APPENDIX D

CULTURAL RESOURCES SURVEY OF THE BONNEVILLE POWER ADMINISTRATION'S MASTER GRID SUPPORT PROJECT, EASTERN WASHINGTON

Cultural Resources Survey of the Bonneville Power Administration's Master Grid Support Project, Eastern Washington

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Introduction

The results of an intensive cultural resources survey for the Bonneville Power Administration (BPA) Eastern Washington Main Grid Support Project are presented in this report. The project area extends from the Grand Coulee 500 kV and Left Bank switch yards (substations), north of the town of Grand Coulee, Washington, to the Bell Substation in Spokane, Washington, a distance of about 130 km (82 mi) (Figure 1). The survey was conducted by personnel from Archaeological and Historical Services (AHS) during two periods of fieldwork, one in November of 1993 and the second in March and April of 1994. Forty sites were identified within or adjacent to the project area.

Proposed Project Description

The BPA's proposed Main Grid Support Project, as planned at the time of the AHS cultural resources survey, was to include: 1) the removal of one or both of the wood structure Grand Coulee-Bell (GC-B) No. 1 and 2 transmission lines from towers 3/9 to the Bell Substation; 2) improvement of existing, and construction of some new, access roads; 3) expansion of the existing right-of-way in some segments; 4) possible construction of a series compensation station; and, 5) expansion of the Bell Substation.

Transmission line towers (structures) are numbered sequentially by mile from the beginning to the end points, so Grand Coulee-Bell No. 1, 5/6 refers to the fifth tower in the sixth mile of a transmission line that begins at the Grand Coulee Substation and ends at the Bell Substation. Note that tower numbers are sequential by mile, therefore individual tower numbers begin again with one at each mile change. Transmission line and tower designations are written in abbreviated form on the towers and the above example would appear something like GC-B 1 5/6. Throughout the report, reference is made to various transmission lines and site locations in relationship to specific towers.

A 500 kV steel, lattice structure transmission line is proposed for construction within the corridor vacated by the GC-B No. 1 transmission line from the GC-B tower 3/9 to the Bell Substation. From GC-B No. 1 tower 3/9 the proposed 500 kV transmission line would be located in new right-of-way for a distance of about 0.6 mi (1 km) to a point adjacent to, and east of, Grand Coulee-Hanford No. 1 tower 3/1. From this point, the proposed 500 kV transmission line would be located in a new right-of-way parallel and adjacent to the Grand Coulee-Hanford No. 1 transmission line to the Grand Coulee 500 kV Switchyard.

Most of the proposed construction work for the Main Grid Support Project is to occur within the Grand Coulee-Bell transmission line right-of-way which is 122 m (400 ft) wide and contains five transmission lines on four sets of structures. The single circuit 500 kV GC-B No. 5 transmission line is on a set of steel lattice structures on the outside edge of the right-of-way. Adjacent to this transmission line are the double circuit 230 kV GC-B No. 3 and 4 transmission lines which are also suspended from a single set of steel lattice towers. Adjacent to the GC-B No. 3 and 4 transmission lines is the GC-B No. 1 transmission line and next to it, on the other

