PACIFICORP ENERGY
A DIVISION OF PACIFICORP

Historic Structures Plan

North Umpqua Hydroelectric Project (FERC Project No. 1927)

Prepared in Collaboration with:

PacifiCorp Energy

Oregon State Historic Preservation Office

EDAW, Seattle, WA

March 2008

North Umpqua Hydroelectric Project
FERC Project No. 1927

HISTORIC STRUCTURES PLAN

(A component of the Historic Properties Management Plan)

March 2008

Prepared by
EDAW, Inc.
Seattle, Washington

TABLE OF CONTENTS

APPENDICES

FIGURES

TABLES

Acronyms & Abbreviations

ADA	Americans with Disabilities Act
APE	Area of Potential Effects
CFR	Code of Federal Regulations
CRC	Cultural Resource Coordinator
FERC	Federal Energy Regulatory Commission
FTR	Final Technical Report
GSA	General Services Administration
HABS/HAER	Historic American Buildings Survey/Historic American Engineering Record
HPMP	Historic Properties Management Plan
HSP	Historic Structures Plan
I&M	Industry & Manufacturing
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places (also, National Register)
OSMA	Oregon State Museum of Anthropology
PacifiCorp	PacifiCorp Energy
Project	North Umpqua Hydroelectric Project
RCP	Resource Coordination Plan
SHPO	State Historic Preservation Office
USDA-FS	U.S. Department of Agriculture, Forest Service
USDI	United States Department of the Interior
USDI-BLM	U.S. Department of the Interior, Bureau of Land Management

This Page Intentionally Left Blank

1.0 INTRODUCTION

1.1 Purpose and Intent

This Historic Structures Plan (HSP) is an Exhibit to the Historic Properties Management Plan (HPMP) (PacifiCorp 2006a) and provides detailed information on the implementation of one of the programs identified in the separately bound HPMP – the Historic Structures Program. The HSP provides several key preservation functions for PacifiCorp Energy (PacifiCorp), and the document is intended for use by PacifiCorp and the Oregon State Historic Preservation Office (SHPO). First, the HSP serves as a guide for maintenance and preservation activities associated with historic structures on the North Umpqua Hydroelectric Project (Project) as required by the Federal Energy Regulatory Commission (FERC), the National Historic Preservation Act (NHPA), and the terms of License Article 414 of the 35-year FERC license issued to PacifiCorp in 2003. Historic structures are resources that could include buildings, structures, districts, sites, or other objects associated with or that convey some aspect of American history, architecture, engineering, and/or culture (USDI 2007).

The HSP is unique to the HPMP in that it is a dynamic framework for the collection of the original and evolving history of the Project facilities. This document is unique in its "notebook"-type format, intended to encourage resource managers and users to gather information on the running history of ongoing maintenance and/or changes to historic structures on Project lands.

For specific policies, goals, and general direction for the management of historic properties, such as regulatory guidance, Project background, description of the Project's Area of Potential Effects (APE), and procedures for the implementation of all historic property programs, please refer to the HPMP.

1.2 Background

PacifiCorp is the operator of the Project (FERC Project No. 1927), located in southwestern Oregon on the west side of the Cascade Mountains in Douglas County, Oregon about 60 miles east of Roseburg. The Project is located on PacifiCorp property, public lands managed primarily by the USDA Forest Service (USDA-FS) and some areas of USDI Bureau of Land Management (USDI-BLM), as well as limited areas of private properties.

PacifiCorp developed the HPMP as required by FERC. The HPMP was prepared in collaboration with PacifiCorp, USDA-FS, USDI-BLM, and the Oregon SHPO, and provides consideration of management of effects on historic properties within the

Project's APE throughout the term of the license. The HPMP provides the framework policies and direction for management of historic properties and includes a user's guide, management goals and principles, regulatory guidance, Project background, description of the APE, and procedures for implementation of all historic property programs.

As an Exhibit to the HPMP, the HSP has been prepared in accordance with FERC *Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects* (FERC 2002).

1.3 Overview of Historic Structures Program

The HPMP Historic Structures Program identifies the policies and decision-making process to comply with the NHPA Section 106 review; the HSP provides the baseline information on historic structures necessary to support these decisions.

The HPMP Historic Structures Program is a dynamic program intended to provide PacifiCorp staff and other parties with specific determination procedures for identifying the appropriate level of review for PacifiCorp activities and rehabilitation requirements. The major tenets of this program include:

- Identification of PacifiCorp activities that comply with Section 106 of the NHPA without SHPO review;
- The review process for PacifiCorp activities that require SHPO review;
- Procedures for SHPO review;
- Rehabilitation treatment standards for the Project; and
- Reporting requirements.

As an Exhibit to the HPMP, this document provides the information necessary for the Historic Structures Program to work effectively. The following elements, described in detail within, are keystones of the Historic Structures Program and the review of PacifiCorp activities:

1. Sensitivity of historic buildings and structures (Chapter 2).
2. List of PacifiCorp activities and their potential effects (Chapter 3).
3. Standardized protocol for project activity review and preservation (Chapters 4 -6).

1.4 Capturing the Project's Evolving History

For many years, the chief historical source for architectural and engineering resources at the Project has been derived from the 1977 book *Toketee*, written by John Christie Boyle, the Chief Engineer of the North Umpqua Hydroelectric Project (refer to Appendix A for this account). The J.C. Boyle book, as it is commonly referred,

provides the best understanding of how the North Umpqua Hydroelectric Project came to be up unto the late 1950s when the majority of Project facilities had been constructed. Since that time, several additional cultural and historic resource studies and forms have been prepared primarily for regulatory purposes.

Of all the documented history on the Project that has been gathered to date, this HSP references the J.C. Boyle book and data provided in the Cultural Resources Final Technical Report (FTR) for the Project (PacifiCorp 1994a) (Volume 35 of the License Application). The FTR, prepared as part of the application for the current license, provides detailed context statements for historic properties, including archaeological sites, historic buildings and structures, and traditional cultural properties and adds to the evolving collection of historic information on Project facilities (refer to Appendix B for a summary of Project development history and the Oregon Inventory of Historic Properties Historic Resource Survey Forms prepared as part of the FTR).

While this HSP provides an up-to-date summary of the historical background and nature of Project facilities, there has been nothing written to date that answers critical questions that PacifiCorp must address in order to guide the preservation of the Project into the 21st Century, such as:

> *What period of history are we trying to preserve? Do we hold fast to the character of the late 1940s and 1950s, or can the history of the Project evolve as a state-of-the art hydroelectric power facility grounded in technological modernizations of the current times?*

In response to these important questions, PacifiCorp has set the stage within this HSP to do both – rehabilitate historic support structures where possible in their original state, and provide enough flexibility for major modernizations to operational facilities to occur. For example, historic employee housing and camp facilities within the Toketee Village should be rehabilitated to serve both the intended administrative or residential use while still preserving the historical character of the Project in its original timeframe. At the same time, standards have been set to allow mandated changes to safety and security or technological advances of power generating facilities to occur with less stringent oversight. By proceeding in this manner and documenting the changes that occur to Project facilities in a central location, PacifiCorp intends that this HSP will serve to preserve its past while allowing Project history to evolve through the implementation of major undertakings to Project infrastructure driven by current regulatory and technological environments.

This Page Intentionally Left Blank

2.0 INVENTORY OF STRUCTURES WITHIN THE PROJECT BOUNDARY

2.1 Inventory of Historic Developments

PacifiCorp commissioned the Oregon State Museum of Anthropology (OSMA) at the University of Oregon to conduct a survey in 1993 to assess the historic significance of all Project structures on Project lands (PacifiCorp 1994). The survey identified 12 historic "developments," or groups of associated structures, owned and operated by PacifiCorp (refer to Figure 2.1-1). These include eight hydroelectric power generation facilities (e.g., dams and powerhouses), a transmission line system, and support buildings (including employee housing and administration buildings). Each development met NHPA criteria for historical significance due to its association with the growth and expansion of the Project, which was of major importance to Douglas County history in the decades immediately following World War II.

The local context of the 12 Project developments plays a major role in understanding their relative historical significance. OSMA applied a thematic approach to the survey and inventory process, where nine historic themes cover the general chronological periods of the State beginning with "Exploration" and continuing through the "Contemporary Era." The 12 Project developments are associated with the "Industry and Manufacturing" (I & M) era following World War II. Table 2.1-1 identifies each development and the original date of construction.

Each development listed above has been determined to be historically significant by the Oregon SHPO based on its association with the expansion of the Project after World War II. The employee housing and maintenance structures are also considered historically significant due to their supporting relationship to the original establishment of the Project.

Table 2.1-1. Historic PacifiCorp Developments

PacifiCorp Development	Structure Types	Original Construction Dates*
INDUSTRY & MANUFACTURING		
1. Toketee Development	Hydroelectric Facilities	1947-1949
2. Slide Creek Development	Hydroelectric Facilities	1950-1951
3. Soda Springs Development	Hydroelectric Facilities	1951-1952
4. Fish Creek Development	Hydroelectric Facilities	1950-1951
5. Clearwater No. 1 Development	Hydroelectric Facilities	1951-1953
6. Clearwater No. 2 Development	Hydroelectric Facilities	1951-1953
7. Lemolo No. 1 Development	Hydroelectric Facilities	1953-1955
8. Lemolo No. 2 Development	Hydroelectric Facilities	1953-1956
9. Toketee Village*	Employee Housing	1948-2004
10. Clearwater Village	Employee Housing	1958-1993
11. Clearwater Maintenance Shop & Guest House	Temporary Camp facilities & Guest House	1946-1960
12. Transmission Lines	Hydroelectric Facilities	1949+

Note: Additions to facilities have occurred over time. *Denotes historic district.
Source: Final Technical Report for Cultural Resources, PacifiCorp 1994a.

2.2 Historic District

The Toketee Village development has been designated as an historic "district" by the SHPO and PacifiCorp. Unlike a development, which contains a group of buildings in a general area, an historic district is an area of contiguous properties that comprise an historic setting delineated by geographic boundaries. According to the National Park Service (NPS), a "district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development." Toketee Village is not officially listed in the National Register of Historic Places (NRHP, or National Register), although it is eligible for inclusion.

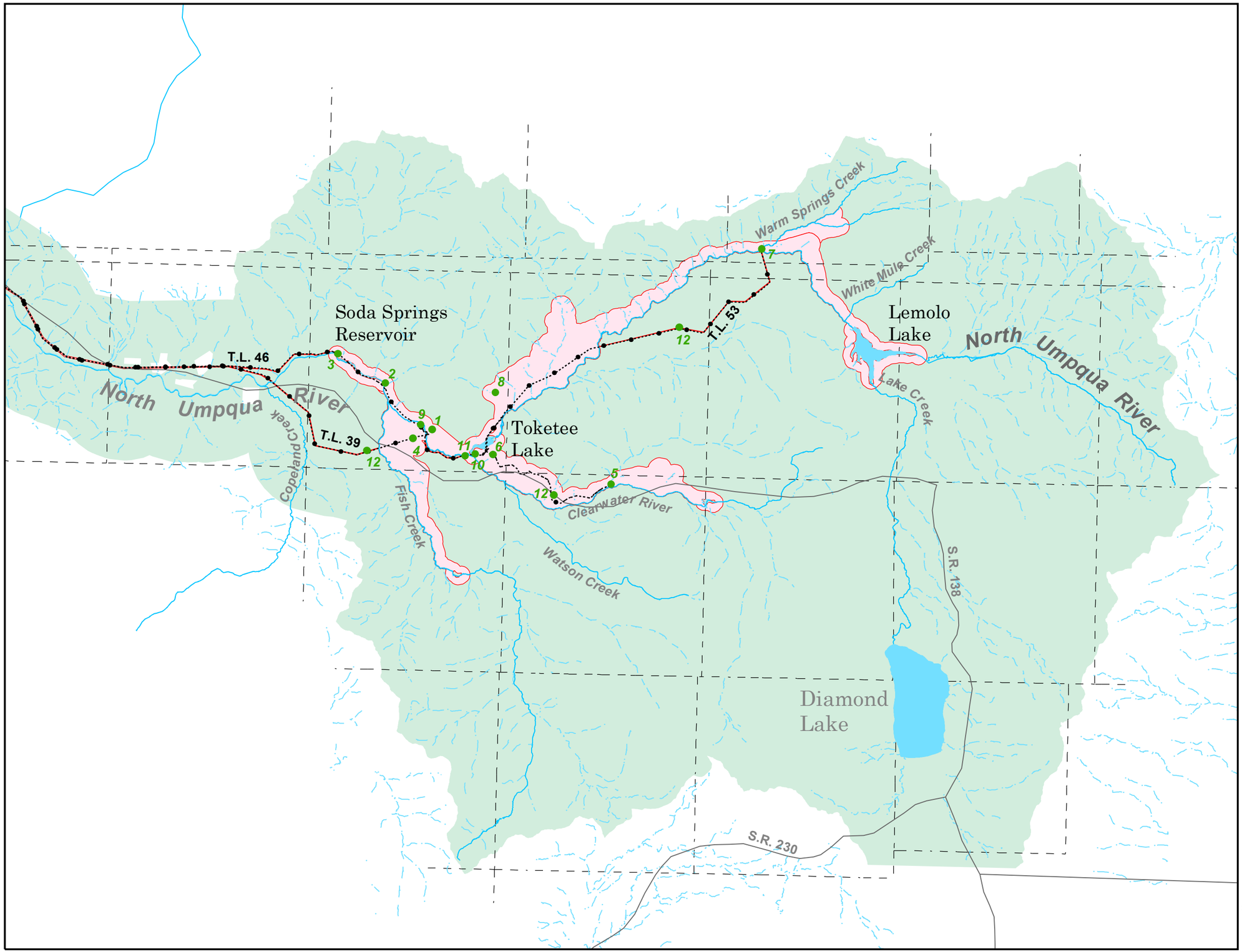
A boundary has been established around Toketee Village to delineate the limits of the historic setting (refer to Figure 2.2-1). The district defines an area within which any new construction or modifications to existing structures must carefully consider and preserve the historic character of the setting. The following section provides detailed information about the facilities and structures located within the historic district, as well as all PacifiCorp developments.

