Vegetation Management Plan
North Umpqua Hydroelectric Project
(FERC No. 1927)

Prepared by:

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In Consultation with:

USDA Forest Service
Pacific Northwest Region
Umpqua National Forest
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USDI Bureau of Land Management
Roseburg District

April 2004

VEGETATION MANAGEMENT PLAN (PLAN)

Approved by:

Forest Supervisor 4/19/04
Approved by USDA Forest Service, Umpqua National Forest Date

4/28/04
Approved by USDI Bureau of Land Management, Roseburg District Date

5/11/04
Approved by PacifiCorp, a U.S. Division of Scottish Power Date

EXECUTIVE SUMMARY

PacifiCorp, a United States division of Scottish Power (PacifiCorp), is the operator of the North Umpqua Hydroelectric Project FERC No. 1927 (Project), licensed by the Federal Energy Regulatory Commission (FERC) in 1947. Under the terms of the North Umpqua Hydroelectric Project Settlement Agreement (SA), dated June 13, 2001 among PacifiCorp and the United States Department of Agriculture-Forest Service (USDA-FS), United States Department of Interior-Bureau of Land Management (USDI-BLM), and other agencies, a new FERC license was issued on November 18, 2003 for a term of 35 years. All parties to the SA recognize PacifiCorp's requirements and responsibilities for vegetation management related to Project operations and maintenance. As the Project is located within lands managed by the USDA-FS and USDI-BLM, these agencies have a shared responsibility in management of the vegetation resources.

PacifiCorp has, in consultation with the USDA-FS and USDI-BLM, prepared this Vegetation Management Plan (Plan) under the authority of Title 18 Code of Federal Regulations (CFR) 4.41 (Major Modified Project), which identified the need to define the responsibilities of parties when operations and maintenance actions are required on the Project. The SA called for completion of the Plan in 2002; this deadline was extended to 2003 by the Executive Policy Group of the Resource Coordinating Committee (RCC).

PacifiCorp, the USDA-FS, and USDI-BLM will use the Plan to manage vegetation within the Project boundary over the new license term. The Plan provides goals and objectives for managing vegetation, identifies roles and responsibilities, and describes specific implementation programs. Overall, the Plan is intended to provide guidelines for maintaining vegetation in the vicinity of Project facilities, minimizing the establishment and spread of noxious weeds, and providing for revegetation of disturbed areas. Thus, the Plan includes three programs:

1. Vegetation Maintenance;
2. Noxious Weed Prevention and Control; and
3. Revegetation.

The Plan contains the details of these three programs with supporting information in Exhibits (A through H). The map set specific to the Plan is included as Exhibit G; the North Umpqua Hydroelectric Project (FERC Project No. 1927) Constraint Maps, which apply to this plan and the other plan prepared under the SA, are provided in a separate volume.

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EXHIBITS

FIGURES AND TABLES

ACRONYMS AND ABBREVIATIONS

ADR	Alternative Dispute Resolution
AMP	Aesthetics Management Plan
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts
APHIS	Agricultural Plant Health and Inspection Service
ATV	all-terrain vehicle
BMP	best management practice
BO	Biological Opinion
BPA	Bonneville Power Administration
CE	Categorical Exclusion
CNAP	Colorado Natural Areas Program
dbh	diameter at breast height
EA	Environmental Assessment
ECP	Erosion Control Plan
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act
FMP	Fire Management Plan
GIS	geographic information system
GPS	global positioning system
IFPL	Industrial Fire Precaution Level
JATL	Joint Access Transmission Line Roads
JMH	Jointly Maintained Hydro Roads
kV	kilovolt
Licensee	PacifiCorp (a business unit of Scottish Power)
LMTL	licensee maintained transmission line
LRMP	Land and Resource Management Plan
MOU	Memorandum of Understanding
NAWMA	North American Weed Management Association
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
O&M	operations and maintenance
ODA	Oregon Department of Agriculture
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
OSWB	Oregon State Weed Board
Plan	Vegetation Management Plan
PM&E	Protection, Mitigation, & Enhancement Measure
PMH	PacifiCorp-Maintained Hydro Roads
PMR	PacifiCorp-Maintained Recreation Roads
Project	North Umpqua Hydroelectric Project

