucks would wash their chute debris into a depression in the permanent disturbance area at the pole site and soil from the foundation excavation would be used to cover the chute debris.

If blasting were required, it would be conducted in strict compliance with safety orders or rules in force where the operation is required. All employees engaged in any operation related to the handling and the use of explosives would obtain all certification required by the state or county in which such operation is located. Accurate accounting of all explosives would be maintained, and any shortages would be reported immediately to the Construction Manager and to the public law enforcement authorities. No explosives would be stored on the proposed Project site. Safeguards such as blasting mats would be employed when needed to protect the adjacent property. In extremely sandy areas, soil stabilization by water or a gelling agent may be used prior to excavation.

After excavations are completed, cast-in-place concrete footings would be installed. Cast-in-place footings would be installed by placing reinforcing steel in the excavated foundation hole and encasing it in concrete.

If conditions permit, rock anchored foundations may be installed. These foundations require 4-6 inch holes to be drilled 20-40 feet into rock and anchoring rods ($1^1/_2 – 2^1/_2$ inch steel rods) to be grouted into the rock and then secured to the base plate of the steel pole. This type of foundation requires much less excavation.

### *Pole Assembly and Erection*

Steel pole sections and associated hardware would be shipped to each pole work area by truck. Steel poles would be assembled on the work area (Figure 2-5). Areas need to be large enough to accommodate laying down the entire length of the steel pole while cross arms and insulators are mounted to it. Cross arms are then installed and rigged with insulator strings and stringing sheaves at each ground wire and conductor position, while the pole is on the ground. The assembled pole would then be hoisted into place by a large crane or helicopter (Figure 2-5). Table 2-2 lists the equipment and personnel necessary for pole assembly and erection.

Temporary construction yards may be necessary and would be located on existing disturbed areas or other areas on private lands along the line route. The yards would serve as field offices, reporting locations for workers, parking space for vehicles and equipment or sites for temporarily marshalling of construction materials.

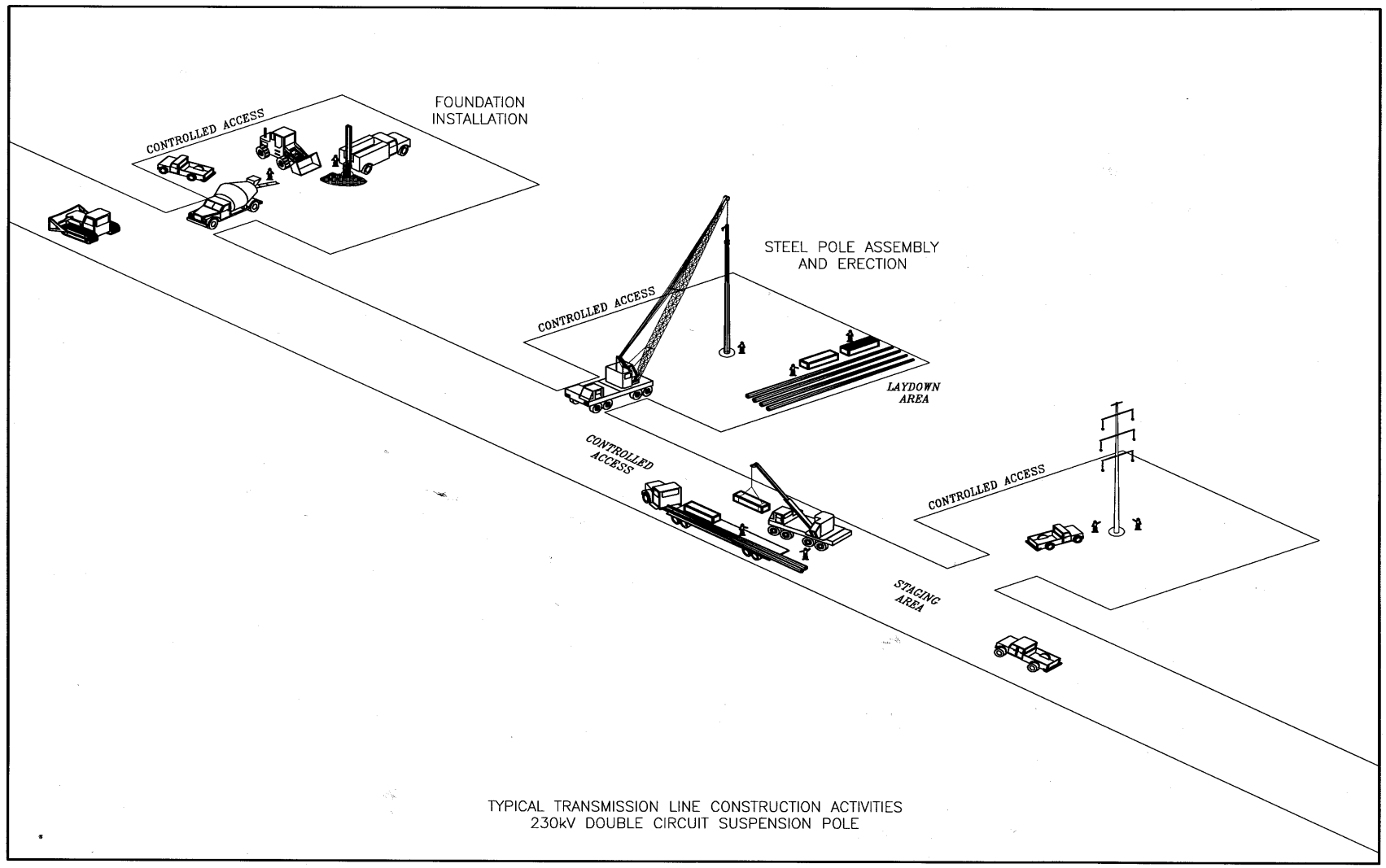


**Figure 2-5 Typical Construction Activities**

### *Conductor Installation*

Once poles are in place, a pilot line would be pulled (strung) from pole to pole and threaded through the stringing sheaves on each pole. A larger diameter, stronger line would then be attached to the pilot line and strung. This is called the pulling line. This process is repeated until the ground wire and conductor is pulled through all sheaves (Figure 2-6).

Conductor splicing would be required at the end of a conductor spool or if a conductor is damaged during stringing. The work would occur on work areas for the poles or pulling/tensioning sites.

Fiber optic and conductor would be strung using powered pulling equipment at one end and powered braking or tensioning equipment at the other end. For public protection during wire installation, guard structures would be erected over roadways, power-lines, structures, and other obstacles. Guard structures consist of H-frame poles placed on either side of an obstacle. These structures prevent ground wire, conductor, or equipment from falling on an obstacle. Equipment for erecting guard structures includes augers, line trucks, pole trailers, and cranes. Guard structures may not be required for small roads. On such occasions, other safety measures such as barriers, flagmen, or other traffic control would be used. Table 2-2 lists the equipment and personnel necessary for conductor installation.

### *Fiber Optic Installation*

As identified in the above section, fiber optic cable would be strung with the conductor. No additional equipment would be needed. Splice boxes would be required approximately every two miles, where the cable spool ends. The boxes would measure approximately 36” x 48” x 36” and would be mounted on the side of the pole approximately 10 feet from the ground.

### *Ground Rod Installation*

As a part of standard construction practices, prior to wire installation, tower footing resistance along the route would be measured. If the resistance to remote earth for each transmission tower greater than 25 ohms, counterpoise (ground wires) would be installed to lower the resistance to 25 ohms or less. Counterpoise consists of a bare copper clad or galvanized steel cable buried a minimum of 12 inches deep, extending from one or more tower legs for up to 200 feet.

### *Helicopter Use*

Helicopters would be used to assist in the construction of the line in three pole locations from milepost 8.7 to 9.0 where ground access is not possible. Helicopters would be used to bring in equipment to pole sites, place transmission structures, and string the conductor. This method of construction would replace the need for small portions of access roads in these locations, and would eliminate vehicle access to the structures to perform maintenance activities. Maintenance in these pole locations would be limited to helicopter access and maintenance or pedestrian access.

Ground disturbance associated with the use of helicopter construction would include work areas for each pole site measuring approximately 15 feet x 15 feet, depending on the topography of the site. All necessary equipment would be lowered from a helicopter to allow foundation installation and pole setting. Vegetation would be removed and the work area would be graded by hand to flatten as needed for the safe operation of equipment and access by work crews. Refer to Figure 2-7 illustrating transmission work using helicopters.

For all helicopter installation and/or wire stringing, IPC would work with the BLM Authorized Officer to ensure that the appropriate notifications would be made to coordinate the air space with other possible helicopters in the area being used for seeding, fire support or other use.

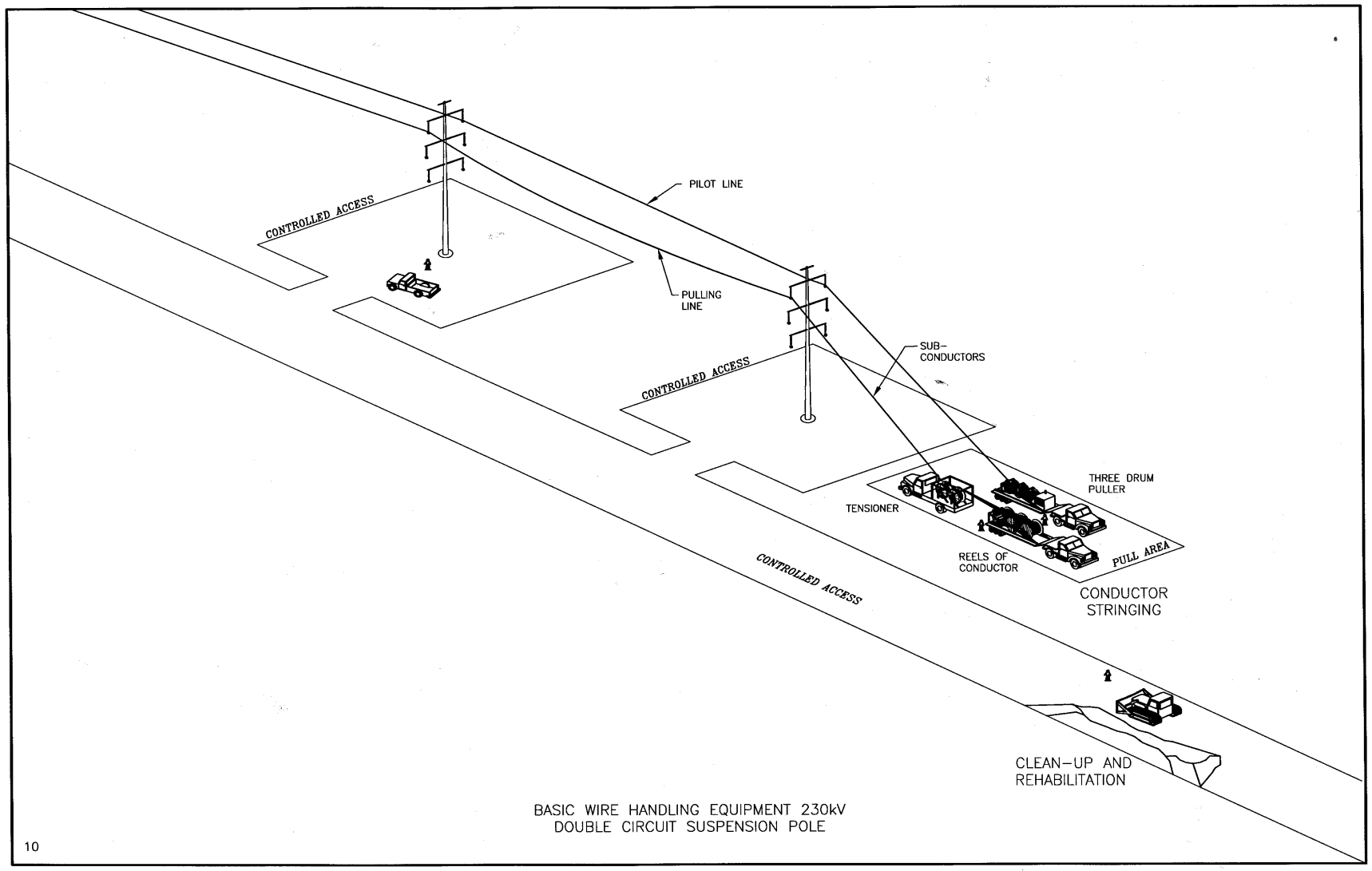


**Figure 2-6 Typical Wire Installation Activities**

*Photo obtained from Erickson Air-Cranes at Internet site: http://www.erickson-aircrane.com.

**Figure 2-7 Photos Showing Helicopter Construction Of Transmission Lines**

## Substation Construction

At Brownlee and Oxbow Substations, modifications would occur in areas that are already graded and surfaced. Construction work for the modifications would consist of placing new concrete foundations, extending electrical conduits for equipment power and control, and installing structures and equipment. Equipment required for substation modifications would include backhoes, drill rigs, concrete trucks, flatbeds and crew trucks. Cranes, man lifts, portable-welding units, line trucks and mechanic trucks would also be required. All vehicle and equipment staging areas would be contained within existing developed areas. At each Substation, it would take an estimated six months to construct the substation upgrades, and would require a workforce of up to 12 workers at each Substation.

## Temporary Power Supply to Halfway

Temporary power sources would be needed periodically during construction of the proposed Project to maintain electrical service to those areas currently serviced by the existing Pine Creek-Duke 69kV transmission line. The existing 69kV line would be energized most of the time during construction, however, when construction activities are located close to the existing line, a temporary outage of the existing line would be needed to ensure the safety of construction workers and the public.

Two 1.6 MW Caterpillar diesel generators would be located adjacent to Halfway Substation near the town of Halfway, Oregon to maintain power to Halfway and Richland. Installation of these generators would

require one tractor-trailer and crane and involve a work force of approximately three people over two days.

## Construction Waste Disposal

Construction sites, material storage yards, and access roads would be kept in an orderly condition throughout the construction period. Refuse and trash would be removed from the sites and disposed in an approved manner. Oils and fuels would not be dumped along the line. Oils or chemicals would be hauled to an approved site for disposal. No open burning of construction trash would occur.

## Site Reclamation

Disturbed areas within the ROW would be finish graded and reseeded as required by the BLM or property owner. The natural drainage pattern along the ROW would be restored as near as practical to the original pattern. The reclamation would involve the personnel and equipment as shown in Table 2-2.

Work sites would be restored using excess materials, vegetation, and topsoil stockpiled for that purpose. The contractor would dispose of excess soil materials, rock, and other objectionable materials that cannot be used in restoration work as approved by the Authorized Officer and as directed by the construction manager.

Existing 69kV conductor would be removed and wood poles would be cut off at ground level. Those that are accessible would be removed. Those not accessible will remain on site as is. No new roads would be constructed solely to remove the existing 69kV line.

If in the future IPC no longer desired a permanent road for patrolling and maintenance, access roads would be abandoned, revegetated, and stabilized by erosion control methods where necessary. Disturbed areas would be restored, as nearly as possible, to their original contour and reseeded where appropriate.

Ripping and other surface scarification on construction roads or other areas would be done as necessary. In some cases the amount of soil compaction and vegetation destruction may not warrant ripping and reclamation. This would be decided on a case-by-case basis with the Authorized Officer or landowner.

## Fire Protection

A fire plan would be prepared. It would document all applicable fire laws and regulations to be observed during the construction period, including any BLM notice of restricted activities due to high fire danger. All personnel would be advised of their responsibilities under the applicable fire laws and regulations.

## Operation of Transmission Line

### *Operational Characteristics*

The nominal voltage for the Brownlee – Oxbow 230kV Transmission Line proposed Project would be 230kV alternating current (AC). There could be minor variations of up to five percent above the nominal level depending upon load flow.

### *Permitted Uses*

If and when the transmission lines have been energized, land uses that are compatible with safety regulations will be permitted in and adjacent to the ROW. In previous projects, existing land uses such as agriculture and grazing generally have been permitted within the ROW. Incompatible land uses within transmission line ROW's include construction and maintenance of inhabited dwellings, and any use requiring changes in surface elevation that would affect existing or planned facilities.

Land uses that comply with local regulations would be permitted adjacent to the ROW. Compatible uses of the ROW on public lands would have to be approved by the BLM. The ROW through private lands could be used for roads, agriculture and other purposes consistent with the easements.

***Safety***

Safety is a primary concern in the design of this 230kV transmission system. An AC transmission line would be protected with power circuit breakers and related line relay protection equipment. If conductor failure were to occur, power would be automatically removed from the line. The overhead ground wires along the top of the line would provide lightning protection. Electrical equipment and fencing at the Substations would be grounded.

***Maintenance of the Transmission Line***

The 230kV transmission lines would be inspected on a regular basis by both ground and air patrols. Maintenance would be performed as needed. When access would be required for non-emergency maintenance and repairs, the maintenance crews would adhere to the same precautions that would have been taken during the original construction.

Emergency maintenance would involve prompt movement of repair crews to repair or replace any damage. Crews would be instructed to protect crops, plants, wildlife, and other resources of significance. Restoration procedures following completion of repair work would be similar to those prescribed for normal construction. The comfort and safety of local residents would be a primary concern during construction and maintenance activities.

***Abandonment of the Transmission Line***

At the end of the useful life of the proposed Project, if the facility were no longer required, the transmission line would be abandoned under the terms of the ROW agreement with BLM and other easement agreements. Subsequently, poles, conductors, insulators and hardware would be dismantled and removed from the ROW. The area of the ROW on public lands would be rehabilitated to the satisfaction of the Authorized Officer.

## Committed Mitigation Measures

The committed mitigation measures discussed in this section are measures that the applicant would include as a part of the proposed Project. These measures, designed to avoid or reduce the impacts of the proposed Project, are organized by resource topics and discussed in detail in Chapter 4- Environmental Consequences.

***Mitigation Measures Common to Several Resources***

0-1. To limit new or improved accessibility into the area by off-highway vehicles (OHVs) and other motorized vehicles, all new access undesired or not required for maintenance would be closed using the most effective and least environmentally damaging methods appropriate to that area with concurrence of the landowner or land manager.

0-2. In construction areas where recontouring is not required, disturbance would be limited to overland drive where feasible to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access.

0-3. To reduce visual contrast and reduce siltation in construction areas (e.g., marshaling yards, tower sites, spur roads from existing access roads) where ground disturbance is substantial, surface preparation and reseeding would occur. The method of restoration could normally consist of loosening the soil surface, reseeding, installing cross drains for erosion control, placing water bars

in the road, and filling ditches. Methods would be detailed in the BLM-approved Revegetation Plan submitted as part of the POD.

0-4. To minimize ground disturbance and/or reduce scarring (visual contrast) of the landscape, the alignment of any new access roads or cross-country route would follow the landform contours in designated areas where practicable, providing that such alignment does not impact other resource values additionally.

0-5. IPC would prepare a revegetation plan in consultation with the BLM. The plan would specify disturbance types and their appropriate revegetation techniques to be applied for all proposed Project work areas, access roads and all sidecast materials. Techniques could include reseeding native or other acceptable vegetation species. The plan would include management and maintenance procedures approved by the BLM for ongoing use of access roads and temporary work areas.

0-6. To minimize amount of sensitive features disturbed in designated areas, poles would be placed so as to avoid sensitive features such as, but not limited to, riparian areas, eagle perch trees, and watercourses and/or to allow conductors to clearly span the features, within limits of standard pole design. If the sensitive features cannot be completely avoided, poles would be placed so as to minimize the disturbance.

0-7. Erosion and sediment control measures would be specified in the POD and requirements for the Clean Water Act.

0-8. In construction areas where recontouring is not required, no grading would occur to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access. Restoration could include reseeding (if required). Methods would be detailed in the BLM-approved Revegetation Plan submitted as part of the POD.

0-9. In construction areas (e.g., marshaling yards, tower sites, spur roads from existing access roads) where ground disturbance is substantial or where recontouring is required, surface stabilization and reseeding would occur as required by the landowner or land management agency. The method of surface stabilization could consist of loosening the soil surface, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches. Methods would be detailed in the BLM-approved Revegetation Plan submitted as part of the POD.

0-10. To reduce potential impacts on recreation values and safety, at highway, canyon, and trail crossings, poles are to be placed at the maximum feasible distance from the crossing within limits of standard tower design.

***Land Use and Recreation***

1-1. Existing improvements would be repaired or replaced if they are damaged or destroyed by construction activities to their condition prior to disturbance as agreed to by the parties involved.

1-2. Fences and gates would be installed, or repaired and replaced to their original condition prior to proposed Project disturbance as required by the landowner or the land management agency if they are damaged or destroyed by construction activities. Temporary gates would be installed only with the permission of the landowner or the land management agency and would be restored to original condition prior to proposed Project disturbance following construction.

1-3. All existing roads would be left in a condition equal to or better than their condition prior to the construction of the transmission line.

***Visual Resources***

2-1. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or construction activity. Exceptions could be made for paint use on vegetation to mark avoidance of sensitive species or plants considered to have ethnobotanic significance.

2-2. Corten steel poles would be used for the 230kV transmission line to reduce visual contrasts.

2-3. To reduce visual contrast in designated areas, poles would be placed so as to avoid impacts to sensitive viewpoints within limits of standard pole design. If the sensitive features cannot be completely avoided, poles would be placed so as to minimize the disturbance by spanning the sensitive area. Similarly, to reduce visual impacts, poles are to be placed at the maximum feasible distance from the crossing of roads or trails within limits of standard tower design.

2-4. Non-specular conductors would be used to reduce visual impacts.

2-5. The above ground portion of the concrete foundations would be colored to minimize visual impact.

***Cultural/Archeological/Paleontology Resources***

3-1. Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and paleontological resources. To assist in this effort, the construction contract would address: (a) Federal and state laws regarding antiquities and fossils, including collection and removal; (b) the importance of these resources and the purpose and necessity of protecting them; and (c) methods for protecting sensitive resources.

3-2. To minimize the risk of cultural sites being disturbed in designated areas, IPC would avoid them or design the line to allow conductor spanning of the sites.

3-3. In the event that potentially historic/cultural/paleontologic resources are discovered during construction, potentially destructive work within 300 feet of the find would be halted. IPC's construction inspector would immediately implement the following measures:

a. Flagging would be erected to prohibit potentially destructive activities from occurring.

b. IPC's archeologist would be called in to make a preliminary assessment of the newly discovered resource.

c. If the archeologist determines that the discovery represents a potential new site, or an undocumented feature of a documented site, BLM would be notified and processes identified by the BLM would be followed.

d. Construction would not resume in the identified area until cleared by the archeologist (private land) or BLM's Authorized Officer (for public lands managed by the BLM).

e. Pursuant to 43 CFR 10.4(g), the holder of this authorizations must notify the Authorized Officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further,

pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the Authorized Officer.

3-4. The specific areas of ground disturbing activities (e.g., access road construction, structure sites, staging areas, etc.) will be identified in the POD. If BLM determines that any of these areas have not been sufficiently inventoried for cultural resources, they would be surveyed prior to construction in that specific area.

3-5. The BLM may require a cultural resource monitor onsite during construction in areas the BLM determines to be culturally sensitive.

3-6. Photo documentation of the historic barn (Site #IPC01 B01) would be completed prior to construction if an effect determination were made.

***Biological Resources***

4-1. Prior to construction, all supervisory construction personnel would be instructed on the protection of ecological resources. To assist in this effort, the construction contract would address: (a) Federal, state, and tribal laws regarding plants and wildlife; (b) the importance of these resources and the purpose and necessity of protecting them; and (c) methods for protecting sensitive resources.

4-2. Mitigation measures developed during the consultation period under Section 7 of the Endangered Species Act (1973) as amended would be adhered to as specified by the BLM and U.S. Fish and Wildlife Service (FWS).

4-3. The boundaries of sensitive plant populations would be delineated with clearly visible flagging or fencing based on surveys conducted during the spring prior to construction. In the event any special-status plants would require relocation, permission would be obtained from the landowner or BLM. If avoidance or relocation were not practical, the topsoil surrounding the plants would be salvaged, stored separately from subsoil and respread during the restoration process.

4-4. Prior to construction IPC would develop a noxious weed control plan in consultation with the BLM to minimize the effects of noxious weeds due to proposed Project activities. The plan would address any required cleaning of construction vehicles to minimize spread of weeds.

4-5. Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities and described in detail in the POD.

4-6. With the exception of emergency repair situations, construction, restoration, maintenance, and termination activities in designated areas would be modified or curtailed during sensitive periods (e.g., nesting and breeding periods) for candidate, proposed, threatened, and endangered, or other sensitive animal species. The Authorized Officer in advance of construction or maintenance would approve sensitive areas and timeframes.

4-7. No construction activities shall occur between April 15 and May 15 within 400 m of Rocky Mountain bighorn sheep lambing areas located at the mouth of Black Canyon and at the mouth of Cliff Creek.

4-8. No construction activities shall occur from February 1 through July 15 (both dates inclusive) within 800 m from any bald eagle nest site that may occur in the Project Area. Vehicular traffic on the Oxbow-Brownlee road is excluded from any such restrictions.

4-9. No construction activities shall occur between November 15 and March 15 (both dates inclusive) within 400 m of wintering bald eagle perch trees or roost locations within the Project Area to avoid impacting roosting bald eagles. Vehicular traffic on the Oxbow-Brownlee road is excluded from any such restrictions.

4-10. It is recommended that in consultation with the BLM and appropriate agencies a tree planting program is considered. Such a plan would detail the number, species, and location of trees to be considered.

4-11. It is proposed to monitor nesting eagles at the Cottonwood nest site to determine when: 1) birds arrive at the nesting territory; 2) courtship occurs; 3) nest building takes place (improved); 4) eggs are laid; 5) incubation starts; 6) young hatch; and 7) young fledge. This information is proposed to be collected prior to, during, and one year after the construction is completed. [This study could be expanded to evaluate where eagles forage and whether eagles are likely to cross the proposed transmission line.]

4.12. It is proposed to monitor eagle presence along both sides of Oxbow reservoir within 400 m of the shoreline. Observations will include perching and roosting sites, substrate used and age class of eagles. Surveys will be conducted in the years 2003 and 2004 between January 1 and February 28 of each year.

4.13. It is recommended that during Midwinter Bald Eagle Counts, all perches are identified on 7.5 minute USGS maps and coordinates are determined using a GPS, if possible. Perch substrate will be identified. This information over time may aid in identifying whether perch trees are limiting roosting and perching bald eagles in the canyon and where additional perch habitat may be developed.

4-14. All waste products and food garbage from construction sites would be deposited in a covered waste receptacle, or removed daily. Garbage would be hauled to a suitable disposal facility.

4-15. Inspections for trapped or injured wildlife on all work areas would be conducted daily.

4-16. Ponderosa pine trees identified as bald eagle roost sites and nest trees would be avoided.

***Water Resources***

5-1. Roads would be built at right angles to the streams and washes to the extent practicable. Culverts would be installed where needed. All construction and maintenance activities would be conducted in a manner that would minimize disturbance to drainage channels, and streambanks (e.g., poles).

***Geology/Soils***

6-1. In areas where soils are particularly sensitive to disturbance, existing access roads would be repaired only to where they are passable.

6-2. Design and construction of all proposed Project facilities would be in accordance with all applicable Federal, state, and county building and construction ordinances to minimize the potential effects of seismicity on the proposed Project from known faults in the region.

6-3. In construction areas, work would be temporarily halted where wet conditions cause excessive rutting of roads and/or work areas.

***Air***

7-1. Road construction would include dust-control measures, as required and identified in the BLM-approved Dust Control Plan submitted as part of the POD.

7-2. All requirements of those entities having jurisdiction over air quality matters would be adhered to and any permits needed for construction activities would be obtained. Open burning of construction trash would not be allowed.

***Health, Safety, Noise***

8-1. All construction vehicle movement outside the ROW would be restricted to predesignated access, contractor-acquired access, or public roads.

8-2. The proposed Project would comply with any FAA requirements regarding safety to the public.

8-3. IPC would respond to complaints of radio or television interference generated by the transmission line by investigating the complaints and implementing appropriate mitigation measures. The transmission line would be patrolled on a regular basis so that damaged insulators or other transmission line materials, which could cause interference, are repaired or replaced.

8-4. Mitigation would be applied as needed to eliminate induced currents and voltages onto conductive objects sharing a ROW to the mutual satisfaction of the parties involved.

8-5. Studies relating to the effects of audible noise and electrostatic and electric and magnetic fields would be monitored in order to ascertain whether these effects are significant.

8-6. A bundle configuration and large diameter conductors would be used to limit the audible noise, radio interference, and television interference due to corona. Caution would be exercised during construction to avoid scratching or nicking the conductor surface, which may provide points for corona to occur.