North Umpqua Hydroelectric Project

PACIFICORP ENERGY

Geographic Information Systems

Figure 2.1-1 Historic Buildings and Structures



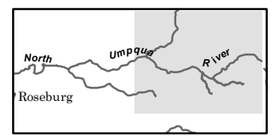
Legend

- Project Vicinity
- USDA USFS
- USDI BLM
- Private Ownership
- Transmission Lines
- Township/Range Line

Inventory of Historic Developments

1 Toketee Development
2 Slide Creek Development
3 Soda Springs Development
4 Fish Creek Development
5 Clearwater No. 1 Development
6 Clearwater No. 2 Development
7 Lemolo No. 1 Development
8 Lemolo No. 2 Development
9 Toketee Village *
10 Clearwater Village
11 Clearwater Operations Center & Guest House *
12 Transmission Line

* Denotes an Historic District



Miles
0 1 2 4 6 8

Scale 1:180,000

Map prepared by: VESTRA Resources, Redding, CA February 6, 2007 Projection: UTM Zone 10 NAD 83

This Page Intentionally Left Blank

P:\2005\ 05100004_06\Documents\2006 HPMP\Graphics\HPMP\Figures\AI Files

North Umpqua Hydroelectric Project

Figure 2.2-1
Toketee Village Historic District

Legend

- Historic District Boundary
- Transmission Line 42
- Internal Road System

Historic Structures

- Employee Housing/ Residence No. and Ancillary Structure (Garage/Shed)

Non-Historic Structures

- Non-Historic Administrative Buildings

This Page Intentionally Left Blank

2.3 Inventory of Historic and Non-Historic Buildings and Structures

PacifiCorp developments are considered historic due to the integrity of the facilities and historical importance to the area. However, each development is comprised of numerous structures. Individually, many structures are considered historic due to their age, integrity, and their architectural or engineering significance, while others are newer, non-historic structures by themselves. Table 2.3-1 identifies each structure within the developments, its historic status, and original date of construction. It should be noted that the historic structures identified may or may not have architectural or engineering significance; rather, their historical significance is derived from its association "...with events that have made a significant contribution to the broad patterns of our history" (CFR 36:60).

Table 2.3-1. Historic and Non-Historic Structures within PacifiCorp Developments

Historic Structures	Construction Date	Non-Historic Structures	Construction Date
1. Toketee Development			
Dam	1949	None	NA
Waterways	1949		
Penstock and Surge Chamber	1949		
Powerhouse	1949		
Switchyard	1949		
Substation	1949		
2. Slide Creek Development			
Dam	1950	Employee Residence #7278	1989
Waterways	1950	Employee Residence #7279*	1957
Penstock	1951		
Powerhouse	1951		
Substation	1951		
3. Soda Springs Development			
Dam	1952	None	NA
Waterways	1952		
Penstock and Surge Chamber	1952		
Substation	1952		
4. Fish Creek Development			
Waterways	1952	Dam (rebuilt)	1989
Forebay (including gate house)	1952		
Penstock	1952		
Powerhouse	1952		
Substation	1952		

Table 2.3-1. Historic and Non-Historic Structures within PacifiCorp Developments

Historic Structures	Construction Date	Non-Historic Structures	Construction Date
5. Clearwater No. 1 Development			
Dam	1953	Employee Residence #7232	1979
Waterways	1953	Detached woodshed**	1953
Forebay (including gate house)	1953		
Penstock	1953		
Powerhouse	1953		
Substation	1953		
6. Clearwater No. 2 Development			
Dam	1953	None	NA
Waterways	1953		
Forebay (including gate house)	1953		
Penstock	1953		
Powerhouse	1953		
Substation	1953		
Switchyard	1953		
7. Lemolo No. 1 Development			
Dam (including gate house)	1955	Operations Center	1995
Waterways	1955	Employee Residence #7252	1971
Penstock (including forebay intake building)	1955	Employee Residence #7253	1971
Powerhouse	1955	Storage shed for residences	1971
Substation	1955		
Turbine/Generator/Power Plant	1955		
Sluice Valve House #7240	1995		
8. Lemolo No. 2 Development			
Dam	1956	Operations Center	1994
Waterways	1956	Employee Residence #7273*	1957
Forebay	1956	Employee Residence #7274*	1957
Penstock	1956		
Powerhouse	1956		
Substation	1956		
Forebay Gate House #7290	1956		
9. Transmission Lines			
T. Line #39 (ROW alignment)	1949	T. Line #39 (structures)	1949
T. Line #46 (ROW alignment)	1956	T. Line #46 (structures)	1956
T. Line #53 (ROW alignment)	1956	T. Line #53 (structures)	1956
10. Toketee Village			
Employee Residence #7221 and Garage	1948	Toketee School Buildings (not PacifiCorp properties)	Circa 1948
Employee Residence #7222 and Garage	1948	Toketee Control Center	1985

Table 2.3-1. Historic and Non-Historic Structures within PacifiCorp Developments

Historic Structures	Construction Date	Non-Historic Structures	Construction Date
Employee Residence #7223 and Garage	1948	Toketee Administration	2002
Employee Residence #7224 and Garage	1948	Water Filtration Building	1982
Employee Residence #7277 and Garage	1958	Valve House	1982
Employee Residence #7226	1953		
Employee Residence #7227 and Garage shared with #7226	1953		
Employee Residence #7228	1953		
Employee Residence #7729 and Garage shared with #7228	1953		
11. Clearwater Village			
None	NA	Employee residences	1958+
12. Clearwater Maintenance Shop and Guest House			
Cooks Quarters/Shed #7246	1947	Four Trailers	Circa 1995
Bunkhouse #7245	1946	Shop	Circa 1965
Recreation Hall #7249	1946	Warehouse	1987
Clearwater Guest House (Building # 7225) and Shed	1948	Oil House	1960
Bachelor Quarters No. 1 #7287	1958	Crew Shop	1990
Bachelor Quarters No. 2 #7288	1958	Carpenter Shop	1978
		Equipment Storage	Circa 1960
		Mess Hall	1963

Notes: *The resource is not individually historic for engineering or architectural significance and is not located within an historic district. Not considered a contributing structure.
**Historical integrity / eligibility of structure is compromised by deteriorated condition.

2.4 Contributing Structures

2.4.1 Contributing Structures

A "contributing" structure is any structure that adds to the historical integrity or architectural / engineering qualities that make an eligible development historically significant. A structure can change from contributing to non contributing and vice versa if significant alterations take place. A contributing property, such as the Toketee Powerhouse, helps make an historic development historic; a non contributing property, such as a switchyard, does not.

Age, integrity of structural components, location, and facility type are several of the criteria considered when determining whether or not a structure is contributing or non contributing. Contributing structures would require special treatment to protect the resource from potential Project impacts. The following definition provides guidance for the determination of contributing structures:

Contributing PacifiCorp Structures - Enclosed structures over 50 years old and NRHP-eligible where major or minor modifications would be detrimental to the historic integrity of the structure, OR any structure that affects the setting of an historic district.

The following types of construction over 50 years old and NRHP eligible are considered contributing resources:

- Enclosed powerhouses;
- Industrial structures that have documented architectural or engineering significance (PacifiCorp 1994a);
- The alignment of transmission lines (not the individual poles or associated structures);
- NRHP eligible structures within historic districts (i.e., employee housing and some support structures); and
- Ancillary structures that are closely aligned with historic buildings in date and design within an historic district.

Chapter 4.0 provides a Maintenance Plan for each contributing structure identified within the Project boundary. General Capital Improvement guidelines, located in Chapter 5, have also been developed to address appropriate construction standards for new development in close proximity to these areas.

Potential exceptions to the above criteria will be considered by PacifiCorp's Cultural Resource Coordinator (CRC) and the SHPO during the initial review of proposed PacifiCorp actions and their potential effects.

2.4.2 Non Contributing Structures

Structures that fit the following definition are non contributing:

Non Contributing PacifiCorp Structures - Buildings or structures that may or may not be 50 years of age and NRHP eligible where major modifications would not be detrimental to the historic integrity of an industrial structure and/or the setting of an historic district, OR any structure not owned by PacifiCorp.

The following types of structures are non contributing structures:

- Some hydroelectric generation facilities (un-enclosed power plants, industrial substations, penstocks, pipelines, canals, dams, transmission line poles, and support structures in hydropower use that do not have documented significant architectural or engineering significance (PacifiCorp 1994a);
- Non-historic structures outside of an historic district; and

- Toketee School facilities and other structures not owned by PacifiCorp.

Potential exceptions to these criteria will be considered by the PacifiCorp CRC and SHPO during the initial review of proposed PacifiCorp actions and their effects.

This Page Intentionally Left Blank

3.0 POTENTIAL PROJECT EFFECTS AND MITIGATION MEASURES

3.1 Potential Project Effects

This section of the HSP identifies potential actions and their associated effects on historic structures that could occur during the term of the new Project license. Federal regulations that guide the implementation of the NHPA (Section 800.5 of 36 CFR 800) define "adverse effect" as follows:

> *An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.*

Over the term of the new Project license, ongoing operations and maintenance may require actions that require alterations to the integrity of identified historic properties within the Project. These actions could include modifications of, or additions to, buildings, structures, or sites as a result of use, modernization, operational requirements, or technological advances of the Project. Physical alterations that modify the character-defining features of resources that contribute to the eligibility of the Project are considered adverse effects. Specific categories of PacifiCorp actions that may be considered adverse include:

1. Physical destruction of or damage to all or part of the property;

2. Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary of the Interior's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines;

3. Replacement of original electrical-generating equipment with modern equipment to maintain or increase power generation capabilities;

4. Alterations to primary and supporting facilities to accommodate new equipment or needs;

5. Alterations to meet new health and safety code requirements;

6. Removal of the property from its historic location;

7. Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;

8. Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;

9. Introduction of measures to protect or enhance other resources (e.g., wildlife bridges) that may change the character of a property's physical features;

10. Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe; and

11. Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

Implementation of the HPMP and Resource Coordination Plan (RCP) (PacifiCorp 2006b), as well as coordination and communication among the different resource leads within PacifiCorp, will help avoid situations where the implementation of Project actions may conflict with the preservation of resources defined in the HPMP. The management of these resources will be carefully coordinated by the PacifiCorp CRC.

3.2 Principles for Protection and Mitigation of Historic Structures

The HPMP and this HSP follows the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* as guidance for the protection of PacifiCorp's historic buildings and structures (36 CFR Part 68; July 12, 1995 Federal Register Vol. 60, No. 133). PacifiCorp has adopted "rehabilitation" as the primary appropriate level of treatment for developments at the Project and will adhere to the "rehabilitation" standards during the term of the current license where possible. Refer to the HPMP for more detailed information on the Secretary of the Interior's standards.

3.3 Regularly Scheduled Maintenance Program and Planning

3.3.1 Historic Structure Maintenance Program

The management of historic properties requires a regularly scheduled maintenance process to maintain operations at an appropriate functional level. Regular maintenance includes monthly or weekly activities (e.g., debris removal, sweeping or washing exterior areas, and similar minor cleaning), plus seasonal activity (e.g., gutter and downspout cleaning). In this context, maintenance by definition implies "preservation" of existing elements by extending their useful life and responding to minor damage promptly.

An ongoing maintenance program, grounded in a respect for the historic character of the structure, is the single-most important factor in maintaining the significant historic character of the Project. Prompt and appropriate repair of normal wear and tear (such as the removal of leaves, dirt, or other debris before it creates major problems) both maintains the existing resource and, through familiarity, allows PacifiCorp maintenance crews a regular opportunity to inspect and monitor buildings; this serves as an "early-warning" system for identifying issues that require attention.

PacifiCorp will establish a maintenance program under the direction of the CRC that will be regularly scheduled with appropriate oversight to ensure compliance. Please refer to Chapter 6.0 for technical guidance for the routine inspection of historic structures and other briefs that will help form the basis of such a program.

A maintenance program will further include an annual update of the historic status of the structures listed in Table 2.3-1 (Historic and Non-Historic Structures within PacifiCorp Developments). As buildings age and become 50 years old, the CRC and field staff responsible for maintenance will ensure that the historic eligibility of the structure is evaluated with coordination with the SHPO. If the resource is considered a contributing structure, it will be added to the maintenance program and a Maintenance Plan will be developed with the SHPO and inserted into Chapter 4.0.

Development of Maintenance Plans for contributing historic structures with character-defining features will also be a key component of this program, as described below.

3.3.2 Historic Structure Maintenance Planning

PacifiCorp and the Oregon SHPO have collaborated to establish a set of Maintenance Plans for contributing historic structures within the Project boundary. These Maintenance Plans provide information to help guide PacifiCorp operations crews and residents and address repair issues associated with PacifiCorp structures including:

- Identification of character-defining features;

- Identification of permitted maintenance actions and instructions for repair; and
- Defining maintenance activities that require SHPO review before further action can take place.

Maintenance Plans are developed for structures deemed "contributing" structures, as described in Section 2.4 and Chapter 4.0. These plans will expedite maintenance activities that may be identified during routine inspections of Project facilities.

3.4 Proposed Mitigation

3.4.1 Mitigation through Design

Mitigation through design is an outcome of the consultation process when there is an adverse effect on historic properties. Adverse effects can range in scope from demolition to a property leaving Federal government ownership. Mitigation is used to moderate adverse effects by, at the very least, providing documentation of the property before it is lost or significantly altered. Wherever feasible, while still meeting PacifiCorp's operational goals, PacifiCorp will consider mitigation of potential adverse effects through creative design, including:

- Limiting the magnitude of the action;
- Modifying the action through redesign, reorientation of construction on the project site, or other similar changes;
- Repair, rehabilitation, or restoration of an affected historic property (as opposed, for instance, to demolition);
- Utilizing design that is compatible with the original design of the buildings and/or structures and that can be removed without damage to the original;
- Installation of educational and interpretive feature at site location; and
- Relocation of historic properties. Chapter 5.0 provides directives for design

mitigation for general capital improvements on Project lands. General standards for construction, such as appropriate structure placement and location, appropriate remodeling techniques, guidance for building additions, and access treatment, are addressed.

The NPS *Preservation Briefs* series also provides technical guidance on a variety of preservation/mitigation issues and should be referred to when considering potential project design alternatives (NPS 2007). These web-based briefs are available on-line on the NPS website at **http://www.cr.nps.gov/hps/tps/briefs/presbhom.htm;** an index of the series is included in Chapter 6.0. Chapter 6.0 also includes Oregon

SHPO Section 106 Documentation and Effects form and HABS/HAER (Historic American Buildings Survey/Historic American Engineering Record) Documentation Standards for reference. The CRC will continue to update Chapter 6.0 and add to these technical resources, as appropriate.

