



**Pacific
Connector**
GAS PIPELINE

Pacific Connector Gas Pipeline, LP

Resource Report No. 4

Cultural Resources

Pacific Connector Gas Pipeline Project

April 2017

Resource Report 4 – Cultural Resources	
MINIMUM FILING REQUIREMENTS	See the Following Resource Report Section:
1. Initial cultural resources consultation and documentation, and documentation of consultation with Native Americans (§ 380.12(f)(1)(i) & (2)).	Appendix A.4
1. Overview / Survey Reports (§ 380.12(f)(1)(ii) & (2)).	Appendix B.4
2. Identify the project APE in terms of direct or indirect effects to known cultural resources.	Section 4.2.1
3. Provide documentation of consultation with SHPOs, THPOs, and applicable landmanaging agencies regarding the need for and required extent of cultural resource surveys.	Appendix A.4
4. Provide a narrative summary of overview results, cultural resource surveys completed, identified cultural resources and any cultural resource issues.	Section 4.2.4
1. Provide a project specific Ethnographic Analysis (can be part of Overview / Survey Report).	Appendix B.4
2. Provide written comments on the Overview and Survey Reports, if available, from the SHPOs or THPOs, as appropriate, and applicable land-managing agencies.	Appendix B.4
3. Provide a Summary Table of identified cultural resources, and SHPO or THPO and land-managing agency comments on the eligibility recommendations for those resources.	Tables 4.2-1-4.2.5, Appendix D.4
4. Provide a brief summary of the status of Native American consultation, including copies of all related correspondence and records of verbal communications.	Table 4.1-1
5. Provide an Unanticipated Discoveries Plan for the project area, referencing appropriate state statutes.	Appendix E.4

Cultural Resources Information often Missing and Resulting in Data Requests	
Information	Section
Identify the project area and the project's impacts in terms of direct and indirect effects on cultural resources.	Section 4.2.1
Provide a project map with mileposts clearly showing boundaries of all survey areas (right-of- way, extra work areas, access roads, etc.). Ensure that you mark mileposts, clearly specify survey corridor widths, and clearly indicate where you have not completed surveys.	Appendix C.4
Provide documentation of consultation with applicable State Historic Preservation Offices (SHPO), Tribal Historic Preservation Offices (THPO), and land-managing agencies regarding the need for and required extent of cultural resource surveys.	Section 4.1
Provide a narrative summary of overview results, cultural resource surveys completed, identified cultural resources, and any cultural resource issues.	Sections 4.2.4
Provide a project specific Ethnographic Analysis (can be part of Overview / Survey Report).	In Appendix B.4, Bowden et al. 2009: Chapters 2 and 3
Identify by mileposts any areas requiring survey for which the landowner denied access.	Tables 4.2-1, 4.2.3-4.2.5
Provide written comments on the Overview and Survey Reports from the applicable SHPOs, THPOs, and land-managing agencies, if available.	Appendix A.4
Provide a Summary Table of completion status of cultural resource surveys, and applicable SHPO or THPO and land-managing agency comments on the reports.	Tables 4.2-1-4.2.5, Appendix D.4
Provide a Summary Table of identified cultural resources, and applicable SHPO or THPO and land-managing agency comments on the eligibility recommendations for those resources.	Appendix D.4
Provide a brief summary of the status of contact with federally recognized Indian tribes, including copies of all related correspondence and records of verbal communications.	Section 4.1.2; Appendix A.4
Provide a brief summary of comments received from stakeholders regarding cultural resources.	Section 4.1
Provide a schedule for completing any outstanding cultural resource studies.	Section 4.2.6
Provide an Unanticipated Discoveries Plan for the project area, referencing appropriate state statutes.	Appendix E.4

Table of Contents

4.0 Introduction 1
 4.1 Communication with Public Agencies and federally recognized tribes 2
 4.1.1 Public Agencies 2
 4.1.2 Federally Recognized Indian Tribes 5
 4.2 Cultural Resource Survey 11
 4.2.1 Area of Potential Effects 11
 4.2.2 Background Research 13
 4.2.3 Methods 13
 4.2.4 Survey Results 14
 4.2.5 Resource Descriptions 27
 4.2.6 Outstanding Cultural Resources Studies and Scheduling 32

List of Tables

Table 4.1-1 Communications with Federally Recognized Indian Tribes 7
 Table 4.2-1 Unsurveyed Properties along Centerline 15
 Table 4.2-2 Water Crossings along Proposed Pipeline Route with Potential for Buried Sites at Significant Depth 18
 Table 4.2-3 Unsurveyed Work Spaces 20
 Table 4.2-4 Unsurveyed Contractor and Pipe Storage Yards and Rock Source and Permanent Disposal Sites 21
 Table 4.2-5 Unsurveyed Access Roads 23
 Table 4.2-6 Unsurveyed Indirect Effects APE Locations 27
 Table 4.2-7 NRHP-*Eligible* and NRHP-*Eligibility Undetermined* Resources Requiring No Further Work 28
 Table 4.2-8 NRHP-*Eligible* Resources Requiring Mitigation 30
 Table 4.2-9 NRHP-*Eligibility Undetermined* Resources Requiring Phase II Evaluation 31
 Table 4.2-10 NRHP-*Eligibility Undetermined* Resources Requiring Additional Survey, Agency Communication, or Documentation 31
 Table 4.2-11 NRHP-*Eligible* or NRHP-*Eligibility Undetermined* Resources Requiring Avoidance and Protection Plans 32

List of Appendices

Appendix A.4 Communications with Public Agencies and Federally Recognized Indian Tribes
 Appendix B.4 Cultural Resources Survey and Evaluation Reports (Privileged and Confidential) **(to be included in a subsequent draft of this resource report)**^{1,2}
 Appendix C.4 Maps Showing the Locations of Cultural Resources Survey to Date (Public)
 Appendix D.4 Cultural Resources Survey Results and Resources Table¹ (Privileged and Confidential) **(to be included in a subsequent draft of this resource report)**
 Appendix E.4 Unanticipated Discovery Plan

¹ This appendix contains information on the location, character, and ownership of cultural resources and was filed in the Secretary’s non-public file.

² Includes Derr et al. 2017, Derr et al. 2015 (filed electronically only), Ragsdale et al. 2013 (filed electronically only), Willis et al. 2013 (filed electronically only), Bowden et al. 2013 (filed electronically only), Knutson et al. 2010 (filed electronically only), Bowden et al. 2010 (filed electronically only), and Bowden et al. 2009 (filed electronically only).

List of Abbreviations and Acronyms

APE	Area of Potential Effect
BLM	Bureau of Land Management
FERC	Federal Energy Regulatory Commission
GIS	geographic information system
GTN	Gas Transmission Northwest
HDD	horizontal directional drill
HPMP	Historic Properties Management Plan
HRA	Historical Research Associates, Inc.
JCEP	Jordan Cove Energy Project, LP
LNG	liquefied natural gas
MOA	Memorandum of Agreement
MP	milepost
NAGPRA	Native American Graves Protection and Repatriation Act
NPS	National Park Service
NRHP	National Register of Historic Places
OMNCH	Oregon Museum of Natural and Cultural History
PCGP	Pacific Connector Gas Pipeline
SHPO	State Historic Preservation Office
TEWA	temporary extra work area
TCP	Traditional Cultural Properties
UCSA	uncleared storage area
UDP	Unanticipated Discovery Plan
USFS	U.S. Forest Service

4. CULTURAL RESOURCES

4.0 INTRODUCTION

Pacific Connector Gas Pipeline, L.P. (“PCGP”) is seeking authorization from the Federal Energy Regulatory Commission (“FERC” or “Commission”) under Section 7 of the Natural Gas Act to construct and operate a new approximate 235-mile-long, 36-inch-diameter natural gas transmission pipeline (“Pipeline”) capable of transporting approximately 1,200,000 dekatherms per day of natural gas from interconnections with two existing interstate natural gas pipelines (Ruby Pipeline LLC’s Ruby Pipeline and Gas Transmission Northwest LLC’s GTN Pipeline) near Malin, Oregon, to the proposed Jordan Cove Liquefied Natural Gas (“LNG”) export facility (“LNG Terminal”) being developed by Jordan Cove Energy Project, L.P. (“JCEP”). The Pipeline and the LNG Terminal are referred to, collectively, as the “Project.”

This report and the survey it describes represent the Summary/Overview report for Resource Report 4 for the Pipeline. JCEP plans to submit a contemporaneous application to FERC for the LNG Terminal that will include its own set of resource reports, including a separate Resource Report 4.

The proposed Pipeline is composed of a pipeline and aboveground facilities. The Pipeline will be constructed in Coos, Douglas, Jackson, and Klamath counties (“Proposed Route”) (see Figure 1.1-1 in Resource Report 1). The Pipeline will have these characteristics:

- 36-inch diameter;
- 1600 psig maximum allowable operating pressure;
- 235-mile approximate length; and
- beginning milepost (“MP”) 1.47R and ending MP 228.81.³

Aboveground facilities for the Pipeline include:

- the new Klamath Compressor Station with three operating compressor units totaling approximately 61,500 ISO horsepower (with one additional standby unit of 20,500 ISO horsepower) at MP 228.81 located in Klamath County, Oregon;
- three new meter station locations (three interconnects: Jordan Cove Meter Station/MP 1.47R; Klamath-Beaver Meter Station [GTN]/MP 228.81; and Klamath-Eagle Meter Station [Ruby]/MP 228.81);
- five new pig launcher/receiver units (co-located with other aboveground facilities);
- 17 new mainline block valves spaced along the Proposed Route (Coos, Douglas, Jackson, and Klamath Counties, Oregon) according to U.S. Department of Transportation safety requirements; and

³ In order to maintain consistency with the Project’s history, the western terminus of the Proposed Route is at MP 1.47R at the Jordan Cove Meter Station located adjacent to the LNG Terminal site in Coos County. The mileposts proceed from west to east to correspond with the original milepost markings of the PCGP. The Pipeline’s total length (approximately 235 miles) does not equal the ending milepost (MP 228.81) because of the engineering station equations associated with the various reroutes and alternatives that have been integrated into the design since PCGP mile-posted the centerline in 2007.

- new communications towers and equipment buildings and usage of existing communications towers and equipment buildings along the Proposed Route (Coos, Douglas, Jackson, and Klamath Counties, Oregon).

Historical Research Associates, Inc. (“HRA”) was contracted by PCGP to conduct the cultural resources investigations for the Pipeline. FERC is the lead federal agency for compliance with the National Environmental Policy Act and the National Historic Preservation Act. It is important to note that the Pipeline is substantially similar to a pipeline for which PCGP previously filed an application with FERC under Dockets CP07-441-000 and CP13-492-000. Due to similarities between the pipeline projects, the previously filed survey reports, addendum survey reports, and evaluation reports are being filed again with this Resource Report 4 and are referenced throughout this document. These reports include the July 2009 survey report (Bowden et al. 2009), the March 2010 Phase II evaluation report (Bowden et al. 2010), the August 2010 addendum survey report (Knutson et al. 2010), the June 2013 addendum survey report (Bowden et al. 2013), the December 2013 addendum survey report (Ragsdale et al. 2013), the December 2013 Phase II evaluation report (Willis et al. 2013), and the December 2015 addendum survey report (Derr et al. 2015). An updated addendum survey report (Derr et al. 2017) is also included with this Resource Report 4 (to be included in a subsequent draft of this resource report).