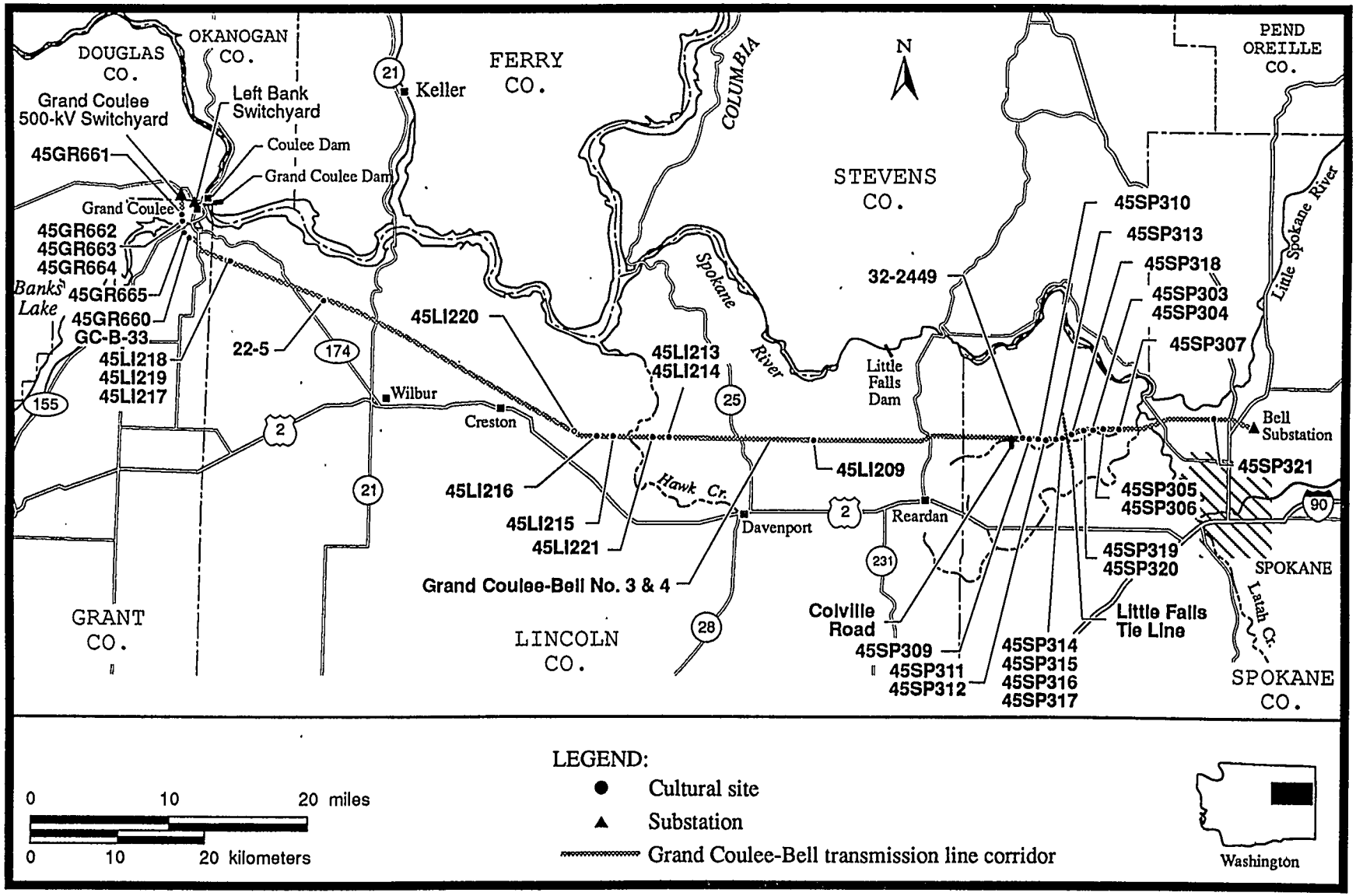

Figure 1. The Master Grid Support Project Area showing the locations of all identified cultural resource sites.

outside edge of the right-of-way, is the GC-B No. 2 transmission line. The 115 kV GC-B No. 1 and 2 transmission lines are each on a set of H-frame wood structures.

Project Area

The project area, for the purposes of this report, consists of all of the areas surveyed by AHS personnel. These ares are described in detail below. Portions of the project area are most easily described by refering to specific transmission lines and tower numbers. Bonneville Power Administration transmission lines are named for the substations at their begining and end points. Transmission lines in this project area begin at two Grand Coulee substations, the Left Bank Substation and the 500 kV Switchyard.

The areas surveyed consist of:

1) The entire 53-m-(175 ft)-wide corridor containing the GC-B No. 1 and 2 transmission lines extending from the Grand Coulee (Left Bank) Substation to the Bell Substation. This corridor was expanded by up to 23 m (75 ft) in width in some areas (Appendix A);
2) A 53-m-(175 ft)-wide corridor on the east side of the Grand Coulee-Hanford (GC-H) No. 1 transmission line from the Grand Coulee (500 kV Switchyard) to GC-H No. 1 tower 3/1;
3) A 53-m-(175 ft)-wide, 1 km (0.6 mi) long corridor from GC-H No. 1 tower 3/1 to GC-B No. 1 and 2 tower 3/9.
4) Three alternate locations for the proposed construction of a series compensation station adjacent to the transmission corridor. The three alternate locations are on the south side of, and adjacent to, the existing Grand Coulee-Bell transmission line right-of-way between GC-B No. 1 and 2 towers: 1) 37/5-37/6; 2) 38/3-38/4; and, 3) 45/5-45/6. An area measuring 183 m (600 ft) by 183 m (600 ft) was surveyed at each of the three alternate locations;
5) An expansion measuring 76 m by 91 m (250 ft by 300 ft) on the west side of the Bell Substation.
6) A 53-m-(175 ft)-wide corridor from the northeast corner of the Grand Coulee 500 kV Switchyard at a bearing of about 143 degrees true north, for a distance of about 812 m (2,664 ft); and,
7) Multiple 6-m-(20 ft)-wide rights-of-way for existing and proposed access roads.

Setting

The project area crosses parts of Douglas, Grant, Lincoln, and Spokane counties extending from west to east across the northern portion of the Columbia Plateau physiographic province. The northern Columbia Plateau is comprised of a thick sequence of predominantely Miocene flood basalts over crystalline basement rocks (Stradling and Kiver 1984; Baker et al. 1987). Numerous episodes of glacial lake-origin floodwaters swept across eastern Washington during the Pleistocene dramatically shaping the present landscape (Baker and Bunker 1985; McDonald and Busacca 1992). Loess accumulated to considerable depths in much of the project area during the Pleistocene and Holocene. Glacial floodwater differentially removed the loess

creating the distinctive mosaic of channeled scabland and loess-covered uplands that characterize the project area. Folsom (1984a:2) described the channeled scabland and the aeolian uplands.

> This [scabland] landscape is a rough and irregular terrain of water-scoured features including stripped basalt flow surfaces, vertical cliffs, plunge pools, and deep closed depressions. Local relief is not usually large, but topographic texture is very intensely detailed and irregular. There are many lakes but few streams.
>
> Aeolian uplands is a landscape of intermediate elevation lying below the mountain slopes and above the structural basins and river valleys. . . .This region is undistinguished by either great relief or by complex topographic texture, being a broad rolling plain or subdued hill country in most of its expression. An important characteristic is the wind-blown origin of most of the material of this landscape. This is a region of fine sands and silts. Very few streams originate in this landscape, and there are very few lakes.

Vegetation patterns in the project area are diverse and vary in relation to a number of factors including geology and soils. The project area has been broadly divided into two vegetation types, Columbia uplands threetip sage steppe and mixed conifer transitional woodland (Folsom 1984b). The majority of the project area is characterized by deep loessal soils and native vegetation belonged to the Columbia uplands threetip-sage steppe vegetation type. The channeled scabland areas of shallow rocky soils are where a variety of plants with edible roots are found. These edible roots were very important prehistorically and their collection and consumption still play an important role in Indian life. Euro-American settlers prized the areas of deep soils of the aeolian uplands for farming.

The project area has a semi-arid climate with winter maximum precipitation and dry summers. Annual average precipitation ranges from about 305 mm (12 in) at Grand Coulee, in the west, to 457 mm (18 in) near Spokane, in the east (Quinn 1984). Landform features exert strong influence on microclimates and local variations on many occaisions rival the total range of west to east regional gradients (Quinn 1984).

Ethnography

The project area is within the ethnographic territory of the Upper, Middle and Lower Spokane, as well as the Sanpoil and Nespelem Indians (Ray 1936). All of these Indian groups spoke closely-related dialects of the Salish language. The ethnographic yearly cycle of the Sanpoil and Nespelem is generally applicable to the Spokane Indians as well and the summary that follows is from Ray (1933).