When compatible alterations to existing historic structures are not possible, the adverse effects of the action may be mitigated by historical interpretation and/or documentation.

3.4.2 Mitigation through "Positive Effects"

To help ensure mitigation projects are meaningful, PacifiCorp provides an option where mitigation efforts can be directed to create a "positive effect" for another historic resource where appropriate. Mitigation through "positive effect" is an outcome of the consultation process where an adverse effect on an historic property can be mitigated by improving another historic resource where facility preservation is needed most.

Positive effect mitigation includes significant preservation enhancements to existing historic structures that consist of improvements to an historic structure and/or landscape. Positive effect improvements entail a range of enhancements to historic resources including roof, fenestration, exterior surfaces, and interior maintenance, to fencing and landscaping projects that bolster the integrity of the resource or district. If positive effect mitigation is appropriate, enhancements must be approved by the SHPO prior to implementation.

3.4.3 Mitigation through Historical Interpretation

Historical interpretation, or interpretation, can be defined as "a planned effort to create for the visitor an understanding of the history and significance of events, people, and objects" (Anderson and Low 1985). Interpretation as mitigation includes a range of opportunities intended to educate onlookers of a specific piece of history, such as the previous location of an historic structure or change in an historic setting. Educational opportunities may include public participation activities, off-site mitigation, or non site-specific mitigation. Examples of interpretive mitigation that preserve the history of a specific site could include the use of historical markers, plaques, DVDs, videos, or publications. PacifiCorp will work closely with the SHPO to identify appropriate interpretative materials that would be commensurate with the historical significance of the affected site.

The adverse effects of the undertaking may require further documentation of the site in addition to interpretation. Or, conversely, the historical significance of the site may not be high enough to warrant interpretation at all. In either case, mitigation through documentation may be applied.

3.4.4 Mitigation through Documentation

When non-compatible alterations to existing contributing resources are not possible, the adverse effects of the undertaking may be mitigated by documentation according to HABS/HAER standards. This may include:

- Documentation (drawings, photographs, histories) of buildings or structures that must be destroyed or substantially altered; and/or
- Salvage of archaeological or architectural information and materials.

Since historic significance levels vary, the appropriate level of documentation will also vary. The highest level of mitigation is the preparation of HABS/HAER documentation, which is coordinated with the NPS and submitted to the Library of Congress.

HABS/HAER

HABS/HAER documentation usually consists of measured drawings, photographs, and written data that provide a detailed record which reflects a property's significance (see Appendix B for HABS/HAER documentation standards). Measured drawings and properly executed photographs act as a form of insurance against fires and natural disasters by permitting the repair and, if necessary, reconstruction of historic structures damaged by such disasters. Documentation is often the last means of preservation of a property; when a property is to be demolished, its documentation provides future researchers access to valuable information that otherwise would be lost.

For properties that do not require the level of documentation provided by HABS/HAER, other levels of documentation could be applied, depending on the historic nature of the structure. PacifiCorp and the SHPO will decide what level of documentation is required. The compiled information must be submitted to the SHPO for review and acceptance before any work occurs on the site of the historic resource. The final documentation will be retained by the SHPO and in other appropriate archives.

4.0 MAINTENANCE PLANS

4.1 Overview of Maintenance Plans

This section provides guidelines for the maintenance of all historic structures listed in Table 2.3-1 that also meet historically contributing resource criteria as identified in Section 2.4 (refer to Chapter 2 for additional information on the inventory of PacifiCorp facilities). Maintenance Plans for these structures are organized as follows:

- **Hydroelectric Power Generation Developments** – These developments include the Toketee Powerhouse and relevant dams, waterways, penstocks, and industrial components with documented architectural or engineering significance located within the Project boundary and the alignment of historic transmission lines.

  Employee housing outside of historic districts and proximate to Project developments that turns 50 years old and is deemed a contributing structure will adhere to the Toketee Village Historic District Maintenance Plan for employee housing, where applicable.

- **Toketee Village Historic District** – This district includes employee housing, wood sheds, and garages.

- **Clearwater Maintenance Shop & Guest House** – This area includes the Clearwater Guest House, administrative facilities, employee housing, and associated ancillary structures.

The following section provides a brief description of Project facilities within each category, relevant character-defining features, alterations and maintenance activities permitted outright by PacifiCorp staff, and those conditioned maintenance activities that require SHPO consultation prior to action. This information is presented in a more graphically oriented format to best convey the information for resource managers and other HSP users.

This Page Intentionally Left Blank

hydroelectric generation developments

Toketee Powerhouse (2006)

Toketee Powerhouse (2006)

Toketee Rapids (2006)

General Description

The hydroelectric generation facilities of the North Umpqua Hydroelectric Project consist of eight dams and powerhouses and associated waterways, substations, and ancillary buildings that are linked into a single system operationally controlled at the Toketee Control Center

Historic Significance

The Project was built between 1949 and 1956 and gains its historic significance from its association with the growth of the California Oregon Power Company (Copco), a former locally owned utility and predecessor of PacifiCorp, and the economic development of the area. The Project was not the earliest of the Copco projects in the southern Oregon region, and thus it is not as strongly associated with Copco' s pioneering role in the electrification of Douglas County. Instead, its historical significance is derived more from its association "...with events that have made a significant contribution to the broad patterns of our history" (CFR 36:60). Not only did the Project mark a major turning point for Copco by doubling the utility's earlier pre-war generating capacity and initiating a period of expansion, but it also was one of the largest undertakings of its type to have ever occurred in southern Oregon. Copco played a major role in the expansion of the regional economy in the boom years of the 1950s, and the concurrent growth of the timber industry (which can be traced to the development of the Project) adds to the facilities' significance.

Most of the Project's hydroelectric generation facilities were not defined as historically significant based on architectural or engineering significance. These industrial facilities remain in their original power generating function and are anticipated to continue to do so over the period of the new license.

Overview of Maintenance Direction

Alterations to most of the eight Project developments that contain industrial facilities (power plants, dams, waterways, substations, support structures, etc.) are permitted outright, with the exception of the Toketee Powerhouse and specific industrial features identified on the following pages, so long as the industrial use of the structure does not change.

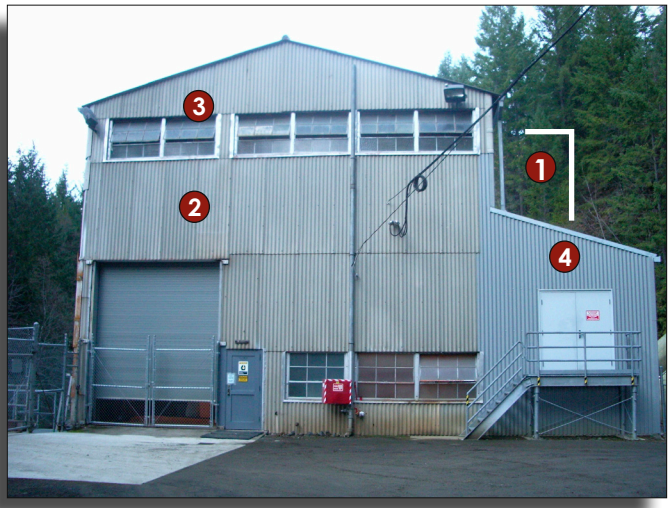
Alterations or maintenance activities on these facilities should continue the general appearance and character of an industrial hydroelectric development of the 1949 — 1956 period.

TOKETEE POWERHOUSE

Historic Contribution

The Toketee Powerhouse is one of the keystone historic structures within the power generating developments. Built in 1949, the Powerhouse is a large-scale, enclosed industrial building with several unique character-defining features that, if altered, would lead to a loss of the historic quality of the building. Since the Powerhouse is a significant historic resource, it requires a high standard of rehabilitation. However, only the exterior of the Toketee Powerhouse requires consideration during maintenance or alterations. The interior can be altered outright as needed.

Toketee Powerhouse (2006)



Toketee Powerhouse (2006)

Character-Defining Features

1. Bulk and scale of the two-story, utilitarian structure
2. Painted corrugated vertical asbestos siding over steel frame
3. Nine "light" windows and bays
4. Side gable roof

Permitted Maintenance

- Any maintenance improvement conducted inside the Toketee Powerhouse where alterations are not visually detected from the exterior of the building.
- Cleaning and maintaining exterior surfaces and repairs to exterior structural elements that continue the color and character of the existing siding and roofing materials.
- Removal/replacement of corrugated asbestos siding with fiberglass materials of similar color, dimension of corrugation (4.25 inches ridge to ridge), panel alignment, and appearance.
- Window maintenance/replacement that continues the existing character, function, and historically appropriate colors.
- Maintenance to lean-to addition that will blend with the historic character of the structure.
- Removal of vent pipe and other related components to retire the septic system.

Conditioned Alterations / Maintenance Requiring SHPO Consultation

- Maintenance/replacement of structural materials different than the existing (including doorways and windows), except as noted.
- Change in structure use.
- Major modifications that alter the size and shape of the structure, such as an addition.

ARCHITECTURAL OR ENGINEERING PROJECT ELEMENTS

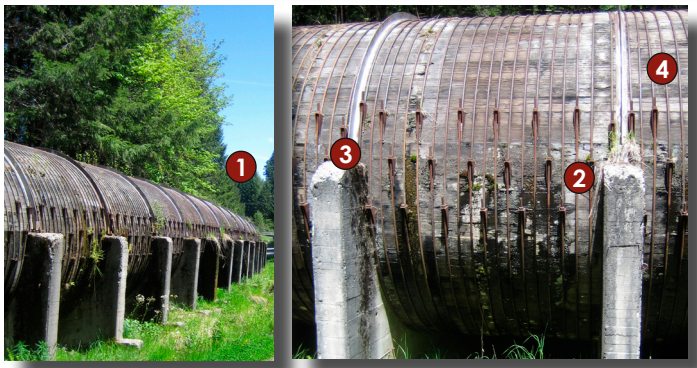
Historic Contribution

Most of the industrial facilities located within the FERC Project boundary are concrete and steel structures that are not contributing resources for architectural or engineering significance. However, some exceptions exist. These facilities, listed on the following pages, contain character-defining features that contribute to the historic significance of Project developments. Maintenance guidelines for identified Project facilities are described on the following pages.

Toketee Wood Stave Flowline

Character-Defining Features

1. Wood-stave pipe waterway
2. Cone saddles with steel fabricated T band strap
3. Threaded rods with nuts and bracket
4. Redwood stave



Toketee Wood Stave Flowline (2007)

Permitted Maintenance

- Cleaning of the waterway with non-abrasive materials.
- Exterior patching done with wood material.
- Any maintenance on the interior of the Toketee wood stave flowline, such as the application of synthetic liners, where alterations are not visually detected from the exterior of the flowline.

Conditioned Alterations / Maintenance Requiring SHPO Consultation

- Replacement of the waterway with a different material or design. HABS/HAER documentation would be required prior to removal.

Lemolo No. 1 Dam

Character-Defining Features

1. Concrete "ogee crest"
2. Steel Tainter gate
3. Two sets wooden flashboards
4. Concrete slabface over rock fill on upside face of dam
5. Exposed rock fill with no abutment on downstream side of dam

Lemolo No. 1 Dam (2007)

ARCHITECTURAL OR ENGINEERING PROJECT ELEMENTS

Lemolo No. 1 Dam, cont.

Permitted Maintenance

- Cleaning of the concrete structures, steel tainter gate and wooden flashboards with non-abrasive materials.
- Reinforcement of existing talus with in-kind rock types.

Soda Springs Dam

Character-Defining Features

1. Thin concrete arch dam
2. Intake
3. Tainter gates and spillgates with concrete aprons
4. Original cable handrail
5. "Doghouse" motor headgate comshed

Permitted Maintenance

- Replacement of handrail with durable steel tube materials of industrial character where spacing of both verticle and horizontal materials are of the same spacing or gage.
- Wood decking replacement with durable steel treadplate of industrial character.

Conditioned Alterations / Maintenance Requiring SHPO Consultation

- Installation of a new fish ladder and screen in 2009 will change the appearance of the dam considerably. Remaining historical elements will be protected through replacement and repair using in-kind materials and cleaning of the dam, tainter gates, spillgates, and intake with non-abrasive materials on an as-needed basis.
- Replacement or redesign of thin arch dam. HABS/HAER documentation would be required prior to alterations.

Conditioned Alterations / Maintenance Requiring SHPO Consultation

- Replacement or redesign of the steel tainter gate, concrete "ogee crest", rock fill concrete slabface, or wooden dam flashboard.

Soda Springs Dam (2007)

ARCHITECTURAL OR ENGINEERING PROJECT ELEMENTS

Pelton Wheel at Fish Creek Powerhouse

Character-Defining Features

1. Original Pelton wheel "runner"

Permitted Maintenance

- Cleaning of the wheel with non-abrasive materials.

Conditioned Alterations / Maintenance Requiring SHPO Consultation

- Change in turbine type (not anticipated).

Spare Pelton Wheel Runner (2007). This wheel was purchased to back up the original in the event of failure and is currently on display at the Clearwater Maintenance Shop.

Clearwater No. 1 Penstock

Character-Defining Features

1. Flexible couplings
2. Welded rolled steel on native mazama ash

Permitted Maintenance

- Replacement of flexible couplings using in-kind type and materials.
- Cleaning and maintaining exterior surfaces and repairs to exterior structural elements that continue the color and character of the existing materials.
- Painting of the penstocks and surge tanks to continue the color and character of the existing materials.
- Structural repairs or replacements of the flexible couplings, or concrete saddles or footings that use in-kind (or the same) materials as the original and that do not alter the original shape or size. Backfilling the saddles is not permitted because they were not originally backfilled.

Conditioned Alterations / Maintenance Requiring SHPO Consultation

- Replacement or redesign of couplings.
- Change in penstock color per USDA-FS and USDI-BLM visual resource standards and the Aesthetics Management Plan (PacifiCorp 2004a).

TRANSMISSION LINE RIGHTS-OF-WAY (ROW) CORRIDORS

Historic Contribution

Project Transmission lines #39, #46, and #53 are unique but prominent facilities within the power generating developments. Transmission line #39 and its ROW was the original corridor built in 1949 and #46 and #53 were constructed seven years later in 1956. The poles, wires, and support structures by themselves are not considered contributing resources by engineering standards and may be altered or switched out as needed. However, the alignments of these three transmission line ROW corridors do contribute to the history of the overall development and play a major role as to where past and present facilities are located.