4.1 COMMUNICATION WITH PUBLIC AGENCIES AND FEDERALLY RECOGNIZED TRIBES

4.1.1 Public Agencies

The following sections review initial and prior applicable consultations between PCGP, HRA, and state and federal agencies, specifically FERC, Oregon State Historic Preservation Office (“SHPO”), the Bureau of Land Management (“BLM”), the U.S. Forest Service (“USFS”), the U.S. Bureau of Reclamation (“Reclamation”), and the National Park Service (“NPS”). The agency communications described below in Section 4.1.1.1 (Initial Consultation) begin in January 2017, the month that PCGP and JCEP requested that FERC initiate the pre-filing review process for the Project. However, as described above, because the Pipeline is substantially similar to a previously filed pipeline for which cultural resource consultation occurred, some previous communications and documentation is also included in Section 4.1.1.2 (Previous Applicable Consultation), specifically written comments on the previous overview/survey and evaluation reports, as well as comments on National Register of Historic Places (“NRHP”) eligibility recommendations for identified cultural resources and treatment plans for eligible sites.

4.1.1.1 Initial Consultation

4.1.1.1.1 Oregon State Historic Preservation Office

PCGP notified SHPO of its intention to file a new application with FERC for the Pipeline on the December 22, 2016. Agency consultation for the Project began on January 17, 2017 when PCGP and JCEP met with Chrissy Curran (Deputy Oregon State Historic Preservation Officer) and John Pouley (SHPO Assistant State Archaeologist) to discuss the Project and the pre-filing process. Company and agency representatives discussed the overall Project design, plans for the LNG Terminal, key modifications to the Proposed Route, and the level of effort and remaining cultural surveys along the Pipeline’s Proposed Route. In order to facilitate its review of the Pipeline, SHPO

requested that PCGP submit updated site sketch maps with the 2017 addendum survey report (Derr et al. 2017) showing proposed construction/disturbance at each site, as well as a table discussing effects/potential effects to each resource. PCGP has sought feedback from the Oregon SHPO (April 27, 2017) on the research design for the remaining cultural surveys for the Pipeline. PCGP has also provided general language on Phase II evaluation studies for archaeological sites. Detailed and site-specific research designs for future Phase II evaluations will accompany Oregon state archaeological permits, or Archaeological Resources Protection Act permits on federal lands, for each separately owned property on which those sites are located.

4.1.1.1.2 Federal Agencies

PCGP notified BLM, USFS and Reclamation of its intention to file a new application with FERC for the Project on December 22, 2016. On February 2, 2017, PCGP, HRA, and Edge Environmental met with representatives from the BLM, USFS, and Reclamation to discuss the Project and the pre-filing process.

HRA has also engaged in follow-up communications with the USFS regarding one resource located on USFS land. On February 9, 2017, HRA spoke with the USFS via telephone regarding NRHP eligibility and potential effects to Site 35DO1107. HRA explained that although the portions of the site containing eligible deposits (*i.e.*, a privy and trash scatter) would be avoided during Pipeline construction, a fire lookout foundation within the site could not be avoided and would be affected. The USFS requested that historical research pertaining to the lookout be presented in a kiosk or informative poster as part of mitigation of adverse effects to the site. The USFS also requested that an archaeological monitor be present during construction. On February 24, 2017, PCGP e-mailed the USFS and the BLM to request information on any newly identified resources recorded since 2015 on USFS and BLM lands in or near the Proposed Route, and PCGP is continuing to coordinate with these agencies.

4.1.1.2 Previous Applicable Consultation

4.1.1.2.1 Oregon State Historic Preservation Office

The SHPO provided comments on all seven previously filed reports (Appendix A.4). HRA received comments on the July 2009 survey report on September 25, 2009, which included concurrence with all of the recommendations regarding resource eligibility that are contained within the report (Bowden et al. 2009). HRA submitted a final Phase II NRHP evaluation report in March 2010 (Bowden et al. 2010), and the SHPO concurred with those recommendations in a letter dated December 13, 2010. In August 2010, HRA submitted an addendum survey report responding to a December 2009 FERC data request (Knutson et al. 2010), and the SHPO sent comments on this report in a letter dated April 18, 2011. This letter requested additional information regarding the recommendation that the Project would not adversely affect Site 35JA790. In addition, SHPO disagreed with the BLM's determination of eligibility for site 35JA680 and required additional testing to determine its NRHP eligibility (Appendix A.4). It should be noted that the SHPO's reference to 35JA680 appears to be a typo; 35JA680 is not on BLM lands and the SHPO appears to be referring to 35JA686. This is because 35JA686 is listed in the SHPO geographic information system ("GIS") database as unevaluated and the only other site in the BLM's letter to which the SHPO could be referring to is 35JA682, which is listed as not eligible in the SHPO GIS database.

In 2013, HRA submitted three reports to the SHPO, including two addendum survey reports (Bowden et al. 2013 and Ragsdale et al. 2013) and a Phase II NRHP evaluation

report (Willis et al. 2013). No comments were received on the Bowden et al. (2013) report until January 22, 2016, when the SHPO provided a letter concurring with the definition of the indirect effects area of potential effects (“APE”) discussed in the report (see Section 4.2.1.2 for more details). Comments on the other 2013 reports were received on February 27, 2014, when the SHPO sent a letter stating that it was unable to concur with any recommendations in the reports until FERC makes its determinations.

Lastly, in December 2015, HRA submitted an addendum survey report for work completed in 2014 and 2015 (Derr et al. 2015). The SHPO sent a concurrence letter on all the recommendations in the report on February 11, 2016.

From 2008 to 2014, the SHPO has also provided an additional five letters pertaining to the NRHP eligibility of cultural resources relevant to the Pipeline (Appendix A.4), including Columbia Forest Products (eligible), Dora Cemetery (eligible), Klamath Canal System (eligible), 35KL3043 (not eligible), 35KL3055 (not eligible), 35KL3056 (not eligible), 35DO1119 (unevaluated), 35DO313 (eligible), 35DO1136 (not eligible), and 35DO1284 (not eligible). These letters are provided in Appendix A.4 and are dated December 30, 2008; June 2009; June 8, 2009; June 22, 2009; and July 9, 2014.

HRA also drafted a historic properties management plan (“HPMP”) for all identified cultural resources and treatment plans for archaeological sites determined eligible for the NRHP in support of the Memorandum of Agreement (“MOA”) completed by FERC in January 2011. The MOA contained a table detailing all identified archaeological sites; their NRHP eligibility status; measures needed to determine the NRHP eligibility of unevaluated resources; and measures needed to ensure avoidance, protection, or mitigation of adverse effects. HRA received SHPO comments on these documents, which were incorporated into the HPMP. The previously mentioned SHPO letter dated December 13, 2010, concurs with the recommendations contained within the Phase II evaluation report (Bowden et al. 2010), and it also includes concurrence with the HPMP (and the Unanticipated Discovery Plan [“UDP”]). The SHPO informed FERC that it was satisfied with the treatment plans in an e-mail dated October 1, 2010 (Appendix A.4). The MOA was terminated in December 2016. Although the parties to the MOA agreed to its termination, documents supporting the MOA may be used in the future.

4.1.1.2.2 Federal Agencies

Previous applicable consultation with federal agencies includes consultation and comments pertaining to the previously submitted overview/survey and evaluation reports, consultation with the BLM on the treatment plans, and consultation pertaining to individual resources (or potential resources).

Prior to finalizing the July 2009 survey report (Bowden et al. 2009) and the March 2010 Phase II NRHP evaluation report (Bowden et al. 2010) for submittal to the SHPO, HRA submitted draft and preliminary versions for review by the USFS and BLM archaeologists. Both agencies provided comments, which HRA subsequently incorporated into the final reports and which resulted in concurrence by the agencies on the recommendations within the final reports. However, in a letter dated January 7, 2010, the BLM submitted additional comments which included a finding of not eligible for two sites along the Pipeline: 35JA682 and 35JA686 (Appendix A.4). As discussed above, the SHPO did not agree with the finding for 35JA686 and is requiring additional testing.

Prior to finalizing the July 2009 survey report (Bowden et al. 2009), PCGP also provided Reclamation with portions of the draft survey report that discussed the Klamath Project. During a meeting held November 12, 2008, Reclamation expressed the desire to survey all individual canals being crossed by the Pipeline in order to determine their potential to contribute to the eligibility of the Klamath Project as a district. HRA surveyed the canals and included the results in the July 2009 survey report.

No comments have been received from federal agencies on the addendum reports submitted in 2010, 2013, and 2015 (*i.e.*, Knutson et al. 2010, Bowden et al. 2013, Ragsdale et al. 2013, and Derr et al. 2015). However, on April 24, 2014, the BLM concurred with the recommendations in the 2013 Phase II NRHP evaluation report (Willis et al. 2013) and determined that site 35DO1428 is not eligible for the NRHP (Appendix A.4).

In preparation for completion of the treatment plans for BLM sites in support of the MOA, HRA drafted a sample treatment plan for 35DO1104 and submitted it to the Roseburg District BLM in the winter of 2009. Comments from the BLM on this treatment plan were received in March 2010, and responses were incorporated into the final treatment plans. Treatment plans for sites determined to be eligible for the NRHP and potentially adversely affected by the Pipeline were submitted for agency review in the spring of 2010. Comments from the BLM were received in June 2010, and they were incorporated into the final treatment plans produced later that year. The BLM confirmed that it was satisfied with all treatment plans on Roseburg District BLM lands in an e-mail dated October 20, 2010 (Appendix A.4).

In July 2010, there were e-mail exchanges between the Umpqua National Forest and the Fremont-Winema National Forest regarding the NRHP eligibility and potential effects to Dead Indian Memorial Highway, which had been recorded as a “tickler” in the SHPO GIS. The Fremont-Winema National Forest confirmed on July 7, 2010 that this road should not be considered a site or to be eligible for the NRHP, and that the Pipeline will not affect it (Appendix A.4).

In August 2012, the NPS informed FERC that the Pipeline might cross the Applegate Branch of the California National Historic Trail. This had been acknowledged previously (Bowden et al. 2009:577–578), and the SHPO concurred that the Pipeline would not adversely affect it in a letter dated December 30, 2008. Through exchange of GIS information between the NPS and PCGP, it appears that the Pipeline crosses the trail in two locations: 1) at the I-5 crossing where the trail is mapped as following Dole Road, and 2) at the eastern terminus just north of the Klamath Compressor Station. No trace of these trails has been identified in these locations, but both locations have modern paved roads in proximity to them. According to the NPS GIS Manager, the NPS GIS data may be inaccurate in certain locations, and it is possible that the former trail route in these locations was later developed as a modern road. PCGP will continue to work with the NPS and the California-Nevada Chapter of the Oregon-California Trails Association to assess potential effects to the California National Historic Trail.

4.1.2 Federally Recognized Indian Tribes

The following sections review initial and prior applicable communications between PCGP and federally recognized Indian tribes.