8-7. Hazardous materials would not be drained onto the ground or into streams or drainage areas. Totally enclosed containment would be provided for all trash.

8-8. Appropriate safety guidelines would be followed as required by state and federal regulations relating to blasting operations, should blasting be necessary.

8-9. Appropriate traffic control measures would be utilized to ensure public safety during construction. Prior notice would occur for any extended delays or road blockage.

A POD including specific plans to address mitigation requirements would be prepared in consultation with the BLM prior to construction being authorized. These plans would detail additional measures required to minimize potential proposed Project impacts on natural resources and human safety. Plans typically include reclamation and revegetation of the ROW, resource protection, noxious weed control, dust control, hazardous spill prevention, fire prevention and storm water pollution prevention.

The POD would outline any required monitoring guidelines for the construction, operation, and maintenance of the line in order to avoid inadvertent impacts to resources. BLM would appoint an authorized inspector to oversee construction activities, authorize revisions or changes in the field, and determine if environmental protection is being done according to the approved POD. IPC would conduct a comprehensive training program to inform construction crews of all permit requirements and restrictions relevant to proposed Project construction.

## Selection of the Preferred Alternative

Alternatives evaluated for selection of the Preferred Alternative included the No Action Alternative described in Section 2.3.1 and the proposed Project described in Section 2.3.2 of this chapter. The environmental impacts of the proposed Project would not occur under the No Action Alternative. However, similar impacts would likely occur elsewhere since IPC would need to investigate other means of meeting transmission capacity needs and serving the increasing load within the IPC system. Under the No Action Alternative, the load requirements as projected by IPC would not be met and future power delivery in the Treasure Valley and other parts of the IPC service territory would experience shortages. Tax benefits and the construction jobs created during the construction phase would also not be realized.

Construction and operation of the proposed Project would result in long-term (life of the proposed Project) environmental impacts, although not significantly adverse, to some resources as described in Chapter 4. However, the committed mitigation measures, described above and in Chapter 4, would be effective in reducing these impacts. Socioeconomic impacts of implementing the proposed Project would be beneficial.

Because of the potential adverse effects to electrical reliability and capacity in the service territory of IPC if the No Action Alternative were selected, and because the environmental impacts to the proposed Project area are acceptable, the Preferred Alternative is the proposed Project, referred to throughout this document as the “proposed Project”.

# CHAPTER 3
# AFFECTED ENVIRONMENT

## 3.1 Overview

This chapter provides a description of the existing environment that would be affected by construction, operation, and maintenance of the proposed Brownlee - Oxbow 230kV #2 Transmission Line and Brownlee-Halfway 69kV reroute (proposed Project). This information will serve as the baseline for assessing proposed Project impacts in Chapter 4.

The proposed Project would be located entirely within Baker County, Oregon except for the southern termination point at the Brownlee Substation, which is on the border of Adams and Washington Counties in Idaho. The study corridor referred to in the resource sections below includes Idaho Power Company's (IPC) existing 69kV transmission line. The width of the study corridor varied depending on the resource and the reasonable extent of studies needed to predict potential impacts. The corridor for all resources was 11 miles long and followed the Oregon side of Oxbow Reservoir. The proposed Project area referred to in the socioeconomic section (below) is comprised of Idaho and Oregon counties surrounding the proposed Project.

The terrain in the area of the proposed Project is deeply incised by the Snake River and it's side drainages and tributaries. The proposed Project Area crosses the slopes perpendicular to these tributaries for much of the 11-mile route. The Hells Canyon area between Brownlee Dam and Oxbow Dam is part of a hydroelectric complex owned by IPC along the Snake River, and is an area that has seen industrial activity dating back nearly 50 years or more.

This segment of the canyon is part of that industrial complex, including the Brownlee and Oxbow earth-filled dams, a transmission system (e.g., 69kV, 138kV, and 230kV), powerhouses, Substations and ancillary facilities, the Oxbow-Brownlee Road, Oxbow Reservoir, rip rapped slopes along the reservoir edge in many places, developed recreation facilities, residential clusters, and other support facilities and equipment. Many of the canyon walls are steeply sloping but there are a few areas of rolling terrain. Vegetation within the study corridor consists of shrub-steppe species with some riparian habitat in the tributaries and along Oxbow Reservoir. A number of special status plant and animal species were determined to occur or have potential to occur within the study corridor.

Resources that were not inventoried include drinking water/groundwater, flood plains and hazardous materials. No significant sources of drinking or groundwater occur in the proposed Project area (EPA, ODEQ 2002). Drinking water sources supplied by well occur only at a localized level for the small residential clusters in the proposed Project area. Flood plains do not occur in the study corridor due to the steep canyon topography, FEMA maps were consulted to confirm this finding. Hazardous materials will be evaluated in the Plan of Development (POD) document to be filed with the Bureau of Land Management (BLM) in 2003.

## 3.2 Key Issues Analyzed in Detail

As discussed in Chapter 1, Section 1.7, several key issues were identified during the scoping process that BLM determined should be analyzed in detail in the EA. The inventory of key issues presented in the sections below establishes a baseline to assess the potential impacts that may result from the construction, operation, and maintenance of the proposed Project. The potential impacts are documented in Chapter 4– Environmental Consequences.

- Visual Impacts
- Listed Species
- Big Game
- Recreation
- Soil Erosion Hazard

Other resources not identified as being key issues during scoping are also discussed in this chapter and Chapter 4, including:

- Land Use
- Cultural Resources
- Botanical Resources
- Wildlife Resources – other wildlife species
- Water Resources and Wetlands
- Geology
- Air Quality
- Socioeconomics
- Health, Safety, and Noise

Maps illustrating the location of resource information described in this chapter are shown on Figures 3-1 through 3-5.

### 3.2.1 Visual Impacts

#### Introduction

The Hells Canyon area between Brownlee Dam and Oxbow Dam is part of an industrial complex along the Snake River. This segment of the canyon is noticeably comprised of man-made facilities with large concrete and earth-filled dams on both ends, a 69kV, 138kV, and a double circuit 230kV transmission line, powerhouses, the Oxbow-Brownlee Road, the Oxbow Reservoir, rip rapped slopes along the reservoir edge in many places, developed recreation facilities, residential clusters, and other support and ancillary facilities. The canyon is a big landscape, dominated by the steep canyon walls, rock outcrops and the reservoir, but it is apparent that it supports an industrial facility.

The Pine Creek-Duke 69kV transmission line currently occupies this corridor and would be replaced by the proposed Project. This 69kV line is small in relative scale to the canyon and is not a dominant feature to the average viewer. In addition, the wooden poles of the H-frame structures are weathered and do not significantly contrast with the landscape.

This section inventories the visual resources and identifies visibility of the proposed Project from sensitive viewpoints found within the study corridor. There are no guidelines for managing visual resources on privately owned lands. However, the BLM Visual Resource Management (VRM) system 8400 series manuals (USDI, BLM 1986a;b) provide guidance for managing visual resources on public lands managed by the BLM. The visual resource inventory for the proposed Project was conducted using the methods described in the BLM VRM system manuals, modified to accommodate landscape features

and viewpoints of both BLM and privately owned lands. This process provided a complete inventory and the basis to consistently assess impacts across both public and private lands.

The landscape within a six-mile wide study corridor (i.e., 3 miles on either side of the proposed Project's assumed centerline) was inventoried to document existing visual resources. This study corridor also encompasses the Brownlee-Halfway 69kV reroute. The study process included analysis of topographic maps, agency contacts, field studies and documentation, coordination with other resource studies (e.g., land use), and review of existing literature sources. The inventory consists of the following three major components:

- Scenic Quality Evaluation
- Sensitivity Analysis
- Distance Zones (i.e., visibility from sensitive viewpoints)

These individual components were combined by BLM in an overlay process to help determine Visual Resource Management (VRM) classes, which were adopted into the Baker Resource Management Plan (RMP) and are used to help manage the amount of change on public lands managed by BLM. The existing VRM classes are described below in this section. These same individual components were identified and mapped for private lands that are within the visual resource study corridor.

The BLM uses four VRM class management levels (refer to Table 3-1 below).

**Table 3-1 Visual Resource Management Classes**

| | |
|---|---|
| **Class I** | This class provides primarily for natural ecological changes; however, it does not preclude very limited activity. Any contrast created within the characteristic environment must not attract attention (requires congressional designation). |
| **Class II** | Changes in any of the basic elements (form, line, color and texture) caused by a management activity should not be evident in the characteristic landscape. A contrast may be seen but should not be evident or attract attention in the characteristic landscape. |
| **Class III** | Contrasts to the basic elements (form, line, color, texture) caused by a management activity may be evident and begin to attract attention in the characteristic landscape. However, the changes should remain subordinate to the existing characteristic landscape. |
| **Class IV** | Contrasts may attract attention and be a dominant feature in the landscape in terms of scale; however, the change should repeat the basic elements (form, line, color, texture) inherent in the characteristic landscape. |

## Scenic Quality

The scenic values of the study corridor were documented using the Scenic Quality Classes from the VRM system. Scenery is rated Class A (most scenic) to Class C (common). Class B scenic quality ratings were applied to approximately 90% of the study corridor, and Class C landscapes accounted for the remaining 10%. No Class A landscapes were identified in the study corridor (BLM, 2002). The following paragraphs describe each of the scenic quality classes identified in the study corridor. Private lands were rated using a system consistent with the scenic quality rating that is termed visual integrity for this analysis.

### *Class B*

Four separate rating units were classified as Class B landscapes within the study corridor. These relatively undisturbed areas consist of pronounced steep drainages and slopes, riparian vegetation, and moderately

prominent rock outcrops. The tall canyon walls limit most views to within the canyon and to Oxbow Reservoir.

***Class C***

One rating unit was identified as a Class C landscape, and included less steep canyonlands with less topographic and vegetation diversity. The sparse vegetation consists of mixed desert scrub with sage species interspersed along portions of the unit. Brownlee Dam, Brownlee Substation, several 230kV transmission lines, and the Duke Substation dominate the landscape. Within this same unit, the vegetation and color of the Brownlee Village residential area adds to the diversity of the setting.

Table 3-2 documents the typical scenery on both public and private lands within the study corridor. A scenic quality and visual integrity map can be viewed at the Baker City BLM office. Private lands were rated using a system consistent with the scenic quality rating that is termed visual integrity for this analysis. The BLM uses a scenic quality rating system for BLM owned lands. The visual integrity system differs slightly from the scenic quality system because private lands have many built features that can both enhance or detract from the evaluation.

**Table 3-2 Scenic Quality/Visual Integrity Comparisons**

| SCENIC QUALITY | |
|---|---|
| **REPRESENTATIVE PHOTO** | **DEFINITION** |
|  | ***Class B or Above Average*** - Above average areas where features provide variety in form, line, color, and texture. Landscape elements may not be rare, but provide sufficient visual diversity to be considered moderately distinctive. Features exhibit common variety in form, line, color, texture, and have positive, yet more common attributes, of unity and intactness. The score of 18 to 24 points resulted in an above Average rating. |
|  | ***Class C or Common -*** Common to minimal areas have characteristic features with moderate to little variety in form, line, color, and texture in relation to the surrounding region. The score of 17 points or less, as tallied from an individual field inventory sheet, resulted in a Common rating. |
| **VISUAL INTEGRITY** | |
| **REPRESENTATIVE PHOTO** | **DEFINITION** |
|  | ***Class B or Average / Rural Landscape -*** Developed areas where the landscape is less unique, interesting, and cohesive. Patterns of land use and materials used in structures are varied and different colors. The sense of a cohesive place or neighborhood is not as strong in these landscapes. Colors and textures are not often seen repeated in these areas. |

***Class C or Representative -*** Developed areas that appear heavily altered, do not form a sense of place or neighborhood, and are not visually cohesive. The elements of line, form, color, and texture are not often repeated in a cohesive manner. Developments and land uses are diverse and contrast with each other and with the landscape.

## Viewer Sensitivity Level

According to the established visual methodology, high, moderate, or low viewer sensitivity levels were assigned to each inventoried viewpoint. Sensitivity was determined by rating each viewpoint using three criteria: user attitude towards change, volume of use at the viewpoint, and duration of views typically from the viewpoint.

All residences, scenic highways, and developed recreation sites with day use areas were rated as having high viewer sensitivity. Moderate viewer sensitivity sites included recreation destination roads and dispersed recreation sites. Low visual sensitivity viewpoints were identified but not carried forward for analysis. Distance zone (i.e., visible area) mapped from the identified high sensitivity viewpoints are illustrated on Figure 3-1: High Sensitivity Views. The following paragraphs discuss each of the inventoried viewpoint categories.

### *Residences*

All residences were considered high sensitivity due to high concern (i.e., user attitude) and long view duration. Residences are located at the Brownlee and Oxbow Villages, and a group of mobile homes are near agricultural lands near milepost 7.6.

### *Parks and Recreation Areas*

Existing parks and recreation areas are located near the northern and southern ends of the study corridor. Individual use and larger gatherings occur at the developed recreation areas, resulting in high viewer sensitivity (i.e., high use volume, high user attitude, and moderate viewing durations).

Dispersed recreation sites occur throughout the study corridor and are similar in distribution to the developed recreation areas. Dispersed recreation areas were considered high sensitivity because these areas have moderate use volume, high user attitude, and moderate viewing durations.

### *Travel Routes*

The Oxbow-Brownlee Road is a recreation destination road. This route has moderate viewer sensitivity due to moderate user attitude, short duration of view, and moderate to high use volume. High sensitivity travel routes in the vicinity of the proposed Project include the Hells Canyon Scenic Byway (i.e., Oregon State Route 86 and its continuation on the Idaho side of Hells Canyon reservoir north of the proposed Project area). Also refer to Figure 3-1: High Sensitivity Views and Recreation (section 3.2.4) below. Oregon SR 86 connects from Oxbow to Halfway and carries the designation of "All American Road" (FHWA, 2000). The continuation of the byway on the Idaho side of Hells Canyon reservoir carries the Scenic Byway designation by the Idaho Transportation Department (ITD, 2002).

## Visibility from Sensitive Viewpoints

Views from all sensitive viewpoints (e.g., recreation sites, residences, and roadways) on the Oregon side of the reservoir are typically oriented east to the reservoir, and to some extent to the landscape along the opposite shore (i.e., the Idaho side).

### *Residences*

Several residences in the Brownlee and Oxbow villages have foreground views of the existing line corridor.

### *Parks and Recreation Areas*

Views from McCormick Park, Carter's Landing, and Copperfield Park, occurring in the foreground distance zone to the existing transmission line corridor and other constructed features, are oriented toward the reservoir. Woodhead Park, located on the edge of the three-mile visual study corridor, does not have views of the existing transmission line corridor.

**Figure 3-1 High Sensitivity Views**

***Travel Routes***

When traveling southbound on the Oxbow-Brownlee Road viewers see foreground views mostly of canyon walls and slopes, and in some areas the existing transmission line corridor is seen. There are few locations when traveling northbound on Oxbow-Brownlee Road where the existing transmission line corridor can be seen. There are also foreground views of the existing 69kV line for a short distance along the Hells Canyon Scenic Byway (Oregon SR 86) just west of Oxbow along Pine Creek (also refer to Recreation [section 3.2.4] below).

## Designated Corridor and VRM Class

Utility corridors were designated in the Baker RMP (BLM 1989) by reference to the Western Regional Corridor Study (Western Utility Group 1992). The plan identified VRM levels for areas crossed by the existing 69kV transmission line, but failed to identify a VRM level consistent with a designated corridor.

Visual resource inventory and management objective classifications (i.e., VRM classes) were established within the area of the proposed Project (e.g., study corridor) on public lands. The public lands are currently managed as VRM Class II (refer to the Baker RMP) (BLM 1989). The VRM Class II objective is to retain the existing character of the landscape. Activities may be visible, but should not attract the attention of the casual observer. Therefore, the direction of the RMP is that the proposed transmission line should not strongly contrast with the existing condition (i.e., facilities located within the existing designated transmission line corridor). Also refer to Land Use (section 3.3.1) below for additional information about the Baker RMP and the designated utility corridor.

## 3.2.2 Listed Species

**Bald Eagles** *(Haliaeetus leucocephalus)*

Legal Status—The bald eagle was listed as an Endangered species on February 14, 1978, throughout the lower 48 states, except in Minnesota, Michigan, Wisconsin, Washington, and Oregon, where it was listed as Threatened (43 FR 6233, February 14, 1978). Since that time, populations have recovered significantly and, on August 11, 1995, the FWS upgraded the species' status to 'Threatened' throughout the lower 48 states (60 FR 133, July 12, 1995). Recently, the FWS proposed removing the bald eagle from the Endangered Species List (64 FR 128, July 6, 1999). Presently, the bald eagle remains listed as 'Threatened'.

In addition to the federal listing, bald eagles are considered 'Threatened' by the Oregon Department of Fish and Wildlife (ODFW) and 'Endangered' by the Idaho Department of Fish and Game (IDFG). The species is currently rated as a 'List 2' species by the ONHP, meaning that the bald eagles are "…threatened with extirpation or presumed to be extirpated from the state of Oregon." (ONHP 2001). However, the bald eagle has reached the recovery goals for the State of Oregon (FWS 1986). In 2002, 401 of 427 bald eagle nest sites were occupied in Oregon (Isaacs and Anthony 2002). The recovery population goal for Oregon is 206 breeding pairs (FWS 1986); this goal has been reached and exceeded since 1992. The number of occupied breeding territories in Oregon rapidly increased from 20 in 1971 to 427 in 2001 (Isaacs and Anthony 2002). The recovery population goal for the Snake River bordering Oregon and Idaho (Zone 14) is six breeding pairs (FWS 1986). Currently, two nesting pairs are found in Zone 14 (Isaacs and Anthony 2001; Sallabanks 2001). One nest site is in the proposed Project Area (Cottonwood nest site) and the other is located along Hells Canyon Reservoir on the Idaho side (Airport nest site).

Wintering Bald Eagles: Numbers and Distribution—From 1988 through 1991, Isaacs *et al*. (1992) studied bald eagles, documenting abundance, locating foraging areas and night roosts, and describing food habits of wintering bald eagles in Northeast Oregon and adjacent areas of Washington and Idaho. The study

showed that the majority of wintering activity in the study corridor occurred on Brownlee Reservoir (27%), followed by the lower Grand Ronde and Wallowa rivers (23%), Oxbow Reservoir (16%), and the Wallowa Valley (15%). Fish and mammal carrion were the most frequently recorded food items. The number of bald eagles wintering along the Snake River has substantially increased since the late 1970s (Holthuijzen 1999).

IPC has conducted midwinter aerial surveys of wintering bald eagles since 1994 as part of the Hells Canyon Complex relicensing effort (Holthuijzen 1999). Surveys were conducted from Weiser, ID to the confluence of the Snake and Salmon rivers. Oxbow Reservoir showed the highest density of wintering bald eagles (1.9 eagles/mi) compared to the other Hells Canyon Complex reservoirs (Brownlee and Hells Canyon reservoirs) and the unimpounded reach downstream of Hells Canyon Dam (Holthuijzen 1999). Wintering bald eagles were found in the Hells Canyon Complex from early November through April, with numbers peaking in January and February (Holthuijzen 1999). During daylight hours the eagles' activities are concentrated along the reservoir edge. Bald eagles were observed to perch in trees as well as on rock outcrops (Holthuijzen, personal communication).

Wintering Bald Eagles: Roosts—Isaacs *et al*. (1992) identified winter roost sites in northeast Oregon and adjacent areas in Idaho and Washington, including the Project Area. Two roost sites were reported in or near the Project Area, namely the Eagle Island Creek Roost (Oregon) and the Myra Tree Creek roost (Idaho). Up to 70 eagles were counted at the Eagle Island Creek Roost (Isaacs *et al.* 1992).

Nesting Bald Eagles—One active bald eagle nest site is located in the Project Area (Cottonwood nest site). This site was first occupied in 1999. The existing 69kV transmission line is at it's closest point approximately 128 m upslope from the nest tree. The nest is located in a ponderosa pine (*Pinus ponderosa*) tree, 98 m upslope from the Oxbow-Brownlee Road. This road has a consistent use during the months of May through August of 450 vehicles with an average per day +/- 20 vehicles. (IPC 2003). Vehicular use of the road then drops off during September and December, based on traffic counter information collected during 2001-2002. Thus, the Cottonwood nest site is exposed to relatively high traffic volumes during the nesting season. In spite of traffic flows and the close vicinity of the nest tree to the road, the Cottonwood nest site has produced young each year from 1999 through 2002 (Pope 2000, Isaacs and Anthony 2001).

An additional six nesting territories have been located in the vicinity of the Project Area. One active bald eagle nest site (Airport) is located several miles downstream of the Cottonwood nest site. The Airport nest site was first occupied in 1998 and produced young each year from 1998 through 2002 (Sallabanks 2001). Historic nest sites that currently are not occupied are found at upper Oxbow Reservoir (Lone Pine) and Hells Canyon Reservoir (Dry Gulch). Lone Pine was last occupied in 1988 and Dry Gulch in 1984. Three other sites where bald eagle nesting activities were reported are Richland (1990), Eagle Island Creek (1990), and Boat Launch (1998). Although breeding may have been attempted at these sites, none of these sites produced young (Holthuijzen, personal communication).

The timing of egg laying varies with latitude (Buehler 2000). In the greater Yellowstone ecosystem, clutches are laid from early March through mid-April and later dates at higher elevations (Swenson *et al*. 1986). Incubation is 35 days (Buehler 2000). Nest departure is variable depending on sex and hatching order on growth and development (Bortolotti 1986). Bortolotti (1986) reported an average fledging age for males as 78 days and females 82 days. Nest data collected at the Cottonwood and Airport nest sites indicates that bald eagles incubate at least by early March and young are fully feathered (80 days or older) by the middle of June (Holthuijzen, unpublished data). Thus, by July 15, bald eagle young in Hells Canyon have fledged.

**Canada Lynx** *(Lynx canadensis)* – The species is currently listed as 'Threatened' by the FWS, and is considered a 'sensitive critical' species by the ODFW. Canada lynx are listed as a peripheral species of special concern by the IDFG (2002).

Lynx could move through the study corridor, although there is no significant lynx habitat available. Lynx may move into the area during the winter months in search of prey, but only for a short time (Miller, 2002). Lynx are typically associated with large tracts of higher elevation boreal or coniferous forest. In central Idaho, primary habitat has been identified as lodgepole pine, subalpine fir, Englemann spruce, and moist Douglas-fir habitat types at elevations of 4,000 to 7,000 feet (USDA Forest Service, 2000).

**Bull Trout** (*Salvelinus confluentus*) – Bull trout occur in coldwater streams and rivers, and occasionally in some higher lakes. The species is currently listed as 'Threatened' by the FWS, and is considered a 'sensitive critical' species by the ODFW. Bull trout are on 'List 1' of the Oregon Natural Heritage Program's sensitive species lists (ONHP 2001). Additionally, the IDFG listed the Bull Trout as a priority species of special concern. The FWS has proposed critical habitat for this species that includes the waters of the Snake River through Hells Canyon, Oxbow, and Brownlee Reservoirs as well as Pine Creek and Wildhorse Creek.

Bull trout are known to inhabit Pine Creek at the northern edge of the study corridor, however this creek would not be crossed by the proposed Project centerline. Bull trout were also found to inhabit Wildhorse Creek during IPC's Hells Canyon Complex relicensing studies. This creek is on the Idaho side of the Oxbow Reservoir adjacent to mile 10 of the proposed Project but would not be crossed by the proposed Project. During the IPC studies, no bull trout were found in any other creeks within the study corridor.

### 3.2.3 Wildlife - Big Game

#### Introduction

This section describes big game species and habitats within the 1/2-mile wide biological resource study corridor. This study corridor also encompasses the Brownlee-Halfway 69kV reroute. Mule deer (*Odocoileus hemionus)*, and Rocky Mountain bighorn sheep (*Ovis canadensis* ) are known to occur in various areas of the study corridor.

Data for this analysis was collected from various sources, including from studies completed for the Hells Canyon relicensing process by IPC, as well as from agency sources (i.e., BLM, ODFW, IDFG and FWS). Both species are considered important for hunting and wildlife viewing. Several locations in the canyon are considered critical wintering and lambing habitats for Rocky Mountain bighorn sheep. There are also critical wintering areas in the canyon for mule deer.

#### Inventory

The entire proposed Project is important winter range for mule deer that use the habitat in large numbers from February through March (Edelmann 2001, Miller 2002). IPC conducted a winter ecology study of mule deer for the Hells Canyon Complex relicensing project. Aerial and ground surveys of mule deer distribution have been conducted during the past three years within most of the Hells Canyon Complex study area. Results show that the sub-unit containing the study corridor has some of the highest densities of mule deer during the winter months. Population estimates in these units have been conducted as recently as 1997. The highest counts came from the Keating and Pine Creek Units totaling 789 individuals (IPC 2001). These data confirm incidental observations by area wildlife biologists indicating heavy winter range use by mule deer in the study corridor (Edelmann 2001, Keister 2001, Miller 2002). Mule deer habitat consists of approximately 197 acres within the proposed right-of-way (ROW) corridor, 122 acres of which is on BLM land. Mule deer in the Project area fall within the Pine Creek, Lookout

Mountain, and Keating Big Game Management Units. No specific literature was located that outlines management of mule deer in Hells Canyon. Deer management in both Idaho and Oregon is largely restricted to annual population surveys, law enforcement of established hunting regulations, and manipulation of harvest levels (IPC 2001).

Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*) also winter within the study corridor. There are approximately 149 acres of bighorn sheep habitat within the proposed ROW corridor, 105 acres of which is on BLM land. The area between Cliff Creek and Black Canyon, along the southern portion of the study corridor, receives the heaviest use by bighorn sheep (Edelmann 2001). In conjunction with the Rocky Mountain Elk Foundation, IPC conducted a study on bighorn sheep use of the Hells Canyon Complex relicensing area. Data showed that the entire Oregon portion of the study corridor is occupied bighorn sheep habitat (Christensen 2001).

In addition to winter foraging, bighorn sheep lambing occurs within the study corridor. Lambing occurs in early spring and proceeds through mid-May, and again is concentrated in the Black Canyon and Cliff Creek areas (Edelmann 2001). Lambing success has been poor in recent years, due in part to a disease outbreak, which has affected the young lambs in the herd (Edelmann 2001, Keister 2001).

**Figure 3-2 Wildlife Resources**

**Figure 3-3 Construction Timing Constraints**

## 3.2.4 Recreation

### Introduction

This section describes recreation sites and activities within the ½ mile wide recreation study corridor (¼ mile on either side of the assumed centerline of the proposed 230kV transmission line). This study corridor also encompasses the Brownlee-Halfway 69kV reroute. Recreation activities are categorized as either developed or dispersed recreation. Developed recreation refers to recreation activities that are limited to a specific geographic location and are supported by improvements that commit the resource to specific recreational activities. Dispersed recreation refers to recreation activities that are normally uncontrolled and not limited to a finite location.

The recreation inventory was compiled by reviewing, refining and updating existing data accumulated from the Hells Canyon relicensing studies currently being completed by IPC. Existing maps and July 1999 aerial photographs were reviewed and verified by field reconnaissance during May 2002. In addition, federal, state, and local land resource agencies were contacted to update official information and to solicit further input. In many cases the recreation activities within the study corridor have not been formalized, permitted, or sanctioned by the BLM, IPC or other private landowners. Recreation sites are identified on Figure 3-3: Land Use.

### Inventory

#### *Scenic Byways*

A portion of the Hells Canyon Scenic Byway – Oregon is located west of Oxbow near the north end of the study corridor along Pine Creek (also refer to Visual - Section 3.2.1). The route consists of a loop that leaves Interstate 84 at Baker City, Oregon, encircles the Wallowa Mountains, and intersects again with Interstate 84 at La Grande, Oregon. This Scenic Byway has been designated an All-American Road by the Federal Highway Administration's National Scenic Byways Program (FHWA 2000) and an Oregon State Scenic Byway by the Oregon Department of Transportation – Technical Service Division.

#### *Dispersed Recreation*

Dispersed recreation occurs in many areas along the Oxbow Reservoir within the study corridor. Primary dispersed activities include fishing, hunting, picnicking, boating, and camping. Additional dispersed recreation activities include wildlife and scenic viewing, off-highway vehicle (OHV) use, and hiking.

#### *Developed Recreation*

Four parks and recreation facilities maintained by IPC (Copperfield Park, McCormick Park, Oxbow Boat Launch, Carter's Landing) were identified within the study corridor. The assumed centerline of the proposed 230kV transmission line, however, does not cross any of these recreation sites.