Transmission line #39 ROW (2007)

Transmission line #46 ROW (2007)

Transmission line #53 ROW (2007)

Character-Defining Feature

1. The ROW corridor alignment of the transmission poles and wires

Permitted Maintenance

- Replacement or repair of transmission lines and poles as conditioned by the HPMP (PacifiCorp 2007).

Conditioned Alterations / Maintenance Requiring SHPO Consultation

- Any alteration of the transmission ROW corridor alignment.

toketee village historic district

Toketee Village Home (2006)

Toketee Village Home (2006)

Toketee Village Home (2006)

General Description

The Toketee Village Historic District includes two series of employee residences separated by the Toketee School and their mobile living units, which are not owned by PacifiCorp, and the Toketee Control Center and administration buildings. Figure 2.2-1 identifies the structures located within the Toketee Village.

Two series of employee dwellings were built in 1948 and 1953, respectively. The initial development was four houses, set in line, grouped in two pairs with a single driveway shared between them. Each dwelling also has a single car garage. This type of building is common for high-elevation areas in the Cascade Mountains and the forest setting of Toketee Village. The houses are located in a simple, symmetrical pattern, with some houses appearing as a mirror image of another. This layout, combined with the repetition of a similar design, forms a major part of the historic character of the area.

Other buildings within the Toketee Village Historic District include the Control Center, constructed in 1961, License Implementation Office building (2002), and Toketee Elementary School buildings. These buildings are not historic, but are part of the Historic District setting.

Historic Significance

The construction of the Toketee Development necessitated the provision of long-term housing for the operating employees. Original employee dwellings in the Toketee Village were part of this construction, and they remain occupied by PacifiCorp employees to this day.

The Toketee Village and overall Project contributed to a major turning point for Copco by doubling the utility's pre-war generating capacity and initiating a period of expansion, but the Project also was one of the largest undertakings of its type to have ever occurred in southern Oregon. It played a major role in the expansion of the regional economy in the boom years of the 1950s and the concurrent growth of the timber industry (which can be traced to the development of the Project) adds to the facilities' significance.

Overview of Maintenance Direction

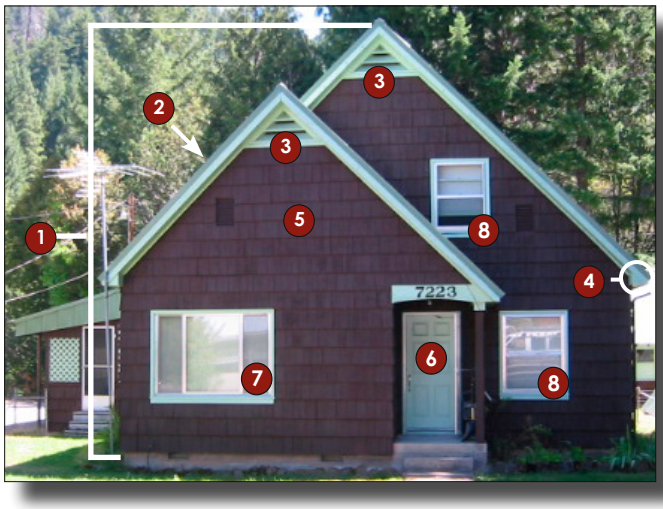
The structures within the Toketee Village Historic District should not be allowed to deteriorate or be randomly altered or demolished without considering their relationships to the historic character of the area. New construction within the Toketee Village Historic District should be designed to respect the historic character of the buildings and village setting.

The Toketee Control Center, general administration building, and other operational structures associated with the village do not contain character-defining features, although they do play an important role in the overall historical setting of the village. Maintenance of these structures is permitted outright so long as additions, roof color, and building materials are compatible with their historic setting. Floor plans of these structures are located in Appendix E.

EMPLOYEE HOUSING MAINTENANCE

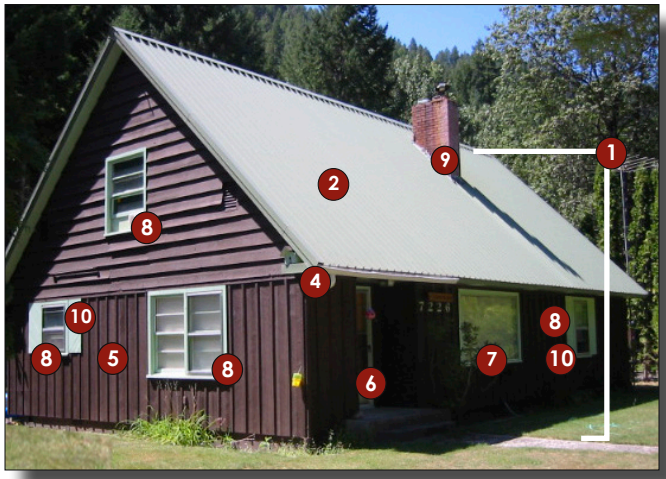
Historic Contribution

The Project includes a series of historic employee dwellings that were built from 1948 into the late 1950s. These residences and associated garages, most of which are included within the historic district, are historically significant and require a high standard of rehabilitation. While the architectural styles of these building are similar, each model has slightly different character-defining features, as depicted below.



Character-Defining Features

1. Rectangular one- to two-story structure with pitched gable roof and a shed roof porch
2. Pressed metal roof
3. Vent in gable
4. Eave returns and boxed soffits
5. Wood shingle or vertical wood board and batten siding
6. Six-panel door
7. Front picture window (originally)
8. Wood frame, double-hung windows (2 or 3 over 1)
9. Brick chimney and detail on chimney cap
10. Shutters on windows
11. Fencing: scalloped-wire or basket-weave



Examples of employee residences

Example of scalloped-wire fencing (above) and basket-weave fencing (below).

Garages associated with employee residences

EMPLOYEE HOUSING MAINTENANCE

Permitted Maintenance on Character-Defining Features

The maintenance items listed below correspond with the character-defining features from the previous page.

1. Structural repairs that use in-kind (or the same) materials as the original that do not alter the original shape, size, or roof pitch of the home (including shed roofs). Examples of materials include wood framing, wood shingle, or vertical board and batten siding.
2. Roofing maintenance that does not alter the roof pitch and uses green pressed metal material, consistent with other homes. Type of roof material includes standing seam steel sheets.
3. Repair of vents and trim using wood material. Trim may be primed and finished with paint of light green, consistent with the historical color theme of the village.
4. Repair of eave returns and boxed soffits using wood material. Trim must be primed and finished with paint of light green, consistent with the historical color theme of the village.
5. Repair or replacement of the home's wood shingle or vertical wood board and batten siding with the same materials. Siding must be finished with the same dark brown historical color theme of the village.
6. Door repair or replacement using a six-panel door of any material. Doors must be primed and finished with paint of light green.
7. Front window repair or replacement with a wooden- or vinyl-framed picture window, so long as the frame can be painted to match the light green historical trim color used for employee housing within the historic district.
8. House or garage window repair or replacement with a wooden- or vinyl-framed double hung window of the same style, so long as the frame can be painted to match the light green historical trim color used for employee housing within the historic district. Replaced windows should be consistent with window types of other village housing.
9. Maintenance of brick chimneys that use in-kind (or the same) materials as the original that do not alter the original shape, size, or character or the cap.
10. Repair or replacement of window shutters with shutters of the same style that would be painted to match the light green historical trim color of the village.
11. Fencing maintenance, replacement, or additions that provide scalloped-wire fencing at approximately 40 inches in height, or a consistent height with adjacent fencing. Existing basket-weave fencing may be maintained using the same wood materials and kept to the same style, but should not be added to other areas.

Other Permitted Maintenance

- Priming and painting using historically appropriate colors (light green trim, dark brown primary).
- Cleaning exterior surfaces and windows.
- Any maintenance conducted inside structures where alterations are not visually detected from the exterior of the building.
- Addition of storm windows (either inside or outside) where character-defining windows and frames are left unaltered.
- Replacement of garage doors, so long as the door is painted to match the light green historical trim color used for employee housing within the historic district.
- Repair of driveways, parking areas, exterior retaining walls, exterior steps or stairs, and walkways when work is done in-kind to match existing materials in form and design.
- Repair and replacement of gutters and roof drain systems, or exterior components of the electrical or plumbing systems with materials that match the existing material and form so that changes to the exterior appearance of the resource are not evident.
- In-kind repair of foundations when work is done to match existing materials and form.
- Installation of wheelchair ramps meeting building code as long as ramps can be easily removed and do not affect character defining features. Repair of porches, cornices, doors, balustrades, stairs, or trim when the repair is done in-kind to match existing materials in form and design.

Maintenance Requiring SHPO Consultation

- Alterations to the size and shape of any structure within historic districts.
- Any maintenance or replacement of exterior building elements that uses materials other than those permitted herein.
- A change in structure use.

This page Intentionally Left Blank

clearwater maintenance shop & guest house

Recreation Hall (2006)

Clearwater Guest House (2006)

Recreation Hall (2006)

General Description

The Clearwater Maintenance Shop and Guest House includes a cluster of buildings that have been used for various support functions for the Project over the years, including housing, administration, recreation, dining, and operational maintenance needs. These buildings are located on the eastern edge of Toketee Lake on a partially wooded point where the Clearwater River enters the reservoir. The river flows along the east side of the Guest House and the reservoir is just to the west. The following sections provide a brief discussion of the historically significant structures located within the area.

Historic Significance

The Clearwater Maintenance Shop is the maintenance heart of the Project. While operational control of the powerhouses is located at the Toketee Control Center, overall maintenance is directed from the Clearwater Maintenance Shops, most of which are not contributing resources and date from the 1960s. The historic structures within this area include the Guest House and buildings constructed for temporary use during construction of the hydroelectric facilities (refer to Table 2.3-1). These buildings were built between 1946 and 1958 and are part of the original Toketee construction camp.

Overview of Maintenance Direction

With the exception of the Guest House, the historic structures of the Clearwater Maintenance Shop have questionable structural integrity. Built for temporary uses, the materials used to build some of these structures are beginning to fail. For this reason, rehabilitation standards may not be appropriate for structures that no longer meet Project operation goals. Some of these historic structures may eventually be phased out of this area and replaced with permanent facilities. Consultation with the SHPO in concert with interpretive display and HABS/HAER documentation is intended to mitigate for the removal of historic buildings and ensure that the Project history is captured and celebrated. Remaining historic structures in the Clearwater Maintenance Shop vicinity should not be allowed to deteriorate or be randomly altered or demolished without considering their relationship to the other buildings in this area. New construction should be designed to respect the historic character of the Guest House and overall setting.

Although several trailers and other maintenance sheds within the Clearwater Maintenance Shop area are not historic, they do impact the overall setting. These newer temporary structures should be phased out or replaced with permanent structures that are compatible with the Guest House setting or sited near the non-historic maintenance shops.

CLEARWATER GUEST HOUSE

Historic Contribution

The Guest House was built in 1948 to house Copco visitors to the Toketee camp site while the dam and power plant were under construction. The Guest House is a 30- by 40-foot, two-story, wood frame structure on a concrete foundation and is considered an historically significant building with the following character-defining features.

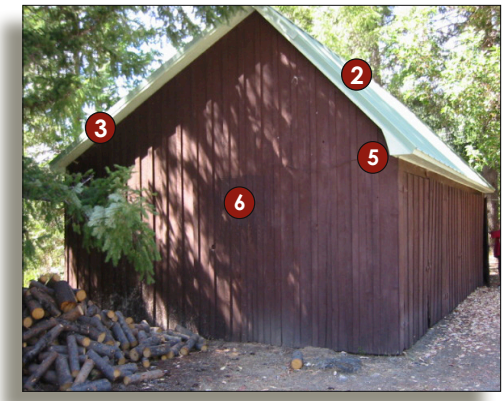
Clearwater Guest House (2006)

Character-Defining Features

1. Rectangular two-story structure with front gable, steep pitched roof
2. Wood trim pressed metal roof
3. Exposed fascia board
4. Vent in gable
5. Scalloped eaves returns with boxed soffits
6. Wood shingle or vertical wood board and batten siding
7. Wood frame, double-hung windows with butt joints
8. Brick chimney (*not visible*)
9. Stone fireplace (*internal*)

Clearwater Guest House, front entrance (2006)

Clearwater Guest House, interior fireplace (2006)



Clearwater Guest House woodshed (2006)

CLEARWATER GUEST HOUSE

Permitted Maintenance on Character-Defining Features

The maintenance items listed below correspond with the character-defining features from the previous page.

1. Structural repairs that use in-kind (or the same) materials as the original that do not alter the original shape, size, or roof pitch of the home (including shed roofs). Examples of materials include wood framing, wood shingle, or vertical board and batten siding.
2. Roofing maintenance that does not alter the roof pitch and uses green pressed metal material, consistent with other homes. Type of roof material includes standing seam steel sheets.
3. Repair of fascia boards using wood material. Trim must be primed and finished with paint of light green, consistent with the historical color theme of the area.
4. Repair of vents and trim using wood material. Trim may be primed and finished with paint of light green, consistent with the historical color theme of the area.
5. Repair of eave returns and boxed soffits using wood material. Trim must be primed and finished with paint of light green, consistent with the historical color theme of the area.
6. Repair or replacement of wood shingle or vertical wood board and batten siding with the same materials. Siding must be finished with the same dark brown historical color theme of the area.
7. Window repair or replacement with a wooden- or vinyl-framed double hung window of the same style, so long as the frame can be painted to match the light green historical trim color used for employee housing. Replaced windows should be consistent with window types of the Toketee Village housing.
8. Maintenance of the brick chimney that uses in-kind (or the same) materials as the original that do not alter the original shape, size, or character or the cap.
9. Maintenance of stone fireplace and stone terrace that use in-kind (or the same) materials as the original that do not alter the original shape, size, or character of the interior fireplace.

Other Permitted Maintenance

- Priming and painting using historically appropriate colors (light green trim, dark brown primary).
- Cleaning exterior surfaces and windows.
- Any maintenance conducted inside structures where alterations are not visually detected from the exterior of the building.
- Addition of storm windows (either inside or outside) where character-defining windows and frames are left unaltered.
- Repair of driveways, parking areas, exterior retaining walls, exterior steps or stairs, and walkways when work is done in-kind to match existing materials in form and design.
- Repair and replacement of gutters and roof drain systems, or exterior components of the electrical or plumbing systems with materials that match the existing material and form so that changes to the exterior appearance of the resource are not evident.
- In-kind repair of foundations when work is done to match existing materials and form.
- Installation of wheelchair ramps meeting building code as long as ramps can be easily removed and do not affect character defining features. Repair of porches, cornices, doors, balustrades, stairs, or trim when the repair is done in-kind to match existing materials in form and design.