In January and February 2017 (dates of letters to each Tribe provided in Table 4.1-1 below), PCGP and JCEP jointly sent letters to notify federally recognized Indian tribes of

the companies' intention to enter into the pre-filing process and to seek feedback on issues of concern to the Tribes. These letters were sent to the following Tribes:

- Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians
- Coquille Indian Tribe
- Cow Creek Band of Umpqua Indians
- Confederated Tribes of the Grand Ronde
- Klamath Tribes
- Confederated Tribes of Siletz Indians

Members of the Project team have met with representatives from these Tribes on several occasions regarding previous iterations of this project and since the start of the pre-filing process. As a result, although the Project has changed, appropriate representatives of the Tribes are generally familiar with the Pipeline and LNG Terminal and the Project's potential effects to cultural resources.

The communications described below in Table 4.1-1 include communications from both the initial stages of the pre-filing process starting in January 2017 and also relevant Tribal communications from previous filings. Such communications, especially regarding specific resources are relevant as the Pipeline is substantially similar to a previously filed pipeline for which cultural resource communications occurred. Documentation of these communications is included as Appendix A.4 (except where such communications were filed directly with FERC). Communications pertaining to traditional cultural properties ("TCPs") are addressed in Section 4.1.2.2.

4.1.2.1 Previous Applicable Communications

Previous applicable communications includes comments received from the federally recognized Indian tribes regarding specific resources. On June 9, June 17, October, and November 23, 2010, the Cow Creek Band of Umpqua Indians provided comments on the treatment plans for sites in Douglas County. On August 2, 2010, the Confederated Tribes of Grand Ronde provided comments on the treatment plans. On August 18, 2009, the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians provided comments on the HPMP and UDP.

In October 2012, the Klamath Tribes submitted a letter to FERC expressing concerns that the Pipeline has the potential to affect sacred cultural sites and buried Native American Graves Protection and Repatriation Act ("NAGPRA") related materials (Appendix A.4). They specifically expressed concerns over buried resources and remains of their people given the environmental setting of the Project and expressed concern that a UDP be developed early in the process. A UDP has been prepared for work on both public and private lands (Appendix E.4).

In 2013, PCGP began to schedule fieldwork and correspond with tribes on schedule. Representatives from the Cow Creek Band of the Umpqua Tribe of Indians monitored most of the field investigations in Douglas and Jackson counties, as did a representative from the Klamath Tribes for investigations in Klamath County.

Table 4.1-1 Communications with Federally Recognized Indian Tribes

Initial Contact and Other Communications	Research Design	Responses / Concerns	Ongoing Communications and Interest
Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians			
<p>Letter to Tribes from PCGP and JCEP requesting meeting to provide update on changes to the Proposed Route and on the LNG Terminal design, and to address questions/concerns: January 5, 2017.</p> <p>Meeting with Tribal Council; PCGP and JCEP provided presentation titled "Project update": January 19, 2017.</p> <p>Letter from PCGP and JCEP to Tribes on intent to enter into pre-filing and notification of open houses: February 15, 2017.</p> <p>Meeting with Tribal administrative staff, lawyer and THPO to discuss communication protocols, confidentiality agreement and UDP: March 8, 2017.</p> <p>Letter from PCGP and JCEP to Tribes requesting feedback on research design, cumulative impact analysis and TCPs: April 27, 2017.</p>	<p>Research design for PCGP conveyed through previous filing; research designs under the new filing submitted to Tribes for review in letter, April 27, 2017.</p>	<p>Tribal Council expressed interest in the Coos Bay alternative route under Haynes Inlet with some concerns over potential for cultural resources and/or cemeteries, the need for more surveys, and a desire to work toward an agreement on protection of cultural resources.</p> <p>Tribal staff express interest in survey strategy and methods, results, monitoring field investigations and keeping up to date with forthcoming activities.</p>	<p>Ongoing informal communication via e-mails and phone calls with Tribal staff concerning geotechnical and cultural surveys and permitting; discussions around communication protocols, UDP, confidentiality agreements and proposed cost reimbursement agreement for Tribal monitors.</p> <p>All survey and Phase II evaluation reports delivered for work undertaken to date.</p>
Coquille Indian Tribe			
<p>Letter to Tribe from PCGP and JCEP requesting meeting to update on changes to the Proposed Route and on the LNG Terminal design, and to address questions/concerns: January 9, 2017.</p> <p>Letter to Tribe from PCGP and JCEP on intent to enter into pre-filing and notification of open houses: February 15, 2017.</p> <p>Meeting with Tribal Council providing presentation titled "Project update and ground improvement summary": February 23, 2017.</p> <p>Meeting with THPO seeking input on cultural resource survey methodology: March 8, 2017.</p> <p>Letter from PCGP and JCEP to Tribe requesting feedback on research design, cumulative impact analysis and TCPs: April 27, 2017.</p>	<p>Research design for PCGP conveyed through previous filing; research designs under the new filing submitted to Tribe for review in letter, April 27, 2017.</p>	<p>Tribal Council expressed interest in the Coos Bay alternative pipeline route under Haynes Inlet and various design aspects of the LNG terminal (water discharges, dredging, noise sources, odor).</p> <p>Tribal staff express interest in survey strategy and methods, results, monitoring field investigations and keeping up to date with forthcoming activities.</p>	<p>Ongoing informal communication via e-mails and phone calls with Tribal staff regarding cultural survey methods and results and geotechnical borings; confidentiality agreements, UDP and proposed cost reimbursement agreement for Tribal monitors.</p> <p>All survey and Phase II evaluation reports delivered for work undertaken to date.</p>

Initial Contact and Other Communications	Research Design	Responses / Concerns	Ongoing Communications and Interest
Confederated Tribes of the Siletz Indians			
<p>Letter to Tribes from PCGP and JCEP on intent to enter into pre-filing, notification of open houses, and requesting meeting to provide Project update: February 15, 2017.</p> <p>Meetings with Tribal administrative staff, natural resource management staff and THPO providing presentation titled "Project update": March 21, 2017.</p> <p>Letter from PCGP and JCEP to Tribes requesting feedback on research design, cumulative impact analysis and TCPs: April 27, 2017.</p>	<p>Research design for PCGP conveyed through previous filing; research designs under the new filing submitted to Tribes for review in letter, April 27, 2017.</p>	<p>Tribal staff expressed interest in survey strategy and methods, results, monitoring field investigations and keeping up to date with forthcoming activities.</p>	<p>Previous filing involved informal communication via e-mails and phone calls with Tribal staff regarding cultural survey methods and results.</p> <p>All survey and Phase II evaluation reports delivered for work undertaken to date.</p>
Cow Creek Band of Umpqua Indians			
<p>Meeting with the Tribal natural resource management staff providing presentation titled "Project update": January 18, 2017.</p> <p>Letter to Tribe from PCGP and JCEP on intent to enter into pre-filing and notification of open houses: February 15, 2017.</p> <p>Meeting with members of the Tribal Board; Tribal administrative staff, natural resource manager and THPO providing presentation titled "Project update," an update on the cultural resource surveys, and a description of trenchless waterbody techniques within the Cow creek Ancestral Territory: March 22, 2017.</p> <p>Letter from PCGP and JCEP to Tribe requesting feedback on research design, cumulative impact analysis and TCPs: April 27, 2017.</p>	<p>Research design for PCGP conveyed through previous filing; research designs under the new filing submitted to Tribe for review in letter, April 27, 2017.</p>	<p>Tribe has expressed interest in obtaining updated GID shape files on the Proposed Route and alternatives as they are progressed; survey strategy, monitoring field investigations, survey results, and upcoming activities and issues;</p> <p>Letter from Tribe to FERC voicing concerns about impacts to resources and traditional use areas October 2012, but did not specifically mention TCPs.</p>	<p>Ongoing informal communication via e-mails and phone calls regarding cost-reimbursement agreements for Tribal monitoring; survey methods and results; survey completion and progress; previous filings involved teleconferences on Phase II methodology.</p> <p>All survey and Phase II evaluation reports delivered.</p>

Initial Contact and Other Communications	Research Design	Responses / Concerns	Ongoing Communications and Interest
The Klamath Tribes			
<p>Letter to Tribes from PCGP and JCEP on intent to enter into pre-filing, notification of open houses, and request for meeting to provide Project update: February 15, 2017.</p> <p>Request for meeting with Tribal Council accepted on April 3, 2017 in letter received by PCGP and JCEP; meeting time and date forthcoming.</p> <p>Letter from PCGP and JCEP to Tribes requesting feedback on research design, cumulative impact analysis and TCPs: April 27, 2017.</p>	<p>Research design for PCGP conveyed through previous filing; research designs under the new filing submitted to Tribes for review in letter, April 27, 2017.</p>	<p>Letter to FERC expressing concerns over potential impacts to sacred cultural sites and buried NAGPRA-related materials, October 2012, but not specifically TCPs.</p> <p>Letter to PCGP and JCEP on April 3, 2017, expressing concerns over cultural and environmental resources, particularly water resources, but not specifically TCPs.</p> <p>Within previous filings, the Tribes have expressed interest in survey strategy, employment of tribal representatives, survey results, and upcoming issues.</p>	<p>Previous filing involved information communications via e-mails, phone calls, and in-person meetings regarding survey progress and results in Klamath County.</p> <p>All survey and Phase II evaluation reports delivered.</p>
Confederated Tribes of Grand Ronde			
<p>Letter to Tribes from PCGP and JCEP on intent to enter into pre-filing, notification of open houses, and request for provide Project update: February 15, 2017.</p> <p>Letter from PCGP and JCEP to Tribes requesting feedback on research design, cumulative impact analysis and TCPs: April 27, 2017.</p>	<p>Research design for PCGP conveyed through previous filing; research designs under the new filing submitted to Tribes for review in letter, April 27, 2017.</p>	<p>The Tribes have previously expressed interest in survey strategy, results, monitoring field investigations, and keeping up to date with forthcoming activities</p>	<p>Previous filing involved informal communications via e-mails, phone calls, and one in-person meeting regarding survey results and need for Phase II investigations in Jackson County; in person meeting concerning Phase II methods.</p> <p>All survey and Phase II evaluation reports delivered for work undertaken to date.</p>

4.1.2.2 Communications Regarding Potential Traditional Cultural Properties (“TCP”)

PCGP has maintained close contact with the six federally recognized tribes with an interest in this Project. Early in Project planning, there were requests by various tribes to consider routes that avoided traditional use areas or archaeological sites that were sensitive to them. There were specifically two route changes for this reason, and several additional routing options were considered based on concerns expressed by various tribes. In a letter to FERC (November 9, 2007) commenting on the September 2007 version of the Resource Report 4 and survey report, the Cow Creek Band of Umpqua Indians requested that FERC consult with them regarding TCPs and the potential effects to their viewsheds.

In December 2007, PCGP responded to the Cow Creek Band's comments in a letter outlining the plan to consult with the Tribe regarding the need for a TCP study. In May 2008, PCGP met with the Cow Creek Band; however, that meeting focused on the pipeline routing history, the pipeline alignment as proposed in Camas and Olalla Valleys, and alternate routing to avoid cultural resources and areas of importance to the Tribe. At the time of the meeting, the Tribe did not have any specific concerns on the direct or indirect effects on any TCPs or TCP viewsheds beyond those already being considered; however, a FERC representative was not present at that meeting.