#### *Off-Highway Vehicle Use*

The recreation study corridor occurs within the McGraw Creek/Homestead/Sheep Mountain area where the Baker RMP designates OHV use as "limited". Vehicle travel is restricted to existing roads and trails, year long in this area.

#### *BLM Extensive Recreation Management Area*

A BLM Extensive Recreation Management Area is an area containing opportunities for local recreation where less intensive management is needed to achieve recreation objectives.

Two BLM Extensive Recreation Management Areas (Sheep Mountain and Snake River Breaks) are located within the study corridor. Primary associated recreational attractions of these areas are:

Sheep Mountain – Hunting, Sightseeing-Primitive setting

Snake River Breaks – Hunting, Sightseeing-Primitive setting

***Recreation Use***

Peak recreational use occurs on the typical peak use weekends of Memorial Day weekend, Fourth of July, and Labor Day weekend (IPC (IRP), 2002). Angling, boating and camping are the most popular activities in the Oxbow Reservoir area. The average use of the reservoir was estimated at 721,124 visitor hours annually based on May 1997 through October 1998 recreational use counts conducted by IPC (IPC, 2002a & 2002b). Peak use during a week has been estimated at 48,436 visitor hours (July 4$^{th}$), and monthly peak use levels estimated at 145,310 visitor hours (July). Hunting is the most popular recreation activity in this area during fall and winter.

## 3.2.5 Soil Erosion Hazard

### Introduction

The Baker County soil survey and additional electronic maps and related data were acquired from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Baker City Service Center, in Baker City, Oregon. Relevant soils and their properties and characteristics have been tabulated and described. A field reconnaissance occurred in May 2002 (also refer to Land Use - Section 3.3.1).

The two general soil units that occur within the ½ mile wide study corridor include the Gwinly-Immig-Snell Association and the Ruckles-Ruclick-Lookout Association. This study corridor also encompasses the Brownlee-Halfway 69kV reroute. Slopes in the study corridor vary considerably from 0 to 80 percent or more, but the majority exceeds 40 percent on steep canyon side slopes.

### Inventory

The Gwinly-Immig-Snell Association consists of shallow and moderately deep, well drained very cobbly silt loams and silt loams that formed in colluvium derived from basalt. Water erosion potential ranges from slight to very high. Wind erosion potential ranges from none to slight. Within this association, detailed map unit 40A is considered prime farmland where irrigated; however, only a small amount of these soils exist in the study corridor and no evidence of irrigation was identified (also refer to Land Use section below).

The Ruckles-Ruclick-Lookout Association consists of shallow and moderately deep, well drained silt loams, very cobbly silt loams, and very stony clay loams that formed in colluvium derived from basalt. Water erosion potential ranges from slight to very high. Wind erosion potential is classified as none.

**Figure 3-4 Land Use**

# 3.3 Other Resources

## 3.3.1 Land Use

### Introduction

This section describes existing, planned, and designated land uses within the ½ mile wide land use study corridor (¼ mile on either side of the assumed centerline of the proposed 230kV transmission line). This study corridor also encompasses the Brownlee-Halfway 69kV reroute. Existing maps and July 1999 aerial photographs were reviewed and verified by field reconnaissance during May 2002. In addition, federal, state, and local land resource agencies were contacted to update official information and to solicit further input. Refer to the two land use inventory maps: Figure 3-3: Land Use and Figure 3-4: Land Jurisdiction.

### Land Jurisdiction

Land jurisdiction refers to the administrative authority of federal, state or local governmental agencies. Jurisdiction does not necessarily imply land ownership. For example, privately owned lands may be subject to a local authority like a county or municipality.

The 11 mile assumed centerline of the proposed 230kV transmission line crosses 6.7 miles of public lands administered by the BLM and 4.2 miles of private lands administered by Baker County. Another 0.1 miles crosses the Oxbow Reservoir, which is designated as "Waters of the U.S." The Brownlee-Halfway 69kV reroute would cross 0.1 miles of public lands administered by the BLM.

The study corridor is situated within Baker County. No incorporated cities are located within the land use study corridor.

### Existing Land Use

The canyon between Brownlee Dam and Oxbow Dam is part of a large industrial complex along the Snake River that dates back nearly 50 years. This segment of the canyon is dominated by industrial land uses, including earth-filled dams at Brownlee and Oxbow, a transmission system (69kV, 138kV, and 230kV), powerhouses, the Oxbow-Brownlee Road, the Oxbow Reservoir, protected slopes along the reservoir edge and roadway, developed recreation facilities, residential areas, and other support and ancillary facilities.

Rangeland characterizes the majority of the land use study corridor. Existing land uses include residential, industrial, communication sites, linear features, and livestock grazing. Rural residential development is located along the Oxbow-Brownlee Road. Small concentrated residential areas were identified in Brownlee Court Village and in an area approximately two miles northeast of Brownlee Village. Industrial uses include the Duke and Pine Creek Substations and the Brownlee and Oxbow Substations and dams. Communication sites are associated with IPC facilities.

Active agricultural cultivation was not identified in the study corridor and NRCS classified "prime" soils are not crossed by the assumed centerline of the proposed 230kV transmission line. The NRCS has not identified unique farmland in Baker County (also refer to Soils - Section 3.2.5).

One BLM grazing allotment (Pine Valley allotment #3001) was identified within the study corridor. The entire allotment consists of 25,485 acres of BLM public land and 8,032 acres of private land for cattle grazing (BLM no date). A summary of allotment information is included in Appendix B. The Snake River, Tarter, and Spillway pastures are located within the land use study corridor.

Transportation facilities in the study corridor include Idaho State Route 71, Oxbow-Brownlee Road and Oregon State Route 86. In addition, numerous electrical power lines and transmission lines of various voltages (i.e., 12kV to 230kV) exist within the study corridor. The proposed 230kV transmission line would replace IPC's existing Pine Creek-Duke 69kV transmission line. The Brownlee-Halfway 69kV reroute would avoid the crossing of the Oxbow Reservoir and tie into the proposed 230kV transmission line.

There are two Pine Telephone ROWs for buried fiber optic phone lines within the study corridor. One follows the Oxbow-Brownlee Road shoulder and the second comes down from the canyon rim west of study corridor and enters Brownlee Village.

## Planned Land Use

***BLM Baker Resource Management Plan***

In July 1989, BLM issued a final Baker RMP and the Record of Decision (ROD) (BLM 1989) approving the plan. The RMP documents the decisions reached by the BLM for the managing the resources on 429,754 acres of public lands, and 513,000 acres of private surface with federal mineral estate in the Baker Resource Area of the Vale District. The RMP provides a comprehensive framework for managing and allocating public land and resources in the Baker Resource Area for 10 or more years from its adoption.

***Utility ROWs and Designated Utility Corridor***

Applicable RMP management direction (BLM, 1989) for authorization of new utility ROW within the Baker Resource Area includes encouragement of ROW applicants to locate new facilities adjacent to existing facilities to the extent technically and economically feasible. The ROD also identifies that all utility and transportation corridors identified by the Western Regional Corridor Study are currently occupied and will be designated without further review. The corridors are displayed on Map 6 in the ROD (BLM, 1989), and identify the IPC's existing Pine Creek-Duke 69kV transmission line as a utility corridor.

Additionally, public lands are available for local ROW, including multiple use and single use utility/transportation projects unless within the following exclusion/avoidance areas:

- ROW exclusion areas: Wilderness Areas, Wilderness Study Areas (WSAs), Wild river segments
- ROW avoidance areas: Areas of Critical Environmental Concern (ACECs), Scenic and recreation river segments
- All ROW applications should follow existing proposed Project areas wherever practical and will avoid proliferation of separate ROW

Additional information about the designated utility corridor is found in Section 3.1.2 – Visual Resources.

***Oregon Statewide Planning Goals and Guidelines***

The state of Oregon has 19 statewide planning goals. The goals express the (State's) policies on land use and on related topics, such as citizen involvement, housing, and natural resources. Most of the goals are accompanied by "guidelines," which are suggestions about how a goal may be applied. Oregon's statewide goals are achieved through local comprehensive planning.

**Figure 3-5 Land Jurisdiction**

***Baker County***

The land use study corridor crosses the following Baker County Use Zones:

- Rural Service Area Zone (**RSA**): permitted uses include single-family dwellings, churches, schools and distribution utility facilities.
- Rural Residential Zone (**RR-5**): permitted uses include residential dwellings, some farm use, parks and distribution utility facilities.
- Exclusive Farm Use Zone (**EFU**): permitted uses include farms and farm-related dwellings, harvesting of forest products, distribution utility facilities, solid waste disposal and roads.

Due to zoning regulations, a Conditional Use Permit is required for major utility facility development in Baker County. The request involves a public hearing before the Planning Commission and must address how the proposal meets the Conditional Use Permit Approval Criteria. Conditional Use Permits issued by Baker County applies to non-federal lands within the county.

The Baker County Comprehensive Plan was adopted on March 9, 1983 and acknowledged on April 24, 1986. The Plan has undergone periodic revisions and is currently being revised. Baker County does not have any adopted policies in its Comprehensive Plan regarding the location of major transmission lines.

***Idaho Power Company Resource Management Plan***

As part of the Hells Canyon relicensing process for the three-dam hydroelectric complex, IPC has developed a draft Hells Canyon RMP. The RMP designates appropriate uses for its lands and policies for management of these lands and was submitted for agency and public review in September 2002. Since IPC has jurisdiction only over the lands it owns, these designations and policies can only be applied by IPC to its own lands, but are intended to be consistent with other land management plans. The RMP encourages other landowners and managers in the Hells Canyon area to implement consistent policies on their lands.

Through this RMP, new development in the Hells Canyon area would be sited, designed and conducted with input from an IPC Interdisciplinary Team. Land use classifications involve both human use and resource management. Human use designations include community areas, utility facilities, developed recreation, dispersed recreation, recreation reserve, and utility project areas. Resource management designations include special management areas, resource protection, and resource conservation. The RMP also recognizes existing regulatory classifications for National Recreation Areas, Wilderness, and Wild and Scenic Rivers. According to the RMP, the proposed Project would be located within an area designated as a Utility Corridor Area.

## Preservation and Conservation Areas

***BLM Area of Critical Environmental Concern (ACEC)***

An ACEC is an area within the public land where special management attention is needed to protect and prevent irreparable damage to important historical, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards. The Sheep Mountain ACEC (5,398 acres between Pine Creek and Oxbow Reservoir), including a portion of the Sheep Mountain WSA, is managed to protect outstanding scenic qualities, and maintain or improve wildlife and crucial bald eagle winter habitat.

The Sheep Mountain ACEC is located within the land use study corridor. The existing 69kV transmission line and the assumed centerline of the proposed 230kV transmission line cross the Sheep Mountain

ACEC from milepost 2.5 to milepost 2.6 and from milepost 7.5 to milepost 7.6 within the designated utility corridor (the actual crossing would be less than 300 feet in both locations).

***BLM Wilderness Study Area (WSA)***

A WSA is a roadless area that has been found to have wilderness characteristics. In compliance with the Federal Land Policy and Management Act (FLPMA), BLM evaluated lands within their planning area for the presence of wilderness characteristics. Recommendations as to the suitability of those lands for inclusion in the National Wilderness Preservation System were forwarded in a report to the President in 1991, and subsequently, to Congress in 1992.

Lands identified through the inventory process as WSAs are managed according to *the Interim Management Policy for Lands under Wilderness Review* (IMP), (BLM, 1995). Management according to these guidelines requires non-degradation of wilderness values and thus imposes constraints on the types of activities that can occur in WSAs. Under interim management, the only permitted activities are temporary uses that create no new surface disturbance or do not involve permanent placement of structures.

The Sheep Mountain WSA is located within the land use study corridor. Much of the Sheep Mountain ACEC and WSA, and are in the study corridor (refer to Figure 3-3). The existing 69kV transmission line and the assumed centerline of the proposed 230kV transmission line do not cross the Sheep Mountain WSA. The Sheep Mountain WSA, at its closest point, is located 50 feet from the existing 69kV transmission line. This distance would be even greater for the assumed centerline of the proposed 230kV transmission line, since it is located east (or down slope) of the existing 69kV transmission line (directionally further from the Sheep Mountain WSA).

***Wilderness***

There are no designated Wildernesses within or adjacent to the land use study corridor.

***Wild and Scenic Rivers***

There are no designated Wild and Scenic Rivers within or adjacent to the land use study corridor.

### 3.3.2 Cultural Resources

## Introduction

Information on regional prehistory has been compiled in *Prehistory of the Western Snake River Basin* (Meatte 1990) in *An Overview of Cultural Resources in the Snake River Basin: Prehistory and Paleoenvironments* (Reid 1991) and in Chatters et al. (2002) *From Hells Canyon to the Salmon River: Archaeological Survey of Hells Canyon V. 1*. The Snake River is a geographic boundary between the Columbia Plateau and Great Basin culture areas and historically between Sahaptin and Numic speakers. Sahaptins occupied the Columbia Plateau north and west and Basin Shoshones occupied the territory east and south of the proposed Project, marking cultural differences in subsistence practices related to environment.

Site types expected within the cultural resource study corridor or immediately adjacent to the proposed Project include rockshelters, open camps near the river or river tributaries, rock art and isolated artifacts associated with hunting and gathering activities (Chatters et al 2002; Gross 2001a; Mauser et al 2001). This study corridor also encompasses the Brownlee-Halfway 69kV reroute. Expectations of encountering these site types are low since the waters of the reservoir now inundate habitable bottomlands and steep-sloped terrain dominates much of the proposed Project. Rock art and rockshelters could be expected on

steep slopes. Potential habitable areas up tributary channels may have provided access between the river and uplands but are scoured by periodic floods, lowering expectations for site discovery.

## Inventory

### *Archaeological Research*

Archaeological investigations have been conducted in the vicinity of the proposed Project with cultural resources identified. The Smithsonian Institution River Basin Survey conducted the earliest studies in the late 1940s-early 1950s. Shiner (1951) investigated the Hells Canyon Reservoir area including a portion of the Brownlee Reach for the Columbia Basin Project River Basin Surveys, recording 60 sites (Shiner 1951). Archaeological testing and data recovery excavation was conducted in 1956 at Robinette Cave and Village in the Brownlee reach and Allison Creek Rockshelter, the Ray site and the Big Bar site in the Hells Canyon reservoir (Caldwell and Mallory 1967).

Most of the research since the River Basins Survey has been below Brownlee Dam. Excavations were conducted at Hells Canyon Creek (Pavesic 1971, 1986), McGraw Creek Village (Warren et al. (1968) 1986), Squaw Creek Rockshelter Warren et al. 1968), the Switchback site (Warren et al 1968), and Bernard Creek Rockshelter (Randolph and Dahstrom 1977) during the 1960s and 1970s . Excavation in Hells Canyon at six sites near Pittsburg Landing is the most comprehensively reported work from Hells Canyon (Reid 1991b). Additionally, Reid has prepared a comprehensive overview of the prehistory and paleoenvironments of the entire Snake River Basin, including the cultural resources study corridor (Reid 1991a).

The cultural resources study corridor was included in the area researched as part of IPC's Hells Canyon Complex relicensing effort (Gross 2001a, 2001b; Mauser et al 2001). Records were checked at both Oregon BLM and Idaho State Historic Preservation Office. Science Applications International Corporation staff examined General Land Office (GLO) maps and surveyor notes at the Oregon BLM to determine if any historic roads, trails or structures were located within the study corridor (Gross 2002:10).

Previous research in southwestern Idaho and results of the records search and constraints imposed by rugged terrain resulted in certain expectations for survey results. Very few Native American sites have been found along the reservoir or in the steep areas that dominate much of the study corridor (Gross 2002).

Previous surveys conducted within a mile of the study corridor include the following:

- Klug (1992) surveyed a six-mile ROW on the Oregon side of Oxbow Reservoir below Brownlee Dam prior to installation of a fiber optic cable. He recorded two sites within his study area–both lithic scatters (35-BA-893 and 894).

- Mauser (1997a, 1997b) surveyed a transmission line ROW from Hells Canyon Dam to Oxbow on the Idaho side and from Brownlee Dam west to Quartz Junction near Baker City in 1997. Another IPC survey from Brownlee Dam southeast to near the Paddock Reservoir identified numerous sites with one, a small lithic scatter (IPCBD97-01) located approximately a quarter mile south of Brownlee Dam (Mauser et al 1999). A survey of the Brownlee Reservoir drawdown zone and reservoir margin was also conducted for IPC by Mauser et al. (2001) resulting in the identification of 83 sites, most of which are located at the southern end of the reservoir. Those recorded nearer the study corridor are mostly mining-related sites or roads.

- Science Applications International Corporation (SAIC) conducted archaeological inventory of Oxbow and Hells Canyon Reservoirs from the high water mark to 0.1 mile inland on the reservoir margins (Gross 2001a). The inventory, conducted at a reconnaissance level, surveyed the majority of the study corridor. Fourteen new sites, and ten isolated artifacts were recorded and two previously recorded sites were re-examined (Gross 2001a:ii).

In addition to the archaeological surveys, IPC's architectural resources were inventoried in 1999 (Gross 2001b). Most of the buildings within the study corridor date from the mid-late 20th century except for a wooden barn near a mostly abandoned trailer park midway down Oxbow Reservoir.

***Cultural Resources in the Study Corridor***

A Class III cultural resources survey was conducted between the Oxbow Brownlee Road and the existing 69kV transmission line for most of this corridor by Science Applications International Corporation (SAIC) (Gross 2002:1). The area of potential effect includes the 160-foot proposed transmission ROW where structures and most access roads would be located. Additional ROW outside of the 160 feet would likely also be potentially affected from construction of access roads. About 742 acres of the study corridor surveyed in 1999 and 2000 at a reconnaissance level by SAIC (Gross 2001a) will need to be surveyed again at a detailed level acceptable to the BLM. This survey and 106 Consultation with the Oregon SHPO will be completed while the Plan of Development (POD) is being prepared and prior to the start of construction. SAIC inventoried this area in 2001 by reconnaissance (Gross 2002: 12).

Sixteen archaeological resources were recorded in the Oxbow Reservoir area prior to the survey for this proposed Project (Table 3-3). Nine of these sites are in Idaho, across the river from the proposed Project. Seven sites are in Oregon. Of the Oregon sites, five have been at least partially inundated by the reservoir. The remaining two sites, both Native American lithic scatters, were recorded in 1992 (Klug 1992). SAIC field crew re-examined these sites in 1999 (Gross 2001a), re-recording one (35-BA-894). The other was not re-recorded because it appeared to consist of natural shatter (35-BA-893).

**Table 3-3 Archaeological Sites Recorded by Previous Inventories in the Vicinity of the Proposed Project**

| Site Number | Site Type | Description | Location in relation to proposed Project | Reference |
|---|---|---|---|---|
| 10-AM-405 | Unknown | Talus pit | Outside of proposed Project | ISHS 1995 |
| 10-AM-448 | Native American | Lithic scatter | Outside of proposed Project | SAIC 2001 |
| 10-AM-513 | Native American | Lithic scatter | Outside of proposed Project | SAIC 2001 |
| 10-AM-514 | Native American Historic | Campsite (Native American) and homestead (historic) | Outside of proposed Project | SAIC 2001 |
| 10-AM-516 | Native American | Lithic scatter | Outside of proposed Project | SAIC 2001 |
| 10-AM-517 | Historic | Collapsed cairns | Outside of proposed Project | SAIC 2001 |
| 10-AM-518 | Native American | Isolated artifact | Outside of proposed Project | SAIC 2001 |
| 10-AM-519 | Historic | Isolated artifact | Outside of proposed Project | SAIC 2001 |
| 10-AM-520 | Native American | Lithic scatter | Outside of proposed Project | SAIC 2001 |

| Site Number | Site Type | Description | Location in relation to proposed Project | Reference |
|---|---|---|---|---|
| IPCBP97-01 | Native American | Lithic scatter | Outside of proposed Project | NWAA 1997; Mauser 1999 |
| 35-BA-10 | Unknown, probably Native American | Unknown | Inundated by reservoir | OAS 1973 |
| 35-BA-11 | Unknown, probably Native American | Unknown | Inundated by reservoir | OAS 1973 |
| 35-BA-23 | Native American | Ray Site | Inundated by reservoir | Caldwell and Mallory 1967; Reid 1991a |
| 35-BA-893 | Native American | Lithic scatter | Outside proposed Project | Klug 1992; BLM 1992a; SAIC 2001 |
| 35-BA-894 | Native American | Lithic scatter | Outside proposed Project | Klug 1992; BLM 1992b; SAIC 2001 |
| 35-BA-9 | Unknown, probably Native American | Unknown | Inundated by reservoir | OAS 1973 |
| 35-BA-146 | Historic | OWR&N Railroad | Inundated by reservoir | Oregon SHPO n.d. |

Source: Gross 2002; Mauser et al 1999

### *Survey Results*

Surveys that have been completed for the proposed Project thus far have found and documented six previously unrecorded resources (Table 3-4), all in Oregon. These consist of two Native American isolates (IPC01 BO3 and IPC01 BO4), three historic sites (IPC01 BO1, IPC01 BO2, and IPC01 BO6) and one historic isolated find (IPC01 BO5). One previously recorded Native American resource was re-recorded, 35-BA-894 which is outside of the proposed project. An isolate (IPC01 BO3) is near the mapped location of 35-BA-23, the Ray site. The OWR&N railroad is either completely underwater or dismantled; although it is possible that Oxbow-Brownlee Road uses part of the historic railroad grade, suggested by the 1919 GLO plat for Township 8 South, Range 48 East. The transmission line on the 1919 GLO plat takes a different route than the existing transmission line. Site IPC01 BO6 may be the location of the Thomas B. Leep property also shown on the 1919 GLO map.

Previously recorded Native American sites within the survey corridor but outside of the Project right of way, 35-BA-893 and 35-BA-894 were updated; one was re-recorded (35-BA-894). 35-BA-893 was found to consist of natural shatter and was not re-recorded.

**Table 3-4 2001 Inventories in the Vicinity of the Proposed Project**

| Temporary Site Number | Site Type | Ownership | Description | Location in relation to Proposed Project | Preliminary NRHP eligibility/Criterion |
|---|---|---|---|---|---|
| IPC01 BO1 | Historic (Private) | Private | Stacked rock structural remains | Existing power line runs overhead | Eligible/ Criterion D |
| IPC01 BO2 | Historic (Private) | Private | Structures: outbuildings and house | Two existing power line poles are on the site | Not eligible, lacks integrity |
| IPC01 BO3 | Native American (BLM) | BLM | Isolated artifact | | Not eligible |
| IPC01 BO4 | Native American (Private) | Private | Isolated artifact | | Not eligible |

| Temporary Site Number | Site Type | Ownership | Description | Location in relation to Proposed Project | Preliminary NRHP eligibility/Criterion |
|---|---|---|---|---|---|
| IPC01 BO5 | Historic (Private) | Private | Isolated artifact | | Not eligible |
| IPC01 BO6 | Historic (BLM/Private) | BLM/Private | Cleared field and rock pile associated with barn (possible Thomas B. Leep association) | Existing power line is northeast; no poles are on site | Eligible/ Criteria C or D |

Source: Gross 2002

***Native American Resources***

Two new resources recorded as a result of the surveys that have been completed for the proposed Project to date were Native American. Both are isolated artifacts and not eligible for the National Register.

- IPC01 BO3 is an isolate consisting of a single piece of obsidian shatter. The artifact is near where the Ray site, 35-BA-23, is located which may have been inundated by the reservoir. However, the location of the Ray site is uncertain and may be some distance from this artifact. There is no indication of subsurface cultural deposits and there is no verifiable connection to any other cultural material. The isolate is not eligible for the National Register (Gross 2002:19-20).

- IPC01 BO4 is an isolated artifact consisting of a single flake found on a steep hill slope. There are no known associations to other cultural features or artifacts and it is considered to be not eligible for the National Register (Gross 2002:20).

***Historic Resources***

Four resources newly recorded as a result of the surveys that have been completed for the proposed Project to date are historic, three of which are structural remains and one is an isolated artifact, an historic can.

- IPC01 BO1 is a four-walled rectangular structure with stacked rock walls and an extended sidewall that connects the structure to a section of vertical rimrock behind the structure. The site is located at the base of a rimrock cliff about 50 meters west of Oxbow Reservoir. Thick grasses limited ground visibility. The site is impacted by recreation-related activities. The foundation was probably built after 1919, as it does not show on the 1919 GLO plat for the Township. The site is similar to sites recorded elsewhere in Hells Canyon where foundations are constructed of native stacked rocks using natural features of the canyon. The site is recommended as potentially eligible for the National Register under Criterion D because of its potential to yield information that could be used to add significantly to our understanding of historic homesteading in this portion of Hells Canyon (Gross 2002:20, 23).

- IPC01 BO2 is a small compound that includes a house and four outbuildings, located on an alluvial fan at the foot of Black Canyon. Equipment is scattered across the property. No complete inventory could be conducted due to posted “no trespassing” signs. Buildings are in disrepair and house miscellaneous property. The equipment may have been moved to its current location and stored as a collection. Some of the buildings appear to have been moved to the site from another location. The house has been modified from its original appearance. Outbuildings do not have integrity of location and are in disrepair. The house does not appear on the 1919 GLO plat of this township. The compound is recommended as not eligible for the National Register (Gross 2002:23,27).

- IPC01 BO5 is an isolated artifact consisting of a single metal can found on a ridge top overlooking Oxbow Reservoir. No other artifacts or features are associated. The artifact is not eligible for the National Register (Gross 2002:27).

- IPC01 BO6 is a cleared field with an associated historic barn, located on a bench overlooking Oxbow Reservoir. The barn was recorded during IPC's historic building inventory (Gross 2001b). It is possible the barn was moved to this location. Near the barn, an area has been cleared of rocks, possibly to create an arable area. Rocks are piled along the south side of Eagle Island Creek. The barn appears to be in the location of the structure labeled "Thomas B. Leep" on the 1919 GLO map for Township 8 South, Range 48 East. Leep was one of eight children of early Halfway and Pine Valley settlers Selby Leep and Rozella S. Thornton Leep. This site would be eligible for the National Register because of the barn's association with a known person and its potential to contribute to our understanding of Hells Canyon (Gross 2002:28).

***Cultural Plants***

A number of plant species occur in the proposed Project area that may be considered as an ethnobotanical resource (or "cultural plant") by Native American tribes (Appendix F). Cultural plants include plants used for food, technology or industry, medicine, and spiritual symbols (Hunn et al. 1998). The extent and abundance of specific cultural plant species in the project area is not quantified. Plant species occurring in the proposed Project area that may have cultural importance were determined by reviewing published sources on tribal ethnobotany (Torgenson 1996, Turner 1997, Hunn et al. 1998) and from confidential, personal communications and tribal report. The importance and level of plant use in the project area by tribal members are not known.

***Traditional Cultural Properties***

Within the project area, Idaho Power Company addressed the issue of traditional cultural properties in the context of Hells Canyon Relicensing through oral history studies and literature review. The Confederated Tribes of the Warm Springs of Oregon (Whipple 2001), Confederated Tribes of the Umatilla Indian Reservation (Farrow 2001) and the Burns Paiute Tribes (Reed-Jerofke 1999) have completed oral history projects. Tribal studies indicate that Traditional Cultural Properties exist in the project area but specific information about where these properties are located has not been released. The literature review contracted by Idaho Power Company found that information about the location of traditional cultural properties in Hells Canyon was largely missing from the anthropological literature (Myers 2002). At this time, BLM is not aware of any traditional cultural properties within the project area.

### 3.3.3 Botanical Resources

## Introduction

Vegetation within the study corridor consists of shrub-steppe species with riparian habitat in some of the drainages and along the reservoir. The dominant grass species on the hillsides are bluebunch wheatgrass (*Pseudoregnaria spicata*), Sandberg's bluegrass (*Poa secunda*), and Idaho fescue (*Festuca idahoensis*). Cheatgrass (*Bromus tectorum*) is a non-native annual weedy grass species that dominates the more disturbed habitats in the study corridor.

The primary shrub is antelope bitterbrush (*Purshia tridentata*). Forb species include various buckwheats (*Eriogonum spp*.), arrowleaf balsamroot (*Balsamorhiza sagittata*), and several species of desert-parsley (*Lomatium spp*.).

Riparian habitat is a mixture of sedges, forbs, and shrubs. Syringa (*Philadelphus lewisii*), chokecherry, (*Prunus virginiana*) and serviceberry (*Amelanchier alnifolia*) are common in the larger draws and near the reservoir.

Figure 3-5: Botanical Resources and Wetlands map illustrates the geographic locations of these resources in the proposed Project area.