Most of the people spent the winter months in groups of substantial houses in the the major river valleys. The winter homes were abandoned late in the season in favor of nearby temporary camps offering access to the first green plants. Spring was the time of year when large quantities of edible roots were gathered for immediate consumption as well as for preservation, storage, and use throughout the coming year. About the month of April or:

> ..."time that the leaves come out," there was a general removal from the Columbia to the root digging grounds on the plains south of the river. . . .Village groups did not move in a body across the river but bands formed of four or five families each and journeyed to their favorite spots. Each band before leaving notified the chief of its intended destination. . . .A whole year's supply of roots had to be gathered and dried. It was necessary to move camp often in order to be near fresh fields. [Ray 1933:27]

While root gathering and processing were the primary activities during the spring, some hunting was conducted from these camps. Summer was a time of concentrated salmon harvest and preservation. Fresh vegetable foods and raw materials including berries and roots were gathered whenever available throughout the growing season. During the fall, a variety of economic activities were conducted based upon a family's or individual's needs or preferences. These activities included deer hunting, fishing, berry and root collecting and, with the exception of fishing, were often conducted in mountainous regions. People who intended to spend the winter at one of the villages on the river returned around the middle of October and began preparing winter houses and materials for the coming season. Stored foods were moved to areas in proximity to the villages and a supply of firewood was gathered. A considerable portion of the winter months were spent making baskets, mats, clothing, and other items. Some hunting was conducted at this time. A period of great ceremony including a succession of dances to which people traveled from their winter homes, characterized the mid-winter months.

From the preceeding ethnographic summary, it appears the primary activity conducted in the project area would have been spring season root gathering and processing. It is likely that all portions of a group's territory was used to some extent throughout much of the year, however an idealized seasonal round can be formulated from the ethnographic information identifying where in the landscape late prehistoric people's activities were likely to have been concentrated at any one season. See Leeds et al. (1985) and Mierendorf et al. (1981) for additional details regarding ethnographic-based seasonal land use modeling for this region.

Previous Investigations

Previous cultural resources investigations in proximity to the project area have included overviews, surveys, test and data recovery excavations, and documentation of historic properties to Historic American Building Survey (HABS) and Historic American Engineering Record (HAER) standards. The cultural resources literature sources most relevant to this project are summarized below.

The greatest amount of regional archaeological research has been conducted along the Columbia and Spokane rivers. Much less work has been conducted in areas outside of the major eastern Washington river valleys. Cultural resources surveys include those of Boreson (1988; 1992) and Holstine (1984).

Summaries of archaeological research in eastern Washington include those in Galm et al. (1981), Mierendorf et al. (1981), and Draper and Andrefsky (1991). Numerous cultural resources surveys have been conducted near the project area resulting in the identification of a variety of site types. Relatively complete lists of these surveys can be found in Galm et al. (1981), Gough (1990), Mierendorf et al. (1981), and Draper and Andrefsky (1991).

Cultural resources survey and test excavations conducted near Creston, Washington about 2.5 km (1.6 mi) south of the project area, resulted in the identification of 71 prehistoric and 19 historic sites (Morgan et al. 1981). Talus pit sites were the most common prehistoric site type comprising 62 percent of the sample. Farmsteads/homesteads were the most prevalent historic site type (52 percent).

Excavations at prehistoric sites in the Columbia and Spokane river valleys resulted in the recovery of information from semi-permanent and temporary occupation sites. The discovery of the Ritchey-Roberts Clovis site near East Wenatchee confirmed human occupation of eastern Washington by ca. 11,200 yr B.P. (Mehringer and Foit 1990). Cultural chronologies have been developed as the result of excavations conducted in the Columbia and Snake river valleys (Figure 2). Details of the cultural chronologies have been modified by subsequent research in the river valleys and uplands (Chatters 1980; Galm et al. 1981).

Methodology

Inspection of the Office of Archaeology and Historic Preservation site files in Olympia, Washington and a literature search revealed that the Washington Water Power (WWP) Little Falls Tie Line intersects the proposed project area. The BPA GC-B No. 3 and 4 double circuit 230 kV transmission line is adjacent to the proposed project area. The first land survey maps prepared for the United States Surveyor's General indicate that the route of the historic Colville Road intersects the project area east of Reardan, Washington.

The cultural resources survey of the project area was conducted by three person crews. The surveyors walked parallel meandering transects within the 54-m-(175 ft)-wide corridor. In those portions of this corridor proposed for widening, the crew expanded spacing between individuals to cover the additional area (Appendix A). Where access roads were located within the survey corridor or within contiguous portions of the 122 m (400 ft) Grand Coulee-Bell right-of-way they were surveyed as part of the corridor survey. Access roads that extended outside of the Grand Coulee-Bell right-of-way were surveyed subsequent to completion of the corridor survey. As a three person crew came to one of the three possible locations for the proposed series compensation station, it was surveyed separately.