On August 27, 2008, PCGP sent letters to each of the six federally recognized tribes with an interest in this Project soliciting input on TCPs that each tribe felt may be potentially affected by the Project. The letter asked that each Tribe help identify any TCPs that may be affected by the Project and whether they wished to have any additional information concerning TCPs included in the Project reports. The letter also asked them to indicate if the September 2007 Draft Survey Report satisfied the tribe's concerns regarding TCPs by September 30, 2008, or whether they wished additional information to be included in the cultural resources documentation.

In September 2008, the Confederated Tribes of Grand Ronde called to inquire about the TCP studies in response to the letter delivered to them on August 27, 2008. The response suggested an additional review of two ethnographic texts in order to identify any possible areas of importance. These texts were subsequently reviewed in conjunction with Project maps in order to establish ethnographic context for traditional place names and locales that may fall in the Project area. No specific places were identified within the APE.

On September 30, 2008, PCGP received a response to the TCP study request from the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians. This letter indicated that they were not satisfied with the information in the September 2007 report and their requests for additional information related to archaeological sites and TCPs. Specifically, they were concerned about sites and isolated finds determined not eligible for the NRHP, sites impacted in the Fairview area, and the release of sensitive information as part of the EIS process. To date, PCGP has had informal conversations with the Tribes about the routing in the Fairview area and the sites and isolated cultural resources.

No other tribes have provided feedback or concerns regarding TCPs since these communications provided above. PCGP sent additional letters on April 27, 2017, to interested Tribes in order to validate the initial analysis on TCPs as the Project proceeds through the FERC application process.

4.2 CULTURAL RESOURCE SURVEY

4.2.1 Area of Potential Effects

According to 36 C.F.R. § 800.16(d), the APE is defined as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. Because the APE may be different for different kinds of effects, PCGP is considering both a direct and indirect effects APE for the Pipeline.

4.2.1.1 Direct Effects APE

The direct effects APE includes all geographic areas that will potentially experience ground disturbances from the construction, operation, and maintenance of the Pipeline. As described in Resource Report 1, PCGP proposes to utilize a 95-foot-wide temporary construction right-of-way with a 50-foot-wide permanent easement. The Pipeline will also include temporary extra work areas (“TEWAs”) and uncleared storage areas (“USCAs”) located along the temporary construction right-of-way, temporary and permanent access roads, contractor and pipe storage yards, rock source and permanent disposal sites, hydrostatic discharge sites, and various aboveground facilities (compressor station, meter stations, pig launcher/receiver units, mainline block valves, and communication towers and equipment buildings). The direct effects APE includes the following: 1) a 400-foot-wide pipeline corridor centered on the Proposed Route, and 2) all areas where elements of the Pipeline extend outside the pipeline corridor. The direct effects APE measures approximately 17,037 acres.

The pipeline corridor represents the majority of the APE and encompasses the temporary construction right-of-way; the permanent easement; most portions of TEWAs, USCAs, and aboveground facilities; and many of the access roads. The width of the pipeline corridor was selected in order to allow for flexibility in project design subsequent to any cultural resource surveys. Whenever possible, surveys were conducted within the whole width of the corridor. However, because the temporary construction right-of-way is much smaller than the pipeline corridor, the pipeline corridor was narrowed in certain locations for practical reasons. Certain sections of the corridor follow ridgelines that are much narrower than 400 feet, and construction is not possible on the steep side slopes. Likewise, certain properties located near the edge of the pipeline corridor were not surveyed because it was known that they would not be needed for construction purposes. Only the construction right-of-way (including TEWAs, USCAs, etc.) were surveyed for a FERC-requested route change in Klamath County, referred to as the Shasta View Irrigation District route.

Areas where elements of the Pipeline extend outside the pipeline corridor generally consist of contractor and pipe storage yards, rock source and permanent disposal sites, some hydrostatic discharge sites, and temporary and permanent access roads. Portions of some TEWAs, USCAs, and aboveground facilities also extend outside the pipeline corridor.

4.2.1.2 Indirect Effects APE

The indirect effects APE includes all geographic areas that will potentially experience visual, atmospheric, or audible intrusions or changes as a result of construction, operation, and maintenance of the Pipeline. Indirect effects and viewshed considerations are relatively limited for the Pipeline. It will not produce sufficient noise or odors to warrant consideration of audible or (atmospheric) olfactory indirect effects. As the Pipeline will be buried, the aboveground evidence of its existence will be its related aboveground facilities and the permanent easement itself, which will be maintained as a

50-foot-wide cleared corridor on the landscape. In low-lying areas and areas devoid of tall trees, such as farmlands, the easement will not be discernible. This is also true of areas where the easement parallels preexisting cleared corridors, such as roads, transmission lines, or other pipelines.

In some cases, however, the extant landscape may be heavily forested. In such instances, a new permanent easement devoid of trees will be obvious on the landscape; however, because the construction right-of-way and permanent easement will be relatively narrow—95 feet wide during construction and for several years thereafter, but 50 feet wide after reforestation of the construction right-of-way outside of the permanent easement—it will only be visible in places that are located both adjacent to and nearly parallel to the easement with a severe change in elevation.

Such locations may include narrow valleys or valley edges with a view of a steep, forested slope through which the permanent easement will run, or forested areas immediately adjacent to significantly higher mountain peaks, ridges, or bluffs that could be TCPs and would overlook the new right-of-way. Additionally, the severe elevation change that affords the view of the easement must be close enough to the Pipeline so that the new permanent easement would be a substantial component of the viewshed. While the easement may be visible from Mount McLaughlin, for example, it is 7 miles from the Pipeline; thus, it will be difficult to discern and will be surrounded by more significant modern interruptions of its viewshed including clear cuts, transmission lines, and numerous roads.

HRA reviewed the APE for instances where the following factors converged:

- Heavily vegetated landscapes with adjacent significant topographical differences
- Landscapes that are relatively unencumbered by modern intrusions, such as utility or transportation corridors, cities, quarries, etc.

Few geographical areas meet the above factors. In most instances where topographical variation is present, the viewshed is compromised by modern visual intrusions. Further, because the direct effects APE is defined primarily as a 400-foot-wide Pipeline corridor (within which the 50 foot-wide permanent easement will eventually be located), the direct and indirect effects APE are the same in locations where the view to a distinctive, forested elevation change occurs within and adjacent to the proposed easement.

Locations where the indirect effects APE diverges from the direct effects APE are, thus, limited to locations where the permanent easement traverses a steep, heavily vegetated area, then turns sharply so that the permanent easement could be seen directly from a location outside of the direct effects APE. Locations where the indirect effects APE deviates from the direct effects APE are identified on the maps contained within Appendix A of the 2017 addendum survey report (Derr et al. 2017). As noted in Section 4.1.1.2.1, the SHPO concurred with this methodology for defining the indirect effects APE in a letter dated January 22, 2016. PCGP intends on undertaking further communications with interested Tribes regarding the indirect effects APE.

PCGP plans to construct new communications towers outside of the Pipeline corridor in locations where towers cannot be co-located with existing facilities. The potential indirect effects of new towers will be assessed using similar methods applied to other Pipeline-related aboveground facilities. PCGP will conduct this assessment once tower locations are finalized.

4.2.2 Background Research

In 2006, HRA conducted a literature review of archaeological and historic resources and surveyed areas within an arbitrary 2-mile-wide study corridor at the SHPO, USFS region, and BLM district offices; county archives; available online historic maps; and the offices of the cultural resources consultants. Background research involved identifying known archaeological and historic resources and previously surveyed areas within the study corridor and the APE, in cases where certain work areas extended outside the study corridor. This research also aided in the development of the historic context and provided preliminary cultural resources information on the Proposed Route and anticipated minor reroutes. The study corridor encompassed approximately 470 square miles, or about 300,000 acres. Due to the volume of information collected, the results of the research is not presented here but is provided in Chapter 2 and Appendix B of the July 2009 survey report (Bowden et al. 2009).

The background research also involved a thorough review of the project context pertaining to environment, prehistory, ethnohistory, and history. The environmental context reviews physiography, geology, hydrology, climate, flora, fauna, and soils for the project vicinity. The prehistoric context consists of previous archaeological studies, significant sites, and chronology. The ethnohistoric context contains information on 12 Native American cultural groups. Finally, the historic context explores 12 overall themes, including early exploration and settlement; transportation; timber industry; fishing, agriculture and ranching; mining; and wartime developments. Due to the volume of information collected, a full discussion of these topics is not presented here but is provided in Chapter 3 of the July 2009 cultural resources survey report (Bowden et al. 2009).

Because the initial research was conducted in 2006, HRA conducted additional research at the SHPO and consulted with appropriate federal agencies to capture the results of cultural resources investigations conducted within or near the APE since 2006. Supplemental research conducted at the SHPO, information provided by the Umpqua National Forest, and review of General Land Office maps is presented in the June 2013 addendum survey report (Bowden et al. 2013). Additional background research is also included in the 2015 and 2017 addendum survey reports (Derr et al. 2015 and 2017).

4.2.3 Methods

HRA has conducted intensive cultural resource surveys of the Pipeline APE. Survey of private and state lands differed somewhat to survey of federal properties. The survey of private, non-federal public lands, and BLM districts excluding the Roseburg District typically consisted of four transects running roughly parallel to the pipeline and in a grid system within all TEWAs, pipe yards, and other nonlinear facilities. The transects were spaced 30 meters apart and survey intervals ("observation points" or shovel probes) were spaced 30 meters apart along transects. The survey used a combination of reconnaissance and subsurface techniques, specifically surface inspection and shovel probes depending on the environment and the planned activity. Generally, areas of relatively slight slope, poor surface visibility, and planned construction were surveyed using shovel probing. Conversely, areas of steep slope, good surface visibility, surface signs of soil disturbance, and where project plans will not involve soil disturbances (such as currently gravel or paved roads and pipe storage yards) were surveyed using surface inspection only. In some cases on graveled or paved roads where no improvements are planned, only windshield survey was conducted. On private lands soil excavated in shovel probes was screened through ¼-inch screen. However, at the request of the

Cow Creek Tribe, starting in 2014, soil excavated from shovel probes located between MPs 58.00 and 168.00 were screened through 1/8-inch screen.

The archaeological survey methods used on the various USFS and BLM, Roseburg District lands differed in several respects, but typically used surface inspection, shovel probes, or shovel scrapes, as mandated by the appropriate agency archaeologist and permit. Transects were spaced 20 meters apart and shovel probes were conducted at 20-meter intervals. All shovel probed materials were passed through 1/8-inch screen. No subsurface survey was conducted on the Fremont-Winema Forest or the BLM-Klamath Falls Resource Area due to conditions within MOAs between these agencies and the Klamath Tribes.

For Phase II evaluations of sites wherein NRHP eligibility could not be determined by the survey, field methods varied somewhat but generally included additional surface inspection and the excavation of 50 by 50-centimeter quarter test units and 1 by 1-meter test units. Per state and federal permit conditions, all soils were passed through 1/8-inch screen.

Field methods in tidal portions of the APE involved (or will involve) a combination of reconnaissance by boat and walking transects across exposed low tide mud flats looking for tidal fish weirs. For a detailed description of all the methods and research designs utilized to date, refer to the overview/survey and evaluation reports filed with this resource report (Appendix B.4).