ACRONYMS AND ABBREVIATIONS (continued)

RCC	Resource Coordination Committee
RCP	Resource Coordination Plan
RMP	Resource Management Plan
ROW	right-of-way
RRMP	Recreation Resource Management Plan
SA	Settlement Agreement
SR	State Route
TES	Threatened, Endangered, and Sensitive
T-line	transmission line
TMP	Transportation Management Plan
TNC	The Nature Conservancy
UNF	Umpqua National Forest
USDA	United States Department of Agriculture
USDA-FS	United States Department of Agriculture – Forest Service
USDI	United States Department of the Interior
USDI-BLM	United States Department of the Interior – Bureau of Land Management
USDI-FWS	U.S. Department of the Interior Fish and Wildlife Service
USGS	United States Geologic Society
WSNWCB	Washington State Noxious Weed Control Board

1.0 INTRODUCTION

PacifiCorp, a United States division of Scottish Power (PacifiCorp), is the operator of the North Umpqua Project (FERC Project No. 1927), licensed by the Federal Energy Regulatory Commission (FERC) in 1947. The Project is located in Douglas County, Oregon and is primarily on the Umpqua National Forest (UNF), which is managed by the United States Department of Agriculture-Forest Service (USDA-FS); portions of the transmission line corridors cross lands managed by the United States Department of the Interior-Bureau of Land Management (USDI-BLM). These two agencies, along with PacifiCorp, have a shared responsibility for resource management within the Project boundary. Based on the terms of the North Umpqua Settlement Agreement (SA) (June 13, 2001) among PacifiCorp, the USDA-FS, USDI-BLM, and other agencies, the FERC agreed to issue a new license for a period of 35 years. The new license was issued by the FERC in November 18, 2003. Under Section 12 of the SA, PacifiCorp agreed to develop a Vegetation Management Plan (Plan) for the North Umpqua Project in consultation with the USDA-FS and USDI-BLM (see Exhibit A for Section 12 of the SA and the agency consultation record for Plan development). Recognizing that Project facilities require management related to Project operations and maintenance (O&M), PacifiCorp acknowledges responsibilities in the SA for providing appropriate resources to meet existing and future needs for vegetation management.

1.1 USER'S GUIDE

This section is a user's guide to help clarify potential conflicts or ambiguity in implementing the Plan during the term of the new license. If the authority or action is unclear or contradictory, the following prioritized list of plans will guide decision-makers. The priority plan hierarchy is as follows (first to last):

- FERC license (November 18, 2003).
- Settlement Agreement (SA) (June 13, 2001).
- Management Plans including this Plan and associated main text sections and exhibits.
- Management Plans including this Plan and associated broader goals, objectives, and vision statements.
- Settlement Agreement (June 13, 2001) Appendices and Schedule that were superseded with exhibits in this Plan.

Potential conflicts or ambiguity in implementing this Plan may be discussed and addressed during annual vegetation management coordination meetings and during Plan review and potential revisions to occur at least every 10 years.

1.2 PURPOSE AND INTENT

The primary purpose of this Plan is to establish the programs needed to effectively guide the management of vegetation now and in the future within the FERC Project boundary. The Plan is intended to cover all Project-related O&M activities on federal lands, including the transmission line corridors. The Plan establishes goals for managing vegetation within the Project boundary,

defines specific activities of processes or measures to meet these goals, and describes how these activities are to be implemented.

1.3 GOALS

To meet the purpose and intent of this Plan, goals and objectives were developed to guide vegetation management activities related to Project O&M in accordance with Section 12, Vegetation Management, of the SA. Four goals and their respective objectives are listed below.

Goal 1: Promote the establishment and maintenance of native vegetation communities while allowing for continued Project operations in a safe and effective manner.

> **Objective 1a:** Manage vegetation in the transmission line corridor in a way that promotes low-growing native shrub and grass/forb communities (see Section 3.1).
>
> **Objective 1b:** Protect sensitive habitats and plant species within the Project boundary (see Sections 3.1 3.2, and 4.4).

Goal 2: Minimize the establishment and spread of noxious weed species within the Project boundary.