## Special Status Plant Species

A number of special status plant species have potential to occur within the study corridor. The following species either have known populations in the study corridor, or have a moderate-to-high potential for occurrence. This study corridor also encompasses the Brownlee-Halfway 69kV reroute.

**Oregon bolandra *(Bolandra oregana*)** – A rhizomatous perennial that grows 15-60 centimeters high with linear purple flowers. The glandular leaves are shallowly lobed. Oregon bolandra grows in moist rock seeps, often on basalt cliffs in drainages.

**Back's sedge *(Carex backii)*** – A tufted perennial that grows in moist shady woods or dense shrub or undershrub areas. The triangular culms are between 5-30 centimeters tall. The leaves are flat and wide.

**Porcupine sedge *(Carex hystricina)*** – A rhizomatous perennial that grows 30-60 centimeters in height. Porcupine sedge is generally found in wet habitats throughout most of the U.S.

**Stalk-leaved monkey flower *(Mimulus patulus)*** – A slender annual forb that has stems growing to a height of 5-20 centimeters with yellow flowers 7-10 millimeters in length. Stalk-leaved monkey flower is found on damp ground, wet cliffs, and road cuts.

**Torrey's rush *(Juncus torreyi)*** – A rhizomatous perennial that grows up to 80 centimeters tall and up to 6 millimeters thick. Torrey's rush is found in moist places and can tolerate saline and alkaline conditions.

## Noxious Weeds

"Noxious weed" means any plant designated by the Oregon State Weed Board that is injurious to public health, agriculture, recreation, wildlife, or any public or private property. Noxious weeds have become so established and have spread so rapidly that they have been declared by Oregon Revised Statutes (ORS) 570.5.5 to be a menace to public welfare.

Noxious weed studies conducted in 1998 and 1999 revealed 17 different noxious weed species located within the study corridor. The most prominent species found in the area were medusahead wildrye (*Taeniatherum caput-medusae)*, scotch thistle (*Onopordum acanthium)*, common houndstounge (*Cynoglossum officinale)*, common pepperweed (*Lepidium latifolium)*, and puncturevine (*Tribulus terrestris)*. These species are typically found in drier, upland sites and are associated with soil disturbance from livestock grazing, roads, recreation, or fire.

**Figure 3-6 Botanical Resources and Wetlands**

### 3.3.4 Other Wildlife Resources

In addition to the listed species, discussed in Section 3.2.2, other Candidate and Sensitive wildlife species have a potential to occur in the vicinity of the proposed Project.

**Candidate Species and Sensitive Wildlife Species -** In addition to the listed species suggested by the FWS, Candidate and other sensitive species are shown in Table 3-5. These species were considered based on information provided by the FWS, ODFW, local wildlife experts, and ONHP records. Summaries of existing conditions for the potential species of concern are based on data gathered during the IPC technical studies (Turley and Holthuijzen. 2002).

**Table 3-5 Candidate and Sensitive Wildlife Species**

| Species | Identified within Adjacent Areas | Identified within Study Corridor |
|---|---|---|
| **Candidate Species** | | |
| Yellow-billed cuckoo | Yes | No |
| Columbia spotted frog | Yes | No |
| **Sensitive Species** | | |
| **Birds** | | |
| Northern goshawk | Yes | No |
| Western burrowing owl | Yes | No |
| Ferruginous hawk | Yes | No |
| Greater sage-grouse | Yes | No |
| Olive-sided flycatcher | Yes | No |
| Yellow-breasted chat | Yes | No |
| Peregrine Falcon | Yes | No |
| Mountain Quail | No | No |
| White-headed woodpecker | Yes | No |
| Lewis' Woodpecker | Yes | Yes |
| Vaux's Swift | Yes | No |
| Willow Flycatcher | Yes | Yes |
| Townsend's warbler | Yes | Yes |
| Yellow warbler | Yes | Yes |
| MacGillivray's warbler | Yes | Yes |
| Wilson's warbler | Yes | Yes |
| Plumbeous Vireo | Yes | Yes |
| Loggerhead Shrike | Yes | Yes |
| Brewer's Sparrow | Yes | Yes |
| **Fish** | | |
| Inland Columbia Basin Redband Trout | Yes | Yes |
| **Amphibians and Reptiles** | | |
| Northern sagebrush lizard | Yes | No |
| Tailed frog | Yes | No |
| Western Toad | Yes | Yes |
| **Mammals** | | |
| California wolverine | Yes | No |
| Pacific fisher | Yes | No |
| Long-legged myotis | Yes | No |
| Small-footed myotis | Yes | No |
| Silver-haired bat | Yes | No |
| Pale western big-eared bat | Yes | No |
| Fringed myotis | Yes | No |
| Western pipistrelle | Yes | No |

| Species | Identified within Adjacent Areas | Identified within Study Corridor |
|---|---|---|
| Spotted bat | Yes | No |
| Townsend's big-eared bat | Yes | Yes |
| Yuma myotis | Yes | No |

The ONHP verified that for most of the species listed in Table 3-5, there no known records of occurrence within a two-mile radius of the study corridor. The following is a description of those species in Table 3-5 that have been found within the study corridor or are likely to occur there:

**Lewis' Woodpecker** (*Melanerpes lewis*) – The Lewis' woodpecker breeds in open forests and woodlands, including some treed riparian habitats in otherwise open areas (Ehrlich *et al.* 1988). Currently, the species is a FWS 'Species of Concern' and is designated as a 'Sensitive Critical' species by the ODFW. The 'Sensitive Critical' designation is for those animals, "…for which listing as threatened or endangered is pending; or those for which listing as threatened or endangered may be appropriate", (ONHP 2001). The ONHP did not report any occurrences of Lewis' woodpeckers from the study corridor (ONHP 2001). However, during field surveys for IPC's investigation of avian communities in the Hells Canyon Complex study corridor, the species was seen on the Oxbow Reservoir reach.

**Vaux's Swift** (*Chaetura vauxi*) – Vaux's swifts typically breed in forests and woodlands, but can be found foraging in, and migrating through, open habitats such as those found within the study corridor (Turley and Holthuijzen 2002, Ehrlich *et al.*1988). Currently, the species is a BLM 'Sensitive' species, but is not tracked by the ONHP (ONHP 2001). IPC did not record any Vaux's swift sightings on the Oxbow Reservoir reach during its avian community study conducted for the Hells Canyon Complex relicensing project (Turley and Holthuijzen 2000). However, two sightings of Vaux's swifts were recorded incidental to other IPC wildlife surveys in the area. These were both located on the Idaho side of Oxbow Reservoir, approximately 900 m upstream from Oxbow Dam (IPC *unpublished data*).

**Willow Flycatcher** (*Empidonax traillii*) – The willow flycatcher is found in swamps, riparian thickets, and other brushy habitats (Ehrlich *et al.* 1988). The species is currently a FWS 'Species of Concern' an ODFW 'SU' (status undetermined) species, and is on the ONHP's 'List 4' sensitive list (ICDC 2001, ONHP 2001). Turley and Holthuijzen (2000) report that willow flycatchers were recorded on all five reaches surveyed (including the Oxbow Reservoir reach) during the avian community studies conducted for the Hells Canyon Complex relicensing effort (abundance rating of 'rare' for all five reaches).

**Various Warbler Species** – Four warbler species considered 'Sensitive' by the BLM were thought to have potential for occurrence within the study corridor. These are, the Townsend's warbler (*Dendroica townsendi*), the yellow warbler (*Dendroica petechia*), the MacGillivray's warbler (*Oporornis tolmiei*), and the Wilson's warbler *(Wilsonia pusilla*). All four of these species can be found in woody, riparian habitats, such as those found within the draws of the study corridor. The IPC study of avian communities conducted for the Hells Canyon relicensing project found all four of these warblers to be present, at varying levels of abundance, on the Oxbow Reservoir reach: Townsend's (rare), yellow (common), MacGillivray's (uncommon), and Wilson's (uncommon) (Turley and Holthuijzen 2000).

**Plumbeous Vireo** (*Vireo plumbeous*) – The plumbeous vireo, formerly the solitary vireo (*Vireo soliarius*), inhabits woodland and shrubland habitats of the western interior states. The species is currently considered a BLM 'Sensitive' species. IPC's study of avian communities for the Hells Canyon relicensing effort found plumbeous vireos commonly on the Oxbow Reservoir reach (Turley and Holthuijzen 2000). Twenty-three occurrences of Plumbeous vireos were recorded on the Oxbow Reservoir reach during IPC's Hells Canyon Complex wildlife studies (only two of which were on the Oregon side of the reservoir) (IPC *unpublished data*).

**Loggerhead Shrike** (*Lanius ludovicianus*) – Loggerhead shrikes nest in a variety of habitats including shrub-steppe. The species is currently listed as a 'SV' (sensitive-vulnerable) species by the ODFW. 'SV' status is reserved for those taxa for which, "...listing as threatened or endangered is not believed to be imminent and can be avoided though continued or expanded use of adequate protective measures and monitoring", (ONHP 2001). In addition, the IDFG considers the loggerhead shrike to be a 'Species of Special Concern', and the ONHP puts the species on 'List 4' of its sensitive species list (ICDC 2001, ONHP 2001). The ONHP did not report any loggerhead shrike records for the study corridor (ONHP 2001). IPC avian community studies conducted for the Hells Canyon project report the species as occurring on the Oxbow Reservoir reach at an abundance level of 'rare' (less than 6 observations) (Turley and Holthuijzen 2000).

**Brewer's Sparrow** (*Spizella breweri*) – The Brewer's sparrow is found in shrub-steppe habitats of western North America. The species is currently a BLM 'Sensitive' species, but is not tracked by the ONHP (ONHP 2001). The Brewer's sparrow was found, at an abundance level of 'rare', on the Oxbow Reservoir reach during IPC's avian community surveys for the Hell's Canyon relicensing project (Turley and Holthuijzen 2000). One Brewer's sparrow sighting was recorded for the reach, on the Idaho side of the reservoir, near Oxbow Dam (IPC *unpublished data*).

**Inland Columbia Basin Redband Trout** (*Oncorhynchus mykiss gairdneri*) – Inland Columbia basin redband trout are capable of tolerating higher water temperatures than bull trout. Redband trout are currently a FWS 'Species of Concern', an ODFW 'SV' (sensitive-vulnerable) species, and are categorized as a 'List 2' species by the ONHP (ONHP 2001). It is presumed that redband trout are present in the reach of the Wildhorse Creek (Chandler 2001), which is across the reservoir from the proposed Project.

**Western Toad** (*Bufo boreas*) – Western toads in the study corridor are most likely to be found in or near streams, in brushy draws, and in riparian meadow areas (Leonard *et al.*1993, Corkran and Thoms 1996). Breeding occurs in the slower, low-gradient streams, and in ponds. Western toads are currently an ODFW 'SV' (sensitive-vulnerable) species, and IDFG 'Species of Concern', and are on 'List 4' of the ONHP's sensitive species lists (ONHP 2001). Beck *et al.* (2001) studied amphibian and reptile distribution within the Hells Canyon Complex study area. Western toads were found throughout the study area at level classified as 'abundant'. Twenty-four western toad sites were found upstream from Hells Canyon Dam (an area that includes the study corridor). It is therefore considered likely that western toads are present in several of the riparian areas or brushy draws within the study corridor.

## Bat Species

Several species of bats that have potential to occur in the study corridor are FWS 'Species of Concern' or state listed as sensitive. These species of bats are known to roost in crevices in cliffs, rim rock, rock piles, caves and mineshafts (Verts and Carraway 1998). In addition, certain special status bat species also make limited use of manmade structures, hollow snags and tree bark as individual roosts and, in some cases, maternity roosts. Although cave or mineshaft habitats are not present within the study corridor, cliffs and rock outcrops are common. These areas likely provide marginal roosting habitat for bat species.

## Experimental, Non-Essential

**Gray Wolf** (*Canis lupus*) – The gray wolf formerly extirpated from Idaho, was reintroduced into Central Idaho and Yellowstone Park beginning in 1995. Gray wolves are not known to presently occur in the study corridor, however, wolf individuals can travel extremely long distances (over 500 miles), and it is possible that wolves from the reintroduced Central Idaho population may pass through the study corridor on an extremely sporadic basis. The reintroduced population is classified by the FWS as an "experimental, non-essential," population. This designation allows federal and state officials additional flexibility in managing this population.

## 3.3.5 Water Resources and Wetlands

### Introduction

This section addresses the environmental baseline conditions for water resources in the study corridor. Resources addressed in this section include streams, wetlands, and other sensitive water features. Figure 3-5: Botanical Resources and Wetlands Map identifies water resources and wetlands relative to the study corridor. Impacts to water resources are discussed in Chapter 4.

Existing data including previous studies, publications and maps were used to complete the water resources and wetlands inventory. Water features were identified using USGS 7.5" topographic quad maps as well as 1:24,000-scale National Wetlands Inventory (NWI) maps (FWS 1994). Inventoried features were observed in a site visit conducted on May 2, 2002.

The National Environmental Policy Act (NEPA) and the Federal Clean Water Act (CWA) serve as the prime legislation that require addressing sensitive water features. Water resources and water quality in the study corridor are regulated directly by the following authorities:

- Oregon Department of Environmental Quality (ODEQ)
- Idaho Department of Environmental Quality (IDEQ)
- Oregon Division of State Lands
- U.S. Army Corps of Engineers (USACE)

Applicable federal, state, and local water quality requirements for the Project include the following permits and certifications (See Appendix C for more details associated with these requirements):

- Storm Water Permits
- Oregon Dredge and Fill Permits
- Federal Dredge and Fill Permits
- Water Quality Certification
- Navigable Waters Section 10 Permit

### Inventory

The proposed Project route would follow the western side of the Snake River canyon along the entire length of the Oxbow Reservoir. Oxbow Reservoir was constructed and is currently utilized for hydropower generation. Upstream from Oxbow Reservoir, at the southern end of the study corridor, is Brownlee Reservoir, which was constructed primarily for hydropower generation but is also currently operated for flood control (IDEQ, 2001). Located downstream from Oxbow Reservoir, at the northern end of the study corridor, is Hells Canyon Reservoir.

The proposed Project would be located entirely within the Oxbow Reservoir segment (river mile 285 to 272.5) of the Snake River Basin. Within this segment, the proposed Project would span several intermittent streams and one perennial stream. Flow into Oxbow Reservoir is almost exclusively (greater than 99%) the outflow of Brownlee Reservoir (IDEQ 2001). Other tributaries to Oxbow Reservoir in the study corridor include Black Canyon Creek, Eagle Island Creek, Cliff Creek, and Cottonwood Creek. This study corridor also encompasses the Brownlee-Halfway 69kV reroute. Table 3-6 provides an inventory, by milepost, of the types of water features that would be crossed by the proposed transmission line. None of the streams that would be crossed by the proposed transmission route are listed as impaired on the DEQ's most recent 303(d) list (1998). However, the Snake River, from Oxbow Dam to Brownlee

Dam (Oxbow Reservoir), which receives runoff from the study corridor, is listed on the 303(d) lists for Oregon and Idaho. This water body segment is listed on the Oregon DEQ 1998 303(d) list for temperature and toxics (specifically mercury) and is listed on the Idaho DEQ 303(d) list (1998) for nutrients, pesticides, and sediment. A draft Total Maximum Daily Load (TMDL) document for this water body segment was issued for public comment in December 2001.

**Table 3-6 FWS National Wetland Inventory Summary of Occurrence by Type per Line Section**

| | Stream or Wetland Type * | | | | | | |
|---|---|---|---|---|---|---|---|
| Line section North to South (milepost) | R3UBH | R4SBA | R4SBC | PSSA | PFOA | PEMCh | PUBFh |
| | Stream or Wetland Type * | | Stream or Wetland Type * | | Stream or Wetland Type * | | Stream or Wetland Type * |
| Line section North to South (milepost) | R3UBH | Line section North to South (milepost) | R3UBH | Line section North to South (milepost) | R3UBH | Line section North to South (milepost) | R3UBH |
| 0-1 | | | | | | | |
| 1-2 | | | x | | | | |
| 2-3 | | | x | | | | |
| 3-4 | | | x | | | x | |
| 4-5 | | | x | | | | |
| 5-6 | | | | | | | |
| 6-7 | | | | x | | | |
| 7-8 | | | x | | | | |
| 8-9 | | | x | | | | |
| 9-10 | x | | x | | | | |
| 10-11 | | | x | x | | | |

* R3UBH Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded
R4SBA Riverine, Intermittent, Streambed, Temporarily Flooded
R4SBC Riverine, Intermittent, Streambed, Seasonally Flooded
PSSA Palustrine, Scrub-Shrub, Temporarily Flooded
PFOA Palustrine, Forested, Temporarily Flooded
PEMCh Palustrine, Emergent, Seasonally Flooded, Diked/Impounded
PUBFh Palustrine, Unconsolidated Bottom, Semipermanently Flooded, Diked/Impounded

## 3.3.6 Geology And Geologic Hazards

### Introduction

The purpose of the geology and geological hazards inventory analysis is to identify geological features or conditions that could be affected by or affect the construction, operation, and maintenance of the proposed Project. The potential issues of concern regarding the placement of the proposed 230kV transmission line in the study corridor may include 1) conflicts with mineral development rights or existing mining activities during construction and operation; 2) alteration of geological landforms of scenic or cultural value during construction, or 3) initiating mass wasting events by exacerbating unstable slope conditions during construction.

## Inventory

The proposed Project lies within the eastern portion of the Baker Quadrangle near Oxbow, Oregon. This quadrangle also encompasses the Brownlee-Halfway 69kV reroute. The Hells Canyon of the Snake River is one of the deepest gorges in North America. The topography of this region is extremely rugged, with sloping canyon walls reaching over 3000 feet from the Snake River to plateaus on the east and west sides of the canyon.

### *Mineral Resources*

Most of the metallic mineral deposits occurring in the region are associated with the Seven Devils volcanics and predominantly occur along northeast trending fault zones. The ores consist primarily of copper deposits with minor associated gold and silver minerals. There are no mining claims on file with the BLM in the portion of the study corridor between Brownlee and Oxbow (Weaver, 2002). Pre-Tertiary, ore-bearing rock is normally buried by extensive lava flows of the Columbia River Basalts or at or below the river level from Oxbow Dam upstream to Brownlee Dam.

### *Geologic Hazards*

The principle factors that control slope stability include slope angle, rock type, regional and local precipitation patterns and events, seismic activity (e.g., earthquakes and tremors), land development, soil composition and moisture content, and vegetation conditions.

The canyon walls within the study corridor are comprised of moderate to steep slopes located in the thin-bedded Yakima basalts and massive cliff faces comprised of the Imnaha basalt flows. Numerous examples of small scale slumping are evident in the Yakima basalts and other slope-forming material in the Seven Devils Group.

Kleinfelder performed reconnaissance Geologic mapping in September 2002. The Final Report for this proposed Project has not been completed, but preliminary maps have been compiled. The mapping effort identified several inactive faults that cross the alignment. The largest of these faults are located in the Wind Gap Area (milepost 0.0 to milepost 0.5), Cottonwood Creek (milepost 1.8 to milepost 2.0) and Black Canyon Creek (milepost 9.4 to milepost 9.7).

Previous investigators have named several of the major faults occurring in the alignment. Mann (1989) mapped a north-south trending fault trace located roughly parallel to the east side of Brownlee Reservoir that crosses the Snake River in the NE ¼, Sec 36, T 8 S, R 47 E, approximately 1.5 miles north of Brownlee Dam. The fault trace is inferred on the west side of the river in the dry gully immediately east of Black Canyon Creek. Mann (1989) identified this feature as the Brownlee Fault. Mapping by Kleinfelder placed the principal trace of the Brownlee Fault within the pronounced Black Canyon Creek drainage, crossing the Snake River at the mouth of Black Canyon Creek, and merging with Mann's Brownlee Fault on the west-facing slope in the NE ¼, Sec 1, T 9 S, R 5 W, approximately one mile northeast of Brownlee Dam.

The structural setting in the canyon is complex, with many episodes of displacement and adjustment. The Brownlee Fault mapped by Mann is likely composed of a master fault zone with a number of subsidiary faults that intersect the master fault trace. The interpretation presented by Kleinfelder indicates the master fault on the Brownlee fault system trends north-south through the Black Canyon drainage, bears southeast across the Snake River between milepost 9.4 and milepost 9.7, and joins Mann's Brownlee Fault on the east flank of the Oxbow Reservoir northeast of the Brownlee Dam.

The alignment was observed for indications of mass movements, such as rock falls, debris flows, and landslides. No mappable mass movement features were observed.

Based on information from the National Seismic Hazard Mapping Project (USGS, 1996) the study corridor is in a location of moderate seismic shaking hazard. Mapping of faults within the study corridor was completed and are in the proposed Project file.

A USGS National Earthquake Information Center intensity map indicates that the study corridor is in a Level V intensity zone. This level of intensity corresponds to earthquakes that are felt by nearly everyone. Such a quake would awaken people, dishes and/or windows may be broken, and unstable objects may be overturned.

## 3.3.7 Air Quality And Meteorology

### Introduction

The proposed Project region is characterized as having hot, dry summers and cool winters with little local weather variation. An inventory of the local weather conditions is further described below as it relates to air quality. The weather data was obtained from the Brownlee Dam weather Station (#101180).

EPA and the States of Oregon and Idaho regulate air quality in this area. The Hells Canyon area is in attainment for all air pollutants that are of concern for these air quality regulators.

### Inventory

#### *Climate*

The average seasonal snowfall is a maximum of 8 inches in January over the period of record (6/1/66 thru 12/31/01) for the lower elevations around Brownlee Dam. The average minimum temperature of the coldest month on record during the winter within the vicinity of the proposed Project is approximately 24 degrees Fahrenheit (F) in January. In July, the average maximum temperature is about 94.3 degrees F with an average monthly mean temperature around 78.15 degrees F.

In the proposed Project area, the annual rainfall based on monthly averages is 17.6 inches. This proposed project area also encompasses the Brownlee-Halfway 69kV reroute. According to weather data from the National Oceanic and Atmospheric Administration (NOAA) Internet site (www.noaa.gov), the region can expect to have 90-100 days each year with a rainfall of 0.01 inches or more. A 50-year maximum precipitation event over a 24-hour period would be approximately 2.8 inches.

#### *Air Quality*

Ambient air quality is primarily a result of the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin and the meteorological conditions. Ambient air quality standards (AAQS) have been developed by the Federal and state governments in order to establish levels of air quality which, when exceeded, may cause adverse human health effects.

The EPA and the States of Oregon and Idaho have established, and are responsible for, attaining and maintaining AAQS. The status of attainment of AAQS for all pollutants is tracked to ensure that health standards are met. Currently the proposed Project is in an attainment area for all NAAQS pollutants.

Carbon Monoxide (CO) and Particulate Matter ($PM_{10}$ and $PM_{2.5}$) are the two major air pollutants that are of concern for air quality regulators. Carbon monoxide is a colorless, odorless, gas. CO is produced primarily by incomplete fuel combustion in motor vehicles. CO has a toxic potential to human health. Particulate Matter (PM) less than 10 and 2.5 microns in size ($PM_{10}$ and $PM_{2.5}$) are of concern because it is inhaled deep into the lungs. Particulate matter is made up of small particles suspended in air. The human body's respiratory system cannot filter out particles smaller than 10 microns. Some particles are carcinogenic.

Idaho and Oregon air monitoring networks measure ambient air quality near selected population centers. The closest air-monitoring site to the proposed Project is in Caldwell, Idaho and it monitors $PM_{2.5}$. The nearest non-attainment area for CO and $PM_{10}$ is in Northern Ada County, in the Boise - Meridian Area. Air quality is high in the area of the proposed Project due to the absence of nearby point sources, such as commercial and/or industrial facilities. Air pollutant sources, which periodically occur in or near the proposed Project, include emissions from motor vehicles, aircraft, and construction. These emissions are generally of short duration and have not resulted in pollution problems.

Class I areas have the highest air quality classification and include all international parks, Wilderness areas, and memorial parks which exceed 5,000 acres, and all national parks which exceed 6,000 acres. Class I areas have land and resource use restrictions to prevent damage to visibility, plant, soil, and other resources. There are 156 areas designated as mandatory federal "Class I" areas for the purposes of the visibility protection program. The Class I areas within 100 miles of the proposed Project are Eagle Cap Wilderness Area and the Hells Canyon Wilderness Area.

## 3.3.8 Socioeconomics

### Introduction

The proposed Project would occupy a sparsely populated rural area along the Snake River between Idaho and Oregon. Adams and Washington Counties, Idaho, and Baker County, Oregon, comprise the proposed Project region where the bulk of the proposed Project's socioeconomic impacts would occur. This proposed Project region also encompasses the Brownlee-Halfway 69kV reroute.

Data from the 2000 Census of Population and Housing and the Regional Economic Information System (U.S. Department of Census 2002; REIS—Bureau of Economic Analysis 2002) comprise the core information base for this section. These data sources provide uniformly formatted time series information on county and state-level demographic characteristics, income, employment, and industrial activity. Statistical data from state and county-level sources are also used, covering such topics as local income and welfare patterns, housing availability, tourism resources, and public finances.

### Inventory

#### *The Local Economy*

Economic activity in the proposed Project area counties is low-level, with the bulk of employment and income occurring in farming, retail trade, personal services, and government. In the immediate vicinity of the proposed Project, IPC is the largest employer.

These sectors are the primary sources of new purchasing power in the local economy. In contrast, mining, construction, and manufacturing activities are small and concentrated among a few establishments, and represent a minority of employment opportunities. Self-employed farm and non-farm proprietors account for an unusually large proportion of total employment. Table 3-7, below, provides a breakdown of the composition of full and part-time employment in the proposed Project area counties in 2000.

**Table 3-7 Proposed Project Area Employment, 2000**

| SECTOR | ADAMS, ID | WASHINGTON, ID | BAKER, OR |
|---|---|---|---|
| **Total full-time and part-time employment 2000** | 1,962 | 4,753 | 9,165 |
| **By type:** | | | |
| Wage and salary employment | 1,004 | 3,444 | 5,843 |
| Proprietors' employment | 958 | 1,309 | 3,322 |
| Farm | 299 | 494 | 809 |
| Non-farm | 659 | 815 | 2,513 |

| SECTOR | ADAMS, ID | WASHINGTON, ID | BAKER, OR |
|---|---|---|---|
| **Total full-time and part-time employment 2000** | 1,962 | 4,753 | 9,165 |
| **By industry:** | | | |
| Farm | 339 | 814 | 1,087 |
| Non-farm | 1,623 | 3,939 | 8,078 |
| Ag. Services, forestry, fishing, other | (D) | 376 | (D) |
| Mining | (D) | 6 | (D) |
| Construction | (D) | 267 | 455 |
| Manufacturing | 252 | 563 | 827 |
| Transportation and public utilities | 61 | 228 | 402 |
| Wholesale trade | (D) | 237 | 165 |
| Retail trade | 295 | 566 | 1,566 |
| Finance, insurance and real estate | 84 | 178 | 663 |
| Services | 269 | 758 | 2,221 |
| Government | 400 | 760 | 1,375 |
| Federal | 137 | 103 | 377 |
| State and local | 263 | 657 | 998 |

Source: U.S. Department of Commerce, 2002d

Note: Although none of the proposed Project's facilities would be located in Washington County, ID, it is included in the proposed Project Area because some of its requirements for logistical support would involve Washington County resources, for example, roads, worker accommodations, and construction materials
(D) Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

### *Income and Welfare Conditions*

As the southern gateway to the Hells Canyon National Recreation Area, and endowed with numerous federal and state forests and parks, the region benefits from tourism and recreation. Despite the natural attractions, however, by most measures of economic well being the proposed Project area ranks low on the scale of welfare indicators. For example, according to the 2000 Census of Population (U.S. Dept of Commerce 2000), Baker, Adams, and Washington Counties ranked towards the bottom of their respective states in levels of personal income, with higher than average levels of unemployment and poverty. Transfer payments (e.g., Social Security, unemployment insurance, and welfare support) comprised a significantly larger share of household personal income in the proposed Project area counties compared to statewide averages (see Table 3-8, below, for a compilation of data on demographic, income, housing, and labor force characteristics of the proposed Project area counties and the states of Idaho and Oregon).