All artifacts collected to date were or will be permanently curated with the Oregon Museum of Natural and Cultural History ("OMNCH") excepting those where individual landowners requested that they retain the collections. In those cases, only field paperwork and associated photographs were or will be curated with the OMNCH following permit protocols. Collections that have not yet been curated are being temporarily stored at the HRA laboratories in Portland and/or Eugene, Oregon, and will be permanently curated with the OMNCH unless specific landowners request that they receive the collections.

4.2.4 Survey Results

PCGP/HRA completed cultural resources surveys and evaluations in the APE between May 2006 and December 2016. The results of these investigations are summarized here and presented in the eight reports included as Appendix B.4. It is important to note that only the APE described in the most recent report (Derr et al. 2017) reflects the Pipeline and its Proposed Route as it is being filed in association with this Resource Report 4 under Docket No. PF17-4-000; the other reports include previous pipeline designs and thus include cultural resource results that are both within and outside of the current APE. For this reason, readers should refer only to the maps included as Appendix C.4 to this Resource Report 4 and within Derr et al. (2017), as previous maps are outdated and do not necessarily depict the correct APE, pipeline alignment, or other project elements.

The July 2009 survey report (Bowden et al. 2009) includes the results from the bulk of the survey that has been conducted within the APE. This report also includes preliminary results of Phase II investigations. The March 2010 Phase II evaluation report (Bowden et al. 2010) presents the results of NRHP evaluations of 32 archaeological resources within the APE (note that sites 35DO1114 and 35DP1050 discussed in the report are not within the APE). The August 2010 addendum survey

report (Knutson et al. 2010), among other things, addresses a variety of FERC data requests from December of 2009. The 2013 addendum survey reports (Bowden et al. 2013; Ragsdale et al. 2013) include results of survey and other investigations, such as deep testing conducted between 2010 and 2013. The 2013 Phase II NRHP evaluation report (Willis et al. 2013) details work at a single site (35DO1284). Lastly, the 2015 addendum survey report (Derr et al. 2015) details survey from 2014 and 2015, and the 2017 addendum survey report (Derr et al. 2017) includes results of investigations conducted in 2016 (both survey work and Phase II NRHP evaluation testing at three sites: 35CS226, 35JA670/684, and 35JA932).

A table summarizing the results of all cultural resources surveys and the resources identified within them, their NRHP eligibility status, management recommendations for them, and SHPO and other agency concurrence on eligibility and management is included as Appendix D.4.

4.2.4.1 Pipeline Centerline

For the purposes of this Resource Report 4, the pipeline centerline survey refers to survey of a 400-foot-wide pipeline corridor centered (at the time of survey) on the pipeline route (see APE definition in Section 4.2.1.1). The majority of project elements (all of the construction and permanent right-of-ways and the majority of most portions of TEWAs, UCSAs, and aboveground facilities) are within the pipeline corridor, and the results are summarized in this section. Survey for the elements of the Pipeline, or portions of those elements, that extend outside the 400-foot-wide pipeline corridor are discussed in Sections 4.2.4.2 through 4.2.4.5.

During the FERC pre-filing process, PCGP notified all affected landowners regarding permission to conduct cultural resource and other surveys, and access permissions are still being pursued. As of April 17 2017, approximately 213 miles of the Proposed Route centerline has been surveyed. The remaining approximately 22 miles has not been surveyed, either due to denial of landowner permission (or due to adjacent landowners' denial of permission).

Table 4.2-1 contains information on unsurveyed portions of the pipeline centerline as of April 17, 2017. As additional landowner permissions are obtained (or denial confirmed), accessible portions along the Proposed Route will be surveyed in 2017-2018. It should be noted that the mileposts presented in Table 4.2-1 are the result of the incorporated milepost equation described in Resource Report 1; thus, the total length of any given segment shown in Table 4.2-1 does not necessarily reflect the actual length of this segment.

Table 4.2-1 Unsurveyed Properties along Centerline

County	MP Start	MP Stop	Reason Unsurveyed (to be updated in a subsequent draft of this resource report)
Coos	1.91H	7.10H	—
Coos	6.58R	6.70R	—
Coos	8.57R	8.80R	—
Coos	9.89R	10.41R	—
Coos	9.88	10.19	—
Coos	10.20	10.32	—

Table 4.2-1 Unsurveyed Properties along Centerline

County	MP Start	MP Stop	Reason Unserved (to be updated in a subsequent draft of this resource report)
Coos	10.82R	11.19R	—
Coos	11.41R	11.52R	—
Coos	11.49	11.68	—
Coos	12.06R	12.33R	—
Coos	12.11	12.98	—
Coos	13.52	13.59	—
Coos	15.86	16.22	—
Coos	16.35	16.97	—
Coos	18.57	20.05	—
Coos	20.55	21.23	—
Coos	21.81	22.28	—
Coos	22.59	22.78	—
Coos	23.07	23.19	—
Coos	25.35	25.59	—
Coos	29.13	29.46	—
Coos	30.30	30.35	—
Coos	30.57	30.69	—
Douglas	52.21	52.48	—
Douglas	52.95	53.11	—
Douglas	53.70	55.30	—
Douglas	56.28	56.75	—
Douglas	60.11	60.61	—
Douglas	61.80	62.45	—
Douglas	64.90	65.80	—
Douglas	66.19	66.51	—
Douglas	67.53	69.63	—
Douglas	71.34	71.37	—
Douglas	71.55	71.81	—
Douglas	74.23	74.87	—
Douglas	75.52	75.82	—
Douglas	78.94	78.99	—
Douglas	79.19	79.53	—
Douglas	82.07	82.72	—
Douglas	85.68	85.95	—
Douglas	86.24	86.43	—
Douglas	88.66	88.68	—
Douglas	89.09	89.84	—
Douglas	99.18	99.28	—

Table 4.2-1 Unsurveyed Properties along Centerline

County	MP Start	MP Stop	Reason Unserved (to be updated in a subsequent draft of this resource report)
Douglas	99.32	99.58	—
Jackson	113.55	113.78	—
Jackson	120.12	120.29	—
Jackson	120.42	120.59	—
Jackson	129.55	129.83	—
Jackson	132.52	132.59	—
Jackson	133.49	133.70	—
Jackson	142.60	142.80	—
Jackson	147.40	147.69	—
Klamath	190.65	191.48	—
Klamath	191.86	192.67	—
Klamath	217.52	218.37	—
Klamath	218.09	218.37	—
Klamath	220.40	220.63	—

There are seven water crossings along the Proposed Route that will be constructed using horizontal and directional drill (“HDD”) or Direct Pipe® technology and have the potential for deeply buried cultural deposits or where cultural resources are present. These crossings include Coos Bay/North Slough, two areas at Haynes Inlet, Coos River, South Umpqua/I-5, Rogue River, and Klamath River.

Geoarchaeological investigations consisting of backhoe trenching at the HDD entry and exit points at two of these locations have been conducted. Deep testing near the South Umpqua River/I-5 crossing was conducted in 2013 (Ragsdale et al. 2013), although the pipeline alignment has changed somewhat since that time, and additional testing will be needed on the east side of the river. Deep testing was also completed at the Klamath River crossing (Derr et al. 2015). PCGP plans to conduct outstanding geoarchaeological investigations when access and permission to excavate trenches is granted.

The various other locations with the potential for deeply buried archaeological materials are either on small streams or on sloughs with little potential for substantial overbank deposits. Archaeological shovel probing at several of these locations did not encounter soils likely to contain deeply buried archaeological deposits, and deep testing does not appear appropriate at these locations. Archaeological monitoring in these locations should be conducted, however. Table 4.2-2 summarizes identified areas with the potential for buried archaeological deposits and the results of surveys and Phase II evaluations at these locations conducted to date. Corroboration of the associated cultural resources information can be found in Appendix B.4 (Bowden et al. 2009; Bowden et al. 2010; Ragsdale et al. 2013; Derr et al. 2017).

Table 4.2-2 Water Crossings along Proposed Pipeline Route with Potential for Buried Sites at Significant Depth

Alluvial System	Construction Method	Drainage Basin	Type of Survey and Testing*	Deepest Buried Deposits Encountered	Date Survey Completed	Date Phase II Completed	Date Deep Testing
Coos Bay/North Slough	HDD	North Slough	Pending	—	Pending	—	Pending
Haynes Inlet	HDD	Haynes Inlet	Pending	—	Pending	—	Pending
Coos River	HDD	Coos River	SPs/augered SPs (south of River only)	N/A	June 2015, Pending (north of river)	—	Pending
Catching Slough	Dry Open-Cut	Coos River	Walk-over and SPs	N/A	Oct. 2006	—	Not recommended
North Fork Coquille	Dry Open-Cut	Coquille River	SPs	20 cm (Phase I)	Oct. 2006	—	Not recommended
			SPs and EUs	60 cm (Phase I), 120 cm (Phase II)	Oct. 2006	Feb. 2016	
East Fork Coquille	Dry Open-Cut	Coquille River	SPs	55 cm (Phase I)	July 2006	—	Not recommended
Middle Fork Coquille	Dry Open-Cut	Coquille River	SPs	50 cm (Phase I)	June and Oct 2006	—	Not recommended
			SPs	Surface (Phase I)	June and Oct 2006	—	
			SPs	Surface (Phase I)	June and Oct 2006	—	
			SPs and EUs	60 cm (Phase I and II)	June and Oct 2006	Sept 2009	
			SPs and EUs	70 cm (Phase I and II)	Nov. 2008	Sept 2009	
			SPs	None	Nov. 2008	—	
Olalla Creek	Dry Open-Cut	Umpqua River	SPs and EUs	90 cm (Phase I and II)	July 2006	July 2009	Not recommended
			SPs and EUs	150 cm (Phase I and II)	July 2006	July 2009	
			SPs	40 cm (Phase I)	Aug 2006	—	
			SPs	25 cm (Phase I)	Aug 2006	—	
			SPs and EUs	80 cm (Phase I and II)	Aug 2006	July 2009	
Rice Creek	Dry Open-Cut	Umpqua River	SPs, pedestrian, and portions not surveyed as of 5/13	N/A	Completed portion Oct 2006	—	Not recommended
Willis Creek	Dry Open-Cut	Umpqua River	SPs	30 cm (Phase I)	July 2006	—	Not recommended
South Umpqua River/I-5	Direct Pipe	Umpqua River	SPs and pedestrian	N/A	Aug. 2013, June 2015	—	Aug. 2013/pending