> **Objective 2a:** Establish a process and a schedule consistent with USDA-FS and USDI-BLM objectives to inventory and monitor noxious weed infestations within the Project boundary (see Sections 4.2, 4.3 ,and 4.4).
>
> **Objective 2b:** Develop procedures consistent with those used by the USDA-FS and USDI-BLM to prevent the establishment of noxious weeds in areas disturbed by Project O&M activities (see Section 4.3).
>
> **Objective 2c:** Coordinate with the USDA-FS and USDI-BLM to control known noxious weed infestations within the Project boundary using methods consistent with agency objectives (see Section 4.4).

Goal 3: Provide for revegetation of disturbed areas resulting from Project O&M.

> **Objective 3a:** Develop a list of activities that result in disturbance and a definition of what constitutes disturbed lands requiring revegetation (see Section 5.1).
>
> **Objective 3b:** Develop standards and guidelines for plant material selection, site preparation, planting, and monitoring/contingency planning (see Section 5.3).
>
> **Objective 3c:** Coordinate with the USDA-FS and USDI-BLM to ensure that native plant policies are met and that sources for plant materials meet site/zone requirements (see Sections 5.2 and 5.3).
>
> **Objective 3d:** Provide information for planning revegetation projects and ensuring use of certified weed-free seed (see Section 5.3).

Goal 4: Provide streamlined procedures consistent with USDA-FS and USDI-BLM land management objectives and plans for managing vegetation that affects Project operations or safety, controlling weeds, and revegetating disturbed areas within the Project boundary.

> **Objective 4a:** Coordinate with the USDA-FS and USDI-BLM to ensure that vegetation removal and associated revegetation activities are consistent with, or complementary to, objectives for weed prevention, fish and wildlife habitat, visual resources, erosion control, ground cover, riparian reserves, and fire/fuels management (see Sections 3.1, 3.2, 3.3, and 5.3).
>
> **Objective 4b:** Develop an annual vegetation management coordination and planning process (see Section 2.2).
>
> **Objective 4c:** Implement vegetation management practices that provide for native plant communities, as appropriate for the site (see Sections 3.1, 3.2, 3.3, and 5.3).

1.4 PLAN IMPLEMENTATION ACTIVITIES SUMMARY

The intent of the Plan is to provide PacifiCorp, the USDA-FS, and USDI-BLM with the information needed to implement vegetation management activities associated with Project O&M, as outlined in Section 12 of the SA. This Plan is one of several management plans that address resource management needs and related implementation actions for the Project. Other related plans that reference vegetation management include the Aesthetics Management Plan (AMP), Erosion Control Plan (ECP), Recreation Resource Management Plan (RRMP), and Transportation Management Plan (TMP) , and (PacifiCorp 2004a,b,c,d, respectively). Overall coordination of these and other plans is the purpose of the umbrella Resource Coordination Plan (RCP) (PacifiCorp 2005).

This Plan is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contributions of funds between the PacifiCorp and the USDA-FS and USDI-BLM relative to the Plan will be handled in accordance with applicable laws, regulations, and procedures including those for government procurement and printing. This Plan does not provide such authority. Such endeavors are outlined in a separate Collection Agreement made in writing by representatives of the PacifiCorp and the USDA-FS and/or USDI-BLM independently and as authorized by appropriate statutory authority.

The Plan consists of three separate but inter-related implementation sets of activities and measures, each dealing with a specific aspect of vegetation management:

1) **Vegetation Maintenance -** describes measures for the routine removal and disposal of vegetation that interferes with safe and effective Project operations.

2) **Noxious Weed Prevention and Control** - prescribes methods for the prevention and control of noxious weeds in the Project boundary.

3) **Revegetation -** outlines the measures to revegetate sites disturbed by Project O&M.

1.5 EXPLANATION OF TERMS AND DEFINITIONS

Key terms and definitions used throughout this Plan and relevant to vegetation management are defined as follows.

Aesthetics Management Plan (AMP) - The plan that establishes goals for managing aesthetics/visual resources in the Project vicinity, identifies a number of actions, and describes programs designed to implement those actions.

Approval - Confirmation of concurrence with plans, design, projects, and schedules prior to implementation by the party or parties assigned the responsibility in the SA.

Authority - The legal right to approve or modify an action or proposed action; this is based on statute, regulations, or legal agreements.