**Table 3-8 Proposed Project Area Demographic, Income, Housing, and Labor Force Characteristics**

| | ***STATES* and Counties** | | | | |
|---|---|---|---|---|---|
| **Parameter** | ***IDAHO*** | **Adams** | **Washington** | ***OREGON*** | **Baker** |
| Land Area (square miles) | 82,747 | 1,365 | 1,456 | 96,002 | 3,089 |
| Density (persons/sq.mi.) | 15.6 | 2.5 | 6.9 | 35.6 | 5.4 |
| Population 2000 | 1,293,953 | 3,476 | 9,977 | 3,421,399 | 16,741 |
| Percent change 1990-2000 | 28.5% | 6.8% | 16.7% | 20.4% | 9.3% |
| Median Age | 33.2 | 44.0 | 39.2 | 36.3 | 42.7 |
| Percent under 18 | 28.5% | 23.9% | 27.4% | 24.7% | 24.2% |
| Percent 65 and older | 11.3% | 16.1% | 17.7% | 12.8% | 19.0% |
| Percent White | 96.3% | 91.0% | 87.6% | 86.6% | 95.7% |

| Parameter | *STATES* and Counties | | | | |
|---|---|---|---|---|---|
| | ***IDAHO*** | **Adams** | **Washington** | ***OREGON*** | **Baker** |
| Median Household Income (1997) | $33,612 | $28,944 | $26,134 | $37,284 | $29,203 |
| Persons below Poverty (%-1997) | 13.0% | 14.6% | 18.4% | 11.6% | 16.8% |
| Transfer Income % Total Income (2000) | 12.9% | 19.5% | 23.0% | 13.3% | 22.6% |
| Housing Units 2000 | 527,848 | 1,982 | 4,138 | 1,452,709 | 8,402 |
| Occupied Housing Units | 469,645 | 1,421 | 3,762 | 1,333,723 | 6,883 |
| Vacant Housing Units | 58,179 | 561 | 376 | 118,986 | 1,519 |
| Vacant Housing (%) | 11.0% | 28.3% | 9.1% | 8.2% | 18.1% |
| of which seasonal/recreational units | 27,478 | 332 | 62 | 36,850 | 703 |
| Civilian Labor Force 2001 | 682,000 | 1,646 | 4,498 | 1,794,000 | 7,306 |
| Participation Rate* | 70.4% | 48.0% | 45.2% | 68.1% | 43.7% |
| Employed | 648,000 | 1,423 | 4,102 | 1,680,000 | 6,660 |
| Unemployed | 34,000 | 223 | 396 | 114,000 | 646 |
| Unemployment Rate | 5.0% | 13.5% | 8.8% | 6.4% | 8.8% |

*** Percent of non-institutionalized civilian population**.

Sources:

U.S. Department of Commerce, Bureau of the Census. 2002a

U.S. Department of Commerce, Bureau of Economic Analysis. 2002c

Idaho Department of Commerce, Idaho Data Center. 2002b

Oregon Department of Administrative Services, Office of Economic Analysis. 2002

Oregon Employment Department. 2002)

One set of statistics in Table 3-8 distills the state of socioeconomic conditions in the proposed Project area: the percentage of the local population in the labor force (the participation rate) and the level of unemployment, compared to statewide averages. In mid-2001, 70% of Idaho's civilian non-institutional population was in the civilian labor force, of which 5.0% was unemployed. In contrast, the participation rate in Adams County was only 48% (with 13.5% unemployed), while in Washington County, the corresponding rates were 45% in the workforce with 8.8% unemployed. On the Oregon side, while the labor force participation statewide was 68% (with 6.4% unemployed), in Baker County only 44% of the population was in the labor force, and of these 8.8% was unemployed. Significantly, these counties' median ages of population were higher than their states' averages, with smaller than average proportions of residents in the under 18 years of age segment, but greater than average proportions of persons 65 years of age and older.

These conditions reflect the typical situation of many rural areas with limited employment and investment opportunities and elevated dependence on non-local sources of income. The lack of employment opportunities is reflected in the counties' low rates of growth of population, which expanded between 1990 and 2000 by only one-half or less than their statewide rates.

## *Housing*

Housing availability is an important issue for this proposed Project because of its remote location. The principal labor markets in the region are considerably more than a hour's driving time from the proposed Project area, so it is likely that much of the proposed Project workforce would be "weekend commuters" who stay in RV parks and campgrounds, motels, or rented apartments or houses in the vicinity during the workweek, but drive home for weekends. The census data indicate that vacancy rates for dwelling units in the proposed Project area counties are relatively high, compared to the statewide averages, and that a substantial proportion of the housing units are vacation homes. These could be one source of temporary accommodations for the proposed Project workers.

A search of Internet listings of travelers' accommodations in the proposed Project area counties reveals a substantial inventory of facilities. In Baker County, OR, the Chamber of Commerce lists nearly four-dozen lodging establishments—motels, RV parks, and bed & breakfasts—with 1,162 lodging units (including several in the eastern part of the county). On the Idaho side, a search of the Official State Travel Planner for visitor accommodations in the southwestern part of the state turned up 14 motels, RV parks and campgrounds. Some towns also had separate listings. In the proposed Project area, most establishments were in such towns as Weiser, Payette, Cambridge, and Midvale in Washington County, and Council and New Meadows in Adams County. Room counts were not available for the Idaho establishments, but if a nominal average size of 25 units per establishment were assumed, the listings would indicate an inventory on the order of 350 lodging units.

As a final check on the availability of transient lodging in the proposed Project area, the Microsoft MapPoint© geographical database system was centered on the Duke Substation at the southern end of the proposed Project and instructed to find all motels, hotels, and campgrounds within a 50-mile radius. It turned up a total of 42 motels and hotels and 19 campgrounds, with which could be associated a total of at least 1,500 lodging units. These findings suggest that there would be ample opportunity for workers to find weekday accommodations within acceptable commuting distance of the proposed Project provided they made suitable arrangements in advance.

### *Local Government Finances*

Like most county-level governments (counties, municipalities, and school and other special districts), the proposed Project area governments rely heavily on property taxes and intergovernmental transfers from the state and federal governments for their revenues. Education, public safety, transportation, public health, and welfare account for the bulk of expenditures. Table 3-9 presents data from the 1997 Census of Governments (U.S. Dept of Commerce 1997) showing the principal sources and uses of funds by the three proposed Project area counties.

**Table 3-9 Local Government Finances 1997 ($'000)**

| Account | Adams, ID | Washington, ID | Baker, OR |
|---|---|---|---|
| Total Revenues | 10,624 | 30,728 | 42,529 |
| Total Taxes | 2,021 | 6,134 | 9,650 |
| of which Property Taxes | 1,937 | 5,961 | 8,458 |
| Intergovernmental Transfers | 5,129 | 12,328 | 19,885 |
| General Current Charges | 2,967 | 7,008 | 2,834 |
| Other General Revenues | 507 | 5,258 | 10,160 |
| | | | |
| Total Expenditures | 9,250 | 30,580 | 40,836 |
| Public Safety (police, fire, corrections) | 623 | 1,931 | 3,304 |
| Education | 3,941 | 10,688 | 21,015 |
| Public Health & Welfare | 2,089 | 4,376 | 1,646 |
| Transportation | 885 | 2,039 | 2,775 |
| Other General Expenditures | 1,712 | 11,546 | 12,096 |

Source: U.S. Dept of Commerce 2002b

## 3.3.9 Health, Safety, and Noise

### Introduction

Federal standards do not exist for either environmental or occupational levels of power frequency alternating current (AC) electric or magnetic fields. Some states, such as California, Florida, Minnesota, and Oregon have adopted regulations that apply to the construction of new transmission facilities only.

The State of Oregon has established an electric field guideline of 9kV/m on the ROW. There is no guideline for magnetic fields.

No federal, state or county noise standards or guidelines exist that directly regulate noise from operation of electrical transmission lines and substation facilities. General guidelines exist for the introduction of commercial or industrial noise sources that require attention to avoid objectionable noise levels. The state limits noise levels to 55dBA from 7 am to 10 pm and 50 dBA from 10 pm to 7 am.

The U.S. Environmental Protection Agency (EPA) has developed guidelines on recommended maximum noise levels to protect public health and welfare (EPA, 1974). Table 3-10 provides a summary of noise levels identified to protect public health and welfare with an adequate margin of safety.

**Table 3-10 Examples of Protective Noise Levels Recommended by EPA**

| Effect | Level | Area |
|---|---|---|
| Hearing Loss | $L_{eq}$ (24) < 70 dB | All areas |
| Outdoor Activity Interference and Annoyance | $L_{dn}$ < 55 dB | Outdoors in residential areas, farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use. |
| | $L_{eq}$ (24) < 55 dB | Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc. |
| Indoor Activity Interference and Annoyance | $L_{dn}$ < 45 dB | Indoor residential areas |
| | $L_{eq}$ (24) < 45 dB | Other indoor areas with human activities such as schools, etc. |

Source: EPA, 1974

Note:
Leq (24) represents the sound energy averaged over a 24-hour period.
Ldn represents the Leq with a 10dB nighttime weighting

# Inventory

## *Electric and Magnetic Fields*

Electric and magnetic fields (EMF) are present wherever electricity flows – around appliances and power lines, in offices, schools, and homes. Electric fields are invisible lines of force, created by voltage, and are shielded by most materials. Units of measure are volts per meter (V/m). Magnetic fields are invisible lines of force, created by current and are not shielded by most materials, such as lead, soil and concrete. The units of measure are Gauss (G) or milli-Gauss (mG). Electric and magnetic field strengths diminish with distance from the source. These fields are low energy, extremely low frequency fields, and should not be confused with high energy or ionizing radiation such as X-rays and gamma rays.

## *Noise*

### *Audible Noise*

Noise sources and levels are described and inventoried in this chapter for the study corridor. This study corridor also encompasses the Brownlee-Halfway 69kV reroute. Noise is generally defined as unwanted sound. The degree to which noise can impact the human environment ranges from levels that interfere with speech and sleep (annoyance and nuisance) to levels that cause adverse health effects (hearing loss and psychological effects).

The basic unit of measurement for sound is the decibel (dB). The decibel system of measuring sound provides a simplified relationship between the intensity of sound and its perceived loudness to the human ear. The decibel scale is logarithmic. Therefore, sound intensity increases or decreases exponentially with each decibel of change. For example, a 10 dB level is 10 times more intense than one dB, while a 20 dB level is one hundred times more intense, and a 30 dB level is one thousand times more intense.

Levels that are considered acceptable or unacceptable are generally associated with various environments. Lower levels are expected in rural or suburban areas than what would be expected for commercial or industrial zones. Nighttime ambient levels in urban environments are about seven decibels lower than the corresponding average daytime levels. The day-to-night difference in rural areas away from roads and other human activity can be considerably less. Noise levels above 45 dBA at night can result in the onset of sleep interference effects (EPA, 1971). Table 3-11 provides the ranges of common sounds that people could experience within the study corridor.

**Table 3-11 Typical Ranges of Common Sounds**

| Sources of Noise | Noise Level Ranges (dBA) |
|---|---|
| Threshold of Pain | 130 - 140 |
| Pneumatic Chipper | 120 - 130 |
| Motorcycle | 80 - 110 |
| Emergency Diesel Power Generator | 55-75 |
| Power lawnmower | 80 - 95 |
| Pleasure Motorboat | 75 - 115 |
| Automobile (At 50 Feet) | 60 - 90 |
| Conversational Speech | 60 - 70 |
| Refrigerator | 45 - 70 |
| Living Room (Suburban Area) | 40 - 50 |
| Bedroom at Night | 20 - 30 |
| Threshold of Hearing | 0 - 10 |

Source: EPA, 1974

Noise from the Brownlee and Oxbow Substations and other transmission lines adjacent to the study corridor have not been characterized but would be localized to these facilities.

Natural noise sources include the wind, which are much more common than calm conditions, and are expected to be in the range of 45 to 55 dBA. Other major noise sources in the study corridor are air traffic, vehicle traffic and boat traffic.

***Sensitive Receptors***

Noise-sensitive receptors are facilities or areas (e.g. residential areas, hospitals, schools, offices) where excessive noise may cause annoyance or loss of business. Three residential areas along the transmission line route have been identified as sensitive receptors. These are areas of residential housing including a private residence, an IPC housing village and a group of mobile homes. The areas are between mile points 7 and 10 along the southern portion of the route. Several dispersed camping areas are also located along the edge of the study corridor. These areas are used for camping, fishing and sightseeing and would also be considered sensitive receptors for noise.

Other sensitive receptors occur near Halfway, Oregon where temporary diesel generators would be used at an IPC substation during construction. Receptors consist of a few occupied residences at the USFS Pine Ranger Station and other dispersed rural residential residences located at least 300 feet from the IPC Halfway Substation.

***Noise Sources***

Vehicular Traffic - State Highway 71 starts west of Brownlee Substation and crosses the Oxbow Reservoir into Oregon approximately 0.4 miles south of the Duke Substation. At this point it becomes the Oxbow-Brownlee Road. The road runs directly adjacent to the west of the Oxbow Reservoir and the eastern edge of the study corridor. The road turns west, approximately 0.25 miles south of Oxbow Substation and connects with State Highway 86. This road is a main travel route for people entering Hells Canyon from the Oregon side of the canyon.

Oxbow Reservoir - The Oxbow Reservoir represents a source of ambient noise for the preferred route. Motorboats traveling on this reservoir also create a considerable source of noise as they pass by sensitive receptors.

***Radio Noise***

Radio and television interference (denoted as RI and TVI and collectively referred to as Radio Noise) is a phenomenon produced by both corona and sparking and can vary greatly based on weather conditions. Corona occurs when the electrical field at a particular point reaches a sufficiently high value to cause ionization of the surrounding air.

Corona is primarily a concern during foul weather because it is more likely to occur when water droplets are on or dripping off the transmission line conductors. The effect of corona on RN is most evident in the AM broadcast band of 0.535 to 1.605 MHz. Properly designed transmission lines can greatly reduce the effects of corona. In addition, corona is primarily a concern for transmission lines operating at 345kV and higher.

# CHAPTER 4
# ENVIRONMENTAL CONSEQUENCES

## 4.1 Introduction

The potential environmental consequences, or impacts, described in this chapter are based on the environmental effects that would result from the proposed Brownlee – Oxbow 230kV #2 Transmission Line Project (proposed Project). The Bureau of Land Management (BLM) would grant a right-of-way (ROW) on public land for Idaho Power Company's (IPC's) proposed Project. The proposed Project includes approximately 11 miles of 230kV transmission line, an approximately 0.2 mile Brownlee-Halfway 69kV reroute, associated fiber optics cable for communication, and an estimated 12.3 miles of roads that would have to be built or upgraded to construct and maintain the proposed Project facilities.

Impacts were determined by assessing the effects on existing resources described in Chapter 3 of constructing and operating the proposed Project.

## 4.2 Impact Assessment Process

This EA evaluates the direct and reasonably foreseeable indirect impacts that may result from the proposed Project. The nature and area of these potential impacts are described in detail later in this chapter. Locations and intensity of potential impacts are also recorded in resource impact data tables by resource and mile for the proposed Project (Appendix D).

Under the implementing regulations of the National Environmental Policy Act (NEPA) of 1969 (40 CFR §1500-1508) a determination concerning whether or not a particular action would cause a significant affect on the environment must consider the context and intensity of the effect of the action. "Context" refers to the region affected by the proposed Project. It also is defined as the relative importance of the impact to the resource affected. For example, the resource affected may have national significance or may be locally important. "Intensity" refers to the severity of the impact or effect.

Where potential impacts to a resource were identified, an evaluation was conducted to determine if one or more mitigation measures would be effective in avoiding or reducing (e.g. intensity and/or duration) the potential impact. The proposed Project (refer to Chapter 2) includes many mitigation measures committed to by IPC to avoid or minimize the impacts of constructing and operating the proposed Project. These mitigation measures are generally applied throughout the proposed Project during construction and operation or to specific impact locations, and are considered part of the proposed Project description. Refer to Chapter 2, Section 2.3.2 for a list of these measures.

Impact assessments were conducted for the proposed Project and the No Action Alternative. Impacts were assessed for the following proposed Project components: transmission line, structures, access roads, temporary work areas, and substation upgrades.

## 4.3 Impacts Associated with Key Issues

The environmental consequences of the key issues identified in Chapter 1 and documented in Chapter 3 are discussed first in this chapter:

- Visual Impacts
- Listed Species
- Big Game

- Recreation
- Soil Erosion Hazard

Impacts and mitigation that would result to the other resources are discussed in sections following the key issues.

### 4.3.1 Visual Impacts

This section documents the potential visual impacts that would result from construction, operation, and maintenance of the proposed Project and the No Action Alternative. In addition, mitigation measures are recommended either on a proposed Project-wide basis or on a case-by-case basis. Visual impacts of the proposed Project were identified as a key issue during the scoping process (also refer to Chapter 1 and 5).

Visual resource impacts would result from views of the proposed Project structures and access road from sensitive viewpoints (e.g., residences and recreation sites). In addition, visual impacts can also occur to the scenic quality of the landscape from contrast (structure and landform contrast) caused by the proposed Project. Visibility mapping from sensitive viewpoints is illustrated on Figure 3-1: High Sensitivity Views Map.

#### Impact Assessment Methods

Visual contrast is the change to the landscape from constructing and operating the proposed Project. Visual contrast is determined by examining the contrasts of the structures, landform changes, and vegetation. Contrasts are measured as strong, moderate, or weak.

Visual impacts would result when contrasts of the proposed Project would be seen and dominant from sensitive viewpoints or when the proposed Project's contrasts would dramatically change the scenic quality of the landscape. The visual impacts that would result from the construction and operation of the proposed Project would be direct, adverse, and long-term, except those short-term impacts that would result from construction of roads and disturbed areas around structure sites. This impact assessment considers the potential visual impacts of:

- Views from residences
- Views from parks, recreation and preservation area viewpoints
- Views from sensitive travel routes
- Effects to the scenic quality (natural landscapes on public lands) and the visual integrity (natural and developed areas on private lands)
- The consistency of the proposed Project with BLM Visual Resource Management (VRM) objectives

Impacts to viewers would result from a combination of inventoried factors, including the contrast of the proposed Project with the existing landscape, the distance from sensitive viewpoints, and other viewing variables (e.g., orientation of the view, view duration, and how the proposed Project contrasts would be seen – e.g., backdropped to a mountain, skylined on a ridgetop, etc.).

Initial visual impacts would be considered high where the proposed Project would be a dominant or where strong proposed Project contrasts would be seen from high sensitivity viewpoints in the foreground distance zone.

Initial visual impacts would be considered moderate where the proposed Project would be visible but not dominant, where high sensitivity viewers would see the proposed Project within the middle ground distance zone, or where moderate sensitivity viewers would see the proposed Project from foreground. Strong visual contrasts in Scenic Quality class B landscape also would be considered a moderate intensity impact.

Impacts would be considered low where the proposed Project contrast would be weak, where viewpoints were primarily moderate or low sensitivity and where views are from middleground or background. Scenic quality impacts would generally be low in Scenic Quality class C.

Visual impacts were assessed after considering the mitigation measures that are part of the proposed Project description.

## Visual Impact Results

The contrast analysis and impact assessment was completed recognizing that the industrial facilities dominate the landscape between Brownlee Dam and Oxbow Dam. There are two 230kV transmission lines on the Idaho side of the reservoir, the paved Oxbow-Brownlee Road, the 69kV transmission line on the Oregon side, and the man-made Oxbow Reservoir. Many other built features exist along this industrial corridor, including recreation areas and residences, and other land uses are evident (refer to land use study in Chapter 3 and below in Chapter 4).

While many industrial facilities are present, are visible, and contrast with the natural landscape of the canyon, the natural landscape of the canyon is still visually dominant. The expectation of visitors to this area is to see hydroelectric and other industrial facilities that have been present in the canyon for nearly 50 years. Much of the recreation use in the canyon is oriented towards the built features (e.g., Oxbow Reservoir). Fishing and boating are dominant recreational activities that often occur just below or in sight of the dams or other industrial facilities.

### *Proposed Action*

#### Visual Contrast

Because industrial facilities are present throughout the proposed Project area, visual contrast as a result of the proposed Project would be weaker. Moderate visual contrast would result from constructing and operating the proposed Project. Structure and landform contrasts are influenced by the amount of industrial development that is present in the corridor (e.g., the road and existing transmission lines). The two 230kV double circuit transmission lines and the existing 69kV transmission line help to establish the industrial nature of the canyon and the utility corridor designated in the Baker Resource Management Plan (RMP) (BLM, 1989). The distance of the 230kV corridor from the proposed Project's location (i.e., across the reservoir) is not enough to eliminate their significance or consideration in the structure contrast consideration. Since the proposed Project would replace the Pine Creek to Duke 69kV line (see Chapter 1, proposed Project Description), the structure contrast compared with the existing condition would also be weaker. Constructed access roads are an additional source of visual contrast that would result from the proposed Project. The selected viewpoints VS-1 through VS-7 located in Appendix A would have foreground visibility of constructed access roads along intermittent open slope faces in various places throughout the canyon, see figure 3-1.

Moderate visual contrast would occur from milepost 0.2 to milepost 10.0. The remainder of the proposed Project (milepost 0 to 0.2 and 10.0 to 11) would have weak visual contrast due to the proximity to Oxbow and Brownlee Substation's current industrial appearance and many other transmission lines nearby. Refer to Appendix D, Table 1 for visual impacts by mile. See Figure 4-1, Visual Contrast Comparison, for an illustration of visual contrasts that would result from the proposed Project.

The Pine Creek-Duke 69kV transmission line currently occupies areas where the proposed project would occur. Replacing this 69kV transmission line with the Project would result in structures and access roads that would begin to become prominently visible from viewpoints within the canyon.

**Visual Simulations**

BLM identified four areas of concern that were photographed as typical viewpoints for preparing photo simulations. Simulations were used to evaluate the accuracy of the predicted visual impacts, to determine the effectiveness of recommended mitigation, and to help communicate the typical impacts that would occur by implementing the proposed Project. Simulations were prepared to show the difference between the proposed Project's effects immediately after construction and the effects approximately five years after rehabilitating the ground disturbance. Simulations were also prepared to illustrate the visible change from the 69kV to a larger 230kV transmission line. The viewpoints for the simulations included:

- Three views from Oxbow-Brownlee Road looking south
- One simulation from Oxbow Reservoir near the Oxbow boat launch looking west to northwest

The photo simulations are included in Appendix A.

**Viewer Impacts**

As the route would depart from the Oxbow Substation, sensitive viewers would see the route from viewpoints along the Oxbow-Brownlee Road and dispersed recreation sites. These viewers have a moderate sensitivity due to their low duration of view, low to moderate user attitude and comparatively low use volume associated with general travel routes and undeveloped recreation areas. The most noticeable visual impacts to travelers on the Oxbow-Brownlee Road would occur along milepost 0.2 to 1.6, 2.0 to 3.0, 3.6 to 4.0 and 7.7 to 8.2. These specific portions of the proposed Project would be readily visible to motorists traveling southbound. These views are the longest expanses or vistas visible within the study corridor. The remaining segments of Oxbow-Brownlee Road do not have expansive views of the west canyon wall. The average traveler driving northbound through the canyon would not generally see the proposed Project because it would be mostly screened behind or atop steep canyon walls and bluffs (refer to the photo simulations viewpoint one through four). Combining the moderate sensitivity of these viewers along with a moderate visual contrast that would occur from the constructing and operating the proposed Project visible from these viewpoints, a moderate initial visual impact would occur from milepost 0.1 to milepost 10.4.

Viewers located at Copperfield Park, Carter's Landing, McCormick Park and those traveling the Scenic Byway have a high visual sensitivity due to their high use volume and high user attitude. Residences near Carter's Landing, Black Canyon, and within Brownlee Village have high visual sensitivity due to their long duration of view and viewer attitude towards change (e.g., visual perception and expectation).

In areas where the proposed Project would be visible in the foreground distance zone from high sensitivity viewpoints and a moderate visual contrast, a moderate initial impact would occur. Refer to Figure 3-1: High Sensitivity Views Map. This condition would occur from milepost 0.1 to milepost 0.7 from Hells Canyon Scenic Byway (HCSB) viewers and from milepost 6.9 to milepost 7.3 and 7.4 to 8.1 from Carter's Landing and residential viewers. This would also occur from milepost 8.9 to milepost 10.4 from residential viewers near Black Canyon, McCormick Park viewers, and residential viewers within Brownlee Village.

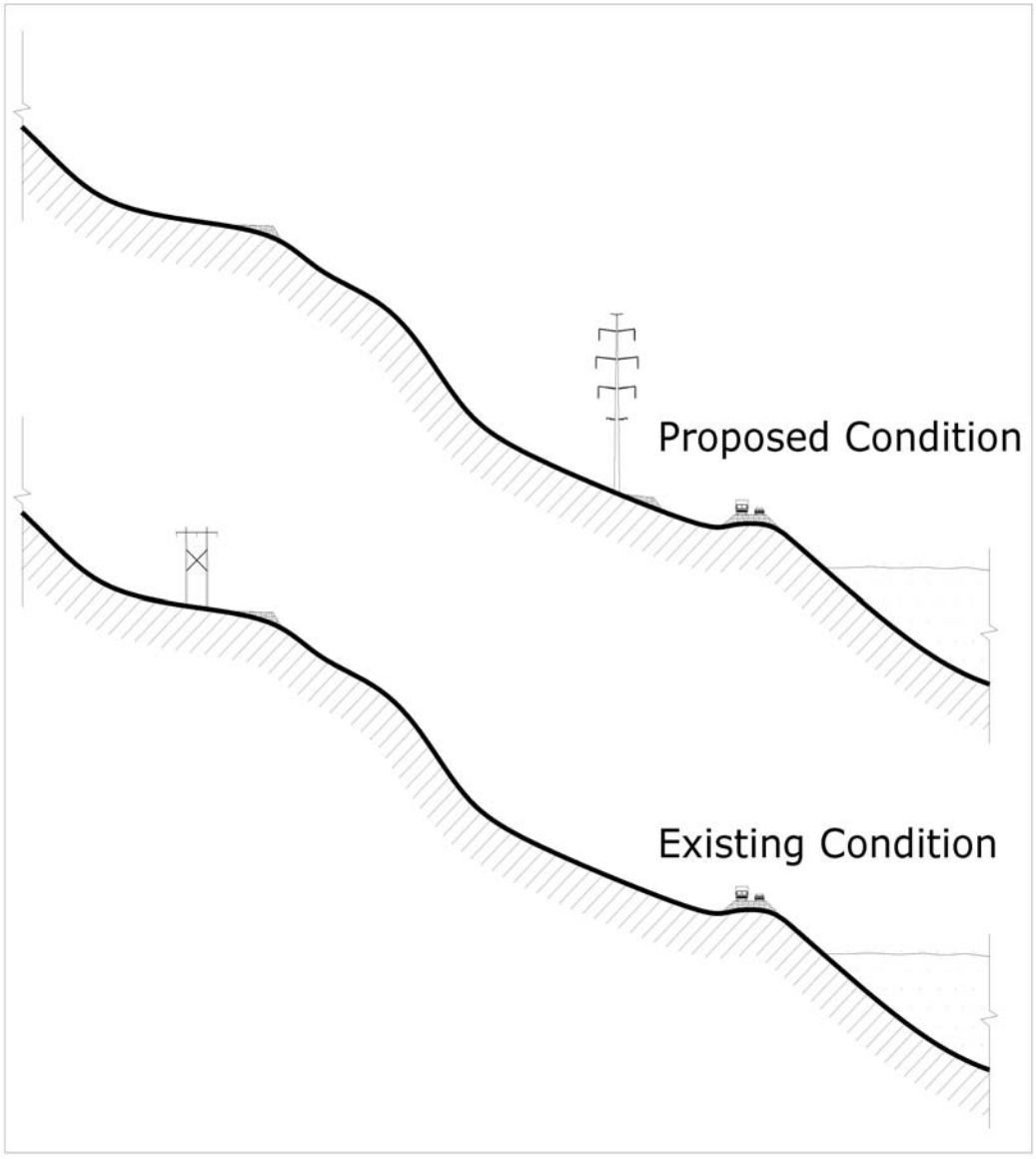


**Figure 4-1 Visual Contrast Comparison**

The proposed Project would use tubular steel poles to minimize visual contrast. In some locations, the landscape would form a backdrop for the structures, thereby reducing the prominence of the visual contrast.

Dispersed recreation viewers have a high visual sensitivity due to their moderate use volume, high user attitude and moderate to low view durations. Dispersed recreation viewpoints located in the Sheep Mountain WSA would have their wildland recreation experience altered due to the visual influence of the proposed project that would be located on private land adjacent the WSA near milepost 1.4 and 6.6. In areas where the proposed Project would be visible in the foreground distance zone from high sensitivity viewpoints and a moderate visual contrast, a moderate initial impact would occur.

The selected viewpoints VS-1 through VS-7 located in Appendix A would have foreground visibility of constructed access roads along intermittent open slope faces in various places throughout the canyon, see figure 3-1.