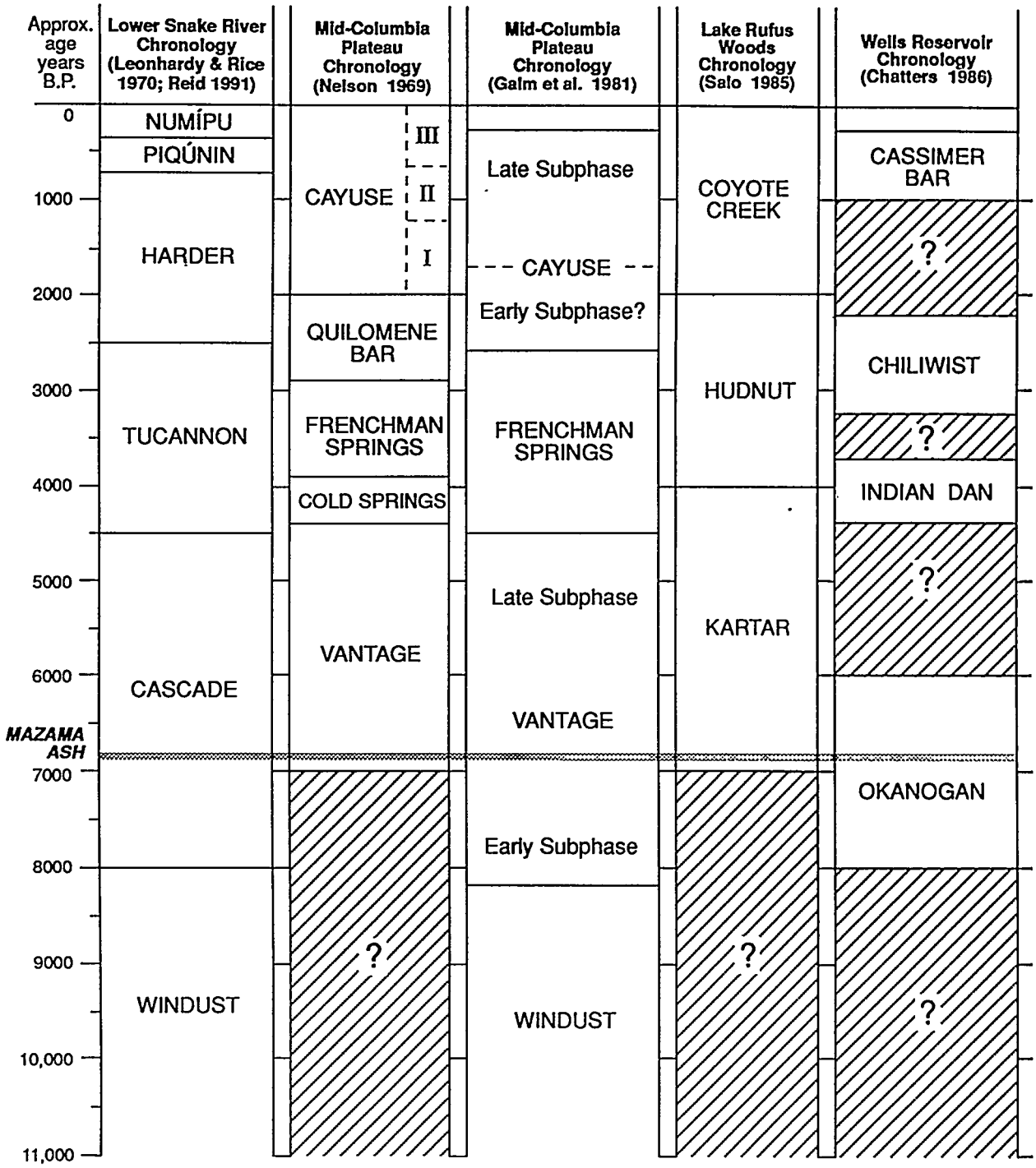

Figure 2. Columbia Plateau cultural sequences.

Results

Thirtyone prehistoric, seven historic, and two sites of unknown temporal affiliation are within or adjacent to the project area (Table 1).

Table 1. Cultural Resources Site Location, National Register of Historic Places Status, and Probability of Project Impact.

Site Name or Number	Site Type	Location in Relation to Grand Coulee-Bell No. 1 Towers [1]	NRHP Eligibility	Impact Probability[2]	Recommended Mitigation
Grand Coulee-Bell Nos. 3 & 4	transmission line	adjacent to proposed 500 kV transmission line	yes	low	avoidance
Little Falls Tie Line	transmission line	49 m W of 73/3	no	low	none
Colville Road	road	adjacent to and S of 66/8	yes	high	avoidance
32-2449	farmstead	12-134 m E of 67/10	unknown	low	avoidance
22-5	farmstead	between 14/3 and 14/4	unknown	low	avoidance
45GR662	foundation and dump	85 m S of 2/1	no	low	none
GC-B 33	dump	vicinity of 2/8 and 3/1	unknown	high	avoidance
45SP321	talus pit	61 m NE of 81/6	unknown	high	avoidance
45SP318	talus pit	22 m N & NE of 71/3	unknown	high	avoidance
45SP320	talus pit	61 m E of 71/9	unknown	moderate	avoidance
45SP304	talus pit	50-85 m E of 72/2	unknown	high	avoidance
45SP303	talus pit	73-100 E m of 72/3	unknown	moderate	avoidance
45SP305	talus pit	50-110 m E of 72/7	unknown	moderate	avoidance
45SP306	talus pit	43 m SE of 73/1	unknown	moderate	avoidance
45SP307	talus pit	12 m S of 73/6: 12 m S of 73/7	unknown	high	avoidance
45SP317	talus pit	61 m SE of 70/6	unknown	moderate	avoidance
45SP316	talus pit	adjacent to 70/4	unknown	high	avoidance

Table 1., continued

Site Name or Number	Site Type	Location in Relation to Grand Coulee-Bell No. 1 Towers[1]	NRHP Eligibility	Impact Probability[2]	Recommended Mitigation
45SP314	talus pit	adjacent to 70/3	unknown	high	avoidance
45SP315	talus pit	85 m NW of 70/3	unknown	low	avoidance
45SP313	talus pit	24 m NE of 70/1	unknown	moderate	avoidance
45SP311	talus pit	adjacent to and downslope of 69/8	unknown	high	avoidance
45SP310	talus pit	50 m SW of 69/3	unknown	moderate	avoidance
45SP309	talus pit	73 m E of 69/8	unknown	high	avoidance
45LI209	talus pit	110 m E of 52/1	unknown	moderate	avoidance
45LI213	talus pit	18 m W of 42/1	unknown	high	avoidance
45LI214	talus pit	18 m E of 40/8	unknown	high	avoidance
45LI217	talus pit	30-90 m W of 6/3	unknown	low	avoidance
45LI218	talus pit	145-210 m W of 6/3	unknown	low	avoidance
45LI219	talus pit	90 m NE of 6/2	unknown	low	avoidance
45LI220	talus pit	east of 34/7	unknown	moderate	avoidance
45LI221	talus pit	adjacent to Grand Coulee-Spokane access road 13 (GC-S-AR-13)	unknown	low	avoidance
45GR660	talus pit	60 m NW of 3/2	unknown	low	avoidance
45GR661	talus pit	226 m N of Grand Coulee-Hanford No. 1, 2/1	unknown	low	avoidance
45GR663	talus pit	25 m NW of 1/8	unknown	low	avoidance
45GR664	talus pit	45 m SW of Grand Coulee-Hanford No. 1, 2/1	unknown	high	avoidance
45GR665	talus pit	45 m NW of Potholes-Grand Coulee No. 1, 65/3	unknown	high	avoidance