Brush - Small trees (< 4 inches diameter-at-breast-height) and shrubs.

Conductor – Material, usually in the form of a wire or cable, suitable for carrying electric current.

Construction - The erection, construction, installation, or assembly of a new fixed asset.

Consultation - Formal or informal discussions for the purposes of developing and/or reviewing proposed projects and implementation plans. Consultation involves providing another party an opportunity for review and input regarding a proposed plan or project. The objective of consultation is to obtain input and reach a joint understanding of requirements for the project or plans. The results of consultation are generally documented in reports or letters. Informal consultation generally pertains to the results of meetings, exchange of e-mail, or other informal communication between parties. Formal consultation involves procedures that are covered by agency regulations, such as consultation with U.S. Department of the Interior Fish and Wildlife Service (USDI-FWS) under the Endangered Species Act, and tribal consultation.

Distribution Lines – A circuit of low voltage wires, energized at voltages from 0 to 69 kV, and used to distribute energy to residential, industrial, and commercial customers. Normally constructed on wood poles with various cross arms that are attached to support the necessary electrical conductors.

Environmental Coordinator – PacifiCorp employee responsible for coordinating all maintenance and construction activities that may affect environmental resources within the Project boundary.

Erosion Control Plan (ECP) - The document that specifies the treatment and control of existing and future erosion sites within the Project boundary.

FERC Project Boundary - The boundary of the Project as approved by the FERC under the license.

Fire Management Plan (FMP) - The document that describes the methods and actions to prevent and control fire in and around North Umpqua Project facilities.

Funding – Money that is available and has been committed by an organization to accomplish an activity, project, or program. Funding represents monies currently available for expenditure for the designated work, compared to a budget that may only represent a plan or projection for use of future anticipated funding. A commitment of money may take several forms, including a contract, approved collection agreement, payment of a bill of collection, appropriation of funds by Congress and allocated by higher levels of an agency, or a formal grant agreement.

Guideline - A statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if professional judgment or scientific/engineering study indicates the deviation to be appropriate.

Hazard Tree - A dead, dying, diseased, deformed, or unstable tree with a high probability of falling and contacting a Project facility.

Joint Access Transmission Line (JATL) Roads - These roads, located primarily in the western portion of the Project vicinity, are used by the USDI-BLM, USDA-FS, PacifiCorp, commercial users, and the public. PacifiCorp use of joint access transmission line roads is minimal (e.g., one or two times per year). The cost of maintaining these roads is the responsibility of the land owner or land management agency where the road is located.

Jointly Maintained Hydro (JMH) Roads - Those roads jointly maintained by PacifiCorp and the USDA-FS, and used by the public. These roads are located in the Umpqua National Forest (UNF) and are used by PacifiCorp to operate and maintain its hydro facilities and nearby transmission lines.

License - The FERC license for the North Umpqua Hydroelectric Project, FERC Project No. 1927.

Licensee-Maintained Transmission Line (LMTL) Roads - These roads, located primarily in the western portion of the Project, are used by the USDI-BLM, USDA-FS, PacifiCorp, and the public. PacifiCorp's use of these transmission line roads is minimal (e.g., one or two times per year). The cost of maintaining and closing these roads shall be borne by the first party that needs to access these roads.

Maintenance - The act of keeping fixed assets in acceptable condition. It includes preventive maintenance, normal repairs, replacement of parts and structural components, and other activities needed to preserve a fixed asset so that it continues to provide acceptable service and achieves its expected life. Maintenance excludes activities aimed at expanding the capacity of an asset or otherwise upgrading it to serve needs different from, or significantly greater than, those originally intended. Maintenance includes work needed to adhere to laws, regulations, codes, and other legal direction as long as the original intent or purpose of the fixed asset is not changed.

May – This word is not normally synonymous with "should" and does not normally express certainty as "will" or "shall" do. It is used to indicate a certain measure of likelihood or possibility, and is used to express a desire, contingency, purpose, or result. It implies permission to do something.

Must - This word, like the word "shall," is of mandatory effect.

Noxious Weed - Non-native plants specified by law as being especially undesirable, troublesome, and difficult to control (USDI-BLM 1995)

PacifiCorp-Maintained Hydro (PMH) Roads - Those hydro-related roads that are maintained and used by PacifiCorp for the operation and maintenance of the Project's hydro facilities.