**Scenic Quality Impacts**

Moderate visual contrasts would alter Class B and C scenic quality along the proposed Project's proposed alignment resulting in moderate and low initial visual impacts to scenic quality. Moderate initial impacts would occur from milepost 0.0 to milepost 9.5 to Class B scenic quality. Low initial impacts would occur from milepost 9.5 to milepost 11 to Class C scenic quality.

The primary scenic quality impact that would occur as a result of the proposed Project would be the alteration of steep talus slopes via the introduction of constructed access roads. Throughout most portions of the proposed Project however, spur roads from the Oxbow Brownlee road would be utilized instead of a continuously parallel access road along the proposed Project's alignment. Throughout the majority of the proposed Project's alignment, existing access roads would be upgraded rather than new access roads constructed.

**Mitigation Effectiveness**

Mitigation measures 2-2, 2-4, and 2-5 would be implemented to reduce proposed Project contrasts by employing a corten steel finish on steel poles, selecting non-specular conductors and coloring concrete foundations similar to natural colors. Measure 2-3 would reduce proposed Project dominance by spanning the road crossing at the maximum feasible distance near milepost 0.1 to 0.2. Measure 2-3 would also be implemented at milepost 0.2 to 1.6, 2.0 to 3.0, 3.6 to 4.0, and 7.7 to 8.2 to move poles on talus slopes to locations less visible to motorists traveling southbound on the Oxbow-Brownlee road.

Measures would also be effective in reducing the visual contrast and visual impacts to both Class B and C scenic quality classes along the proposed route. This potential visual impact, unlike those mentioned above, could be reduced using measures 0-2, 0-3, and 0-4. Measures 0-2 and 0-4 would be implemented to minimize vegetation removal and reduce visual contrast. Measures 0-2, 0-3, and 0-4 would also be implemented when grading new access roads to minimize ground disturbance and potential impacts to scenic quality by reducing landform contrast.

Fewer miles of access roads would minimize visual impacts to viewers from contrasts associated with road cuts and side cast debris along hillsides. Four areas along the 11 miles of transmission line were identified as having moderate impacts after use of mitigation measures. Refer to Appendix D, Table 1, for visual resource impacts for specific areas to the tenth mile. Viewers from the Oxbow-Brownlee Road, Hells Canyon Scenic Byway, residences, and dispersed recreation sites, would have the higher levels of visual impacts at these locations. Impacts would remain from the steel poles; however, replacing the access roads with helicopter construction would further reduce the visual impacts for these areas. Refer to

the photo simulations located in Appendix A to view the effectiveness of the mitigation measures both immediately after construction and five years post construction.

Some ground disturbance and associated resource impacts would be caused from the use of helicopter construction. Refer to Figure 2-5 in Chapter 2 for photos illustrating transmission work using helicopters. Equipment work areas measuring approximately 15 feet x 15 feet would be required at each pole site. All necessary equipment would be lowered from a helicopter to allow foundation installation and pole setting. Vegetation would be removed and the work area would be recontoured using hand tools to flatten as needed for the safe operation of equipment and access by work crews. In addition, future access to poles sites for maintenance would be limited to helicopter or walk-in.

**VRM Class Compatibility**

Approximately 75% of the study corridor would be within public lands managed by the BLM as VRM Class II. A summary of the proposed Project's compatibility with VRM class is documented in Table 4-1 below. The VRM Class II objective stated in the RMP is to retain the existing character of the landscape. Activities may be visible, but should not attract the attention of the casual observer. Because of the existing industrial facilities throughout this segment of the canyon and the existing 69kV transmission line, which the proposed Project would replace, visual contrasts from the proposed Project would be moderate and weak. Further, mitigation measures implemented would further reduce these contrasts.

**Table 4-1 VRM Class Compatibility**

| Milepost Begin | Milepost End | Distance | Description | Visual Sensitivity | VRM Class | VRM Class Compatibility |
|---|---|---|---|---|---|---|
| 0 | 0.2 | 0.2 | Weak visual contrast near Oxbow Substation | High | NA/private land | NA |
| 0.2 | 0.7 | 0.5 | Foreground views from HC Scenic Byway, moderate visual contrast | High | NA/private land | NA |
| 0.7 | 2.2 | 1.5 | Foreground views from Oxbow-Brownlee Road, moderate visual contrast. Intermittent Views from dispersed recreation sites. | Moderate and High | NA/private land | NA |
| 2.2 | 4.2 | 2 | Foreground views from Oxbow-Brownlee Road, moderate visual contrast. Foreground and middle ground views from dispersed recreation sites. | Moderate and High | Class II | No |
| 4.0 | 4.7 | 0.7 | Foreground views from Oxbow-Brownlee Road, moderate visual contrast. Foreground and middle ground views from dispersed recreation sites. | Moderate and High | NA/private land | NA |
| 4.7 | 6.9 | 2.3 | Foreground views from Oxbow-Brownlee Road, moderate visual contrast. Intermittent Views from dispersed recreation sites. | Moderate and High | Class II | No |

| Milepost Begin | Milepost End | Distance | Description | Visual Sensitivity | VRM Class | VRM Class Compatibility |
|---|---|---|---|---|---|---|
| 6.9 | 7.8 | 0.9 | Foreground views from Carter's Landing. Moderate visual contrast. Partial overstory vegetation around viewpoints limits direct, constant views of proposed Project. View Orientation towards reservoir. Foreground views from dispersed recreation sites. | Moderate and High | Class II | No |
| 7.8 | 8.6 | 0.8 | Foreground views from Oxbow-Brownlee Road, moderate visual contrast. Foreground views from dispersed recreation sites. | Moderate and High | Class II | No |
| 8.6 | 9.4 | 0.8 | Foreground views from residences near Carter's Landing and Black Canyon. Moderate visual contrast. View orientation towards reservoir. Significant overstory vegetation behind homes screen direct views of proposed Project. | Moderate and High | Class II | No |
| 9.4 | 9.9 | 0.5 | Foreground views from residences within Brownlee Village, moderate visual contrast. Foreground views from McCormick Park. View orientation towards reservoir. Overstory vegetation around viewpoints limits direct views of proposed Project. | Moderate and High | NA/private land | NA |
| 9.9 | 11 | 1.1 | Foreground views from Oxbow-Brownlee Road, weak visual contrast near Brownlee Substation. Foreground views from dispersed recreation sites. Foreground views from McCormick Park and residences near Black Canyon. View orientation towards reservoir. Significant overstory vegetation around viewpoints screen direct views of proposed Project. | Moderate and High | Class II | Yes |

The compatibility with the VRM Class II is also influenced by two other factors in the study corridor. First, the sensitivity of the Oxbow-Brownlee Road was determined to be moderate. Southbound travelers, as described above, are the primary concern for viewer impacts. Furthermore, the sensitivity of recreationists fishing and boating that might view the proposed Project from boats on the reservoir is considered high sensitivity. However, these viewers are generally moving (i.e., driving or motor boating), thus the view duration of the line from the high sensitivity reservoir and moderate sensitivity road are short term and not focused for very long periods. Secondly, high sensitivity viewpoints where viewers are fixed and have longer duration of view include residences and developed recreation sites. In these cases, views are oriented towards the reservoir and again are not generally fixed up the slope to the west where the proposed Project would be located.

Because of overall moderate visual contrast and the other visual factors described above, the proposed Project would be compatible with both the intent of the designated utility corridor and the surrounding

VRM Class II managed landscapes where noted in Table 4-1. In locations where high sensitivity viewpoints would have foreground views of the proposed Project and where visual contrasts would be moderate, the proposed Project would not be compatible with the VRM Class II objective, see Table 4-1.

Although BLM's VRM guidelines indicate that a deciding officer may authorize project activities that fail to satisfy established VRM management objectives without completing an RMP amendment, the activities proposed herein have been designed and would be mitigated so as to minimize the breaching of those objectives.

### No Action Alternative

Under the no action alternative, visual impacts from the proposed Project would not occur. The existing 69kV transmission line would remain in place and visual impacts associated with other activities needed to meet the stated Purpose and Need would take place elsewhere. The 69kV line would require additional maintenance in the future, which would result in the need for improving the existing access roads. These visual impacts from road improvement and operation would be somewhat similar to those of the proposed Project.

## 4.3.2 Listed Species

### Bald Eagle

Potential impacts to bald eagles during construction activities could include displacement of individuals. In areas where potential construction impacts to bald eagles are possible, mitigation measures committed to, as part of the proposed Project description would be expected to be effective in reducing or eliminating impacts. These measures include construction during times when eagles are not breeding or nesting at distances required by the Pacific Bald Eagle Recovery Plan (see mitigation measures 4-8 and 4-9, and Figure 3-3).

The BLM has determined a may effect not likely to adversely affect on Bald Eagles as a result of this project and is currently consulting with USFWS. BLM will incorporate any mitigation that may be requested by the USFWS.

### Impact Assessment Methods

Criteria were developed to consistently identify impacts to bald eagles. These criteria are listed below. Also, refer to Appendix D – Resource Impact Data Tables for potential impacts to wildlife resources and the associated mitigation measures. For specific locations of wildlife resources, see Figure 3-2.

High impacts to bald eagle would result from the take of individual bald eagles, a reduction in the population, habitat or viability, or a long-term reduction of critical habitats. Moderate impacts would result from a short-term reduction of critical habitats. Low impacts to wildlife resources would result from a minor and short-term loss or reduction of bald eagle habitat.

### Impacts

#### *Proposed Action*

Potential impacts to bald eagles from the proposed Project can be grouped into three categories: impacts as a result of construction activities, potential impacts resulting from possible avian-transmission line collisions (operation-related impacts), and long-term habitat impacts.

### Construction Impacts

Activities related to transmission line construction, such as road building, pole setting, and conductor stringing could disturb foraging, roosting, or nesting eagles in the area. Construction commotion impacts would be limited to the period during which the proposed Project was being constructed (currently projected to occur over a six month period).

Although the level of construction commotion necessary to produce adverse impacts to wintering or nesting bald eagles has not been quantified, it is possible that during the winter months (i.e., November 1 through April 30), individual eagles could be disturbed by construction activities and flushed to other perches or roosts in the area. This would be a particular concern between Brownlee Dam and Eagle Island Creek. Bald eagles wintering in the area congregate at the communal roost near Eagle Island Creek. Isaacs *et al.* (2000) reported a peak, one-night count of 70 eagles using this roost site. The eagles also take advantage of an abundant fish supply immediately below Brownlee Dam, making the corridor between the roosts and dam a heavily used area. However, due to the amount of recreational use within the Oxbow Reservoir area, the bald eagles wintering in the proposed Project area presumably have a higher tolerance to human activity than birds in more remote areas.

Since construction during this period would be avoided (refer to committed mitigation in Chapter 2), no impacts to wintering eagles would result. However, if any construction activities were to occur during this winter period, providing a "no activity" buffer around key habitat would be sufficient to avoid impacts. Isaacs *et al.* (1992), citing their own experiences, and the previous research of others, conclude that a no-activity buffer zone of approximately 400 m from November 15 through March 15 (between Brownlee Dam and Eagle Island) would be sufficient to prevent flushing of wintering bald eagles.

For nesting eagles, construction commotion could stress the birds and interfere with breeding and rearing activities if construction took place during the sensitive nesting period (Pope 2000). The one known nest site in the proposed Project area is approximately 200 m from the existing 69kV transmission line (milepost 1.1 to 1.2). If construction occurred during the nesting period (typically from February 1 to July 15) it is likely additional stress would be placed on the birds. Whether this disturbance would be enough to cause the eagles to abandon the site is not clear, but it is likely that flushing from the nest would occur in at least a few instances. In extreme cases, excessive commotion could cause temporary or permanent abandonment of the nest. To eliminate the potential for this impact, mitigation has been committed to by IPC (measure # 4-8) to avoid construction near the nesting activity and during the nesting period. Isaacs *et al.* (1992) conclude that an 800 m no-activity buffer around active bald eagle nest trees from February 1 to July 15 should protect the birds from excessive stress and avoid impacts to nesting activities.

Disturbance to bald eagles if helicopter construction were used would likely be similar to or worse than that of road construction. Helicopters could create more commotion disturbance for short periods when the helicopter enters and leaves the proposed Project area. Mitigation measure 4-8 and 4-9 would avoid construction near the nest or roost sites during critical periods. Helicopter construction, like standard construction methods, would need to avoid the sensitive bald eagle nest and roost sites during the sensitive periods.

### Collision Hazard

Transmission line strikes by eagles, while possible, are not considered an important cause of bald eagle mortality (Faanes 1987, APLIC 1994). Typically, raptors are highly maneuverable, soar relatively slowly, and do not fly in large flocks. Because of these flight characteristics, raptors are seldom involved in transmission line collisions (APLIC 1994). Collisions occur most often where transmission lies intercept areas where birds concentrate, such as migratory flyways, feeding areas, and nesting/roosting sites (Savereno et al. 1996). Hence, the area of greatest transmission line strike concern for this proposed Project is where the proposed transmission line crosses Oxbow Reservoir.

In conjunction with the effort to relicense the Hells Canyon Complex, IPC conducted a study of avian collision at transmission lines associated with the proposed Project (SAIC 2000). Although this study did not directly inventory mortality on the transmission lines studied, it did identify potential high-risk collision areas and evaluate the potential risks to avian populations. Although no bald eagle-transmission line collisions were documented within their proposed Project area, they did identify the species as one that may be at 'medium' risk of collision. However, this risk classification is based on perceived risk levels, not on empirical data from the proposed Project area.

Because it is extremely difficult to collect accurate avian transmission line strike data for transmission line segments that cross water bodies, no data is available for the transmission lines in the Oxbow Reservoir area. There is no evidence that transmission line strikes cause a major decline in local eagle populations. In fact, since the number of birds has been increasing dramatically in recent years (Isaacs *et al.,* 1992), there is no evidence of any measurable impact from bald eagle collisions in this area. The impact of the proposed Project would be negligible and immeasurable. No mitigation would be required.

**Long Term Habitat Impacts**

Three ponderosa pine trees, used as bald eagle hunting/feeding perches, are found in two locations within the study corridor, but would be avoided using mitigation measure 0-6. Refer to Figure 3-2: Wildlife Resources Map for locations of these trees. These trees are located close to the roadway and popular dispersed recreation sites, making them less acceptable as hunting/feeding perches. According to Isaacs et al. (1992), preferred eagle hunting/feeding perches are located away from human activity. Bald eagles may use the towers of the proposed transmission line as perching locations, possibly creating a beneficial effect for the species. The extent of this use is difficult to predict, but could lead to increased foraging opportunities for the species. Impacts are thus considered very low, and no further mitigation is required.

Because existing access roads would be used where available, new access roads needed for transmission line construction would be minimal. With the use of mitigation measures to block and close access as needed along these roads, the proposed Project would not be expected to substantially increase public or private access into remote areas, and the potential for bald eagle harassment should remain similar to present conditions. One example of this measure will be to gate the existing road that travels near the Pine Creek Substation in the northern area of the proposed Project. This road will be closed to all vehicle traffic other than that necessary for administrative purposes by the BLM and IPC.

**Electrocution Hazard**

Due to the configuration of the 230kV transmission line proposed for this proposed Project, no avian electrocution impacts are expected. Avian electrocutions on high voltage transmission lines, even for large birds such as bald eagles, are extremely rare and are not thought to be a key mortality factor (APLIC, 1996). Raptor electrocutions are very rare on transmission lines 69kV or larger and configuration of distribution underbuild (i.e., 12kV line) conforms to APLIC 1996 recommendations for raptor-safe construction. Out of over 500 avian electrocution records studied on IPC transmission lines, only one occurred on a transmission line greater than 69kV, (occurring on a 138kV transmission line) (APLIC, 1996). Since the proposed 69kV portion would have identical insulators and spacing between the phases as the 230kV portion of the proposed Project (see figure 2-4), the proposed 69kV and 230kV transmission lines would not be expected to create an avian electrocution hazard, and no electrocution impacts to bald eagles would be anticipated due to the proposed Project. Any new structures associated with the Brownlee-Halfway 69kV would also conform to APLIC 1996 recommendations and would not be expected to create an avian electrocution hazard.

## No Action Alternative

Under the No Action Alternative, the proposed Project would not occur. There would be no alteration of bald eagle habitat at or within the vicinity of the proposed Project. However, the existing 69kV transmission line would still be in place and maintenance would continue along existing access roads causing some direct impacts from maintenance activities. Similar or more severe impacts would likely occur in other locations as IPC attempts to meet the Purpose and Need in another location or with a different action.

## Canada Lynx

No direct or indirect impacts to Canada lynx are expected to occur as a result of the proposed Project. Canada lynx are not known to exist in the proposed Project area due to unsuitable habitat.

## Bull Trout

The proposed Project would not cross any stream reaches that are known to contain bull trout. Other than Wildhorse Creek, the closest known bull trout population is located in Pine Creek, over the ridge from the north end of the proposed Project. Although the study corridor intersects with a small portion of the mouth of Pine Creek, no proposed Project facilities are currently planned for this area. While a portion of access road could be constructed along the ridge top between Pine Creek and Oxbow Reservoir, the limited nature of the disturbance, and its distance from the creek below, would result in no additional sediments or other contaminants being introduced to Pine Creek. Because the proposed Project would not cross any stream reaches that contain bull trout in the Project area, no selectively committed mitigation measures are recommended. As a result, the BLM has determined that the project as proposed would have "no effect" on bull trout.

Construction impacts to bull trout proposed critical habitat associated with the proposed Project are limited to siltation of proposed critical habitat resulting from ground disturbance that would be caused by access road creation and tower pad grading and placement. By implementing mitigation measures specific to biological resources, impacts to proposed critical habitat would be minimized. These mitigation measures are outlined in the committed mitigation measures found in section 2.3.2. No direct impacts to bull trout proposed critical habitat are expected to occur as a result of this project due to the distance of the proposed Project from proposed critical habitat and the limited nature of disturbance.

The BLM has determined a may effect not likely to adversely affect on proposed critical habitat as a result of this project and is currently conferencing with USFWS. BLM will incorporate any mitigation that may be requested by the USFWS.

### 4.3.3 Wildlife - Big Game

Potential impacts to big game species associated with construction activity could include disturbance and/or loss of native vegetation or big game habitat, and/or loss or displacement of individuals. In areas where potential construction impacts to big game species are possible, mitigation measures would be expected to be effective in reducing or eliminating those potential impacts.

## Impact Assessment Methods

The following criteria were used as a basis for identifying impacts to big game. Refer to Appendix D – Resource Impact Data Tables for potential impacts to wildlife resources by mile and the associated mitigation measures. Refer to Figure 3-2: Wildlife Resources Map for specific locations within the proposed Project area.

High impacts to big game may result from actions that cause a long-term reduction in the quantity or quality of habitat critical to the survival of big game species. This may include construction that occurs near bighorn sheep lambing areas.

Moderate impacts to big game may result from actions that cause a short-term (normally less than two to three years) reduction in the quantity or quality of habitat critical to the survival of big game species.

Low impacts to wildlife resources may result from actions that cause a short-term (during construction) reduction in the quantity or quality of habitat critical to the survival of local populations of big game species such as causing individuals to temporarily relocate.

## Proposed Action

***Mule Deer***

Construction commotion may impact wintering mule deer herds if the construction were to occur during December/January through March, which is not currently scheduled or planned. This unlikely scenario could result in some animals being driven to higher ground. However, given that the proposed Project is located near the bottom of the slope, even if mule deer were displaced, they likely would not be moved very far up the slope.

Because the proposed Project is not expected to result in the conversion of large areas of shrub-steppe or riparian habitat, permanent impacts to mule deer winter range are anticipated to be low. A very small amount of shrub-steppe habitat would be permanently converted to proposed Project facilities (i.e., pole locations), resulting in an insignificant amount of winter range habitat loss. The proposed Project would not result in any long-term impacts as transmission line corridors are generally not avoided by big game species (Goodwin, 1975; Thompson, 1977).

***Rocky Mountain Bighorn Sheep***

Potential proposed Project-related impacts to bighorn sheep are similar to those described above for mule deer. Construction commotion could displace wintering or lambing sheep in the spring if it occurred during sensitive periods. This impact would be eliminated through mitigation measure # 4-7 (also see Figure 3-3), that is, avoiding construction within 400m of the sensitive area during lambing. In addition, similar as described above for mule deer, a very small amount of winter range habitat would be permanently removed. The impacts would be very low.

## No Action Alternative

Under the No Action Alternative, the proposed Project would not occur. There would be no alteration to the big game habitat at or within the vicinity of the proposed Project. However, the existing 69kV transmission line would still be in place and maintenance would continue along existing access roads causing some direct impacts due to road maintenance and indirect impacts from the potential spread of noxious weeds through these areas. Similar or more severe impacts would likely occur in other locations as IPC attempts to meet the Purpose and Need in another location or with a different action.

### 4.3.4 Recreation

No issues relating directly to recreation were identified during the public scoping meeting; however, BLM identified recreation as one of the key issues to be addressed in this document. Impacts from new proposed Project roads and facilities, as described in the Land Use section (below) can impact dispersed recreational use and have an effect on the perception of recreationists. The quality of the recreation experience for users of developed or dispersed recreation could be affected by accessibility to roads

needed to construct the proposed 230kV transmission line. Refer to Section 1.7.1 in Chapter 1 for more information about key issues identified during the scoping process.

## Impact Assessment Methods

Potential impacts to recreation resources were assessed along the assumed centerline of the proposed 230kV transmission line, proposed Brownlee-Halfway 69kV reroute, and access roads. The assumed centerline of the proposed 230kV transmission line for recreation impact assessment is 160 feet wide (i.e., the proposed ROW width). Recreation areas are illustrated on Figure 3-3: Land Use.

***Impact Levels***

High impacts would occur where transmission facilities would alter or eliminate developed recreational activities during and after construction of transmission lines or access roads.

Moderate impacts would occur where transmission facilities would temporarily preclude or limit developed and dispersed recreation opportunities during peak use periods, during construction of transmission line and/or access roads.

Low impacts would occur where transmission facilities would:

- temporarily preclude or limit developed and dispersed recreation opportunities during off-peak use periods during construction of transmission line and/or access roads.
- require minor relocation of dispersed recreational activities to equal or better locations during or after construction of transmission line and/or access roads.

No impact would occur when recreation uses would be able to continue as currently exist.

## Recreation Impacts

***Proposed Action***

Construction would create temporary recreation impacts because of clearing, road construction, equipment and material stockpiled at staging areas, structure installation, and conductor stringing and tensioning. For safety reasons, recreation would not be allowed within the construction area during construction. Consequently, existing access roads could be temporarily closed and access temporarily limited to some recreation areas.

Dispersed recreation, such as fishing, picnicking, boating, camping, wildlife and scenic viewing, off-highway vehicle (OHV) use, and hiking, might experience moderate impacts during construction because of traffic delays or perceived visual impacts (see visual impact section above). Potential impacts are considered moderate because peak season for these activities correlates with the typical construction season. However, the low intensity nature of most dispersed activities could allow them to continue even within proximity to construction.

Following construction of transmission lines and access roads, recreation activities would resume without long-term impacts. Recreational use of areas that are temporarily closed during construction (e.g., staging areas) would resume as before construction.

Construction use of access ways could promote increased public access to BLM public lands during and after construction. Increased access could lead to indirect impacts such as greater use of public lands for

dispersed recreation. This could result in increased hunting (legal and illegal), vehicles being driven to create new roads, or dispersed clearing of vegetation and littering at undeveloped camping areas.

Implementing mitigation measure 0-1 would minimize or prevent increased access along the transmission line on construction roads. Any new access roads would be closed to OHV traffic. While IPC proposes to keep the road prism in place for future patrolling and maintenance activities, reseeding would be done to restore stability to the soils and minimize visual contrast. Closing the entrance to access roads off of the Oxbow-Brownlee Road would be done by strategically retaining existing shrubs, rock placement, and other means to visually screen these access points. This mitigation would minimize impacts of increased access.

***No Action Alternative***

Under this alternative, no new impacts to recreation resources in the proposed Project area would be expected. However, as with land use, the existing 69kV transmission line within the proposed Project area would continue to be accessed for maintenance requiring occasional improvements to existing access roads and causing associated impacts from recreational access to the area. Similar or more severe impacts would likely occur in other locations as IPC attempts to meet the Purpose and Need in another location or with a different action.

### 4.3.5 Soil Erosion Hazard

Impacts to soils were identified as an issue during the scoping process. Construction of transmission line facilities can cause erosion resulting in sedimentation. Refer to Section 1.7.1 in Chapter 1 for more information about key issues discussed during the public scoping meeting. Proposed Project soil resources are described in detail in Chapter 3.

#### Impact Assessment Methods

The primary concerns regarding soil resources are to avoid or minimize potential impacts related to wind and water erosion during and after construction. Potential impact locations have been evaluated and recorded by milepost. Factors considered in conducting the impact analysis include the erosion hazard of specific soil types, the intensity, duration and frequency of impacts, and mitigation measures. Ground disturbance levels were estimated along the proposed Project considering topography, the amount of new or existing roads, and other estimated disturbance areas relating to the transmission line construction. After considering the committed mitigation that is part of the proposed Project description, soil erosion hazard levels were combined with ground disturbance to determine potential impacts.

The Natural Resources Conservation Service (NRCS) defines wind and water erosion hazard criteria. Mass wasting potential, although not expected to be a factor in this proposed Project, was also considered.

***Impact Levels***

Impact levels relating to soils resources are defined as follows:

- **High Impact** - A high level of impact to soil resources would result if the construction, operation, maintenance, or abandonment of the proposed Project would potentially cause a substantial erosion hazard or loss of its productive potential.

- **Moderate Impact** - A moderate level of impact to soil resources would result if the construction, operation, maintenance, or abandonment of the proposed Project would potentially cause some erosion hazard or loss of its productive potential.

- **Low Impact** - A low level of impact to soil resources would result if the construction, operation, maintenance, or abandonment of the proposed Project would potentially cause a small erosion hazard or loss of its productive potential.

- **No-Identifiable Impact** - No identifiable impact to soil resources would be indicated where no loss of soil or its productive potential would occur.

## Soils Impacts

All soil map units crossed by the proposed Project would be subject to some level and type of disturbance. Soil surface disturbance, compaction, and erosion would occur to varying degrees. These disturbances would likely result in some increase to wind and water erosion rates and compaction levels, and result in the relocation of some soil resources. Additionally, the potential for mass soil wasting would likely be increased in areas with severe slopes and susceptible material types.

***Proposed Action***

Direct impacts to soil resources would primarily be related to road building activities and construction work areas. Direct road building impacts would generally be long term and adverse. Construction work area direct impacts would generally be short term with the exception of disturbance related to transmission line pole foundations, which would be long term.

These disturbed areas would be subject to increased erosion rates. Detailed soil mapping units in the proposed Project area have wind erosion potentials ranging from none to slight and water erosion potentials ranging from slight to very high. Mapping units with high to very high water erosion potential include: the Copperfield-Rock outcrop complex, 30 to 50 % and 50 to 80 % north slopes; Emily silt loam, 12 to 35 % north slopes; Gwinly-Immig very cobbly silt loams, 35 to 50 % and 50 to 70 % south slopes; the Ruckles-Ruclick complex, 50 to 70 % south slopes; and the Ruckles-Ruclick-Snellby complex, 35 to 50 % and 50 to 70 % slopes.

Wind and water erosion impacts would generally be short term in duration and adverse. Severe, large-scale erosion (e.g. mass wasting) would have the potential to result in long-term adverse impacts. Moderate impact levels would result from mileposts 1.9 to 7.9, 8.3 to 9.2, and 9.7 to 10.4. The above impacts would be minimized to the impact levels indicated through implementing mitigation measures 0-1, 0-2, 0-7, 0-8, 0-9, 6-1, and 6-3, described in Chapter 2 of this document. These measures would provide for minimizing disturbance in sensitive areas, implementing surface stabilization and erosion control, and reseeding.

Impacts related to ongoing operation would be expected to be low due to the relative projected infrequency of these future activities. Low indirect impacts would result from mileposts 0.0 to 1.9, 7.9 to 8.3, 9.2 to 9.7, and 10.4 to 11.0. Soil compaction could also occur as a result of proposed Project construction activities. The extent of compaction would depend in large part on soil moisture content and the physical characteristics of a particular soil type. Compaction tends to be most severe when soils are moist to wet. Most compaction impacts would be mitigated by implementing measure 0-9, reseeding (including loosening soil surface before seeding) and stabilization.