Table 1., continued

Site Name or Number	Site Type	Location in Relation to Grand Coulee-Bell No. 1 Towers [1]	NRHP Eligibility	Impact Probability[2]	Recommended Mitigation
45LI216	campsite	120 m west of 36/8: adjacent to access road	unknown	high	conduct test excavations
45LI215	cairn	61-200 m N of 38/1	unknown	low	avoidance
45SP319	pit	24 m E of 71/7 and adjacent to access road	unknown	high	avoidance
45SP312	pit	adjacent to 69/5	unknown	high	avoidance

[1] Tower numbers are those for the Grand Coulee-Bell No. 1 transmission line unless noted otherwise.
[2] See Construction and Operation Impacts section below for an explanation of probability categories.

Prehistoric Sites:

Twentynine (94 percent) of the prehistoric sites are talus pit sites, a common type in east-central Washington. The other two prehistoric site types consist of one example each of campsite and cairn.

Sixteen (55 percent) of the talus pit sites are in a 10 km (6 mi) portion of the project area along the rocky north wall of Coulee Creek valley (see Figure 1). These talus pit sites frequently consist of a number of circular pits, 1-2 m (3-7 ft) in diameter and 0.2-0.5 m (0.7-2.0 ft) deep, although pits also occur singularly, have a variety of plan forms, and sizes extend beyond both ends of the stated ranges. Rock berms, when present, usually occur on the downslope edge of the pits and less often to adjacent lateral sides. Only infrequently is a rock berm present on the upslope edge of the pit.

Indians utilized talus for both burial and food storage (cache) activities (Mallory 1962:27; Mandelbaum 1938:127; Post 1938:31-32; Ray 1933:150; Smith 1910:139-142; Sprague 1967). Much less than one percent of the recorded talus pit features in eastern Washington are estimated to have been investigated through excavation. Human remains have been recovered from numerous talus sites in major eastern Washington river valleys and in the lower Grand Coulee (Collier et al. 1942; Mallory 1962; Smith 1910; Sprague 1967). Nine talus pits at three upland sites near Creston, Washington, were excavated during investigations for the WWP Creston Generating Project and no associated prehistoric cultural materials nor human remains were found (Morgan et al. 1980). No excavation or other subsurface investigation has been conducted at any of the talus pit sites identified in the proposed project area. While a large number of talus pit sites have been recorded in eastern Washington, much less is known about the origin, content, and use of upland talus pit sites than those in the major river valleys.
Depressions in talus are not exclusively of cultural origin and may form as a result of tree growth and blowdown. Where trees grow in talus, natural pits may be formed that are

morphologically indistinguisable from pits of cultural origin. As the tree grows, it wedges the talus sliderock blocks apart forming a void. The void formed by a large ponderosa pine or Douglas fir can be of a similar size to pits usually assumed to be of cultural origin.

Below are two possible scenerios of how the void created by a tree can come to resemble a cultural talus pit, both require that the tree fully decay. A large tree in a talus may blow down uprooting sliderock blocks and enlarging the pit it had created as it grew. The rocks caught in the roots of the tree fall to the ground as the roots decay. These rocks may accumulate differentially on one or more edges of the pit creating a berm, as well as contributing to the filling of the void. Or dead trees may simply decay in place leaving a pit of the same general size and shape of cultural talus features.

If sliderock accumulation is active or if the sliderock is mobile, pits formed by trees may be more likely to have small berms on their upslope sides, as this is where sliderock would accumulate against the trunk of the tree. Such a berm is likely to be destroyed if the tree blows down and falls in any but an upslope direction.

The absence of cultural materials in talus pits does not indicate that they are of natural rather than cultural origin, as an emptied cache would not contain cultural material. When cultural materials or human remains are present, a cultural origin can be reliably ascribed to the pit. Likewise a talus pit found at the basal end of a blown down tree or one that contains incompletely decayed wood and/or bark may be inferred to be of natural origin. However, in areas where large trees grow or have grown in talus, no reliable criteria have been defined allowing accurate sorting of cultural and non-cultural talus pits where no physical remains are extant.

Upland prehistoric sites in eastern Washington are more likely to be located in areas of rocky soils than in areas of deep loessal soils (Chatters 1980). As noted above, rootcrops important to the Indians grow in greatest abundance in rocky scabland soils in the project area. Water resources such as streams, springs, and lakes, as well as the bedrock outcrops, around which sliderock blocks accumulate to form taluses, are most common in scabland areas. All of these environmental factors influenced upland prehistoric land use and are concentrated in the rocky portions of eastern Washington. The prehistoric sites located in the project area are primarily distributed in three areas of rocky terrain supporting previously observed relationships: 1) Grand Coulee-Spring Canyon; 2) Creston Scabland Tract; and, 3) Coulee Creek-Spokane River valleys. No prehistoric sites were found in those portions of the project area characterized by deep soils.

Talus Pits

Talus pit sites consist of one or more depressions in a talus. Individual talus pit features vary from well defined to barely recognizable examples. The taluses have formed below a number of different types of basalt bedrock outcrops including, isolated outcrops, low linear scarps that are a few meters high, and high valley wall scarps, as well as around landslide blocks. The basalt frequently outcrops in steep-sided, narrow, short draws along larger valley walls. This

is especially true in the Coulee Creek valley. The recorded talus pit sites are briefly desribed below.

45GR660: At least eight pits are present in this large talus formed at the base of the wall of the Grand Coulee.

45GR661: The site consists of three, and possibly four, pits near the base of a north-facing talus.

45GR663: A single pit is present in the talus at this site.

45GR664: The site contains a mixture of features of probable aboriginal and historic origin. Two pits that are identical to others of presumed aboriginal origin are present in a talus. Also present are a leveled area in the talus and a stacked rock wall apparently dating from the historic/recent period.

45GR665: This site consists of a single pit in a small talus.