Maintenance Requiring SHPO Consultation

- Alterations to the size and shape of any structure within the historic district.
- Any maintenance or replacement of exterior building elements that uses materials other than permitted herein.
- A change in structure use.
- Siting new construction near the Guest House that would alter its isolated location within the landscape.

CLEARWATER MAINTENANCE SHOP BUILDINGS

Historic Contribution

The Bunkhouse, Cook's Quarters, Bachelor's Quarters, and Recreation Hall were built in 1946 as part of the original Toketee camp site. These buildings are considered historically sensitive but are of questionable structural integrity. While the buildings vary slightly, they share multiple character-defining features. These buildings have been utilized for meetings and administrative purposes, as well as residential use.

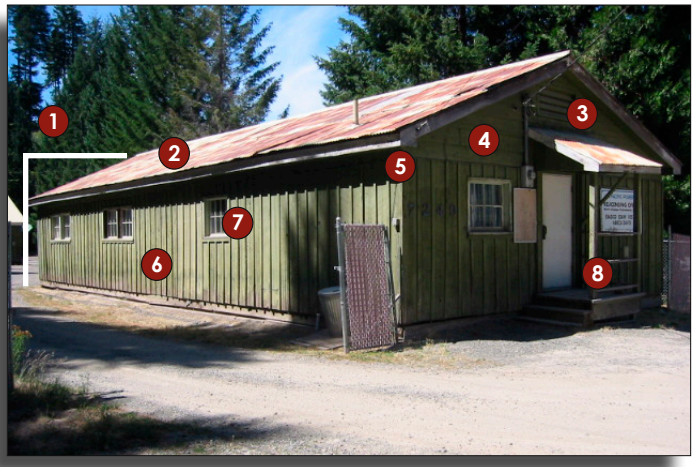
Bunkhouse (2006)

Character-Defining Features

1. Rectangular one-story structure with front gable, low pitch roof
2. Wood trim pressed metal roof
3. Vent in gable
4. Horizontal weatherboard in gable
5. Boxed soffits
6. Vertical wood board and batten siding
7. Wood frame window
8. Vestibule with shed roof

Cook's Quarters and Sheds (2006)

Bachelor's Quarters (2006)



Recreation Hall (2006)

CLEARWATER MAINTENANCE SHOP BUILDINGS

Permitted Maintenance on Character-Defining Features

The maintenance items listed below correspond with the character-defining features from the previous page.

1. Structural repairs that use in-kind (or the same) materials as the original that do not alter the original shape, size, or roof pitch of the building (including shed roofs). Examples of materials include wood framing, wood shingle, or vertical board and batten siding.
2. Roofing maintenance that does not alter the roof pitch and uses green or unfinished pressed metal material, consistent with other buildings. Type of roof material includes standing seam steel sheets.
3. Repair of vents using wood material. Trim may be primed and finished with green paint, consistent with the historical color theme of the area.
4. Repair of weatherboards and trim using wood material. Trim must be primed and finished with light green paint, consistent with the historical color theme of the area.
5. Repair of boxed soffits using wood material. Trim must be primed and finished with green paint, consistent with the historical color theme of the area.
6. Repair or replacement of the building's vertical wood board and batten siding with the same materials. Siding must be finished with the same dark brown or green historical color theme of the area.
7. Window repair or replacement with a wooden- or vinyl-framed double hung window of the same style, so long as the frame can be painted to match the light green or white historical trim color used for buildings in this area. Replaced windows should be consistent with window types of other historic structures in the area.
8. Structural repairs to the vestibule must use in-kind (or the same) materials as the original and do not alter the original shape, size, or roof pitch of the building. Examples of materials include wood framing, wood shingle, or vertical board and batten siding.

Other Permitted Maintenance

- Priming and painting using historically appropriate colors (green paint for most of the operations center buildings; light green trim, dark brown primary for the Bachelor's Quarters).
- Cleaning exterior surfaces and windows.
- Any maintenance conducted inside structures where alterations are not visually detected from the exterior of the building.
- Addition of storm windows (either inside or outside) where character-defining windows and frames are left unaltered.
- Repair of driveways, parking areas, exterior retaining walls, exterior steps or stairs, and walkways when work is done in-kind to match existing materials in form and design.
- Repair and replacement of gutters and roof drain systemand replacement of gutters and roof drain systems, or exterior components of the electrical or plumbing systems with materials that match the existing material and form so that changes to the exterior appearance of the resource are not evident.
- In-kind repair of foundations when work is done to match existing materials and form.
- Installation of wheelchair ramps meeting building code as long as ramps can be easily removed and do not adversely affect character defining features. Repair of porches, cornices, doors, balustrades, stairs, or trim when the repair is done in-kind to match existing materials in form and design.

Maintenance Requiring SHPO Consultation

- Demolition of buildings for Project upgrades.
- Alterations to the size and shape of any structure within the historic district.
- Any maintenance or replacement of exterior building elements that use materials other than permitted herein.
- A change in structure use.

This page Intentionally Left Blank

5.0 GENERAL CAPITAL IMPROVEMENTS

5.1 Overview

Over the term of the new FERC license, there may be situations in which PacifiCorp will require the construction of new facilities within the Project boundary for improved operational performance, such as the new License Implementation Office building constructed in 2002 within the Toketee Village Historic District. In addition, the Project will also likely be subject to future expansion as a result of efforts to increase generation capacity, improve administration of the Project, or requirements for entirely new uses or other activities that require additions to existing structures.

This section provides general guidelines for Project capital improvement actions that include unavoidable new construction, additions to, or removal of historic structures within the Project boundary. Some of these guidelines are also mitigation measures for avoiding impacts to historic structures through creative design. A range of guidance is provided, including staff direction for choosing appropriate building materials, structure placement and location, demolition for remodeling, additions, modernization associated with technological improvements, safety and security enhancements, and decommissioning.

Such capital improvements are also subject to the Secretary of the Interior's Standards for Rehabilitation (refer to Section 3.2). Except as compromised by any other regulatory requirement, new capital improvement actions will meet the Secretary of the Interior's Standards to the extent feasible and follow the guidelines identified below.

5.2 Use of Appropriate Materials

With few exceptions, most resources within the Project area are simple, utilitarian structures with little pretense toward exterior designs beyond what is required to fulfill the intended function. Simple, unadorned construction is typical, including both historic materials and new materials used to remodel, renovate, or provide new infrastructure.

Little architectural treatment beyond requirements for safety, functionality, and utility are found. Exposed, naturally finished metal, concrete, glass, and similar materials are used in a variety of forms and combinations to meet the goals of each development. A character-defining aspect of materials used is efficient and functional utility.

The goal of new construction should be to continue the essential utilitarian and industrial character of the development through the use of appropriate materials for any and all required changes.

All new work should utilize muted, natural-tone materials, avoiding bright or modern colors. Concrete shall, in general, be left exposed or coated with natural gray-colored coatings to match the original character. Galvanized materials, primed steel or iron, pressure-treated wood, and similar materials should be used "as is" in all cases. Replacement of previously decorated or painted elements, however, should be continued. New materials, such as PVC and similar "modern" industrial materials, are appropriate if the standard muted color range is used.

5.3 Building Location and Placement

The placement of buildings plays an important role in the overall character and setting of the Toketee Village. This development is the only designated historic district within the Project where the location of structures helps define the district as an historic "village" setting.

One of the character-defining aspects of the historic district is the location of the structures along a simple internal road system without curbs or sidewalks that links the employee housing, administrative buildings, recreational hall, or other support structures in a rural "village" setting. Buildings are located in a compact linear arrangement with a consistent setback along the internal roadway system, and entrances generally face the roadway. Where ancillary structures are present, some are tucked behind residences, while others are located straddled between two homes at the end of a driveway.

The goal for preserving the setting of the historic district is to continue the traditional "village" character, particularly the internal roadway system. Any new structures or major additions to existing buildings should be sited within the existing linear framework, with primary entryways facing the internal roadway system. Support buildings, including small sheds and garages, should be located to the rear of existing structures whenever possible.

New structures should be designed in a compatible way, or visually secondary. Where a single large building is required by function (as in a machine shed), care will be exercised in placement and design so as to minimize its visual impact on the overall historic scale and design of the village.

Facility locations within the remaining developments have been situated primarily to meet the hydroelectric generation needs of the Project in natural settings that dictate the placement of such structures. These developments contain loose clusters of structures that are not integral to the historic significance of the development. Within these developments, the placement of a new facility (e.g., a new communications building) would not be an adverse effect to the historical setting of the development and would not require SHPO approval for structure siting.

5.4 Demolition for Remodeling

Remodeling an existing historic resource to serve new or expanded uses often involves the partial demolition or removal of historic materials. Such work may be limited to the removal of interior partition walls for Americans with Disabilities Act (ADA) improvements or, in larger scale projects, the removal of one or more exterior elevations to allow for an expanded structure. The preservation of the historic character of buildings is especially important in the Toketee Village Historic District. Enclosed structures within most of the other developments do not have character-defining features that would be negatively impacted by remodeling projects.

The goal of demolition during a remodeling action within an historic district is to minimize unnecessary demolition or removal of historic materials so as to retain the historic character of the individual resources while continuing the traditional operation and functions associated with the uses of the area. No contributing historic structure shall be modified without analysis of needs and options to eliminate any alternative that does not require demolition. Where historic material must be removed to meet the stated need, all work must follow the prescribed Maintenance Plan (see Chapter 4.0) and the Secretary of the Interior's Standards for Rehabilitation.

5.5 Additions to Historic Structures

Additions to structures should, to the extent feasible, be "grafted" onto the existing structures. PacifiCorp will retain as much of the original exterior as possible to minimize demolition if practicable.

The preservation of the historic character of buildings is especially important in the Toketee Village Historic District. While enclosed structures within most of the other developments do not have character-defining features that would be negatively impacted by additions, the SHPO should be notified and approve of the proposed activity prior to action.

Within the historic district, additions to existing resources may result from requirements for entirely new uses or other activities that will help continue the operational goals of the Project. New additions to these historic resources are expected and are appropriate when in compliance with the Secretary of the Interior's Standards for Rehabilitation (see Section 3.2). PacifiCorp will follow the guidelines published in Preservation Brief #14 (see Chapter 6.0) for new exterior additions to historic buildings, where feasible.

The goal for new additions to historic structures within the historic district is to maintain the historic character of the individual resource while expanding existing structures as needed to continue the functions associated with the residential and support uses of the area.

Additions should always be constructed to the rear or side elevations of historic structures, where possible, avoiding impact to any significant elevations to the greatest degree feasible. Historic buildings shall remain visually predominate whenever possible.

When required, additions to historic resources should be clearly differentiated and subservient to the original volume to the extent feasible. Transitions between original and new work should be expressed, through retention of small insets of existing walls, offset additions, changes in materials, and similar techniques. Figure 5.5-1 provides an example plan and elevation diagrams to demonstrate appropriate solutions to preserving the historic character of an existing structure when adding to it.

Differentiation should also occur in the elevation of the new addition and original structure through techniques such as roof design. The height of the new addition should be subservient to the original structure where feasible.

Design solutions that incorporate physical evidence of the development pattern are strongly encouraged. Examples of such work might include a visible "seam" in the floor where new meets old, engaged columns, and other design elements that mark the connection.

Additions should not blend new and old work into a single, uniform, or combined visual structure in any situation. Doing so would obscure the character of the original structure and remove the visitor's ability to understand the context of the original historic structure.

5.6 Project Modernization/Major Undertakings

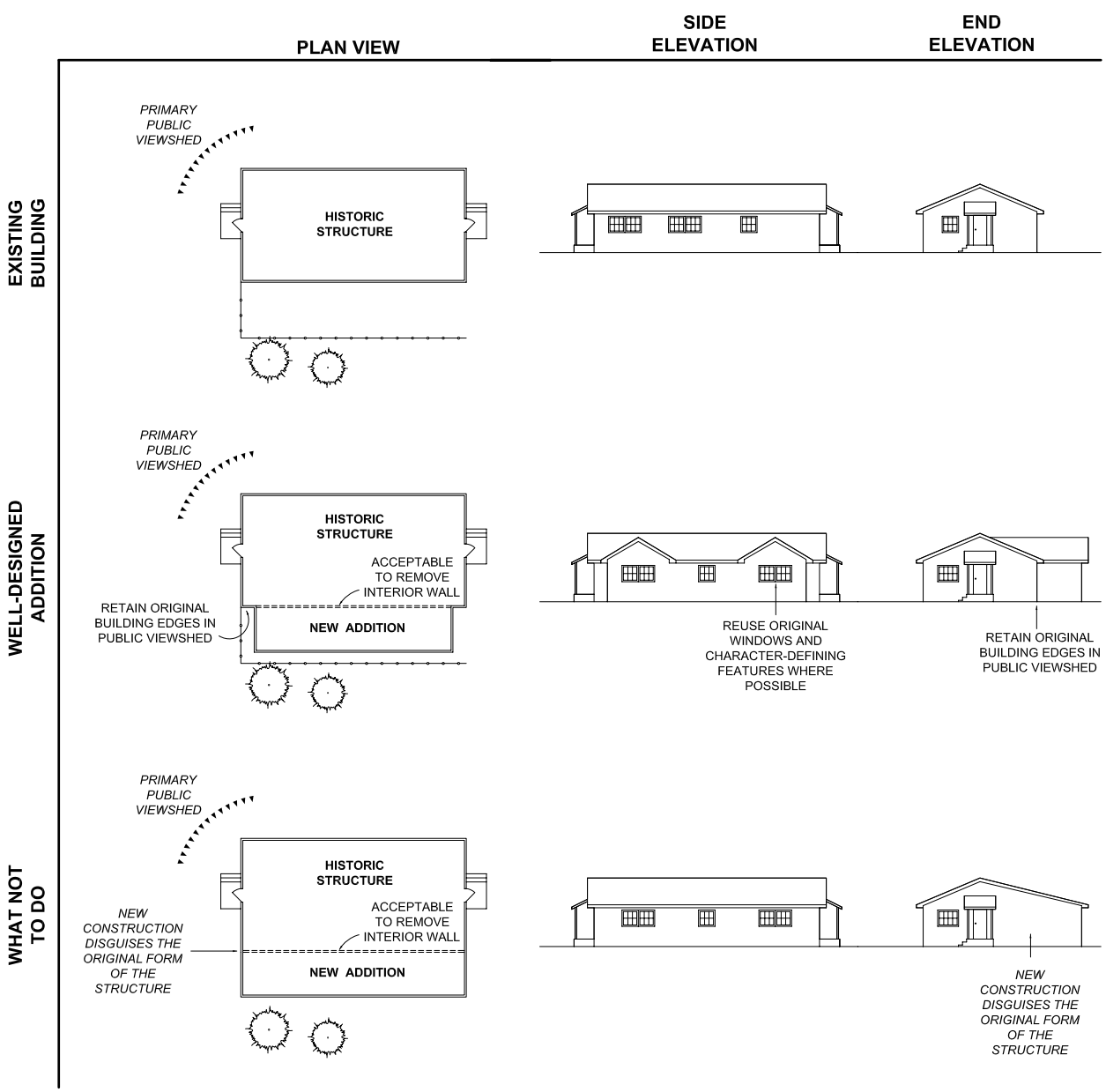
Project modernization efforts are primarily motivated by three major pursuits:

1. Technological enhancements to existing systems to improve hydroelectric generation performance;

2. Changing regulatory environment for meeting Federal safety and security requirements; and

3. Implementation of the FERC License Order and Settlement Agreement (PacifiCorp et. al. 2001) that require physical changes to Project facilities.