***No Action Alternative***

Under this alternative, no new impacts to soils in the proposed Project area would be expected. However, the existing 69kV transmission line within the proposed Project area would continue to be accessed for maintenance requiring occasional improvements to existing access roads and causing associated soil erosion impacts. Similar or more severe impacts would likely occur for soil erosion in other locations as IPC attempts to meet the Purpose and Need in another location or with a different action.

# 4.4 Other Resource Impacts

## 4.4.1 Land Use

Land use issues identified during public scoping focused mainly on impacts related to increased access along the proposed construction roads, specifically increased access to private and public lands, trespass, and illegal shooting and hunting. A concern that power lines depreciate the value of private property was also voiced (also refer to Section 1.7.1 in Chapter 1 for more information about key issues).

Other potential impacts to existing land uses could result from the proposed 230kV transmission line and proposed Brownlee-Halfway 69kV reroute's direct physical effect on existing land use. Impacts on planned land uses could occur in those areas where construction, operation, and maintenance of the proposed 230kV transmission line and proposed Brownlee-Halfway 69kV reroute could preclude or impair planned development activities.

### Impact Assessment Methods

Potential impacts to land use resources were assessed along the assumed centerline of the proposed 230kV transmission line, proposed Brownlee-Halfway 69kV reroute, and access roads. The assumed centerline of the proposed 230kV transmission line for land use impact assessment is 160 feet wide (i.e., the proposed ROW width). Land uses are illustrated on Figure 3-3: Land Use.

***Impact Levels***

Impacts would be considered high where an action would:

- create areas of non-inhabitable land where residential uses already exist or are permitted.
- prevent the use of the land according to existing or approved land management plans.

Impacts would be considered moderate where an action would:

- adversely affect properties by eliminating or limiting the potential for development to occur around or underneath the transmission lines and/or structures.
- alter the use of the land according to existing or approved land management plans.

Impacts would be considered low where an action would:

- create short-term disturbances during construction to farm or grazing lands.

No impact would occur when land uses would be able to continue as currently exist.

### Land Use Impacts

***Proposed Action***

The proposed Project would be constructed within a BLM designated utility corridor currently occupied by IPC's 69kV transmission line. As a result, the land use in this area would not be changed with the construction of the proposed Project.

There are BLM livestock permittees who have livestock within the Pine Valley allotment #3001 along the proposed route. Impacts to livestock grazing resulting from the operation of the proposed 230kV transmission line and proposed Brownlee-Halfway 69kV reroute would be low because grazing would be

able to continue around the structures, underneath the transmission line, and over necessary access roads. A small portion of grazing operations would be temporarily disrupted or altered during construction. There is also a potential for damage to rangeland improvements, such as fences, in the short term during construction. Five of the mitigation measures (0-1, and 1-1 through 1-3) have been committed to by IPC to minimize these potential impacts. These measures include repairing or replacing any land use improvements that area damaged, repairing fences and gates, repairing roads, and limiting access into the proposed Project area by closing construction access roads.

Some indirect impacts from increased access and changes in access patterns may occur. Currently, there are several miles of access road associated with the existing 69kV transmission line within the proposed Project area. Increased vehicle access could increase with new roads and indirectly result in increased littering, illegal hunting, and other unauthorized activities on public lands. Mitigation measure 0-1 would be applied to close construction road access and minimize the potential impacts of increased access.

The BLM Sheep Mountain Area of Critical Concern (ACEC) and Sheep Mountain Wilderness Study Area (WSA) are located within the study corridor. The assumed centerline of the proposed 230kV transmission line would cross the Sheep Mountain ACEC from milepost 2.5 to milepost 2.6 and from milepost 7.5 to milepost 7.6 (the actual crossing would be less than 300 feet in both locations). As previously stated, the proposed Project would be constructed within a BLM designated utility corridor. In addition, the Baker RMP does not exclude the location of rights-of-way in ACECs. Portions of the Sheep Mountain WSA are near the proposed Project. However, these areas would not be crossed or otherwise directly affected. Boundaries of these areas would be surveyed and/or verified to ensure proper placement of proposed Project facilities.

***No Action Alternative***

Under this alternative, no new impacts to land uses in the proposed Project area would be expected. However, the existing 69kV transmission line within the proposed Project area would continue to be accessed for maintenance requiring occasional improvements to existing access roads and causing associated impacts from vehicle access to the area. Land use impacts would occur elsewhere under the No Action alternative because IPC would be forced to fulfill the Purpose and Need for the proposed Project in another way.

### 4.4.2 Cultural Resources

The cultural resource base within the region through which the proposed Project would be located is well characterized. Class III cultural surveys have been completed for portions of and adjacent to the Project corridor. Resource significance will be analyzed in detail as part of the consultation process under Section 106 the National Register of Historic Places (NHPA). All resources will be inventoried and analyzed to the appropriate standards and regulations set out under the National Historic Preservation Act.

Determinations of "adverse effect" most commonly are associated with undertakings that impact cultural properties determined eligible for National Register listing for values other than information potential, or in cases where disturbance of human remains is anticipated. "No adverse effect" determinations ordinarily are made when properties (usually archaeological sites) valued solely for their information potential will be impacted, but where data recovery will precede the disturbance. A determination of "no effect" is made when (1) the undertaking can be redesigned to entirely avoid effects to eligible properties, or (2) when only elements of eligible properties that do not contribute to their importance will be affected.

## Cultural Resource Impacts

***Proposed Action***

Impacts to cultural resources from overhead electrical utilities can result from ground disturbance or other physical alterations associated with the installation of transmission poles, stringing of conductors, and the use and upgrading of access roads during construction and subsequent maintenance activities. More rarely, cultural properties can be affected by unwanted visual intrusions. Such intrusions ordinarily pertain only to cultural resources valued for characteristics other than their information content and for which there is public sentiment for in-place preservation in an unaltered setting. Two historic properties have been identified in the study corridor from the cultural surveys that have been completed thus far, that are eligible for the National Register of Historic Places. Both are located on privately owned land. Other cultural resources identified to date are not eligible for the NRHP.

Although surveys are not complete, it is expected that cultural resources would not be crossed or physically disturbed by the proposed Project. Therefore, no anticipated direct or indirect impacts are expected for any new sites that may be discovered

There are no direct effects on any known NHRP eligible cultural resources. There may be off-site effects to the visual setting for the historic barn (Site #IPC01 B01), however, these effects would be mitigated by photo-documentation of the barn and it's setting in consultation with the SHPO.

Cultural resources would continue to be considered during proposed Project construction. Chapter 2.3.2 describes the mitigation measures that would be implemented (mitigation measures 3-4 & 3-5) as part of the proposed Project description. Additional specific resource protection measures (e.g., flagging requirements, etc.) would be identified in the POD, which would be reviewed by BLM and approved prior to the start of construction.

***Cultural Plants***

Impacts to cultural plants could result from ground disturbance, and subsequent alteration of habitat, associated with the construction and setting of transmission poles and from the building of new access roads. These potential impacts to populations of plant species in the project area would be limited and site specific. Noxious weed control with herbicides could impact cultural plants. Weed control efforts will be isolated to access roads and pole sites. Color markers will be used when spraying weeds to help identify treated areas.

***Traditional Cultural Properties***

Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effects of their undertaking on historic properties. In accordance with 36 CFR 800.2 (c)(3), the agency official is required to consult with any Indian tribe that attaches religious and cultural significance to historic properties that may be affected by an undertaking as a consulting party. Consultation by the BLM with tribal governments regarding traditional cultural properties in the project area was in the form of written correspondence.

Letters detailing the project scope and requesting the tribes notify the BLM if any properties of traditional religious or cultural importance would be affected by the proposed transmission line were mailed in July 2001 to the following tribal governments: Confederated Tribes of the Umatilla Indian Reservation (CTUIR); Nez Perce Tribe; Colville Confederated Tribes; Confederated Tribes of the Warm Springs Reservation (CTWS); Burns Paiute Tribe; Shoshone-Bannock Tribes; Shoshone-Paiute Tribes. The BLM also sent letters in February 2002 identifying an additional alternative route and again providing opportunity for the tribes to comment on the proposed project.

One response to the above correspondence came from CTUIR's Cultural Resources Protection Program. The CTUIR requested an opportunity to participate in the cultural resources survey and review the associated report. In October 2002, the BLM sent another letter to the same tribes providing an update on several items including CTUIR's request for involvement in any proposed cultural survey of an alternate route. However, CTUIR did not identify any concerns or resource issues for consideration on the original proposed route. No other written comments or responses were received by the BLM from any of the other tribes regarding project impacts to traditional cultural properties.

***No Action Alternative***

Under the No Action Alternative, the proposed Project would not occur. There would be no impacts to cultural resources at and within the vicinity of the proposed Project. Therefore, there would be no effect and no impact would occur.

### 4.4.3 Botanical Resources

During the scoping process, no issues specific to botanical resources were identified; however, there was an expressed desire to minimize disturbance in areas not previously disturbed. The proposed Project area, with its existing 69kV transmission line corridor and existing access roads, was considered a previously disturbed area. Refer to Section 1.7.1 in Chapter 1 for more information about key issues discussed during the public scoping meeting.

Potential impacts to botanical resources associated with construction activity could include (a) disturbance and/or removal of native vegetation, (b) grading and compaction of soil, and (c) loss or displacement of individuals and habitat features of sensitive species of plants. In areas where potential construction impacts to biological resources are possible, mitigation measures would be expected to be effective in reducing or eliminating those potential impacts.

The following criteria were used as a basis for identifying impacts to botanical resources. Refer to Appendix D - Resource Impact Data Tables for information on potential impacts and impact levels. Refer to Figure 3-6: Botanical Resources and Wetlands for specific locations within the proposed Project area.

#### Botanical Resource Impacts

This section describes the types of impacts that could occur to botanical resources in the proposed Project area because of construction and operation of the proposed Project. Refer to Appendix D - Resource Impact Data Tables for potential impacts to botanical resources by mile and the associated mitigation measures.

Existing surveys do not cover the area in which the Brownlee-Halfway 69kV reroute would be located. New surveys are planned for Spring 2003. After the surveys are completed, the results will be detailed in the POD.

***Proposed Action***

Adverse direct impacts to botanical resources would include vegetation clearing along the transmission line and access roads and ground disturbance at pole sites and along access roads. Access road construction along the transmission line and at pole sites would require vegetation clearing. This impact would be short-term since IPC has committed to establishing a program to reseed all disturbed areas and stabilizing soils where ground disturbance would be substantial.

Adverse indirect impacts to botanical resources could include increased access into the transmission line corridor potentially causing increased soil erosion and increased risk for noxious weeds to invade the area. Impacts would be minimized or eliminated by applying the mitigation measures committed to by IPC as part of the proposed Project description.

**Special Status Species**

The following species are known to occur where the proposed Project structures or access roads would be located.

Oregon bolandra (*Bolandra oregana*) - Oregon bolandra plants are found between mileposts 1.1 to 1.2, 1.4 to 1.5, 3.5 to 3.7, 4.4 to 4.7, 8.5 to 8.6, 9.0 to 9.1, and 9.8 to 9.9. IPC has committed to mitigation measures that would avoid disturbance to this population, thus reducing or eliminating the impact.

Back's sedge (*Carex backii*) - One population of Back's sedge occurs between milepost 9.5 and 9.7 and located in a steep, shallow draw under dense brush and shrubs. Due to its location, it is unlikely that the proposed Project would impact this population; therefore, there is no identifiable impact.

Porcupine sedge (*Carex hystericina*) - Porcupine sedge plants are found between mileposts 1.7 and 1.8, 3.7 and 3.8, 4.6 and 4.8, 5.5 and 5.6, 6.7 and 6.8, and 9.5 and 9.7. All of the populations are located in draw bottoms close to flowing water. Consequently, it is unlikely that the proposed Project would impact these populations, since most of the proposed Project facilities would be located on the ridgetops and in the upland habitat. However, potential would exist for limited adverse impacts if access roads would be constructed in certain riparian zones. IPC has committed to mitigation measures that would avoid disturbance to this population, thus reducing or eliminating the impact.

Torrey's rush (*Juncus torreyi*) - Populations of Torrey's rush are found in drainages near flowing water between milepost 8.8 to 9.0. Consequently, it is unlikely that the proposed Project would impact these populations, since most of the proposed Project facilities would be located on the ridgetops and in the upland habitat. However, potential does exist for limited adverse impacts if access roads are constructed in certain riparian zones. IPC has committed to mitigation measures that would avoid disturbance to this population, thus reducing or eliminating the impact.

Stalk-leaved monkeyflower *(Mimulus patulus)* - One population of Stalk-leaved monkeyflower has been recorded between milepost 4.7 and 4.8. However, rare plant surveys that were conducted in 2001 failed to re-locate the population. Dry conditions were thought to have affected the plant's ability to grow that year. Future surveys may be required to determine if the population still exists in that area. Even so, proposed Project activities such as gaining access from the Oxbow-Brownlee Road to conduct operation and maintenance activities may impact the rare plant population or associated habitat. IPC has committed to mitigation measures that would avoid disturbance to this population, thus reducing or eliminating the impact.

***No Action Alternative***

Under the No Action Alternative, the proposed Project would not occur. There would be no alteration to the botanical resources at or within the vicinity of the proposed Project. However, the existing 69kV transmission line would still be in place and maintenance would continue along existing access roads. Consequently, direct impacts due to road maintenance and indirect impacts from the potential spread of noxious weeds through these areas would occur.

## Noxious Weeds

The proposed Project includes clearing of land capable of supporting vegetation native to the proposed Project Area. The process of clearing these lands and the subsequent loss of native vegetation, although minimal, can make the area vulnerable to noxious weed invasions (Idaho State Department of Agriculture, 2002).

Noxious weeds can also spread through an area if care isn't taken to prevent weed infestations. Vehicles, for example, may transport seeds of noxious weeds to the proposed Project Area and can give these weeds a competitive edge over native vegetation by depositing seeds where the weed seeds would not occur naturally. However, because the proposed Project would implement a noxious weed control plan, it is not expected that noxious weeds would increase much compared to the existing condition.

Weed control measures would be developed prior to construction and would be detailed in the proposed Project's noxious weed control plan. In addition, many of the mitigation measures common to several resources that would reduce overall disturbance would be effective at preventing the establishment of noxious weeds.

### 4.4.4 Other Wildlife Resources

The following criteria were used as a basis for identifying impacts to wildlife resources other than has already been addressed in the Bald Eagle and Big Game sections above. Refer to Appendix D – Resource Impact Data Tables for potential impacts to wildlife resources by mile and the committed mitigation measures. Refer to Figure3-2: Wildlife Resources for specific locations within the proposed Project area.

## Wildlife Impacts

***Proposed Action***

**Sensitive Species**

Lewis' Woodpecker *(Melanerpes lewis)* – Lewis' woodpeckers make limited use of the proposed Project area. As noted above, the majority of proposed Project disturbance would be occurring on the ridge tops and upland habitats, well away from the wooded and brushy riparian habitats preferred by the species. No identifiable impact would result at mileposts 2.3 and 5.3, where habitat is present because IPC committed mitigation would avoid removal of the three large trees. Some temporary and small-scale displacement may occur due to disturbance during the construction, but even these effects would be low.

Vaux's Swift (*Chaetura vauxi*) – Although Vaux's swifts are thought to use the proposed Project area for occasional foraging, the habitat is not optimal for breeding. Impacts of the proposed Project on Vaux's swifts are expected to be low and limited only to the period of construction. Although not likely, construction commotion may disturb foraging swifts, causing them to move temporarily to other areas. Because permanent proposed Project-related habitat disturbance is expected to be minimal, long-term impacts to swift habitat would be minor. Once the proposed Project is constructed and operational, no reductions in Vaux's swift use of the proposed Project area would be anticipated.

Willow Flycatcher (*Empidonax trailli adastus*) – Willow flycatchers likely occur within the proposed Project area, having been reported throughout the Hells Canyon Complex study area at an abundance level of 'Rare'. Because the species prefers the brushy draws and riparian habitats, the proposed Project is expected to have few and minimal impacts on this species. As mentioned above, proposed Project impacts would be largely confined to the ridge tops and upland habitats, avoiding the brushy draws and riparian areas. Some temporary and small-scale displacement may occur due to increased commotion during the construction phase of the proposed Project, but even these effects would be expected to be low.

Various Warbler Species – The four BLM 'Sensitive' warbler species present in the study corridor (Townsend's warbler (*Dendroica townsendi*), yellow warbler (*Dendroica petechia*), MacGillivray's warbler (*Oporornis tolmiei*), and Wilson's warbler (*Wilsonia pusilla*) primarily use the brushy draws and riparian habitats within the proposed Project area. Because the species prefers the brushy draws and riparian habitats, the proposed Project is expected to have minimal impacts on this species. As mentioned above, proposed Project impacts would be largely confined to the ridge tops and upland habitats, avoiding the brushy draws and riparian areas. Some temporary and small-scale displacement may occur due to increased commotion during the construction phase of the proposed Project, but even these effects would be expected to be low.

Plumbeous Vireo (*Vireo plumbeous*) – Plumbeous vireos occur commonly within the woodland and shrubland habitats of the proposed Project area. As such, they are likely to be subject to more proposed

Project impacts than those species primarily restricted to the brushy draws. However, overall impacts to the species are expected to be low, and confined primarily to the construction period. That the species occurs commonly throughout the proposed Project area suggests a large amount of suitable habitat is available for the species. Although unoccupied habitat may be scarce, the temporary displacement that may occur as a result of construction commotion would be expected to moderately affect the local population. As discussed above, long-term habitat disturbance and long-term impacts to plumbeous vireos as a result of the proposed Project would be expected to be low.

Loggerhead Shrike (*Lanius ludovicianus*) – Loggerhead shrikes, while not abundant, occasionally use the shrubland habitats of the proposed Project area. As such, they are subject to similar potential proposed Project impacts as the plumbeous vireo. These impacts are expected to be limited primarily to the construction phase of the proposed Project, and may result in temporary displacement of foraging shrikes to nearby habitats. Once construction is complete, and most of the habitats disturbed by the proposed Project have been rehabilitated, impacts to shrike use of the proposed Project area should be low.

Brewer's Sparrow (*Spizella breweri*)– Brewer's sparrows may use the proposed Project area on an extremely limited basis, having been recorded only once by IPC wildlife studies in the Oxbow Reservoir area. Consequently, it is doubtful that proposed Project activities would have an effect on the species. However, limited temporary displacement of Brewer's sparrow individuals cannot be entirely ruled out. These effects would be expected to occur only during the construction phase of the proposed Project, as habitat conditions for the species would remain largely unchanged following construction.

Inland Columbia Basin Redband Trout *(Oncorhynchus mykiss gairdneri)* – Inland Columbia basin redband trout are found in the proposed Project area in the Wildhorse Creek on the Idaho side of the reservoir. Since the transmission line and construction would be exclusively on the Oregon side of the reservoir no impacts to Inland Columbia basin redband trout would be expected.

Western Toad (*Bufo boreas*) – Western toads are thought to occur in limited numbers within some of the riparian habitats in the proposed Project area. Impacts to western toad individuals would be expected if proposed Project facilities modified these habitats. Because proposed Project impacts are expected to be limited primarily to the upland habitats and ridge tops, minimal impacts to western toad individuals or habitat would be anticipated. According to committed mitigation measures described in Chapter 2, sensitive habitats would be inspected and flagged (if found) prior to road construction to minimize these impacts (refer to mitigation measure 4-3).

**Bat Species**

Because some suitable habitat is present in the study corridor, it is likely that one or more species of special status bats occur. However, due to the inaccessible nature of the cliff habitats, it is not expected that any proposed Project facilities would affect these species. It is possible that some of the bats make limited use of the trees within the proposed Project area.

***No Action Alternative***

Under the No Action Alternative, the proposed Project would not occur. There would be no alteration to the wildlife and fisheries resources at or within the vicinity of the proposed Project. However, the existing 69kV transmission line would still be in place and maintenance would continue along existing access roads causing some direct impacts due to road maintenance and indirect impacts from the potential spread of noxious weeds through these areas. However, continued demand for power would require the development of transmission lines or other power facilities in some other location resulting in similar or potentially greater impacts to wildlife resources.

### 4.4.5 Water Resources and Wetlands

The proposed Project-related impacts to water resources were not identified as an issue during the scoping process. However, construction, operation and maintenance of transmission line facilities can create temporary and permanent impacts to water resources and wetlands.

Potential impacts to water resources and wetlands could result from accelerated erosion and sedimentation from the construction and maintenance activities on or adjacent to streams or wetlands. Other potential impacts include water quality degradation, and decreased wetland size, function, or value. In areas where potential impacts to water resources and wetlands are possible, mitigation measures committed to by IPC would be expected to be effective in reducing or eliminating those potential impacts.

Refer to Appendix D – Resource Impact Data Table for potential impacts to water resources by mile and the committed mitigation measures. Refer to Figure 3-6: Botanical Resources and Wetlands for specific locations of water resources within the proposed Project area.

## Water and Wetland Impacts

***Proposed Action***

A small amount of accelerated soil erosion (refer to soil erosion discussion in the sections above), subsequent downstream sedimentation and potentially reduced surface water quality could occur during construction of the proposed 230kV transmission line. The transmission line and some access roads would cross the numerous streams, some with associated wetlands. Impacts from construction activities would be localized and would occur in the short term.

Specifically, potential moderate water resource impacts could occur to unnamed intermittent streams found between mileposts 1.8 to 2.0, 3.6 to 3.8, 3.9 to 4.0 and 4.4 to 4.5. In addition, a potential moderate water resource impact could occur between milepost 9.4 to 9.5 where the proposed Project would cross Black Canyon Creek, a perennial drainage.

Rehabilitating the vegetation cover, spanning sensitive features, and crossing streams using existing or rock crossings would minimize these impacts through the application of measures 0-6, 0-7, 0-8, 0-9, and 5-1. The potential for long-term impacts would exist from vehicular traffic on access roads, but these impacts would be minimized by closing the roads to public access through the application of mitigation measure 0-1.

No 303(d)-listed streams would be crossed by the proposed transmission route. Impacts to those streams that would be crossed by the transmission route would be minimized by the implementation of the mitigation measures discussed earlier and would not likely be great enough to cause a failure, or threat of failure, to meet water quality standards and thus would not be listed under section 303(d) of the Clean Water Act as threatened or impaired. Sedimentation and erosion control devices would be employed as needed to control and contain runoff. Furthermore, water quality in Oxbow Reservoir (listed for nutrients, sediment, pesticides, mercury, and temperature) is not likely to be impacted by the proposed Project since at least 99% of the inflow to Oxbow Reservoir comes directly from Brownlee Reservoir.

***No Action Alternative***

Under this alternative, no new impacts to water resources would be expected for the proposed Project area. However, the existing 69kV transmission line within the proposed Project area would continue to be accessed for maintenance requiring occasional improvements to existing access roads. Some erosion impacts could be expected from these activities and from vehicle access to the area. Similar or greater

impacts would likely occur in other locations as IPC attempts to meet the Purpose and Need at another location.

### 4.4.6 Geology and Geologic Hazards

Geologic hazards (geohazards) that could impact the integrity of the transmission line include mass movement of the ground surface initiated by seismic events such as earthquakes, landslides, liquefaction, or sinkholes. Constructing roads and transmission structure foundations could exacerbate these hazards by causing additional instability.

#### Geohazard Potential

***Proposed Action***

Direct impacts to geologic resources associated with the proposed 230kV transmission line include slough material accumulations in previously undisturbed areas as a result of road building or improvement activities. In limited locations, blasting may be required to clear a path for access roads or pad locations, leaving permanent alterations to geologic outcrops.

The propensity for landslides and debris flows to occur in the study corridor exists with or without construction of the proposed Project. Liquefaction may also occur during seismic events in areas where unconsolidated saturated sediments (like alluvial and colluvial fans) are present. Depth to groundwater in alluvium along the proposed Project alignment is not known. Therefore, the proposed Project ROW is at risk for damage from these geohazards.

Access roads or tower sites located in these areas may be particularly susceptible to debris flows or liquefaction. Geotechnical studies would be conducted prior to construction for conformance to road and structure building standards to help reduce the risk to the proposed Project from these types of hazards.

***No Action Alternative***

Under the No Action alternative, geohazards would still be present in the study corridor, but would pose no hazard or threat to the proposed Project. However, the demand for additional electrical capacity to meet increasing demand would need to be met in other areas, and geohazards would likely be present in these locations, as well. There would be no impact to geologic features or resources. By building a transmission line in an alternative area, similar geohazards would likely be present in such locations.

### 4.4.7 Air Quality and Meteorology

Impacts to air quality were not identified as an issue during the scoping process. Refer to Section 1.7.1 in Chapter 1 for more information about key issues discussed during the public scoping meeting.

The construction phase of the proposed Project would include installation of towers, lines and communication facilities. The construction activities would produce two types of air contaminants: exhaust emissions and fugitive dust generated from construction equipment

#### Air Quality Impacts

***Proposed Action***

**Transmission Line Construction**

The emissions produced during grading and construction activities, are, by their nature, of short-term duration and would cease upon construction completion of the proposed Project. Exhaust emissions from construction equipment include those produced onsite as the construction equipment is used. The criteria

pollutants emissions for construction emissions include carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides ($NO_x$), Particulate Matter ($PM_{10}$), sulfur oxides ($SO_2$), total suspended particulates (TSP), hydrocarbons (HC), and fine pollutants. Emissions from construction would be confined to daytime activity for the duration of the construction period.

Construction activities are a source of fugitive dust emissions that may have an effect on local air quality. Road construction is the prevalent construction category with the highest emission potential. Emissions are associated with land clearing, ground excavation, grading operations, and construction of the structures.

Dust emissions vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. A large portion of the emissions would result from equipment traffic over roads to the tower sites. The quantity of fugitive dust generated is proportional to the area of land being worked and the level of construction activity. Emissions from heavy construction operations are directionally proportional to the silt content of the soil (that is, particles smaller than 75 microns in diameter) and inversely proportional to the square of the soil moisture.

Vehicle exhaust would be the primary emission from operation of the proposed Project. Principal air resource impacts associated with the operational phase of the transmission system would result from periodic maintenance checks or emergency repair, and because CO is a highly localized pollutant, the proposed Project would not contribute substantially to regional air quality degradation.

Because of potential impacts from construction activities, several mitigation measures would be necessary to mitigate particulate impacts. Control technologies for dust control (e.g., watering and/or chemical stabilization) would be utilized (i.e., mitigation measure 7-1). Watering is the most common, the least expensive, and is environmentally preferred. An effective watering program can reduce dust emissions up to 80%. Using chemicals for long-term dust suppression can be used, but their cost and environmental effects to plant and animals can be detrimental factors. Thus, an effective watering program would be sufficient for dust control. Limiting traffic on dirt roads during construction would also help limit dust.

**Temporary Diesel Generator Use**

The emissions produced during temporary diesel generator use, are, by their nature, of short-term duration and would cease upon construction completion of the proposed Project. Exhaust emissions from the diesel generators include those produced onsite and in Halfway, Oregon while the diesel generators would be used. The criteria pollutants emissions for generator emissions include carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides ($NO_x$), Particulate Matter ($PM_{10}$), and sulfur oxides ($SO_2$). Emissions from diesel generator use would occur both during the day and night for the duration of the construction period. It is anticipated that the generators would be used on three continuous day intervals, seven separate times during the construction period.

One 725kW generator would be placed near the Duke Substation in Brownlee Village while two other 1600kW generators would be placed at the Halfway Substation near Halfway, OR. Their projected use is regulated by the ODEQ under tier II temporary generators (AQGP-018 table A). The Tier II 3.25 MW generators cannot operate longer than 1000 hours per year each. A Tier II 0.725 MW generator cannot operate longer than 1000 hours per year (ODEQ, 2002). The projected use of the proposed Project generators would be 504 hours each, therefore would fall within state guidelines.

The use of these generators is dependant upon appropriate permitting of the generators with ODEQ. IPC would abide by state standards set forth for air emissions.

***No Action Alternative***

No air emissions would occur from the No Action Alternative. However, there would be a minimal effect to air quality from dust and vehicle emissions during maintenance of the existing 69kV transmission line. Similar or more severe impacts would likely occur in other locations as IPC attempts to meet the Purpose and Need in another location or with a different action.

### 4.4.8 Socioeconomics

Socioeconomic impacts were not identified as an issue during the scoping process. Refer to Section 1.7.1 in Chapter 1 for more information about key issues discussed during the public scoping meeting.

Potential effects of construction and operation of the proposed Project are examined in this section. The section also summarizes the "No Action" alternative's socioeconomic effects, and concludes with an assessment of Environmental Justice issues raised by the proposed Project.