45LI209: The site is a single pit in a talus below a basalt outcrop. The downslope edge of the pit is characterized by a distinctive berm.

45LI213: Two pits are present here, one of which has a small ponderosa pine growing from the its center.

45LI214: The site consists of two pits in talus on the west side of a small pond northeast and downslope of GC-B No. 1 tower 40/8. These two pits are outside of the project area. The third pit is in the project area east of GC-B No. 1 tower 40/8 and appears to have been modified historically/recently and may not be of aboriginal origin.

45LI217: At least 15 pits are present in two taluses on the east side of Spring Canyon.

45LI218: Six pits are present in a talus near the bottom of Spring Canyon. A small cairn is located near the base of the talus.

45LI219: This site consists of one pit in talus and a stacked rock wall both of which appear to have been truncated by high water flow in Spring Canyon. The rock wall may be temporally and functionally related to a longer segment of rock wall located upslope and to the northwest of this site.

45LI220: A single pit in talus surrounded by ponderosa pine is present at this site.

45LI221: There are at least 13 well formed pits near the base of a large talus. There is a distinctive, nearly level, bench-like part of the landform and the pits are located on this level area. Broken, very weathered, and partially burned pieces of a cedar stake or post are present

in association with the pits. Some of this cedar stake remains embedded within the sliderock blocks. No wire or other stakes or posts were observed that might indicate that the burned cedar was part of a former fenceline.

45SP321: Sixteen pits were counted in the talus at the base of a number of closely spaced basalt bedrock outcrops or landslide blocks. Three cairns consisting of multiple boulder size basalt blocks stacked from one to three rocks high are present in silty sediments adjacent to the south side of the talus. A number of 50 to 70-cm-(20 to 28 in)-diameter tree stumps are present in the talus.

45SP307: The site consists of 13 pits in talus below basalt outcrops separated by a narrow gully. An historic stacked rock fence measuring about 40 m (131 ft) long, 2.5 m (8.2 ft) wide and 0.7 m (2.3 ft) high is also present on the site.

45SP306: Three well formed pits and three poorly shaped pits are present in a talus below the north wall of the Coulee Creek valley.

45SP305: The talus containing the seven pits is vegetated by ponderosa pine and Douglas fir trees, and shrubs. The talus forms the steep wall of a draw and the pits are near the lower margin of the talus.

45SP303: Ten poorly to well formed pits are present in a talus forming the sloping sides of a small draw.

45SP304: The eight pits comprising the site are in a talus in a small draw.

45SP320: Six pits are present in a talus within a small draw.

45SP318: The site consists of three pits in a talus formed below a low escarpment.

45SP317: Four pits are in a talus below a low basalt escarpment.

45SP316: Nine pits in a talus, a low, short (8-m-[26-ft]-long) historic stacked rock fence and rock fence post anchors are the features at the site.

45SP314: The eight pits at the site are in two groups of four pits each. The talus formed below a basalt outcrop.

45SP315: Three pits are present in a talus below a basalt outcrop.

45SP313: The site consists of seven pits in a talus below a basalt outcrop.

45SP311: One pit in talus and one in silty sediments are present at the site. The remains of two dead, 20 cm (8 in) diameter ponderosa pine trees are present in the talus pit.

45SP310: The site consists of five pits in a talus that has formed below a bedrock outcrop.

45SP309: Eight pits are present in a talus below a bedrock outcrop. Several holes, that appear to have been recently excavated by badgers or other large mammals, are present in the talus and in adjacent areas of silty sediments. These recently dug pits are smaller than the eight recorded talus pits.

Campsite

A single example of the prehistoric campsite site type is located in the proposed project area.

45LI216: The site consists of burned bone fragments, freshwater mussel shell fragements, lithic flakes, and other artifacts exposed on the ground surface in the vicinity of a spring. Cultural materials were visible in areas where the ground surface was exposed as the result of overgrazing, as well as in burrowing animal backdirt piles. A transmission line access road passes through the site area.

Cairn

45LI215: Two stacked basalt cairns located on the south-facing slope of a small basalt outcrop comprise this site. Lichen grows uniformly on the upper surfaces of the rocks indicating the passage of some time since their stacking.

Historic Sites:

Seven historic cultural sites are known in or adjacent to the project area. These sites are grouped within the following site types: electrical transmission lines; historic road; farmsteads; structural remains; and dump.

Electrical Transmission Lines

Grand Coulee-Bell No. 3 and 4 double circuit 230 kV transmission line: The GC-B No. 3 and 4 transmission lines are two of the five BPA transmission lines within the Grand Coulee-Bell right-of-way. The GC-B No. 3 and 4 transmission lines were the first double circuit 230 kV transmission line constructed by BPA (Holstine 1988). This transmission line is part of BPA's Main Grid built between 1942 and 1943 (Holstine 1988). This lattice steel structure transmission line is located adjacent, and parallel, to the GC-B No. 1 transmission line.

Little Falls Tie Line: Constructed by the Washington Water Power Company between 1909 and 1910, the Little Falls Tie Line was one of, if not the first, steel tower electrical transmission line in the northwest (Luttrell 1993). It crosses the project area on the north side of the Coulee Creek valley between GC-B No. 1 towers 71/2 and 71/3.

Historic Road

Colville Road: The Colville Road was primarily utilized from the 1850s until 1881 when construction of the Northern Pacific railroad to Spokane Falls (Spokane) made the road obsolete (Freeman 1954). The Colville Road does not appear on a 1912 Spokane County atlas, by which

time numerous other roads were in use to serve the growing population of the area (Anonymous 1912).

An unaltered section of the Colville Road is located south of and adjacent to the project area at GC-B No. 1 tower 66/8. This section of the road consists of a presently unused, approximately 3.5-m-(11.5 ft)-wide two-track road leading from the north bank of Coulee Creek to tower 66/8. A ca. 2-m-(6.6 ft)-high basalt escarpment forms the boundary between the Coulee Creek floodplain/terrace tread and the uplands north of the creek. There are two breaks in the escarpment where wagons could ascend from Coulee Creek to the uplands. The extant section of the Colville Road passes through one of these breaks. The other lies approximately 274 m (900 ft) to the west and is where a spring fed tributary stream enters Coulee Creek.