PacifiCorp-Maintained Recreation (PMR) Roads - Those roads associated with selected USDA-FS campgrounds and day use areas located within the Project boundary including the following recreation sites (refer to the RRMP): Toketee, Toketee Falls, Lemolo No. 2 Forebay, Poole Creek, Bunker Hill, Inlet, East Lemolo, and a future campground facility at Lemolo or Toketee Lake.

Project - The North Umpqua Hydroelectric Project, FERC Project No. 1927, including all its associated lands within the FERC Project boundary, and facilities that are operated and maintained by PacifiCorp.

Project Boundary - The FERC Project boundary as amended in the new license.

Recreation Resource Management Plan (RRMP) - The planning document that guides the management of existing and future recreation resources associated with the Project over the next license period. The RRMP establishes goals for managing recreation resources in the Project vicinity, identifies measures for existing and proposed recreation resources, and describes programs designed to implement those measures.

Resource Coordination Committee (RCC) - Created by Section 21 of the North Umpqua Hydroelectric Project Settlement Agreement (FERC No. 1927-008), the RCC derives its authority from the Settlement Agreement, and makes collective decisions while implementing the agreement. The structure and process of the RCC are intended to be value-added to its member organizations by providing a forum to address time-sensitive matters, and potential problems, and to coordinate member organization actions, schedules, and decisions to save time and expense. The RCC shall not infringe on the authority of the agencies.

Resource Coordination Plan (RCP) - The plan that outlines the methods and procedures to be followed by the RCC to facilitate implementation of the SA.

Revegetation - The act of reestablishing plants on sites where vegetation has been removed or disturbed by construction or maintenance activities. Involves seeding or planting trees, shrubs, or grasses.

Rolling 5-Year Vegetation Management Action Plan - An annually updated vegetation management and coordination plan that is jointly prepared by the parties. The plan framework is defined as a 5-year rolling plan based on a calendar year and is presented in Exhibit B. The plan includes the current year, looks out three years for planning purposes, and looks back 1 year for accounting purposes, for a total of 5 years.

Shall - As used in the SA and this Plan, this word is imperative and mandatory. "Shall" is a word of command, and one which has always or which must be given a compulsory meaning as denoting obligation. It has a peremptory meaning, and it is generally imperative or mandatory. It has the invariable significance of excluding the idea of discretion, and has the significance of operating to impose a duty which may be enforced, particularly if public policy is in favor of this meaning, or when addressed to public officials, or where a public interest is involved, or where the public or persons have rights which ought to be exercised or enforced, unless a contrary intent appears.

Should - The past tense of shall; ordinarily implying duty or obligation; although usually no more than an obligation of propriety or expediency, or a moral obligation, thereby distinguishing it from "ought." It is not normally synonymous with "may," and although often interchangeable with the word "would"; it does not ordinarily express certainty as "will" and "shall" do.

Side Clearance - The process of removing trees and tree limbs that protrude into the transmission line right-of-way (ROW) under or over the lines.

Slash - Brush and tree limbs less than 6 inches in diameter that have been cut as part of vegetation maintenance activities.

Standard - A statement of required, mandatory, or specifically prohibitive practice regarding land management, safety, or other procedures.

Substations – Facilities that have transformers which take electricity at one voltage and transform it up or down to another voltage.

Switching Station – Facilities that route power at one voltage from one source to another, and provide switching and line protection functions at a single voltage.

Transmissions Lines – Power lines designed and constructed to support voltages from 115 kV and up.

Transportation Management Plan (TMP) - The transportation planning and policy document that describes activities and policies related to the coordination and cost sharing of all transportation-related needs of PacifiCorp and the agencies for roads and bridges necessary for Project operations.

Under Clearance - The process of removing trees growing under transmission lines.

Vegetation Management Plan (Plan) - The planning and policy document that describes activities, processes, and policies related to the coordination of all PacifiCorp's vegetation management activities related to Project O&M for the term of the new license.

Will - An auxiliary verb commonly having the mandatory sense of "shall" or "must." It is a word of certainty, while the word "may" implies permission to do something.