Socioeconomic impacts arise mostly from the logistical requirements of the proposed Project: its requirements for mobilizing and deploying labor, capital and material resources. Application of these factors of production to a defined geographical area and setting imposes changes in the levels and patterns of peoples' activities in the area, including employment, housing, commercial activities, and public services and infrastructure (e.g., schools, roads, public safety and public health). Whether these changes are beneficial or injurious largely depends on the degree or magnitude and duration of changes in the existing, or pre-project, levels of utilization and the capacity of the area's resources to accommodate changes in demand.

The impact assessment starts with a description of the proposed Project's economic resource requirements. These are placed in time frame and then compared with the proposed Project area's socioeconomic resources. The typical measures of socioeconomic impacts include changes in population, employment, and income, wherein the proposed Project's inputs and outputs for these parameters are related to the proposed Project area's socioeconomic baseline (which was evaluated in Section 3.12) with respect to costs (or burdens) and benefits (monetary and non-monetary) accruing to the local population and its institutions. Judgments are then made as to the intensity, duration, and reversibility of any impacts, and, the need for measures to avoid or reduce impacts.

#### Socioeconomic Impacts

***Proposed Action***

Constructing the proposed Project is a relatively small project in terms of socioeconomic resource requirements and impacts. Per the proposed Project description in Chapter 2, the proposed Project would take about seven months to construct, employing up to 44 workers. Such an undertaking would entail a payroll of at most about $1 million and perhaps another $500,000 in local area procurements of construction materials and services.[1] The bulk of the proposed Project cost would "leak" out of the proposed Project area via payments to non-local and out-of-state sources of cable, structural steel, transformers, etc., specialty contractors and their personnel, and equipment suppliers. Placed in the socioeconomic context of the three-county proposed Project impact area—a rural and sparsely populated region of approximately 30,000 population with an aggregate personal income of around $350 million—the infusion of workers' local spending and local construction procurements totaling perhaps a million dollars would place little burden on the assimilative capacity of the local economy.

[1] Estimates by POWER Engineers, based on project experience.

Workers' local consumer goods purchases and contractors' procurements of construction supplies would be the principal economic benefits of the construction phase accruing to the local economy. Providers of transient accommodations, eating and drinking places, automotive services, construction materials vendors (e.g., sand and gravel, concrete, lumber, etc.), and equipment leasing establishments in communities near the proposed Project site would be the main beneficiaries. The benefits would be short term, however, with the proposed Project schedule running for only seven months. Any multiplier effects on local employment and income would be minimal. The impact may be considered as beneficial but minimal.

Direct socioeconomic impacts could primarily take the form of increases in demand for transient accommodations from non-local workers recruited to work on the proposed Project. This is regarded as a cost in the sense that they might overload available space or displace customary users of motels and campgrounds near the proposed Project. However, as noted in Section 3.3.8 Socioeconomics (under "Housing"), there are an estimated 1,500 or more lodging rooms and camping spaces within a 50-mile radius of the site, which would suggest that there would be space for a couple of dozen or so non-local proposed Project workers within reasonable commuting distance of the job. The region's visitor-serving industry is well developed, and the number of people related to the proposed Project would be a minimal impact on the level of demand for accommodations. The additional business for local motels, RV parks, etc., would represent a short-term economic benefit for the region, particularly in Halfway, OR.

After completion of construction, transmission line operations and maintenance activities would have essentially no socioeconomic effects on the proposed Project area. Personnel requirements would be negligible, and would place no extra burden on housing or other infrastructure and services. The principal indirect effect would be fiscal, arising from property taxes on the proposed Project's real and personal property in Baker County. IPC has not yet determined the assessed value of the proposed facilities, so it is not possible to project the amount of taxes that would accrue to the county. They would probably amount to a few tens of thousands of dollars per year, however, which would be a small but welcome addition to the County's revenues.

***No Action Alternative***

If the proposed Project were not built, then the effects described above would not occur. There would be no new payroll, no new local procurements, no temporarily relocated workers, and no new property taxes. Because the proposed Project's resource requirements are relatively small, their absence would have essentially no effect on the pace and pattern of life in Baker County or the counties adjacent to the proposed Project area.

### 4.4.9 Health, Safety, and Noise

Health, safety, and noise impacts were not identified as an issue during the scoping process. Refer to Section 1.7.1 in Chapter 1 for more information about key issues discussed during the public scoping meeting.

The proposed Project would be designed and constructed in accordance with National Electrical Safety Code (NESC) requirements, which provides for minimum allowable distances between the lines and the ground or other objects and from the lines to the edge of the ROW.

The proposed Project would produce electric and magnetic fields because of the voltage applied to the transmission line conductors and the current in the lines. The strength of the electric field is expressed in terms of V/m or kilovolts per meter (kV/m) and the strength of the magnetic field is expressed in term of milliGauss.

Sound level impacts for noise sensitive areas in the proposed Project are based on an A-weighting of sound intensities that best reflects the human ear's reduced sensitivity to low frequencies. These sound intensity levels correlate well with human perceptions of the annoying aspects of noise. Noise environments and consequences of human activities are usually well represented by an equivalent A-weighted sound level over a given time period ($L_{eq}$) or by the average day-night noise levels ($L_{dn}$).

## Health, Safety and Noise Impacts

***Proposed Action***

**Electrical and Magnetic Induction**

Electric induction involves a short-term electrical interaction between the transmission line and objects referred to as "capacitive coupling." In this type of coupling, a voltage is produced onto objects that are near the power line such as trees or houses.

Magnetic induction is a result of the current in the transmission line conductor coupling voltages into a parallel conductor system (fence, pipeline, etc.). This effect is referred to as "inductive or magnetic coupling." The conductor system must be generally in parallel to the line to cause any noteworthy coupling or induction effects.

The proposed Project would be constructed at safe distances according to NESC requirements from existing structures and vehicle traffic, so no electric or magnetic induction impacts are expected. No uses currently located within the ROW would be changed due to the construction and operation of the proposed Project. Vegetation would be inspected on a regular basis and, if necessary, trimmed or removed to prevent electrical induction between the vegetation and line.

**Construction Noise**

On-site construction noise would occur primarily from construction equipment (e.g., dozers, backhoes, cranes) and aerial transportation (i.e., helicopters). Anticipated noise levels from this equipment would range from 70 dBA to 100 dBA at a distance of approximately 50 feet. Direct noise impacts would result from construction activities occurring adjacent to sensitive receptors such as houses and recreation areas. However, this noise would be short term, occurring mostly during daylight hours. Construction activities would move along the 11-mile transmission line route and would not result in extended construction in any one area. Mitigation measure 8-1 would restrict construction access to pre-designated areas to avoid or minimize noise disturbance to sensitive receptors.

**Diesel Generator Noise**

The noise produced during temporary diesel generator use, are, by their nature, of short-term duration and would cease upon construction completion of the proposed Project. Noise from the diesel generators includes those produced onsite and near Halfway, Oregon while the diesel generators would be used. Noise from diesel generator use would occur both during the day and night for the duration of the construction period. It is anticipated that the generators would be used on three continuous day intervals, seven separate times during the construction period.

One 725kW generator would be placed near the Duke Substation in Brownlee Village while two other 1600kW generators would be placed at the Halfway Substation near Halfway, OR. The anticipated noise levels from 1600kW generator would not exceed 75dBA at a distance of 50 feet (Horting, Tim, 2003). The anticipated noise levels from 725kW generator would not exceed 70dBA at a distance of 50 feet (Horting, Tim, 2003).

The Oregon Administrative Rules (OAR), Chapter 340, Division 35, state that new industrial and commercial noise source standards and their allowable statistical noise levels that cannot be exceeded in any one hour. During daylight hours (7am –10pm), 75dBA may not be exceeded. Nighttime levels cannot exceed 60dBA. In the absence of reflections we would expect a drop of 6dB per doubling of distance a sufficient distances from the source (Lord, et al. 1987). This sound field is note as a free field from a point source, or simple source. Therefore, the noise levels produced by the larger 1600kW generators would be reduced by 6dBA for every doubling of distance between the generators and the receptors. With the nearest receptor being almost 400 feet away, the noise would be reduced by approximately 18dBA. Thus the noise at the nearest receptor would be 57dBA and below the day or nighttime allowable statistical noise level for the largest of the two generators. The 725kW generator would also fall below the allowable statistical noise level because its noise level at 50 feet would be 70dBA. Reducing this level by 6dBA per doubling of distance resulting in 52dBA at approximately 400 feet away from the generator. For a discussion of typical noise levels encountered and their resulting dBA, see Table 3-11 in Chapter 3.

The use of these generators is dependant upon appropriate permitting of the generators with ODEQ. IPC would abide by state standards set forth for diesel generator noise. In summary, during operation of these temporary generators, residents in the vicinity will experience noise levels greater than normal background, but will be within the State Standards.

**Transmission Line Noise**

Audible noise levels from the operation of 230kV transmission lines are generally below 50 dBA. In fair weather, the 230kV line would result in a maximum calculated $L_{50}$ (noise that occurs 50% of the time above or below this level) noise level of 3 dBA at the edge of the 160-foot ROW. Rainy weather could increase the maximum calculated $L_{50}$ noise level to 28 dBA at the edge of the ROW. Given the frequent windy conditions and other ambient noise from boats and cars adjacent to the ROW, the noise levels from the line, even in rainy conditions (i.e. masks the line noise), would be barely perceptible to sensitive receptors. The proposed line has been designed to minimize audible noise during operation by using a two-conductor bundle design for the 230kV circuit. In comparison, audible noise levels from the existing 69kV line are over 15 dBA greater at the edge of ROW because of the single circuit with a single conductor for the existing line.

**Substation Noise**

Audible noise is typically associated with substation equipment such as transformers, reactors, voltage regulators, and other intermittent noise generators. The primary sources of audible noise are the transformers. Since both Brownlee and Oxbow are Substations, the equipment needs would be different. Substation equipment would typically include switches, line breakers, various bus connections, and wiring. Because transformers are not used, audible noise from the Substations would be much lower than audible noise emitted from a substation.

**Radio and Television Interference**

Corona and gap discharges are two potential sources of radio noise from the new 230kV-69kV double circuit line. Corona discharges induce trains of short duration current pulses that propagate along the line conductors, away from the point of generation. Gap discharges result from electrical discharges between broken or poorly fitting hardware, such as insulators, clamps and brackets.

It has been estimated that more than 90% of power line sources that cause interference are due to gap discharges. These gap discharges can be found and eliminated when required to prevent interference. The U.S. electric power companies have been able to operate quite well under the present Federal Communications Commission (FCC) rule because harmful interference can generally be eliminated. Very few of the interference complaints that power companies in the U.S. receive are due to corona. In the few

cases where there have been problems, power companies have paid for the installation of special equipment to improve the signal-to-noise ratio (SNR) at the complainant's receiver. In some cases, problems are solved by hooking up the complainant's TV to cable or to satellite dishes (IEEE Line Design Working Group of the Radio Noise Subcommittee 1971).

In 1992, the U.S. Congress authorized the Electric and Magnetic Fields Research and Public Information Dissemination Program (EMF-RAPID Program) in the Energy Policy Act (PL 102-486, Section 2118). The Congress instructed the National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health and the Department of Energy to direct and manage a program of research and analysis aimed at providing scientific evidence to clarify the potential for health risks from exposure to extremely low frequency (ELF) EMF.

The 1999 NIEHS report states the following in its conclusion section:

> "The scientific evidence suggesting that ELF-EMF exposures pose any health risk is weak…. The NIEHS concludes that ELF-EMF exposure cannot be recognized as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard. In our opinion, this finding is insufficient to warrant aggressive regulatory concern."

Panels charged with recommending exposure limits for electric and/or magnetic fields have concluded that no meaningful experimental data exists (e.g., no dose-response information is available) on which to base standards or limits to which the public is exposed.

***No Action Alternative***

The No Action Alternative would not result in any direct impacts to Health, Safety and Noise. However, the existing 69kV transmission line, which would be replaced by the proposed Project, would continue to cause similar or greater impacts than the 230kV –69kV double circuit line on health and safety. Impacts include increased audible noise in a 69kV line as compared to a 230kV line and increased potential for outages due to the age of the lines and poles. Construction noise would be avoided with the No Action Alternative. However, increased maintenance on the older 69kV transmission line would result in a potential greater risk to health and safety over the long term.

### 4.4.10 Environmental Justice

Presidential Executive Order 12898 of February 11, 1994, states that all Federal actions must address and identify as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations in the United States. Since the proposed Project entails permits from the Federal government, it must satisfy the Order. The issue is whether construction and operation of the proposed 230kV transmission line would cause minority and/or low-income persons to bear a disproportionate share of the environmental effects of the proposed Project.

EPA's guidelines for evaluating Environmental Justice compliance include the statement that a possibility of EJ problems exists if more than 50 percent of the population in the area of influence of the proposed Project is minority or low-income. Census data for the three counties comprising the proposed Project area (see Table 3.12-2 in Section 3.12) indicate that minorities comprise less than 15% of the population and that less than 20% of the area population lives below the poverty level. Accordingly, it appears that the proposed Project does not satisfy the criterion for a finding of Environmental Justice non-compliance.

# *4.5 Cumulative Effects*

## 4.5.1 Existing Transmission Lines

Several existing transmission and distribution lines are located adjacent to the proposed Project. Brownlee and Oxbow, two large hydroelectric facilities with associated Substations and transmission lines, are at either end of the proposed Project. Currently, six 230kV transmission circuits leave Brownlee Substation with two circuits crossing to the Oregon side of the reservoir and four remaining on the Idaho side. A double-circuit 230kV transmission line runs the length of the reservoir on the Idaho side. The other circuits are routed out of the canyon area to the west and south. Another 230kV circuit comes into the area off the canyon rim from the Oregon side of the reservoir at approximately milepost 2.5 and continues into the Oxbow Substation alongside the double circuit 230kV from Brownlee. Both 230kV facilities cross the Oxbow Reservoir at approximately milepost 1.0 before entering Oxbow Substation. These lines leave Oxbow Substation and continue north along Hells Canyon Reservoir.

Distribution lines from the Duke and Pine Creek substations at either end of the proposed Project supply power into parks and residential properties near the proposed Project.

Also, refer to the Land Use section in Chapter 3 for further information on existing features.

## 4.5.2 BLM Utility Corridors

The BLM in Oregon considers existing utilities for designation as utility corridors through the RMP process. The current Baker RMP (BLM 1989) designates the existing 69kV transmission line as a utility corridor. The proposed Project has been proposed with consideration of the existing transmission system in the area and in an existing designated utility corridor.

Additional transmission line projects may be needed in this area given the location of IPC's hydroelectric facilities. Successive transmission line projects would likely result in similar levels of disturbance. Additional lines in the canyon area would result in a cumulative loss of habitat for plants and animals and cumulative impacts to visual resources.

## 4.5.3 Resource Effects

### Land Use

The Hells Canyon area between Brownlee Dam and Oxbow Dam is part of a hydroelectric complex owned by IPC along the Snake River, and is an area of historical industrial activity. This segment of the canyon includes the Brownlee and Oxbow earth-filled dams, a transmission system (e.g., 69kV, 138kV, and 230kV), powerhouses, Substations and ancillary facilities, the Oxbow-Brownlee Road, Oxbow Reservoir, manufactured and protected slopes along the reservoir edge in many places, developed recreation facilities, residential clusters, and other support facilities and equipment. Cumulative impacts to land uses would be minimal.

Very small areas of rangeland used for grazing and forage would be permanently removed from production by tower foundations and permanent access roads. Though these impacts would accumulate with each successive project, the total area lost from production is very small within the context of the region. Although access roads, both existing and new, will be closed to OHV use, some illegal use could occur, and therefore could have some cumulative effects. No designated Wildernesses and designated Wild and Scenic Rivers would be affected. BLM Wilderness Study Area's would not be directly affected.

## Visual Resources

Existing land uses that could cause cumulative visual change to the area include the existing transmission lines, existing industrial facilities, and hydroelectric facilities discussed above and the residential housing clusters at either end of the proposed Project.

Normally, the first constructed objects in a natural setting cause the most noticeable change because of their contrast of form, line, color, and texture to the surroundings. However, each successive change becomes less noticeable than the first and the sum of all the changes (e.g., form, line, color, and texture) is more evident to the casual observer. Likewise, for transmission lines, it is normally the first transmission line in a natural area that causes the greatest incremental change. However, the cumulative visual impacts within the corridor increase with each new line. Hence, a multi- transmission line corridor would be more visible at greater distances because of the cumulative physical contrast with the natural landscape than a single transmission line. Cumulative visual impacts would increase within the project area.

## Cultural Resources Effects

In general, transmission lines encounter a disproportionately large number of sites because of a statistical "edge effect," (corridors are longer than they are wide). However, the surveys to date indicate it would be reasonable to avoid all identified cultural resources. Based upon the standard design features and the limited number of cultural resource found to date in the proposed ROW corridor, no cumulative impacts to archaeological and historic sites are expected from the proposed Project. This preservation of resources increases our knowledge and understanding of the area.

Every year, more surveys are conducted within the region on Federal lands or in response to federally funded or licensed projects. These surveys result in the recording of many cultural resources annually. Most of these resources are not being damaged or destroyed, but the resource base is undoubtedly being reduced by a small increment annually.

Impacts to cultural resources would be mitigated with each project constructed or maintained. Cultural resources would be avoided, or if this were not possible, mitigation measures would be designed in consultation with SHPO and the tribes. The cumulative effects of all of the transmission lines is not measurably different than the additive impacts of each single project, but again, the impacts of direct disturbance to sites would be mitigated.

Indirect impacts to cultural resources can result from degrading the setting of an important cultural feature and incidental destruction of cultural sites by unwitting OHV recreationists. Although access roads, both existing and new, will be closed to OHV use, some illegal use could occur. Cumulative damage to cultural sites could result over time from repeated incremental damage caused by OHVs. Illegal "pot hunting" could also increase over time due to increased accessibility into remote areas depending upon public access control by the utilities and the land managing agencies. The proposed transmission lines would not likely contribute measurably to this type of cumulative effect because of restricted access to the predominantly private lands in the corridor and the closing of the access roads.

## Air Quality

The air quality may be improved immeasurably in some areas and may be degraded immeasurably in others because of the development of the proposed Project. If fossil fuel-generated power is utilized, the potentially degraded air quality near the generation source may be offset by less emissions in other parts of the western U.S. Specific operation of the proposed Project, the western system in the U.S., and potential atmospheric emission of pollutants would also depend on annual weather conditions (e.g., water storage for hydroelectric generation) and the changing mix of nuclear and other generation sources (e.g.,

cogeneration, solar, etc.). It is likely, however, that electrical power generated by hydroelectric facilities would be transported on this line.

## Biological Resources

The cumulative biological effects would also be generally additive, and would usually be directly proportional to the amount of ground disturbed. Impacts from other transmission line projects would be expected to be similar to those identified in the biological assessment. The effects depend to some extent on whether proposed Project construction activities would be concurrent or overlapping in a given area. If construction occurred concurrently, a higher volume of traffic may result and possibly greater amounts of ground disturbance (e.g. erosion, etc.) would occur. Overlapping activity, on the other hand, may create disturbance to wildlife for a longer period, resulting in prolonged or permanent displacement of wildlife from crucial habitats.

It is assumed that the effects of multiple transmission lines would "multiply" to some extent the amount of area of native habitat disturbed or lost. However, where designated corridors are used, access roads may serve more than one line and would therefore minimize ground disturbance and the amount of increased access in some areas.

In general, the effects of transmission line construction on biological resources are short-term. On a regional level, cumulative effects for the proposed Project and other related (utility) projects in the area are expected to lessen over the long-term. It is difficult to identify the extent of cumulative effects to wildlife resources given that some populations of animals are highly mobile and a "zone of influence" cannot be accurately defined.

There has been increasing attention given to the importance of preserving biodiversity as a management objective. The primary reason many species are threatened with extinction is that habitat is being lost and what remains is badly fragmented. There is a definite correlation between species richness and area. Large geographic areas support large numbers of species. In contrast, small isolated areas cannot hold enough members of a given species, especially large animals, to maintain a stable gene pool. These populations lack the genetic flexibility to cope with changes in the environment such as cycles of drought, fire, etc. and their vulnerability increases as undesirable traits accumulate through inbreeding. Diversity provides stability to ecosystems, whereas simplified ecosystems are subject to sudden collapse from even minor shifts in the environment.

Habitat fragmentation brought about by various kinds of development (roads, pipelines, housing developments, etc.) results in an increasing number of isolated plant and wildlife populations. Four major consequences for wildlife result from this fragmentation:

- the loss of wilderness species- those that are area sensitive and depend on large patches of habitat for the maintenance of viable populations
- loss of larger species that normally occur in low densities and move over wide areas (large carnivores)
- fragmented, human-influenced landscapes become invaded or dominated by alien or already common species adapted to interaction with human activity (pigeons, starlings, skunks, etc.)
- inbreeding depression results as a consequence of low densities and isolated populations.

The intrusion of roads may effectively isolate small mammal, reptile, and amphibian populations. Development of roads reduces the total amount of habitat available and forces the remaining species into

smaller and more isolated patches. In addition, high-speed traffic may eliminate more of the remaining populations.

Increased development and human activity in previously undisturbed habitats would result in wildlife being displaced from traditional use areas. If this disturbance were temporary, impacts would be low, because animals generally return once the disturbance has stopped. However, if several types of activities are occurring in an area and disturbance is prolonged, animals may be displaced to sub-optimal habitats for longer periods of time (perhaps permanently). Animals forced to use areas with insufficient protective cover and insufficient quantity or quality of food, may suffer losses due to increased winter mortality, increased harvest and/or reduced reproductive effort.

Other sensitive species would likely be affected by the physical loss of habitat from each successive project. Careful siting, construction sequencing, and monitoring would effectively mitigate these impacts.

## Earth Resources

The cumulative effects to earth resources (geologic, soil, paleontological, and water) would not be measurably different from the additive impacts of each of the incremental transmission line effects. Each transmission line would add to potential wind and water soil erosion, stream bank degradation, and sedimentation loading, dependent on the mitigation implemented for each project.

Generally, ground disturbance and new access would be incrementally less for each successive project, which would typically add less impact from each project. However, the cumulative effects of all transmission lines would likely be greater than any single project. Although access roads, both existing and new, will be closed to OHV use, some illegal use could occur. Indirect and off ROW impacts could result from increased OHV access into remote areas. OHV travel on and off access roads could result in greater ground disturbance over time depending upon control of public access (e.g., gates, road closures, etc.) by the utilities and the land managing agencies.

## Health, Safety, and Noise

Health, safety, and noise effects would be slightly greater with each successive project.

## Socioeconomics

Cumulative socioeconomic impacts are generally only a socioeconomic concern if they would overextend public services and accommodations in the proposed Project area. Because of the small size of the work force associated with transmission line construction, and its transitory nature, cumulative impacts would not be expected.

# Chapter 5
# CONSULTATION AND COORDINATION

In response to the National Environmental Policy Act of 1969 (NEPA) and the Council of Environmental Quality (CEQ) regulations (1978) for implementing NEPA, a scoping process was developed for the Idaho Power Company (IPC) 230kV #2 Transmission Line Project (proposed Project) to ensure that members of the public and federal, state, and local agencies were contacted, consulted, and given an adequate opportunity to be involved in the process. This chapter describes the Bureau of Land Management's (BLM's) scoping process, the issues and concerns identified, and other formal and/or informal reviews or consultations.

## *Scoping Process*

### Coordination with BLM

BLM staff met with IPC and POWER Engineers, Inc. on three occasions to discuss the proposed Project. BLM also attended the Public Scoping Meeting in Halfway. Phone conversations and e-mails occurred between POWER Engineers and BLM to discuss the proposed Project direction and BLM involvement. Discussion topics included public involvement, project Purpose and Need, impacts, NEPA approach, alternative routes and protection of sensitive biological, cultural and human resources. Key issues identified during these meetings included recommendations for the following actions:

- Consider all reasonable alternatives
- Minimize impacts to visual resources
- Minimize new roads
- Minimize impacts to wildlife, key concern bald eagle and bighorn sheep
- Consider appropriate mitigation measures to minimize impacts

### Agencies Consulted

Agencies and organizations having jurisdiction and/or specific interest within the proposed Project Area were contacted to inform them of the proposed Project, to verify the status and availability of existing environmental data, to solicit their input during the EA process, and to notify them of the scoping meeting. Formal consultation to meet the requirements of Section 106 of the National Historic Preservation Act of 1966 and the Endangered Species Act (1973) are discussed in Chapter 1, Section 1.5.

A scoping letter and proposed Project Area map was sent out to the following federal, state, and local agencies:

#### Federal agencies

| | |
|---|---|
| Lowell Johnson | Federal Aviation Administration |
| Jane Gravey | Federal Aviation Administration |
| LTC Richard P. Wagenaar | U.S. Army Corps of Engineers |
| Dan Opalski | U.S. Environmental Protection Agency |
| Coordinator | U.S. Environmental Protection Agency |

| | |
|---|---|
| Forest Supervisor | U.S. Forest Service, Wallowa - Whitman National Forest |

### State agencies

| | |
|---|---|
| Director | Idaho Department of Fish and Game, Southwest Region |
| Karl J. Dreher | Idaho Department of Water Resources |
| Tom Highland | Oregon Department of Aviation |
| Stephanie Hallock | Oregon Department of Environmental Quality |
| Director - Northeast Region | Oregon Department of Fish and Wildlife |
| Jim Greer | Oregon Department of Fish and Wildlife |
| James E. Brown | Oregon Department of Forestry |
| Michael Carrier | Oregon Department of Parks and Recreation |
| Grace Crunican | Oregon Department of Transportation |
| Mike Berry | Oregon Department of Transportation |
| Bob Brown | Oregon Division of State Lands |
| David Stewart-Smith | Oregon Energy Facility Siting Council |
| Bill McNamee | Oregon Public Utilities Commission |
| Jerry Rodgers | Oregon Water Resource Commission |
| Paul R. Cleary | Oregon Water Resources |

### Local agencies

| | |
|---|---|
| Grant Young | Baker County Planning & Zoning |

### Tribal Governments

A letter requesting input on the proposed Project and a proposed Project map were sent to the Oregon and Idaho State Historic Preservation Offices and the following tribal governments with an interest in the Hells Canyon area:

- Confederated Tribes of the Umatilla
- Confederated Tribes of the Warm Springs
- Nez Perce
- Colville Confederated Tribes
- Burns Paiute
- Shoshone Bannock
- Shoshone Paiute.

## *Public Review of the EA*

Public review of the EA will be completed following the 30-day comment period. If no significant impacts are identified and the proposed Project was approved, the BLM would issue a Finding of No Significant Impact for public lands crossed by the proposed Project.

# Chapter 6
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# Chapter 7
# PREPARERS AND REVIEWERS

## Bureau of Land Management

| | |
|---|---|
| Ted Davis | Project Manager |
| Penny Woods | Authorized Officer/Deciding Official |
| Steve Davidson | Realty |
| Polly Gribskov | Recreation/Visual Resources |
| Mary Oman | Cultural Resources |
| Greg Miller | Wildlife Resources |
| Clair Button | Botanical Resources |

## Idaho Power Company

| | |
|---|---|
| Darel Tracy | Project Manager |
| Mike Jacobs | Real Estate |
| Todd Adams | Transmission Engineering |
| Marc Patterson | Substation Engineering |
| Mark Druss | Cultural Resources |
| Brett Dumas | Wildlife Resources |
| Alan Ansell | Wildlife Resources |
| Chris Huck | Geographic Information Systems |

## POWER Engineers, Inc.

| | |
|---|---|
| James E. Jensen | Environmental Project Manager |
| Thomas E. Dildine | Assistant Environmental PM/Visual Resources |
| Lisa Grise | Document Coordinator |
| Mark Gerber | Wildlife Resources |
| Joy McLain | Water Resources |
| Aaron Ames | Geographic Information Systems |
| Robert Kannor | Air Quality |

| | |
|---|---|
| Nancy Linscott | Geology/Geohazards |
| Carolyn Strickling | Botanical Resources |
| Mike Tatterson | Soils |
| Mark Schaffer | Land Use and Recreation |
| Mike Strand | Land Use/Plan of Development |
| Bob Mott | Socioeconomics |
| Kurt Bell | Noise, Electric and Magnetic Fields |
| Laurie Mauser | Cultural Resources |
| Bonnie Clark | Document Production |

## Eagle Cap Consulting

| | |
|---|---|
| Randy Krickbaum | Biological Survey |

## SAIC

| | |
|---|---|
| Lorraine Gross | Cultural Survey |

## Kleinfelder

| | |
|---|---|
| Andy Mork | Geology/Geohazards |