That portion of the existing transmission line access road from the center of Section 22, T26N, R40E, southwest to the vicinity of GC-B No. 1 tower 66/8 matches the alignment of the Colville Road depicted on the 1881 General Land Office map (United States Surveyor General's Office 1881) of township T26N, R40E. This section of transmission line access road appears to be an altered portion of the Colville Road.

About 800 ft (244 m) south of GC-B No. 1 tower 66/5 along Coulee Creek is the probable site of Camp Washington, where Washington Territorial Governor Isaac I. Stevens camped from October 26-29, 1853 while travelling on the trails that were to become the Colville Road. The precise location of Camp Washington has not been determined but, based upon historic documents and area topography, the camp appears to have been adjacent to Coulee Creek south of the project area.

Farmsteads

32-2449: This farmstead consists of a scatter of late nineteenth-early-twentieth century domestic and farming artifacts within the project area between GC-B No. 1 towers 68/10 and 67/1. No structures remain at the site and many of the artifacts have been burned. The artifacts include single-crimp and solder-sealed tin cans, cork-stopper machine finished bottle necks, milk glass canning jar lids, white porcelain sherds with maker's marks, a piece of silver (?) flatware, fire bricks, structural wire-cut bricks, pot bellied sheet metal and cast iron stove parts, a barrel hoop, a graniteware kettle, a galvanized wash tub, flat glass, cut glass, and a wooden wheeled wagon axle. A nearby spring likely served as a source of water for the farmstead.

22-5: Scattered horse drawn farming equipment associated with farmstead 22-5 is located adjacent to the project area between GC-B No. 3 and 4 towers 14/1 and 14/2. The abandoned turn-of-the-century farmstead including house, corral, and well/spring house is located approximately 500 ft (152 m) north of the project area.

Structural Remains

45GR662: The site consists of a subterranean, rubble-filled basalt cobble wall structure and debris scatter upslope to the northwest. Cultural remains at the site include: solder-sealed and sanitary food tins, ceramic sherds, bottle glass, electrical insulator fragments, a nail polish

bottle, a small women's shoe sole, and a section of a log bridge that has been dumped at the site.

Dump

GC-B 33: The dump is part of a large area that includes the Grand Coulee municipal dump. Garbage disposal is ongoing in a nearby area to the west. The dump contains automobile bodies and parts, bottles, and domestic and industrial garbage dating from or before the 1940's.

Temporally and Functionally Unassigned Resources

Two pit sites (45SP319 and 45SP312) were recorded that may be of either cultural or natural origin. These two sites are not in a talus, like the prehistoric talus pit site type, nor are these sites similar to historic depressions such as ditches, foundations, prospect pits, etc.

45SP312: The site consists of at least four pits around a closed scabland depression. One pit is large (4.4 x 4.0 m [14.4 x 13 ft]) relative to the others as well as to talus pits. The pits have been excavated into rocky, silty sediments and none of the pits are in a talus.

45SP319: A single trench-like (5 m x 1.2 m [16.4 x 4 ft]) pit with a low berm on the downslope side comprises the site. The pit is not located in a talus

National Register of Historic Places Eligibility

The Grand Coulee-Bell No. 3 and 4 transmission lines and the Little Falls Tie Line have been evaluated for National Register of Historic Places (NRHP) eligibility. All other sites will have to be formally evaluated through the completion of NRHP Determination of Eligibilty forms. Tentative NRHP eligibility for all sites is summarized in Table 1.

Talus pit sites are a particularly sensitive site type because of the possibility that they may contain human burials. Even if it has not been determined that these sites actually contain human burials, the sites as a type are problematical and every effort should be made to avoid impacts to them.

The GC-B No. 3 and 4 transmission lines were formerly evaluated as part of a nomination of BPA properties to the NRHP. The property was recommended as being eligible for inclusion in the NRHP. The nomination has not been forwarded to the State Historic Preservation Officer, however the site is considered eligible for listing in the NRHP (see Table 1). The site will not be impacted by the proposed project and a comment regarding a determination of no adverse effect should be sought from the Washington State Office of Archaeology and Historic Preservatoin (OAHP).

The WWP Little Falls Tie Line was determined eligible for inclusion in the NRHP prior to a proposed conductor reconfiguration. As mitigation of the effect of the proposed action on this eligible property, the site was recorded to Historic American Engineering Record (HAER) standards. The proposed WWP project proceeded as planned. The Little Falls Tie Line no

longer retains its historic integrity and therefore does not appear eligible for listing in the NRHP. A comment regarding a finding of no effect should be sought from the OAHP.

The Colville Road is very likely eligible for listing in the NRHP (see Table 1). One portion of the road near Washtucna has been determined eligible for listing in the NRHP, so other extant segments of the road including the one in and adjacent to the project area are presumed eligible as well. If the Colville Road is eligible for listing in the NRHP then the project will have an effect on the site that will require appropriate mitigation. Suitable mitigation measures may include photographic and archival documentation and avoidance of the unaltered segment of the Colville Road adjacent to the south side of the project area.

Sites 32-2449 and 22-5 (the remains of turn-of-the-century farmsteads), the structural remains at site 45GR662, and the dump (GC-B 33) do not appear to be eligible for inclusion in the NRHP, although formal evaluations have not been conducted.

Project Construction and Operation Impacts

Transmission line removal and transmission line and access road construction can damage or destroy cultural resources. Visual, audible, or atmospheric elements that alter the character or setting of a NRHP eligible historic site are forms of disturbance, as are direct physical impacts to site integrity. Increased access to cultural resources resulting from project construction or operation can lead to vandalism. Any action that results in the alteration of a cultural resource's eligibility for listing in the NRHP is an "effect" as defined in Section 106 of the National Historic Preservation Act of 1966 (as amended). This definition of effect is narrow and should not be confused with physical or indirect impacts.

The effect of BPA's proposed project will have to be assessed for any sites determined eligible for listing in the NRHP. If a site is not eligible for inclusion in the NRHP the proposed project will not affect the site no matter what type of physical or other impact may occur. The no action alternative may also affect cultural resources eligible for listing in the NRHP. Once NRHP eligible sites have been identified, ongoing maintenance of the existing transmission lines may have an effect on these sites.