2.0 PLANNING AND COORDINATION

An important part of the Plan over the term of the new license will be ongoing planning and coordination by PacifiCorp, the USDA-FS, and USDI-BLM as conditions change. This section describes the following: (1) the roles and responsibilities of agencies and PacifiCorp; (2) development of annual plans that are integrated into a Rolling 5-Year Vegetation Management Action Plan; and (3) annual reviews and notification to the Resource Coordination Committee (RCC), which has responsibility for facilitating the implementation of the Settlement Agreement. These three elements are discussed below.

2.1 AGENCY AND PACIFICORP ROLES AND RESPONSIBILITIES

Implementation of the Plan is the primary responsibility of PacifiCorp as Licensee. However, since much of the Project is located in the UNF, the USDA-FS will play an important role in its implementation. The USDI-BLM will also have a continuing role over the term of the new license. Below are the overall roles and responsibilities of the primary players involved in the implementation of the Plan.

2.1.1 PacifiCorp

- Responsible for implementation of the Plan as a party to the SA including funding and implementation of specific vegetation management actions.
- Participates as a member of the RCC (SA 21.1).
- Coordinates and reviews annual updates to the Rolling 5-Year Vegetation Management Action Plan and other required annual notification to the RCC.
- Responsible for coordination with other Project-related resource management plans including the RRMP, TMP, AMP, ECP, FMP, and RCP.
- Responsible for periodic reporting to the FERC.
- Coordinates with the USDA-FS and USDI-BLM.
- Responsible for periodic (10-year) updates of the Plan, tracking, and distributing changes.
- Responsible for funding and/or conducting any required environmental compliance and permitting tasks for vegetation removal, weed prevention/control, and/or revegetation projects.
- Conducts or funds weed control and monitoring within the Project boundary and updates weed maps following inventory and control activities.
- Responsible for vegetation maintenance associated with Project O&M.
- Responsible for revegetating sites disturbed by current and future Project O&M activities and new construction projects under the Settlement Agreement.
- Responsible for monitoring weed control and revegetation projects and complying with agency recommendations for improvements.

2.1.2 Umpqua National Forest (USDA-FS)

- A party to the Settlement Agreement.
- Lead agency for any required environmental compliance and permitting on USDA-FS-managed lands within the Project boundary.

- Participates as a member of the RCC.
- Responsible for periodic updates to inventories of noxious weeds and threatened, endangered, and sensitive (TES) species within the Project boundary on the UNF, utilizing funding from PacifiCorp.
- Coordinates or conducts weed control and monitoring activities on lands within the Project boundary in the UNF using funding from PacifiCorp.
- Coordinates vegetation management activities at sites within the Project boundary that could potentially complement wildlife habitat and native plant restoration objectives for nearby areas on the UNF.
- Responsible for reviewing and approving revegetation plans for sites on the UNF disturbed by current and future Project O&M activities and new construction projects under the Settlement Agreement.
- Responsible for assisting PacifiCorp with monitoring associated with weed control and revegetation projects on USDA-FS-managed lands within the Project boundary, and making recommendations for improvements.
- Responsible for informing PacifiCorp of any USDA-FS management activities involving fire or timber harvest within or near the Project boundary.

2.1.3 Bureau of Land Management (USDI-BLM)

- A party to the Settlement Agreement.
- Lead agency for any required environmental compliance and permitting on USDI-BLM-managed lands within the Project boundary.
- Responsible for periodic updates to the weed inventory of the transmission line corridor through USDI-BLM lands within the Project boundary, utilizing funding from PacifiCorp.
- Coordinates or conducts weed control and monitoring activities on the transmission line corridor through USDI-BLM lands, using funding from PacifiCorp.
- Responsible for providing advice on revegetating sites on USDI-BLM lands within the Project boundary disturbed by current and future Project O&M activities and new construction projects under the Settlement Agreement.
- Responsible for assisting PacifiCorp with monitoring associated with weed control and revegetation projects on USDI-BLM-managed lands within the Project boundary, and making recommendations for improvements.
- Responsible for informing PacifiCorp of any USDI-BLM activities involving fire or timber harvest in or near the Project boundary.

2.1.4 Resource Coordination Committee (RCC)

- Prioritizes early implementation projects (SA 19.5.1).
- Facilitates coordination of the implementation of the RCP, including ongoing O&M (SA 21.1). As the RCP will not be finalized until 2005, this role may not take place until future years.