Alluvial System	Construction Method	Drainage Basin	Type of Survey and Testing*	Deepest Buried Deposits Encountered	Date Survey Completed	Date Phase II Completed	Date Deep Testing
Bilger Creek	Dry Open-Cut	Umpqua River	SPs and pedestrian	N/A	June 2006	—	Not recommended
North Myrtle Creek	Dry Open-Cut	Umpqua River	SPs, pedestrian, and portions not surveyed as of 5/13	N/A	May and July 2006	—	Not recommended
South Myrtle Creek	Dry Open-Cut	Umpqua River	SPs and portions not surveyed as of 5/13	45 cm (Phase I)	Oct. 2006	—	Not recommended
South Umpqua River (at Milo)	Diverted Open-Cut	Umpqua River	SPs	60 cm (Phase I)	Nov. 2006		Not recommended
			SPs	60 cm (Phase I and II)	Nov. 2006	Oct 2010	
			SPs	50 cm (Phase I)	May 2007	—	
			SPs and EUs	140 cm (Phase I and II)	Nov 2006	July 2009	
West Fork Trail Creek	Dry Open-Cut	Rogue River	Pedestrian	N/A	July 2006	—	Not recommended
Rogue River	HDD	Rogue River	Pedestrian	N/A	June 2006	—	Pending
Indian Creek	Open cut	Rogue River	Pedestrian	N/A (Phase I)	Oct. 2006	—	Not recommended
Neil Creek	Open cut	Rogue River	SPs and EUs	60 cm (Phase I and II)	July 2006	Dec 2006/May 2016	Not recommended
			SPs and EUs	50 cm (Phase I and II)	Aug. 2006, additional survey in 2007	Nov 2009	
North Fork Little Butte	Dry Open-Cut	Rogue River	SPs and EUs	20 cm (Phase I and II)	Oct. 2008	Nov 2008	Not recommended
			SPs and EUs	60 cm (Phase I and II)	May 2007	Nov 2008	
Klamath River	HDD	Klamath River	SPs and EUs	30 cm (Phase I and II)	June 2006	Nov 2008	Sept. 2014
			Pedestrian	N/A	Aug. 2006	—	
			Pedestrian, also EUs by Davis and Ozbun (2011)	160 cm (Davis and Ozbun 2011)	August 2006	June 2011	
			SPs	100 cm (previous Phase I investigations)	July 2006	—	
Lost River	Dry Open-Cut	Klamath River	SPs	50 cm (Phase I)	July 2006	—	Not recommended
			SPs	30 cm (Phase I)	Oct 2006	—	

*SPs = shovel probes, EUs = excavation units

4.2.4.2 Work Spaces (TEWAs, UCSAs, Hydrostatic Discharge Sites)

For the purposes of this Resource Report 4, work spaces include the portions of TEWAs, UCSAs, and hydrostatic discharge sites that extend outside the 400-foot-wide pipeline corridor. Survey of these work spaces are presented in the 2009 survey report (Bowden et al. 2009) and the 2013, 2015, and 2017 addendum survey reports (Bowden et al. 2013; Ragsdale et al. 2013; and Derr et al. 2015, 2017). Table 4.2-3 identifies all unsurveyed work spaces (outside the 400-foot-wide pipeline corridor).

Table 4.2-3 Unsurveyed Work Spaces

Work Space*	County	Acres	Reason Unsurveyed (to be updated in a subsequent draft of this resource report)
TEWA 1.90-N	Coos	1.15	—
TEWA 1.94-N	Coos	7.84	—
TEWA 5.40-N	Coos	5.86	—
TEWA 10.80-N	Coos	0.05	—
TEWA 11.04-W	Coos	0.04	—
TEWA 11.14-W	Coos	0.31	—
TEWA 11.30-N	Coos	0.85	—
TEWA 11.90	Coos	0.52	—
TEWA 20.96-W	Coos	0.59	—
TEWA 22.59-W	Coos	0.06	—
TEWA 29.29	Coos	0.25	—
TEWA 38.92	Coos	0.19	—
TEWA 42.55-W	Coos	0.08	—
TEWA 50.20 Kinnan Lake	Douglas	0.21	—
TEWA 50.20 Lang Creek Reservoir	Douglas	0.02	—
TEWA 53.12-W	Douglas	0.04	—
TEWA 56.20-W	Douglas	0.36	—
TEWA 60.52-N	Douglas	0.03	—
TEWA 63.93-W	Douglas	0.21	—
TEWA 67.46-W	Douglas	0.06	—
TEWA 71.01-N	Douglas	0.22	—
TEWA 72.65	Douglas	0.51	—
TEWA 76.18-N	Douglas	0.46	—
TEWA 79.00 Big Lick Reservoir	Douglas	0.13	—
UCSA 79.45-W	Douglas	0.30	—
TEWA 94.69-W	Douglas	0.11	—
TEWA 121.95-W	Jackson	4.46	—
TEWA 122.62-W	Jackson	0.40	—
TEWA 127.30B	Jackson	0.06	—
122.50 Indian Lake Reservoir Water Source	Jackson	0.58	—

Table 4.2-3 Unsurveyed Work Spaces

Work Space*	County	Acres	Reason Unserved (to be updated in a subsequent draft of this resource report)
TEWA 133.28-W	Jackson	0.45	—
TEWA 140.85-W	Jackson	0.32	—
TEWA 140.98	Jackson	2.06	—
TEWA 144.00	Jackson	1.46	—
TEWA 145.05	Jackson	0.18	—
TEWA 145.15	Jackson	0.19	—
TEWA 146.40	Jackson	0.26	—
TEWA 146.70	Jackson	0.10	—
TEWA 146.81-N	Jackson	0.21	—
TEWA 168.85	Klamath	0.49	—
TEWA 184.30	Klamath	1.74	—
TEWA 189.00	Klamath	0.66	—
TEWA 214.59-W	Klamath	0.15	—
TEWA 219.69	Klamath	1.10	—
TEWA 221.88-W	Klamath	0.04	—
TEWA 221.95-W	Klamath	0.05	—
<i>*TEWA number indicates approximate milepost</i>			

4.2.4.3 Contractor and Pipe Storage Yards and Rock Source and Permanent Disposal Sites

HRA conducted a survey of contractor and pipe storage yards and rock source and permanent disposal sites in 2006–2007 (Bowden et al. 2009), 2013 (Bowden et al. 2013; Ragsdale et al. 2013), 2014–2015 (Derr et al. 2015), and 2016 (Derr et al. 2017). Survey has been completed at 26 pipe yards and 16 rock source and permanent disposal sites. Table 4.2-4 identifies all unsurveyed contractor and pipe storage yards and rock source and permanent disposal sites.

Table 4.2-4 Unsurveyed Contractor and Pipe Storage Yards and Rock Source and Permanent Disposal Sites

Yard/Rock Site	County	Section Township and Range	Acres	Reason Unserved (to be updated in a subsequent draft of this resource report)
North Spit Dock	Coos	Section 38, T25S, R13W	4.78	—
Menasha	Coos	Section 10, T25S, R13W	36.93	—
K2	Coos	Section 10, T25S, R13W	25.56	—
Brunell	Coos	Section 26, T25S, R13W	0.81	—
Millington 1	Coos	Section 12, T26S, R13W	28.4	—
Millington 2	Coos	Section 12, T26S, R13W	5.66	—
Coquille Yard	Coos	Section 1, T28S, R13W	1.81	—
Coquille Park	Coos	Section 1, T28S, R13W	17.54	—

Yard/Rock Site	County	Section Township and Range	Acres	Reason Unsurveyed (to be updated in a subsequent draft of this resource report)
Coquille Mill	Coos	Section 35, T27S, R13W	5.51	—
Winchester	Douglas	Section 24, T26S, R6W	1.06	—
Weaver Highway 99	Douglas	Section 7, T30S, R5W	0.82	—
Burrill Lumber	Jackson	Section 17, T36S, R1W	24.45	—
WC Short	Jackson	Section 17, T36S, R1W	8.3	—
Rogue Aggregates	Jackson	Section 20, T36S, R2W	16.2	—
Klamath Falls Memorial Drive 2/Bair	Klamath	Section 8, T39S, R9E	18.2	—
Klamath Falls Cross Road East	Klamath	Section 1, T40S, R9E	25.12	—
Klamath Falls Cross Road West (Stuckel) Rail Siding	Klamath	Section 1, T40S, R9E	0.55	—

4.2.4.4 Aboveground Facilities

Aboveground facilities include the Klamath Compressor Station at MP 228.81, three meter station locations (three interconnects: Jordan Cove Meter Station/MP 1.47R; Klamath-Beaver Meter Station [GTN]/MP 228.81; and Klamath-Eagle Meter Station [Ruby]/MP 228.81), five pig launcher/receiver units (co-located with other aboveground facilities), 17 mainline block valves spaced along the Proposed Route, and new communications towers and equipment buildings and usage of existing communications towers and equipment buildings along the Proposed Route (see Resource Report 1, Table 1.1-2). With the exception of the Klamath Compressor Station and new communication towers, all of these facilities are within the 400-foot-wide pipeline corridor and/or are co-located with other facilities, so their survey completion status is reflected in Sections 4.2.4.1 through 4.2.4.3.

The Klamath Compressor Station is at the Pipeline terminus, and the original construction footprint was surveyed in October of 2012 and is presented in the 2013 addendum survey report (Bowden et al. 2013). Changes to the construction plans now require cultural survey of an additional 10.4 acres at the compressor station location. Survey will be conducted in 2017.

The construction footprint of new communication towers will require cultural survey. Cultural survey will be completed once specific construction plans for the new communication towers are finalized and access to these locations is granted.

4.2.4.5 Access Roads

There are 560.47 miles of temporary and permanent access roads that are located outside the 400-foot-wide pipeline corridor and other elements of the Pipeline (e.g., TEWAs, yards, aboveground facilities). Of this, survey has been completed on

389.54 miles, and 95.76 miles are paved highway or paved municipal or county roads that will not be improved and will not need cultural survey. Survey needs to be conducted on a remaining 75.17 miles of access roads. Table 4.2-5 lists all access roads that still require survey, and the 2017 addendum survey report (Derr et al. 2017) lists all of the Pipeline access roads and survey results.

Table 4.2-5 Unsurveyed Access Roads

Milepost	Road	County	Reason Unserved (to be updated in a subsequent draft of this resource report)
5.6R	Private Logging Road	Coos	—
7.34R	Logging Rd	Coos	—
9.40R	Unknown Rd	Coos	—
9.94R	Unknown Rd	Coos	—
10.04	Private Rd	Coos	—
10.20R	Noah Butte Rd	Coos	—
10.20R	Unknown Rd	Coos	—
10.74	Private Rd to Woytus	Coos	—
10.96	Private Road	Coos	—
11.15	Cnty Rd 205 (West Catching Slough Rd)	Coos	—
11.41R	Private Rd	Coos	—
13.79	Logging Sp	Coos	—
14.23	Private Rd	Coos	—
19.24	Coos Co Sheep - Logging Rd	Coos	—
19.45 - 19.58	Powerline Access Rd	Coos	—
21.09	Logging Spur	Coos	—
21.98	Powerline Access (BLM 27-12-14.1)	Coos	—
25.31	Logging Sp	Coos	—
27.06	TAR-27.06	Coos	—
28.06	Yankee Run Mainline (BLM 28-11-20)	Coos	—
29.25	Logging Sp	Coos	—
29.32	Logging Sp	Coos	—
32.86	Logging Spur	Coos	—
32.94	Logging Spur	Coos	—
33.25	Unknown Rd	Coos	—
33.37	Logging Spur	Coos	—
34.69	Logging Rd	Coos	—
38.00	Private Rd	Coos	—
44.00	Signal Tree Lookout (BLM 29-9-33.4)	Coos	—
47.10	Holms Creek Spur (BLM 29-9-15.1)	Douglas	—
49.00	Private Rd	Douglas	—
49.8	Lang Creek Road	Douglas	—