Several of the talus pit sites are in topographic situations where it is a certainty that the proposed transmission line will span them; in addition, they do not appear to be near existing or planned access roads. The Project in all likelihood will not effect any of these properties that may be NRHP eligible. However, until the NRHP status is known for all sites and the design of the proposed transmission line has proceeded to a point that the exact locations of new towers and attendant access roads are known, it will not be possible to fully assess project effects on most cultural sites.

Project Impact Probability Assessment

Tentative probability assessment of physical impacts to known cultural sites in the project area resulting from tear-down of the existing Grand Coulee-Bell No. 1 transmission line and construction of the proposed 500 kV transmission line has been prepared assuming:

- The area of probable impact around existing Grand Coulee-Bell No. 1 wooden pole structures that will be removed is 46 x 46 m (150 x 150 ft);
- Proposed 500 kV steel lattice towers will be located offset from the existing GC-B No. 3 and 4 steel lattice towers;
- The area of probable impact around proposed steel lattice towers is 46 m x 46 m (150 x 150 ft); and,
- Access to proposed tower locations will be by the shortest route from existing access roads.

Impact probability categories are:

- High, for sites within a square, 46 m (150 ft) on a side, centered over an existing Grand Coulee-Bell No. 1 tower or a proposed 500 kV tower location or sites adjacent to an access road;
- Moderate, for sites within 30 m (100 ft) of any side of the 46 x 46 m (150 x 150 ft) square tower impact zone or sites downslope of an access road or tower location; and,
- Low, for sites outside of the high and moderate impact zones or sites in a deep narrow draw likely to be spanned.

Physical impact to sites in the high impact probability category is nearly certain unless adequate avoidance measures are taken. Sites in the moderate category may be impacted unless locations are identified on large scale project maps, air photos, and in the field. The sites in the low category are unlikely to be impacted given the stated assessment criteria. Physical impact probability analysis results and other site characteristics are presented in Table 1.

Project design efforts directed to avoiding physical impacts to sites resulting from: 1) tear down of the GC-B No. 1 transmission line; 2) construction of the proposed 500 kV transmission line; and, 3) improvement or construction of access roads, if implemented during the planning stages of the proposed project, can result in minimal project effects on cultural resources. Note that potential impacts to sites as a result of the possible removal of the GC-B No. 2 transmission line have not been evaluated as part of this project. The same potential impact criteria could be

employed to generate results of a similar degree of confidence as those for the removal of GC-B No. 1.

Mitigation Measures

Mitigation of project impacts to cultural resources requires the assessment of two criteria: 1) eligibility for inclusion in the NRHP; 2) finding of effect; and, 3) nature of impact. Appropriate mitigation measures for NRHP eligible properties could include:

- Avoidance;
- Data recovery (including excavation); and,
- Documentation to Historic American Building Survey (HABS) or Historic American Engineering Record (HAER) standards.

Mitigation measures will be designed on a site-by-site basis once all NRHP sites have been assessed for effect. The no action alternative will not create new effects to cultural resources that would require mitigation.

Conclusions

A variety of prehistoric and historic sites were recorded as part of a cultural resources survey of Bonneville Power Administration's Main Grid Support Project (see Table 1). The sites consist of 31 prehistoric sites, seven historic, and two of unknown temporal affiliation.

Consistent with previous research (c.f. Chatters 1980), project area prehistoric sites are located in scabland areas of shallow, rocky soils rather than in areas of deep, loessal soils. A number of important resources including edible roots and berries, game, and surface water are, and were formerly, found in the scablands as opposed to the intervening areas of deep silty soils.

The majority (n=29, or 94 percent) of the recorded sites consist of pits in basalt talus. Common to talus in eastern Washington, ethnographic and archaeologic information indicate that talus pit site functions included places for human burial and as resource caches. One prehistoric campsite and one rock cairn site were also recorded.

Talus pit sites are not necessarily of cultural origin. In the more mesic portions and microenvironments of eastern Washington where large conifers are presently growing adjacent to or within talus, pits may be formed by natural rather than cultural means. Growth of large trees create voids in talus that once the tree has rotted away may be mistaken for cultural talus pit features. Blowdown of large trees growing in talus creates even larger voids. Pits created by either of these processes may have rock berms associated with them as do some cultural examples.

Determining which pits are of cultural and which are of natural origin is not necessarily easily done. If archaeological excavation reveals that the pit contains prehistoric cultural materials and/or human remains, then the pit is a cultural site. On the other hand, if a pit had been utilized as a cache and its contents removed, then no cultural materials would be expected to be present, even though the site is of human origin. Reliable criteria for separating talus pits of cultural from those of natural origin in the absence of artifacts, human remains, logs, wood, or bark have not been developed.

Historic sites in or adjacent to the project area include historically important transmission lines, an extant section of the Colville Road, farmsteads, structural remains, and a municipal dump. Two sites consisting of pits in silty sediments and of unassigned temporal or functional affiliation were also recorded.

While the Little Falls Tie Line has been evaluated for NRHP eligibility and a NRHP Nomination Form that includes the GC-B No. 3 and 4 transmission line has been completed, none of the other sites have been formally evaluated for NRHP eligibility.

Transmission line removal, construction, and operation can impact cultural resources. Whether or not such impacts constitute an "effect" on an individual site depends on that site's eligibility for listing in the NRHP.

Given the design of the proposed project as described in this report, a preliminary impact probability assessment indicates seventeen (42.5 percent) of the sites have a high probability, nine (22.5 percent) a moderate impact probability, and 14 (35 percent) a low impact probability (see Table 1). Changes in project design will invariably require re-analysis of potential project impacts.

Potential mitigation of project effects on NRHP eligible sites could include:

- Avoidance
- Data recovery (including excavation); and,
- Documentation to HABS/HAER standards.

This report should not be considered permission to proceed with the proposed project. The report should be submitted to the proper review agencies for review and comment prior to the iniation of any land altering activity.

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