Modernization efforts are considered major undertakings and can include a range of construction activities, such as the construction of new communications buildings, to the addition of protective fencing and gates along waterways and critical facilities, to the addition of wildlife bridges and fish ladders. Construction associated with these types of activities is subject to the guidelines identified in this HSP.



North Umpqua Hydroelectric Project

Figure 5.5-1
Building plans to preserve
historic character of an existing structure

P:\2005\ 05100004_06\Documents\2006 HPMP\Graphics\HPMP\Figures\AI Files

This Page Intentionally Left Blank

5.7 Historic Resource Removal, Demolition, or Decommissioning

The removal of historic structures with architectural or engineering significance from the Project (as identified in the Maintenance Plans) will only occur as a last resort where avoidance fails to meet critical Project objectives. The demolition of such significant historic resources, whether as a result of changes in operation or other company interest, is by definition an adverse effect and will require the full NHPA Section 106 consultation and mitigation process as described in the HPMP Historic Structures Program. PacifiCorp anticipates removing one or more historic structures located in the Clearwater Maintenance Shop area that were originally built for "temporary uses" over the course of the Project license. The lack of structural integrity and function has made these buildings difficult to rehabilitate or reuse. PacifiCorp will consult with the SHPO to mitigate for this impact as these plans progress forward.

The demolition of non contributing structures located within Project developments that lack structural integrity or historic architectural/engineering significance is permitted without SHPO consultation, with the exception of buildings located within an historic district.

This Page Intentionally Left Blank

6.0 TECHNICAL GUIDANCE FOR MAINTENANCE AND CONSTRUCTION

6.1 Overview

This section provides a collection of technical guidance for the maintenance and preservation of historic structures for the use of field staff. As standards change and new treatment technologies become available, technical guidance on these matters may change over time. Therefore, the PacifiCorp CRC should continue to update this section and/or add new information to it over the course of the new operating license for staff use.

U.S. General Services Administration (GSA)
Historic Preservation Technical Procedures
[Developed based on information from the GSA website (GSA 2007)]

CHECKLIST FOR THE ROUTINE INSPECTION OF BUILDINGS
01800-01

INTRODUCTION:

All building materials deteriorate with age and exposure to the weather. Through routine inspection and cyclical maintenance, the useful life span of a building and its historic fabric will be greatly increased. The principal reason for developing this building inspection form is to advise building owners on the maintenance of their properties. The money invested in a building is considerable and care and effort are required to preserve and increase the value of the property. Unfortunately, many building owners use the "squeaky wheel" technique in their approach to maintenance, doing little or nothing until failure occurs. And when it does the owner is hit with high repair bills and great inconvenience. The job of maintenance can be simplified if it is done systematically instead of haphazardly. Preventive maintenance involves regular inspection of those parts of the building that are most likely to get out of working order. The accompanying checklist is intended to help a building owner or manager identify and keep an accurate record or inventory of the building's problems to facilitate systematic repair and maintenance.

This procedure is a brief but comprehensive overall building inspection. Each of the areas addressed may have more extensive inspection procedures which could be followed in the case of specific problems.

EXTERIOR INSPECTION:

1. ROOFS:

A roof is all that stands between the interior of a building and the weather outside. A neglected roof will result in higher costs from damages caused by leaks than a carefully maintained roof. Roofing materials and elements should be inspected twice a year, before and after the harsh weather of winter, to determine maintenance needs. The most common types of roof include gable, hip, hip-and-valley, gambrel, and flat or built-up roof.

a. Asphalt Shingles: Pay particular attention to shingles on the ridge, hips, and at roof edges; they get the hardest wear. Also watch for lumpiness that indicates a new roof has been applied over old shingles; all sorts of damage could be covered up. Look for:

- ☐ Mineral granules almost totally worn off shingles
- ☐ Mineral granules collecting in gutters and base of downspouts
- ☐ Edges of shingles look worn
- ☐ Nails popping up
- ☐ Roof looks new but lumpy

- ☐ Mold or moss forming on shingles
- ☐ Holes in the roof from guy cables, TV antennas etc.
- ☐ Leading edge of roof damaged by ladders

b. Clay Tiles: Clay tiles will weather well but are prone to breakage from mechanical shock, such as a falling tree limb or people walking on them. Check for:

- ☐ Broken tiles
- ☐ Missing tiles
- ☐ Nails popping up
- ☐ Mold or moss forming on tile

c. Slate: Some slates are more durable than others, but a properly laid slate should last a century or more. Check for:

- ☐ Broken slates
- ☐ Missing slates
- ☐ Slate flaking apart
- ☐ Nails letting go
- ☐ Slate particles collecting in valley flashing

d. Metal: If the metal isn't copper, your primary task will be to fight rust by keeping the roof painted. Check for:

- ☐ Rust or corrosion spots
- ☐ Signs of previous patch jobs
- ☐ Punctures in metal
- ☐ Joints and seams broken

e. Wood Shingles and Shakes: For maximum roof life, shingles and shakes require proper air circulation underneath so they can dry after rain. Therefore, they should be laid on open sheathing. If you find that they are improperly laid, you can help them dry by providing adequate ventilation in your attic. Look for:

- ☐ Biological attack (moss or mold, insects, birds)
- ☐ Cupping and warping
- ☐ Deep cracks and splits
- ☐ Wood has become unevenly thin from erosion

f. Built-up Roof: The roof membrane of a built-up roof consists of one or more plies of roofing felt bonded together either by hot or cold applied roof coatings. Deterioration of the membrane produces areas of the surface of the roof where leaks can occur. It is particularly difficult to diagnose leaks in flat roofs because water can enter at one point and migrate horizontally for long distance before leaking inside the building. Check for:

- ☐ Blisters or slits in the membrane
- ☐ Ponding of water (or dried areas where ponding was)

- ☐ Drain pipes are plugged
- ☐ Drip edges are provided
- ☐ Gravel covers roof well
- ☐ Flashing are well positioned or seated
- ☐ Trash build-up

2. ROOFING ELEMENTS:

a. Projections: Anything that breaks through the roof surface, such as a chimney or vent pipe, offers an entrance for water and so must be adequately flashed. Check that no projection or ornament is so weak or damaged that it could topple and smash roofing materials. Check for:

- ☐ Proper flashing around projections
- ☐ Weathering of mortar joints at chimneys
- ☐ Loose mortar joints that admit water
- ☐ Chimney leans
- ☐ Loose and wobbly antennae
- ☐ Loose lightning rods
- ☐ Loose and wobbly weather vane

b. Galvanic Action: Corrosion of metals can be caused by galvanic action. Check for:

- ☐ Ferrous metals touching dissimilar metals, such as galvanized nails in copper flashing

c. Cornice: Roofs frequently fail first at the edges and admit water into the cornice. Check for:

- ☐ Moisture causing paint to peel on cornice, especially at the underside
- ☐ Broken or missing cornice
- ☐ Cracks and other damages

d. Underside of Roof: Pay particular attention to projections and eaves. Inspect on a rainy day to see if water stains are current or past problem. Look for:

- ☐ Water stains on soffit boards
- ☐ Damaged soffit boards
- ☐ Damaged fascia boards

e. Flashing: Flashing is usually made of thin metal, such as copper, aluminum, or galvanized steel. It should be installed completely around every protrusion through the roof, and at every joint where vertical wall intersects the roof. Check for:

- ☐ Loose, corroded, or broken flashing
- ☐ Missing and uncaulked openings at the tops of flashing
- ☐ Daubs of roof cement on flashing (They may hide leaks that have not been corrected)
- ☐ Base flashing and counterflashing of vertical joints

f. Gutters and Leaders: Leaking gutters can cause extensive damage to the entire building, not just the roof. Pay special attention to built-in gutters which can feed hidden leaks directly to the cornice and down into the main structure. Check for:

- ☐ Gutters clogged with debris or ice
- ☐ Gutters that are rusty or corroded
- ☐ Gutters that are loose, tilted, or missing
- ☐ Broken seams in metal linings of built-in gutters
- ☐ Birds nests and roosting places

3. EXTERIOR WALL MATERIAL:

The accumulated effects of hot sun, wind, rain, hail, dust, winter snow, and ice over the years will weather even the best quality masonry wall and/ or siding. Natural finishes, including paint, deteriorate and show signs of peeling and blistering. Cracks develop as members weather and caulking and mortar joints give way to water penetration. The following checklist will be useful in inspecting buildings on a regular basis to determine maintenance needs.

a. Masonry & Mortar: The inspector should pay particular attention to loose mortar joints, cracks, stains and wet spots on the wall.

- ☐ Cracks can be horizontal, vertical, diagonal, hairline or major. Document the nature of the crack, explaining as best as possible the causes of the cracks.
- ☐ Mortar: Inspect mortar joints to determine if they are loose or missing and evaluate their condition as good, fair or poor.
- ☐ Brick: Check for stains, wet spots, bulges, spalling, efflorescence, and missing brick.
- ☐ Stone: Inspect stone work for wet spots, stains, spalling, bulges, and efflorescence. For a comprehensive inspection checklist for stone, see 04400-01-S.

b. Stucco/Plaster: Inspect for:

- ☐ Cracks, staining, loose stucco, soft spots, blisters or bulges, and falling stucco.

c. Siding and Sheathing: Hot sun, wind, rain, hail, dust and winter snow and ice are the principal causes of damages to siding and sheathing. Inspect siding, soffits and wood trim such as cornices for:

- ☐ Cracked boards, loose boards, or broken boards
- ☐ Rotted and missing members
- ☐ Signs of veins of dirt (termite tunnels)

4. EXTERIOR FINISHES:

Natural finishes need to be renewed periodically by application of a fresh penetrating stain coat when wear begins to show. There are many causes of poor paint wear. Most common are vapor or condensation problems. Other causes are rain or other water behind siding and also improperly applied priming coat.

a. Painting: Inspect all finished surfaces for:

- ☐ Signs of peeling, cracks, and alligatoring
- ☐ Document the overall findings as good, fair, or poor

b. Decorative Elements: Ornamental elements also undergo wear and tear. Inspect not only the ornament but also its supports, such as anchors, for expansion due to rust.

- ☐ Cast iron: Inspect for rust, deterioration, corrosion, and loose and missing members
- ☐ Stone/terra cotta: Inspect for loose, eroded, spalled, and stained tiles
- ☐ Wood: Inspect for rot, moisture, cracks, missing and loose members

5. FENESTRATION:

Doors and windows constitute main sources of energy loss through air infiltration. Energy losses can be reduced by weatherstripping. Inspect to ensure that weatherstripping is properly installed and all sources of infiltration are in check.

a. Doors: Inspect doors, frames, and weatherstripping. Check:

- ☐ Door alignment
- ☐ All parts for deterioration
- ☐ All door hardware for proper operation

b. Windows: Inspect windows for material soundness at sill, joint between sill and jamb, corners of bottom rail and muntins. Check for:

- ☐ Proper operation of all sash (including upper sash of double hung units)
- ☐ Proper operation of hardware
- ☐ Loose, cracked or missing glazing putty
- ☐ Soundness of weatherstripping
- ☐ Cracks and other damages to lintel
- ☐ Rot and/or deterioration of wood framing

6. EXTERIOR CEILINGS AND DECKS:

a. Porch: Moisture problems in an exterior ceiling are indications of faulty drainage from the roof above. Inspect the roof to make sure water isn't entering the main structure of the building as well. Check for:

- ☐ Peeling paint and water stains on the ceiling
- ☐ Rotted and warped boards in the deck
- ☐ Damaged and/or loose steps and handrails
- ☐ Rotted boards and other damages to ceiling
- ☐ Cracks and other damages on a concrete floor
- ☐ Spalling, cracks, loose and/or missing mortar joints on brick or stone

b. Wooden Supports: Wood destroying insects and fungi can cause considerable damage to the wooden supports of exterior ceilings and decks. Early detection of pests and decay can help building owners avoid expensive repairs. Inspectors should pay particular attention to:

- ☐ Molds and fungus
- ☐ Wood rot and termite infestation
- ☐ Seal of deck at foundation
- ☐ Corrosion of iron fittings on members

c. Infestation: Chemical treatment of the structure and adjacent soil will drive insects away. No matter what protective measures are taken, a periodic inspection should be made at least every six months. The existence of termites or infestation in older buildings with crawl space is difficult to detect because contact with the soil is usually direct and termite tubes are not evident. Inspection by professional exterminators is essential in such cases. Check for:

- ☐ The need of treatment for ants and other wood destroying insects
- ☐ Termites
- ☐ Damage and rot on all wood members

7. GROUNDS:

The ground should be properly graded to direct the flow of rainwater away from the building and from the lot to prevent standing water. The property should always be checked after a heavy rain to see if it drains properly.

a. Driveways and Sidewalks: Check for:

- ☐ Safety hazards (heaves and depressions)
- ☐ Cracks on and deterioration of paved material
- ☐ Damages to and curb clearances
- ☐ Oil stains and pools of water

b. Window Well: Check for:

- ☐ Leaks and standing water
- ☐ Leaves and other debris
- ☐ Other damages to window well material

c. Storm Drains: Check for proper drainage and/or clogging of drain line.

d. Retaining Wall: Check for:

- ☐ Cracks, spalling from subflorescence and freezing
- ☐ Leaning and Bulges
- ☐ Loose, crumbling, and missing mortar joints

e. Foundation: Inspect to ensure that there is no collection of leaves and other debris at the edges of the foundation and for proper drainage. Check for:

- ☐ Cracks, spalling from subflorescence and freezing
- ☐ Leaning and Bulges
- ☐ Loose, crumbling, and missing mortar joints

f. Landscape: Check all landscape features e.g., Trees, Bushes for diseased or dead parts. Check if:

- ☐ Trees overhang or touch building which cause damage or trash build-up
- ☐ Creepers and vines are causing damage (paint peeling, joint deterioration etc.)
- ☐ Plants holding water against structure
- ☐ Tree roots damaging structure
- ☐ Bare spots show in lawn and /or shrubs need pruning

8. INTERIOR INSPECTION:

BASEMENT AND CRAWL SPACE: Foundation walls are subject to a wide variety of stresses and strains that cause concrete and other masonry to expand and contract. This sometimes results in cracks, leaks or condensation problems. Inspect to ensure that rainwater and other sources of moisture drain away from the building. Check for dampness on surfaces and for mold on joists at the point where the first floor joists meet the foundation wall.

a. Load Bearing Masonry Wall: Inspect load bearing walls for structural damages paying particular attention to the following:

- ☐ Cracks caused by either structural movement or material shrinkage
- ☐ Leaning and bulges
- ☐ Loose/damp mortar joints and spalling
- ☐ Wet spots, stains and water penetration
- ☐ Insect/termite infestation and decay on wood members

b. Cast-in-Place Concrete Wall: Look for:

- ☐ Settlement, cracks, and leaning
- ☐ Water penetration, wet spots, and stains
- ☐ Moisture conditions (dampness etc.)
- ☐ Insect/termite infestation and decay on wood members

c. Wood Joists & Beams: Check for:

- ☐ Sagging at the center of span
- ☐ Springiness or vibration
- ☐ Pronounced slope in one direction
- ☐ Split at bottom of joist or beam
- ☐ Floor squeaking and insect infestation/decay
- ☐ Bearing on masonry
- ☐ Bulging or sagging plaster ceiling

- ☐ Overloading of joists and beams

d. Steel Beams/Concrete Deck: Check for:

- ☐ Deflection at midspan
- ☐ Sloping floor
- ☐ Corroded connections
- ☐ Missing connections and connections bearing on masonry
- ☐ Settlement effects, mechanical or exterior leakage

e. Reinforced Concrete Floor: Check for:

- ☐ Spalling and exposed reinforced steel
- ☐ Wide, regularly spaced cracks in floor
- ☐ Cracks near and parallel to masonry wall
- ☐ Surface dusting and cracked concrete near columns

f. Masonry Floors: Check for:

- ☐ Leaks, cracks, and spalling
- ☐ Alterations and new holes cut on floor for stairs, mechanical installations etc.
- ☐ Efflorescence
- ☐ Sidewalk vaults and subgrade storage
- ☐ Crack at the crown of the arch and between supporting walls

g. Wood Floor: Wood floors members bearing directly to the soil are susceptible to insect and fungus attack. Check the underside of boards and floor joists for fungus, insect and or termite attack. Look for:

- ☐ Cracks and badly damaged boards
- ☐ Twisted boards
- ☐ Squeaking
- ☐ If floor boards need refinishing

h. Carpet: Inspect for:

- ☐ Frayed edges
- ☐ Damaged portions
- ☐ Stains and worn out areas

i. Ceramic Tile: Inspect for:

- ☐ Adherence and grout in joints
- ☐ Loose joints
- ☐ Splits and cracks
- ☐ Missing tiles

j. Interior Wall Finishes: Includes but not is limited to plaster/stucco, gypsum board, wood, and wallpaper.

- ☐ Push on suspect wall surfaces to check for looseness
- ☐ Check for signs of dampness (this suggests leaks, either from the roof or internal pipes)
- ☐ Inspect for cracks, bulges, peeling, blistering and mildew

k. Ceiling Finishes: May be plaster/stucco, gypsum board, wood, wallpaper, or any other material. Specify this other material in your inspection record sheet. Check for:

- ☐ Signs of damp plaster on ceilings (this suggests leaks from the roof or plumbing and mechanical pipes)
- ☐ Loose plaster, cracks and bulges
- ☐ Blistering and peeling

l. Interior Decorative Masonry: This includes window sills, walls, wainscot, and floors. Check for:

- ☐ Dullness of surfaces
- ☐ Stains, dampness, and spalling

m. Fireplace: Inspect active fireplaces thoroughly for fire safety, material soundness, and structural stability. Check:

- ☐ Connection with flues
- ☐ If damper is operable
- ☐ If the flue is lined with a clay-tile liner to prevent fire and fumes leakage into the building
- ☐ If the flue is unobstructed all the way to the roof
- ☐ If the fire box has a firebrick liner

n. Metal Surfaces: Brass, cast iron, and bronze. Inspect all exposed ornamental metal trim. Check for:

- ☐ Built-up dirt, stain and rust
- ☐ Corrosion and cracked surfaces

o. Stairs: (refers to wooden stairs) Check for:

- ☐ Secureness of all railings
- ☐ Gaps between treads, risers and stringers
- ☐ Stair pulling away from the wall
- ☐ Looseness or other damage to balustrades
- ☐ Looseness and other damage to newel post
- ☐ Irregular riser-tread ratios

p. Interior Doors and Wood Trim: Check for:

- ☐ Proper door alignment, fit and operation
- ☐ Presence of all door hardware
- ☐ Proper operation of all locks

- ☐ Deterioration of hinges and pins
- ☐ Condition of finish and other problems

q. Interior Windows and Wood Trim: Check for:

- ☐ Proper window alignment, fit and operation
- ☐ Presence and functioning of all window hardware
- ☐ Proper operation of locks, hinges and pins
- ☐ Signs of water leakage at frames
- ☐ Movement of sash up and down the frame
- ☐ Seals around window panes
- ☐ Condition of finish and record other problems

r. Kitchen Cabinets/Counters: Inspect cabinets and counters to ensure that all drawers and doors are properly hung and secure, and that no movements are restricted and to ensure that all units are securely anchored to walls and floor. Check for:

- ☐ Missing handles and hardware
- ☐ Badly worn or stained countertops
- ☐ Condition of finish

9. MECHANICAL AND ELECTRICAL:

a. Electrical: Ascertain that there are sufficient power circuits to run all the appliance and equipment the owner uses. Remember that older buildings were not originally wired to take care of the many electrical appliances and the equipment used today. Check:

- ☐ The condition of incoming service wires and supports
- ☐ The operation of all exterior outlets and switches
- ☐ Whether all exterior plugs are fitted with ground fault connectors
- ☐ Whether fuses or circuit breakers trip frequently
- ☐ Whether an electrician has periodically checked all aluminum wire connections
- ☐ Whether power is brought in overhead rather than underground (if so, look for trees or other hazards that could cause problems)

b. Plumbing and Mechanical Systems: Note which types of heating, ventilating and air conditioning systems the building presently has. Inspect the furnaces, ducts, registers, and radiators.

- ☐ Look for any obvious signs of deterioration, damage, stains and rot
- ☐ Inspect the water supply and waste pipes for rust and leaks
- ☐ Has the local gas company tested gas lines for leaks (if not, have them do so).

10. ATTIC:

a. Condensation occurs in the attic principally because of easy pathways for moisture to migrate from the occupied areas, or because of inadequate ventilation. The ventilators (louvers) in the attic should remain open to provide circulation of air throughout the year. Check for:

- ☐ Any signs of roof or flashing leaks on rafters and insulation
- ☐ Signs of mildew on underside of roof boards
- ☐ Smoke or water leaks or breaks in the mortar joints of the chimney
- ☐ Straightness and sound condition of roof rafters
- ☐ Adequacy and condition of insulation
- ☐ Nests and blockages of ventilation openings
- ☐ Operation of vent and/ or attic fan

National Park Service Preservation Briefs

The National Park Service publishes a series of **Preservation Briefs** to guide the management of historic structures and properties. Preservation Briefs assist owners and developers of historic buildings in recognizing and resolving common preservation and repair problems prior to work. The first Preservation Brief was published in 1975. Since then, over 40 more have been added to the series. For over 25 years, Technical Preservation Services has helped home owners, preservation professionals, organizations, and government agencies by publishing easy-to read guidance on preserving, rehabilitating and restoring historic buildings.

The illustrated Preservation Briefs 1-43 are available online and can be accessed at the following URL:

http://www.cr.nps.gov/hps/tps/briefs/presbhom.htm

The briefs can also be purchased as hard copies from the Government Printing Office, by calling TOLL-FREE 866-512-1800.

An index of the briefs is listed below.

Preservation Brief 1: Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings. Robert C. Mack, FAIA, and Anne E. Grimmer. Surveys a variety of cleaning methods and materials and provides guidance on selecting the most appropriate method and the *gentlest means possible*. Discusses water-repellent coatings and waterproof coatings together with the purpose of each, the suitability of their application to historic masonry buildings, and possible consequences of their inappropriate use. 16 pages. 27 illustrations. 2000. *GPO stock number: 024-005-01207-9. $2.25 per copy.*

Preservation Brief 2: Repointing Mortar Joints in Historic Masonry Buildings. Robert C. Mack, FAIA, and John P. Speweik. Provides general guidance on appropriate materials and methods for repointing historic masonry buildings. This publication revises the 1980 edition of *Preservation Briefs 2: Repointing Mortar Joints in Historic Brick Buildings* and includes guidance for all types of historic masonry. 16 pages. 36 illustrations. 1998. *GPO stock number: 024-005-01192-7. $2.00 per copy.*

Preservation Brief 3: Conserving Energy in Historic Buildings. Baird M. Smith, AIA. Provides information on materials and techniques to consider or avoid when undertaking weatherization and energy conservation measures in historic buildings. 8 pages. 8 illustrations. 1978.

Preservation Brief 4: Roofing for Historic Buildings. Sara M. Sweetser. Provides a brief historic of the most commonly used roofing materials in America. Presents a sound preservation approach to roof repair, roof replacement, and the use of alternative roofing materials. 8 pages. 1978.

Preservation Brief 5: The Preservation of Historic Adobe Buildings. Provides information on the traditional materials and construction of adobe buildings, and the causes of adobe deterioration. Makes recommendations for preserving historic adobe buildings. 8 pages. 15 illustrations. 1978.

Preservation Brief 6: Dangers of Abrasive Cleaning to Historic Buildings. Anne E. Grimmer. Cautions against the use of sandblasting to clean various buildings and suggests measures to mitigate the effects of improper cleaning. Explains the limited circumstances under which abrasive cleaning may be appropriate. 8 pages. 10 illustrations. 1979.

Preservation Brief 7: The Preservation of Historic Glazed Architectural Terra-Cotta. de Teel Patterson Tiller. Discusses deterioration problems that commonly occur with terra-cotta and provides methods for determining the extent of such deterioration. Makes recommendations for maintenance and repair, and suggests appropriate replacement materials. 8 pages. 11 illustrations. 1979.

Preservation Brief 8: Aluminum and Vinyl Siding on Historic Buildings: The Appropriateness of Substitute Materials for Resurfacing Historic Wood Frame Buildings. John H. Myers, revised by Gary L. Hume. Discusses the appearance of various types of historic wood siding and makes recommendations for repair and replacement. Outlines the very limited instances under which substitute siding may be an acceptable alternative. 7 pages. 5 illustrations. Rev., 1984.

Preservation Brief 9: The Repair of Historic Wooden Windows. John H. Myers. Provides useful information on evaluating and repairing historic wooden windows found in typical rehabilitation projects. Emphasizes practical methods for homeowners or developers. 8 pages. 10 illustrations. 1981.

Preservation Brief 10: Exterior Paint Problems on Historic Woodwork. Kay D. Weeks and David W. Look, AIA. Identifies and describes common types of paint surface conditions and failures. Provides guidance on preparing historic woodwork for repainting, including limited and total paint removal. 12 pages. 14 illustrations. 1982.

Preservation Brief 11: Rehabilitating Historic Storefronts. H. Ward Jandl. Explores the role of the storefront in historic buildings and provides guidance on rehabilitation techniques for historic storefronts as well as compatible storefront designs. 12 pages. 12 illustrations. 1982.

Preservation Brief 12: The Preservation of Historic Pigmented Structural Glass (Vitrolite and Carrara Glass). Provides information on the early manufacture, installation, and use of this decorative building product commonly found in 20th century buildings; reasons for its damage; and a general approach for its maintenance, repair, and replacement. 8 pages. 16 illustrations. 1984.

Preservation Brief 13: The Repair and Thermal Upgrading of Historic Steel Windows. Sharon C. Park, AIA. Presents brief historical background on the development, use, and styles of rolled steel windows popular in the first half of the 20th century. Explains steps for cleaning and repairing damaged steel windows; also provides information on appropriate methods of

weatherstripping and options for storm panels or the installation of thermal glass. 12 pages. 10 illustrations. 1984.

Preservation Brief 14: Exterior Additions to Historic Buildings: Preservation Concerns. Kay D. Weeks. Uses a series of examples to suggest ways that attached additions can successfully serve contemporary uses as part of a rehabilitation project while preserving significant historic materials and features and the building's historic character. 12 pages. 30 illustrations. 1986.

Preservation Brief 15: Preservation of Historic Concrete: Problems and General Approaches. William B. Coney, AIA. Focus on reinforced concrete (cast-in-place or reinforced), useful for anyone undertaking repair or limited replacement. The guidance addresses the causes of concrete deterioration, the signs of deterioration, and actual concrete repair. 12 pages. 27 illustrations. 1987.

Preservation Brief 16: The Use of Substitute Materials on Historic Building Exteriors. Sharon C. Park, AIA. Includes a discussion of when to use substitute materials, cautions regarding their expected performance, and descriptions of several substitute materials together with advantages and disadvantages. Summary charts included. 16 pages. 34 illustrations. 1988.