Table 4.2-5 Unsurveyed Access Roads

Milepost	Road	County	Reason Unserved (to be updated in a subsequent draft of this resource report)
50.00	Private Rd	Douglas	—
52.16	Private Rd	Douglas	—
52.2	5-J Limited Private Rd	Douglas	—
52.62	Camas Mountain SP (BLM 29-8-9.3)	Douglas	—
53.03	Private logging road (Camas Mountain SP) (BLM 29-8-9.3)	Douglas	—
53.74	Logging Spur	Douglas	—
54.20	Shields Creek Spur (BLM 29-8-11/Private)	Douglas	—
54.21 - 54.35	Logging Spur	Douglas	—
54.64	Shields Creek Spur (BLM 29-8-2.2/Private)	Douglas	—
54.81 - 55.01	Seneca Logging Spur	Douglas	—
55.42	Logging Spur	Douglas	—
55.75	Unknown Logging Road	Douglas	—
56.06	Ireland Road	Douglas	—
56.20	Private Rd DG-039	Douglas	—
56.32	Private Rd DG-041	Douglas	—
57.10	Private Rd	Douglas	—
61.90	Nichols Rd	Douglas	—
61.90 - 62.44	John Clarke DG-075	Douglas	—
63.90	Private Rd	Douglas	—
64.90 - 65.35	Private Rd - DG-090.500	Douglas	—
65.60	Private Rd	Douglas	—
66.37 - 66.47	Private Rd - DG-099.000	Douglas	—
66.97	Private Rd	Douglas	—
68.07 - 68-39	Barton Private Rd	Douglas	—
68-59 - 68.88	Unknown Rd	Douglas	—
7.34R - 7.44R	Carlton Heights Rd	Douglas	—
74.32 – 75.11	Gow Ranch Private	Douglas	—
75.04 - 75.65	Bilger Creek Rd (BLM 29-5-11)	Douglas	—
75.80	Bilger Creek Spur (BLM 29-5-2.2)	Douglas	—
75.80 - 75.93	Private Rd - Logging Spur	Douglas	—
76.35	County Rd 103 (Bilger Creek)	Douglas	—
76.84	Unknown Rd	Douglas	—
77.07 - 77.12	Unknown Rd	Douglas	—
77.31	Unknown Rd	Douglas	—
77.61	Private Road (Davis, Wayne)	Douglas	—

Table 4.2-5 Unsurveyed Access Roads

Milepost	Road	County	Reason Unserved (to be updated in a subsequent draft of this resource report)
78.00	Private Rd to Big Lick Reservoir	Douglas	—
79.56	Starbuk Lane	Douglas	—
79.60	Powerline Access Rd	Douglas	—
81.68	Private Road (Sutch, Steve)	Douglas	—
82.23 - 82.42	Unknown Rd	Douglas	—
82.64	Unknown Rd	Douglas	—
84.05	Unknown Rd	Douglas	—
88.09	Private Rd	Douglas	—
88.93 – 89.07	Seneca Jones Private Rd	Douglas	—
89.10 - 89.28	Unknown Rd (BLM 29-3-31.3)	Douglas	—
89.27 - 89.50	Seneca Jones Private Rd 7 & 8	Douglas	—
89.50	Days Crk Sp (BLM 30-3-4.1)	Douglas	—
89.50	Days Crk Sp	Douglas	—
89.74 - 88.87	New Logging Spur	Douglas	—
90.85	Lavadoure Creek (BLM 30-3-2.2)	Douglas	—
92.29	St Johns Creek Spur 1	Douglas	—
92.36	St Johns Creek Spur 2	Douglas	—
92.8	Stinchfield Private Rd	Douglas	—
93.76 - 94.34	Maize Ts Rd (BLM 30-3-23.5)	Douglas	—
94.66	PAR --94.66	Douglas	—
97.95	E Fk Stouts Creek Spur (BLM 31-3-1)	Douglas	—
100.93	Unknown Rd	Douglas	—
103.79	C&D Lumber	Douglas	—
103.95	FS 3230137	Douglas	—
104.14	FS 3230136	Douglas	—
UNK	Sheep Hill MW Comm Site	Douglas	—
UNK	N King Mtn (BLM 32-4-33)	Douglas	—
UNK	Starveout Crk (BLM 32-4-20)	Douglas/ Jackson	—
113.66	BLM 32-1-31.3	Jackson	—
120.45	Unknown Rd	Jackson	—
120.55	Canyon Creek Spur	Jackson	—
120.55	Loper Ln	Jackson	—
120.85 - 120.91	Private Rd	Jackson	—
121.80	Unknown Rd	Jackson	—
122.58	Old Trail Creek Rd.	Jackson	—
122.99	2500-3013 Old Ferry Rd	Jackson	—
123.08	Old Ferry (BLM 34-1-10)	Jackson	—

Table 4.2-5 Unsurveyed Access Roads

Milepost	Road	County	Reason Unserved (to be updated in a subsequent draft of this resource report)
124.00	Flounce Rock Comm Site (BLM 32-2E-34)	Jackson	—
127.30	Indian Creek Firebreak (BLM 34-1-23)	Jackson	—
127.30	Indian view (BLM 34-1E-20)	Jackson	—
127.30	Kleeman Re-Route Road	Jackson	—
127.30	Indian Creek Firebreak (BLM 34-1-23)	Jackson	—
129.00	Indian Lake Reservoir Access	Jackson	—
129.67	Unknown Rd	Jackson	—
133.38	Unknown Rd	Jackson	—
133.47	Medford Aqueduct Access Rd (BLM 34-1E-35)	Jackson	—
134.27	Unknown Rd	Jackson	—
136.13	Unknown Rd	Jackson	—
138.08	Terbeck Existing Access	Jackson	—
138.63	Unknown Rd	Jackson	—
140.67	Hanscom Driveway (BLM 35-2E-33)	Jackson	—
140.67	Salt Over Rd (BLM 36-2E-7.1)	Jackson	—
140.67	Unknown Rd	Jackson	—
141.1	TAR-141.10	Jackson	—
143.64	Unknown Rd	Jackson	—
144.06	Unknown Rd	Jackson	—
145.15	Salt Creek Rd (Gardner Road) (BLM 36-2E-19)	Jackson	—
145.38	Private Rd	Jackson	—
147.00	Private Rd	Jackson	—
147.76 - 148.00	Unknown Rd	Jackson	—
148.00	Private Rd	Jackson	—
157.40	FS-2815320	Jackson	—
157.55	FS 157.55	Jackson	—
161.41	Scotch Rd (FS 100)	Jackson	—
162.02	FS 3705080 (Decommissioned)	Jackson	—
189.90	Old Wagon Road	Klamath	—
199.05	Unknown Industrial Rd	Klamath	—
204.32	Road on Levee (BOR 736)	Klamath	—
204.99	Existing Farm Rd (BOR 738)	Klamath	—
205.07	Existing Field/Canal Rd (BOR 738)	Klamath	—
205.39	Existing Field Rd (BOR 739)	Klamath	—
209.00	Stukel Mountain Comm Site	Klamath	—

Table 4.2-5 Unsurveyed Access Roads

Milepost	Road	County	Reason Unserved (to be updated in a subsequent draft of this resource report)
214.05	Road on Levee	Klamath	—
214.70	Private Rd (BOR 747)	Klamath	—
218.84	Pope Rd	Klamath	—
226.40	Unknown Rd	Klamath	—
226.70	Unknown Rd	Klamath	—
226.74	Unknown Rd	Klamath	—
227.77	Unknown Rd	Klamath	—

4.2.4.5 Indirect Effects APE Survey Locations

In addition to the direct effects APE locations discussed above in Sections 4.2.4.1 through 4.2.4.5, HRA identified 18 locations that have potential to convey indirect effects from viewshed changes related to the Pipeline. Of these locations, only five are recommended for survey because, from a desktop analysis, they appear to contain buildings or structures that may be 50-years of age or older. Survey has not yet been conducted at these locations (Table 4.2-6). All other indirect effects APE locations either have no potential to affect historic-period resources because no resources appear to be present, or historic-period resources are entrenched within a modern viewshed. Further details about all indirect effects APE locations are presented in Derr et al. (2017).

Table 4.2-6 Unserved Indirect Effects APE Locations

Location	Milepost	County	Acres	Reason Unserved (to be updated in a subsequent draft of this resource report)
East of Haynes Inlet	5.5R	Coos	5.9	—
Kentuck Slough West	6.3R	Coos	5.2	—
13674 Sitkum Ln., Myrtle Point	29.5	Coos	2.10	—
Near Dora Cemetery	29.5	Coos	3.05	—
2378 Upper Camas Rd., Camas Valley	49.5	Douglas	4.60	—

4.2.5 Resource Descriptions

Cultural resource investigations resulted in the identification of 129 cultural resources (excluding archaeological isolates) that are within the APE (Appendix D.4). Of these resources, 81 require some form of additional investigation or planning and are discussed in more detail in Section 4.2.5.1 (Resources Requiring Additional Work). The remaining 48 resources require no additional investigations either because they have been determined not eligible for the NRHP or they will not be adversely affected and require no additional investigation or avoidance planning (Table 4.2-7). Appendix D.4

contains details regarding the location, NRHP eligibility status, and management recommendation for each resource within the APE.⁴

The cultural resources survey also resulted in the identification of 152 isolated finds, (Bowden et al. 2009, 2013; Ragsdale et al. 2013; Derr et al. 2015, 2017). None of the isolates are eligible for the NRHP and no avoidance or protection measures are needed. However, archaeological construction monitoring will target these locations, and monitors will be instructed to pay close attention for additional archaeological materials in these locations.

Table 4.2-7 NRHP-Eligible and NRHP-Eligibility Undetermined Resources Requiring No Further Work

Resource	Ownership/ Administration	NRHP-Status	Effect
35DO435	BLM-Roseburg District	Unevaluated	No further work needed. Site is adjacent to improved road and will not be affected by the Pipeline
35DO664	Private	Unevaluated	No further work. Survey conducted and resource not found (Ragsdale et al. 2013). This is a "tickler" location on SHPO map and no site form or narrative is available.
35DO1045	Private	Not eligible	No effect
35DO1067	Private	Treat as eligible	No adverse effect. Outside of APE
35DO1069	Private	Not eligible	No effect
35DO1094	Private	Not eligible	No effect
35DO1099	Private	Not eligible	No effect
35DO1100	Private	Not eligible	No effect
35DO1101	Private	Not eligible	No effect
35DO1109	BLM-Roseburg District	Not eligible	No effect
35DO1111	BLM-Roseburg District	Not eligible	No effect
35DO1112	BLM-Roseburg District	Not eligible	No effect
35DO1113	BLM-Roseburg District	Not eligible	No effect
35DO1135	BLM-Roseburg District	Not eligible	No effect
35DO1136	BLM-Roseburg District	Not eligible	No effect
35DO1284	USFS - Umpqua National Forest	Not eligible	No effect
35DO1494	BLM-Roseburg District	Not eligible	No effect
35DO1496	Douglas County	Unevaluated	No further work needed. Site is adjacent to improved road and will not be affected by the Pipeline.

⁴ This appendix contains information on the location, character, and ownership of cultural resources and was filed in the Secretary's non-public file.