Preservation Brief 17: Architectural Character - Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character. Lee H. Nelson, FAIA. Essential guidance to help property owners and architects identify those features of historic buildings that give the building its visual character so that their preservation can be maximized in rehabilitation. 12 pages. 27 illustrations. 1988.

Preservation Brief 18: Rehabilitating Interiors in Historic Buildings - Identifying Character-Defining Elements. H. Ward Jandl. Assists building owners in identifying significant interior spaces, features, and finishes so they may be preserved in rehabilitation work. The guidance applies to all building types and styles, from 18th century churches to 20th century office buildings. 8 pages. 11 illustrations. 1988.

Preservation Brief 19: The Repair and Replacement of Historic Wooden Shingle Roofs. Sharon C. Park, AIA. Discusses historic wooden roofing, expectations for longevity, and repair and replacement options. Identifies roofing material that duplicates the appearance of a historic roof, offers guidance on proper installation, and provides information on coatings and maintenance procedures to help preserve the roof. 12 pages. 16 illustrations. 1989.

Preservation Brief 20: The Preservation of Historic Barns. Michael J. Auer. Identifies historic barn types, helps owners understand the historic character of their barns, and offers advice on the maintenance, repair, and rehabilitation of old and historic barns. 12 pages. 30 illustrations. 1989.

Preservation Brief 21: Repairing Historic Flat Plaster--Walls and Ceilings. Marylee MacDonald. Guides building owners on repairing historic plaster using traditional materials (wet plaster) and techniques. Suggests replacement options if the historic plaster is severely deteriorated. Useful chart on various plaster bases and compatible basecoats and finish coats. 14 pages. 17 illustrations. 1989.

Preservation Brief 22: The Preservation and Repair of Historic Stucco. Anne E. Grimmer. Describes the evolution of stucco as a popular building material, beginning with a brief history of how stucco is applied, and how its composition, texture, and surface patterns have changed. Includes guidelines for the historic property owner or manager on how to plan for and carry out repair of historic stucco, with sample mixes for 18th, 19th, and 20th century stucco types. 12 pages. 33 illustrations. 1990.

Preservation Brief 23: Preserving Historic Ornamental Plaster. David Flaharty. Discusses ornamental plaster production, explaining the processes of run-in-place and cast ornamentation using three common decorative forms as examples: the cornice, ceiling medallion, and coffered ceiling. Guidance will help an owner identify deterioration causes and better understand complex restoration techniques. Useful advice on selecting and evaluating a restoration contractor is included. 12 pages. 34 illustrations. 1990.

Preservation Briefs #24-34
Sold only as a set. 1994. *GPO stock number: 024-005-01147-1. $15.00 per set.* **Note: Temporarily out of stock, awaiting GPO reprint.**

Preservation Brief 24: Heating, Ventilating, and Cooling Historic Buildings: Problems and Recommended Approaches. Sharon C. Park, AIA. Underscores the importance of careful planning in order to balance preservation objectives with the interior climate needs of the building. Useful charts included. 14 pages. 28 illustrations. 1991.

Preservation Brief 25: The Preservation of Historic Signs. Michael J. Auer. Discusses the history of sign types pre-1800 to the 20th century, including symbol signs, flat signs, fascia signs, hanging signs, goldleaf signs, rooftop signs, and neon signs. Makes recommendations for their repair and re-use. 12 pages. 29 illustrations. 1991.

Preservation Brief 26: The Preservation and Repair of Historic Log Buildings. Bruce. L. Bomberger. Focuses on horizontally laid or vertically positioned logs, but the preservation and repair treatments are essentially the same for all log structures. Discusses traditional splicing-in techniques, the use of epoxies, and replacement, as well as guidance on the repair and replacement of chinking and daubing. 14 pages. 32 illustrations. 1991.

Preservation Brief 27: The Maintenance and Repair of Architectural Cast Iron. John G. Waite; historical overview by Margot Gayle. Discusses the role of cast iron in the industrial development of our country during the 19th century and the resulting advances in building design and technology and ornamental detailing. Provides essential guidance on maintaining and repairing architectural cast iron within rehabilitation projects. 12 pages. 30 illustrations. 1991.

Preservation Brief 28: Painting Historic Interiors. Sara B. Chase. Discusses wall paint and decorative surface treatments from the late 17th century to the 1950s. Describes the usefulness of a complete paint investigation for preservation and restoration projects. Provides guidance on the common causes of interior paint failure and preparing surfaces for repainting. Makes recommendations about paint with health and safety factors in mind. 16 pages. 22 illustrations. 1992.

Preservation Brief 29: The Repair, Replacement, and Maintenance of Slate Roofs. Jeffrey S. Levine. Describes the causes of slate roof failures and provides comprehensive guidance on their sensitive repair and, when necessary, their appropriate replacement. A useful Repair/Replacement Guideline is included to assist owners prior to work. 16 pages. 42 illustrations. 1992.

Preservation Brief 30: The Preservation and Repair of Historic Clay Tile Roofs. Anne E. Grimmer and Paul K. Williams. Reviews the history of clay roofing tiles and describes many types and shapes of historic tiles, as well as their method of attachment. Provides general guidance for historic property owners on how to plan and carry out a project involving the repair and selected replacement of historic clay roofing tiles. 16 pages. 33 illustrations. 1992.

Preservation Brief 31: Mothballing Historic Buildings. Sharon C. Park, AIA. Describes process of protecting a deteriorating historic building from weather as well as vandalism when funds are not currently available to begin a preservation, rehabilitation, or restoration project. 14 pages. 27 illustrations. 1993.

Preservation Brief 32: Making Historic Properties Accessible. Thomas C. Jester and Sharon C. Park, AIA. Introduces the complex issue of providing accessibility at historic properties, and underscores the need to balance accessibility and historic preservation. Provides guidance and many examples of successful projects. 14 pages. 43 illustrations. 1993.

Preservation Brief 33: The Preservation and Repair of Stained and Leaded Glass. Neal A. Vogel and Rolf Achilles. Gives a short history of stained and leaded glass in America. surveys basic preservation and documentation issues and addresses common causes of deterioration and presents protection, repair, and restoration options. 1993. 16 pages. 25 illustrations. 1993.

Preservation Brief 34: Applied Decoration for Historic Interiors: Preserving Historic Composition Ornament. Jonathan Thornton and William Adair, FAAR. Describes the history, appearance, and characteristics of this uniquely pliable material. Provides guidance on identifying compo and suggests appropriate treatments, depending upon whether the project goal is preservation or restoration. 16 pages. 52 illustrations. 16 pages. 51 illustrations. 1994.

Preservation Brief 35: Understanding Old Buildings: The Process of Architectural Investigation. Travis C. McDonald, Jr. Explains architectural investigation as the critical first step in planning an appropriate treatment--understanding how a building has changed over time and assessing levels of deterioration. Addresses the often complex investigative process in broad, easy-to-understand terminology. 1994. 12 pages. 23 illustrations. 1994.

Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes. Charles A. Birnbaum, ASLA. Describes cultural landscapes as special places that reveal aspects of our country's origins and development through their form and features and the ways they were used. Provides a step-by-step process for preserving historic designed and vernacular landscapes to ensure a successful balance between historic preservation and change. 20 pages. 50 illustrations. 1994.

Preservation Brief 37: Appropriate Methods of Reducing Lead-Paint Hazards in Historic Housing. Sharon C. Park, AIA, and Douglas C. Hicks. Recommends an appropriate methodology for planning and implementing measures to reduce lead-paint hazards in historic houses while preserving their character-defining features. Follows a well-balanced approach that is sensitive to the health and safety of children who live in historic houses as well as those involved in rehabilitation and restoration projects. Includes useful decision-making charts. 16 pages. 32 illustrations. 1995.

Preservation Brief 38: Removing Graffiti from Historic Masonry. Martin E. Weaver. Focuses on cleaning methods that can be used to remove surface-applied graffiti without damaging historic masonry. Emphasizes prompt removal as the key to preventing recurrence of graffiti, as well as the importance of developing a maintenance program in advance to be prepared when graffiti occurs. Includes "tips" for successful graffiti removal, a discussion of barrier coatings, and useful charts designed to guide the graffiti-removal process. 15 pages. 23 illustrations. 1995.

Preservation Brief 39: Holding the Line: Controlling Unwanted Moisture in Historic Buildings. Sharon C. Park, AIA. Outlines a way to diagnose moisture problems and choose remedial treatments within a historic preservation context. Considers the five major sources of moisture, including the exterior building envelope, ground moisture infiltration, interior condensation, leaking pipes, and moisture from cleaning or construction. Provides guidance on managing moisture deterioration, repairing and maintaining historic building materials, and correcting common problem areas. Includes charts on types of diagnostic tools, recommended treatments and treatments that should always be avoided. 16 pages. 30 illustrations. 1996.

Preservation Brief 40: Preserving Historic Ceramic Tile Floors. Anne E. Grimmer and Kimberly A. Konrad. Summarizes the historical use of glazed and unglazed ceramic tiles as a traditional flooring material, and describes different types of tiles, including quarry tiles, encaustic tiles and geometric tiles, and mosaic tiles. Provides useful guidance for maintaining and preserving historic ceramic tile flooring, on cleaning treatments, and on protective and code-required, slip resistant coatings. Also contains information on various repair options, as well as the selective replacement of damaged tiles. Useful sources for replacement tiles. 16 pages. 25 illustrations. 1996.

Preservation Brief 41: The Seismic Retrofit of Historic Buildings: Keeping Preservation in the Forefront. David Look, AIA, Terry Wong, and Sylvia Rose Augustus. Discusses the issues of protecting historic buildings in seismic areas from earthquake damage. Stresses the importance of working with a team of specialists familiar with historic building construction and the alternative approaches to seismic retrofit that make a building safe without destroying significant historic materials. Provides essential guidance on evaluating historic buildings, the extent of strengthening to consider, design approaches, and the visual impact of these changes. 16 pages. 37 illustrations. 1997.

Preservation Briefs 42: The Maintenance, Repair, and Replacement of Historic Cast Stone. Richard Pieper. Defines cast stone as a building material and provides a brief history of its manufacture and use. Discusses the causes of its deterioration, repairable conditions, and methods of repair. Also addresses the replication and replacement of historic cast stone installations, and

the use of cast stone as a substitute replacement material for natural stone. 16 pages. 26 illustrations. 2001.

Preservation Briefs 43: The Preparation and Use of Historic Structure Reports. Deborah Slaton. Defines the historic structure report and provides a historical overview of its use. Outlines an entire procedure for preparing it taking a team approach. Topics in the Brief include historical/archival research, site inspection, evaluation, and treatment recommendations, the organization and contents of the report itself, and how the report is applied to the development of design and construction documents and implementation of work. 16 pages. 25 illustrations. 2004. *GPO stock number: 024-005-01191-9. $2.50 per copy.* 2004.

Preservation Briefs 44: The Use of Awnings on Historic Buildings: Repair, Replacement and New Design. Chad Randl. Provides a comprehensive overview of the practical and aesthetic use of various types of awnings over time. Presents guidance for their maintenance, preservation and repair. Discusses the circumstances under which awning replacement is appropriate, as well as how to achieve a compatible design for new awnings on historic buildings. 16 pages. 25 illustrations. *GPO stock number: 024-005-01222-2. $2.75 per copy.* 2004.

This Page Intentionally Left Blank

7.0 MAINTENANCE UPDATES AND PROJECT ACTIVITY FILES

This section is a collection of maintenance notes and/or files for Project operations and maintenance activities. This section also provides a place to document the evolving history of Project developments. The PacifiCorp CRC is responsible for collecting this information and maintaining the HSP.

This Page Intentionally Left Blank

8.0 REFERENCES

Anderson, William T., and Shirley Payne Low. 1985. *Interpretation of Historic Sites, 2nd Edition.* Nashville: American Association for State and Local History. Available: <http://www.vbba.org/ed-interp/definitions.doc>. Accessed October 18, 2007.

Boyle, John C. 1977. *Toketee.* Printed by Klockner Printery, Medford, OR.

FERC (Federal Energy Regulatory Commission) and ACHP (Advisory Council on Historic Preservation). 2002 (May 20). *Guidelines for the Development of Historic Properties Management Plans for Hydroelectric Projects.*

GSA (General Services Administration). 2007. GSA - Technical Resources. Available: http://www.gsa.gov/Portal/gsa/ep/channelView.do?pageTypeId=8195&channelPage=%2Fep%2Fchannel%2FgsaOverview.jsp&channelId=-15162>. Accessed October 18, 2007.

NPS (National Park Service). 2007. TPS Preservation Briefs. Available: <http://www.cr.nps.gov/hps/tps/briefs/presbhom.htm>. Last updated October 18, 2007. Accessed October 18, 2007.

PacifiCorp, USDA-FS (U.S. Department of Agriculture – Forest Service), NMFS (National Marine Fisheries Service), USDI-FWS (U.S. Department of the Interior – Fish and Wildlife Service), USDI-BLM (U.S. Department of the Interior – Bureau of Land Management), ODEQ (Oregon Department of Environmental Quality), ODFW (Oregon Department of Fish and Wildlife), and OWRD (Oregon Water Resources Department). 2001(June 13). *Settlement Agreement (SA) Concerning the Relicensing of the North Umpqua Hydroelectric Project.* FERC Project No. 1927. Douglas County, Oregon.

PacifiCorp. 1994 (April). *Final Technical Report for Cultural Resources of the North Umpqua Hydroelectric Project.* Prepared by EDAW, the Oregon State Museum of Anthropology (B. O'Neill and L. White), and Rob Winthrop. Portland, OR.

PacifiCorp. 2006a (September). *Final Historic Properties Management Plan (HPMP) for the North Umpqua Hydroelectric Project (FERC Project No. 1927).* Prepared by EDAW in collaboration with PacifiCorp Energy, U.S. Department of Agriculture-Forest Service, U.S. Department of the Interior-Bureau of Land Management, and the Oregon State Historic Preservation Office. Seattle, WA.

PacifiCorp. 2006b. *Resource Coordination Plan (RCP) for the North Umpqua Hydroelectric Project (FERC Project No. 1927).* Prepared by EDAW, Seattle, WA..

USDI (United States Department of the Interior). 2007. Secretary's Standards--Architectural and Engineering Documentation. Available: <http://www.cr.nps.gov/local-law/arch_stnds_6.htm.> Accessed: October 19, 2007.

This Page Intentionally Left Blank