Resource	Ownership/ Administration	NRHP-Status	Effect
35DO1497	Private	Unevaluated	No further work needed. Site is adjacent to improved road and will not be affected by the Pipeline.
35DO1516	BLM-Roseburg District	Unevaluated	No additional work required. Outside APE on access road that will not be improved
35DO1517	BLM-Roseburg District	Unevaluated	No additional work required. Road has already been improved and site will not be impacted
35DO1518	BLM-Roseburg District	Unevaluated	No additional work required. Outside APE on access road that will not be improved
35DO1539	BLM-Roseburg District	Unevaluated	No further work needed. Site is adjacent to improved road and will not be affected by the Pipeline.
35DO1540	BLM-Roseburg District	Unevaluated	No further work needed. Site is adjacent to improved road and will not be affected by the Pipeline.
35DO1541	BLM-Roseburg District	Unevaluated	No further work needed. Site is adjacent to improved road and will not be affected by the Pipeline
35JA674	Private	Treat as eligible	No adverse effect. Outside of APE
35JA739	BLM-Medford District	Not eligible	No effect
35JA753	Private	Not eligible	No effect
35JA758	USFS - Umpqua National Forest	Not eligible	No effect
35JA933	BLM-Medford District	Not eligible	No effect
35KL2796	Private	Not eligible	No effect
35KL2797	Private	Not eligible	No effect
35KL2800	Private	Not eligible	No effect
35KL2848	Private	Not eligible	No effect
35KL3037	Private	Not eligible	No effect
35KL3038	Private	Not eligible	No effect
35KL3039	Private	Not eligible	No effect
35KL3040	BLM - Klamath Falls Resource Area	Not eligible	No effect
35KL3042	Private	Not eligible	No effect
35KL3043	Private	Not eligible	No effect
35KL3047	Private	Not eligible	No effect
35KL3052	Private	Not eligible	No effect
35KL3054	Public: City of Malin/Klamath County	Not eligible	No effect
35KL3055	Private	Not eligible	No effect
35KL3056	Private	Not eligible	No effect
35KL3057	BLM - Klamath	Unevaluated	Outside APE. No further work.

Resource	Ownership/ Administration	NRHP-Status	Effect
	Falls Resource Area		
Terry Property	Private	Not eligible	No effect
Waechter House	Private	Not eligible	No effect

4.2.5.1 Resources Requiring Additional Work

There are 81 resources within the APE that will require additional work, including 17 NRHP-*eligible* resources that are not avoidable and will likely require mitigation; 27 NRHP-*eligibility undetermined* resources that may be adversely affected (if found eligible) and need Phase II testing to determine their eligibility; 14 NRHP-*eligibility undetermined* resources that need additional consultation, survey, and/or documentation; and 23 NRHP-*eligible* or -*eligibility undetermined* resources that are avoidable but need an avoidance and protection plan.

The 17 unavoidable NRHP-*eligible* resources (“historic properties”) (Table 4.2-8) are all situated within the construction right-of-way. They will likely require mitigation in the form of archaeological data recovery. Treatment plans for these sites were developed under the previous MOA.

Table 4.2-8 NRHP-Eligible Resources Requiring Mitigation

Resource	Ownership/Administration
35DO313	Private
35DO1052	Private
35DO1053	Private
35DO1058	Private
35DO1070	Private
35DO1074	Private
35DO1075	Private
35DO1092	Private
35DO1104	Private/BLM, Roseburg District
35DO1105	BLM, Roseburg District
35DO1106	BLM, Roseburg District
35DO1110	BLM, Roseburg District
35DO1117	BLM, Roseburg District
35JA740	Private
35JA741	Private
35JA742	Private
35JA752	Private

The 27 NRHP-*eligibility undetermined* resources that need Phase II testing to assess their eligibility (Table 4.2-9) are situated on or partially on the pipeline centerline, within a TEWA, or along an access road. If found eligible, avoidance or minimization of effects may be possible at any resources which are not centered on the centerline or access roads, but the remaining resources would likely require mitigation. Note that Table 4.2-8 includes three resources (35CS226, 35JA670/684, and 35JA932) for which Phase II investigations were undertaken on private land in 2016. The results of these investigations are presented in the 2017 addendum survey report (Derr et al. 2017), and the NRHP recommendations are awaiting concurrence from the SHPO.

Table 4.2-9 NRHP-Eligibility Undetermined Resources Requiring Phase II Evaluation

Resource	Ownership/Administration
35CS223	Private
35CS225	Private
35CS226	Private
35CS228	BLM, Coos Bay
35DO1051	Private
35DO1054	Private
35DO1068	Private
35DO1093	Private
35DO1095	Private
35DO1096	Private
35DO1103	Private
35DO1116	Private
35DO1119	Private
35DO1495	Private
35JA670/684	Private
35JA675	Private
35JA676	Private
35JA680	Private
35JA686	BLM, Medford District
35JA688	Private
35JA932	Private/BLM, Medford District
35JA934	Private
35KL3046	Private
35KL3610	Private
35KL4330	Private
HRA-1227-704	BLM, Medford District
HRA-1227-726	Private

The 14 NRHP-*eligibility undetermined* resources that need additional consultation, survey, and/or documentation are depicted in Table 4.2-10. Most of these resources need additional survey to determine their locations in relationship to the Pipeline or to gather sufficient information for documentation purposes. Several need consultation to determine eligibility or potential effects. Outstanding survey will be conducted when landowner permission is granted.

Table 4.2-10 NRHP-Eligibility Undetermined Resources Requiring Additional Survey, Agency Communication, or Documentation

Resource	Ownership/Administration
35CS313	Private
35DO314	Private
35JA685	Private
35JA682	BLM, Medford District

35LK1459	Private
35KL1941	Private
35KL2425	Private
35KL2888	BLM, Klamath Falls Resource Area
35KL3264	Private
35KL3281	Private
Historic burial area	Private
Medford Aqueduct	Private
North Hanley Ditch	Private
South Hanley Ditch	Private

The 23 NRHP-*eligible* or NRHP-*eligibility undetermined* resources within or abutting the APE for which avoidance and protection plans have been requested are listed in Table 4.2-11. No further archaeological investigations are necessary at any of these resources. Rather, for most, an archaeologist would mark their boundaries with appropriate fencing and then monitor construction to ensure that they are not affected. Should archaeological materials be identified during construction, the UDP (Appendix E.4) will be followed. Resource-specific avoidance or protection measures will be located in the HPMP.

Table 4.2-11 NRHP-Eligible or NRHP-Eligibility Undetermined Resources Requiring Avoidance and Protection Plans

Resource	Ownership/Administration
35CS125	Private
35DO1055	Private
35DO1056	Private
35DO1057	Private
35DO1059	Private
35DO1091	Private
35DO1102	Private
35DO1107	USFS, Umpqua National Forest
35DO1071	BLM, Roseburg District
35DO1426	USFS, Umpqua National Forest
35DO1519	Private
35JA681	Private
35JA790	Private /BLM, Medford District
35KL1458	Private
35KL2831	Private
35KL3041	Private
35KL3051	Private
35KL4323	Private
Dora Cemetery	Private
Noah Cemetery	Private
HRA-206 (Columbia Forest Products)	Private
HRA-1227-723	Private
HRA-1227-730	Private

4.2.6 Outstanding Cultural Resources Studies and Scheduling

As discussed in Section 4.2.4.1, approximately 22 miles of the Proposed Route has not been surveyed. Much of this unsurveyed mileage is due to lack of landowner permission or various difficulties in completing the survey; there are also some unsurveyed

segments that represent changes that have only recently been incorporated into the Proposed Route. All unsurveyed areas will need to be surveyed for cultural resources once access is obtained and prior to construction. Other outstanding survey includes the deep testing needs discussed in Section 4.2.4.1 and included in Table 4.2-2, as well as the five indirect effects APE locations listed in Table 4.2-6. All accessible areas for which landowner permission is obtained will be surveyed in 2017-2018. Remaining areas that cannot be surveyed due to lack of landowner permission will be surveyed prior to construction, once access has been secured.

As discussed in Section 4.2.5.1, there are 27 resources that need Phase II evaluations and 14 resources that need additional consultation, survey, and/or documentation. Resources requiring consultation and/or research will be addressed in 2017. Outstanding fieldwork investigations will be conducted once access can be obtained and before construction. Should any of these 41 resources be determined eligible for the NRHP, effects on them from the Pipeline must then be assessed. All Phase II evaluation studies will be conducted, and effects assessed, prior to Pipeline construction. PCGP anticipates that these studies will be completed in 2017-2018.

For some historic properties, adverse effects cannot be avoided by reroutes or adequately minimized through monitoring or alternative construction techniques. Where these adverse effects are unavoidable, mitigation in the form of archaeological data recovery will likely be necessary for these resources. Thus far, treatments plans have been drafted for the known 17 historic properties that will be adversely affected by the Pipeline. These treatment plans were approved by the SHPO and appropriate federal agencies under the previous MOA. Data recovery will commence following receipt of a certificate for the Pipeline but prior to construction. PCGP estimates that this will occur in 2019-2020 but may begin as soon as 2018. Should additional survey and Phase II evaluations result in the identification of additional historic properties that will be adversely affected, mitigation plans for each of those resources will be needed and will be subject to approval from FERC, appropriate tribe(s), federal agencies, and the SHPO. Such plans typically allow construction to begin in the vicinity of the resource once the archaeological field investigations have been completed, but prior to completion of all reporting and artifact curation.

Appropriate consultation and communications will be completed prior to construction of any portion of the Pipeline with the potential to affect historic properties. This consultation will determine how to avoid, minimize, or mitigate for adverse effects to all historic properties potentially affected by the Pipeline. A draft Avoidance and Protection Plan is included as part of the draft HPMP, based on known and anticipated effects to historic properties. This plan along with the draft UDP will need to be updated in consultation with the SHPO, federal agencies, and through communication with appropriate tribe(s) once additional cultural resources investigations are completed and prior to construction of any portion of the Pipeline potentially affecting historic properties. The HPMP will be updated to include site-specific avoidance and protection plans following completion of all surveys, but prior to construction. Treatment plans for all resources determined eligible for the NRHP will also be referenced in the updated HPMP. The draft UDP is an appendix to the HPMP, but is also included with this Resource Report 4 as Appendix E.4.

Finally, cultural resource monitoring of construction by qualified archaeologists and tribal representatives will likely be necessary where the probability of encountering unidentified cultural resources is high, where isolated finds and/or sites determined not

eligible for the NRHP were identified during the survey, and/or where archaeological data recovery has been completed but the potential for additional features may be high.

As previously mentioned, PCGP is in the process of contacting landowners and securing permits to conduct any cultural resources surveys on accessible properties during 2017-2018. The status of completion of those surveys and any new resources identified will be addressed once these investigations are completed. PCGP will continue to attempt to secure access to properties requiring survey and to archaeological sites requiring Phase II NRHP evaluation, documenting to FERC which properties and sites were not accessible. PCGP will ensure that all remaining cultural resources investigations as identified in the HPMP are completed prior to construction of the Pipeline.

Appendix A.4
Communications with Public Agencies and Federally Recognized
Indian Tribes

Contains Privileged Information – Do Not Release (CUI//PRIV)

**Appendix B.4
Cultural Resources Survey and Evaluation Reports**

Contains Privileged Information – Do Not Release (CUI//PRIV)

(to be included in a subsequent draft of this resource report)

Appendix C.4
Maps Showing the Locations of Cultural Resources Survey to Date

Appendix D.4
Cultural Resources Survey Results and Resources Table
Contains Privileged Information – Do Not Release (CUI//PRIV)
(to be included in a subsequent draft of this resource report)

Appendix E.4 Unanticipated Discovery Plan