- Coordinates and monitors implementation of protection, mitigation, and enhancement (PM&E) measures (SA 21.1), and coordinate ongoing monitoring requirements by PacifiCorp (SA 21.1).
- Coordinates responses and evaluations specifically assigned to the RCC in the Settlement Agreement (SA 8.2.2, 8.3.3, 12.2, 14.3.3, 14.5, 17.8, 19.2.2, 22.5.2).
- Facilitates coordination and consultation on plans developed by PacifiCorp (SA 21.1).
- Reviews and comments on the draft annual report of RCC activities and implementation of the PM&E measures (SA 21.4.2).
- Serves as a common point of contact for public information regarding Settlement Agreement implementation (19.5.3).

Settlement Agreement Actions specifically excluded from RCC responsibility include, but are not limited to:

- Administration of Tributary Enhancement Program through Oregon Department of Fish and Wildlife (ODFW) Memorandum of Understanding (MOU) (SA 21.1).
- Administration of the Mitigation Fund through the USDA-FS (SA 21.1).
- Approval of plans and actions regarding specific PM&E measures specifically assigned to individual organizations for resource protection in the SA (SA 21.2).

2.2 ROLLING 5-YEAR VEGETATION MANAGEMENT ACTION PLAN DEVELOPMENT

Prior to each annual RCC meeting, PacifiCorp, the USDA-FS, and the USDI-(BLM) will meet at least 2 months ahead of time and plan for the upcoming year's vegetation management activities. These activities will be documented in a Rolling 5-Year Vegetation Management Action Plan. A framework for the Rolling 5-Year Vegetation Management Action Plan is presented in Exhibit B. The framework for this Plan will be tested in the initial years of implementation and may be adapted as necessary.

PacifiCorp, the USDA-FS, and the USDI-BLM will each designate a contact person who will coordinate Plan-related activities. PacifiCorp, the USDA-FS, and the USDI-BLM will seek agreement on the next year's vegetation management activities and will account for the previous year's expended funds, completed or uncompleted activities, and unforeseen needs and actions. Plans and costs will be detailed for the following activities:

- Vegetation maintenance projects
- Noxious weed inventory, monitoring, and control projects
- Revegetation projects

Projections for the next 4 years will also be developed, with an emphasis on any expected revegetation projects that may require long lead time to acquire native plant materials and require analysis under the National Environmental Policy Act (NEPA).

Each year, PacifiCorp, the USDA-FS, and the USDI-BLM will develop and approve a Rolling 5-Year Vegetation Management Action Plan when agreement is reached. If no agreement is

reached prior to the RCC meeting, any disagreements will go the RCC to facilitate an agreement (SA 21.1). If resolution is not reached with coordination with the RCC, the parties may petition the FERC for relief or initiate Alternative Dispute Resolution (ADR) process as provided by SA 22.7.

2.3 ANNUAL RESOURCE COORDINATION COMMITTEE (RCC) REVIEW

Once the annual update is completed and incorporated into the Rolling 5-Year Vegetation Management Action Plan, PacifiCorp will present a summary to the RCC. The RCC will have the opportunity to review and comment on the summary for 30 days prior to its full implementation by PacifiCorp, the USDA-FS, and USDI-BLM.

2.4 ENVIRONMENTAL APPROVALS, COMPLIANCE, AND PERMITTING

PacifiCorp will be responsible for funding and/or conducting environmental analysis, compliance, and permitting for vegetation management activities, as necessary, subject to the requirements contained in the SA, as well as laws, regulations, and policies in force at the time individual actions are undertaken.

Section 21.7 of the SA requires that PacifiCorp conduct or fund an environmental analysis of any ground- or habitat-disturbing actions associated with the SA measures on the UNF. Such environmental analysis must comply with criteria set forth in USDA-FS NEPA regulations and policies in existence at the time the particular measure is initiated by PacifiCorp. Consequently, as applicable USDA-FS NEPA implementation regulations and policies change concerning the application of NEPA to SA actions, so may PacifiCorp's obligations to undertake or fund appropriate NEPA analyses.

PacifiCorp will refer or rely upon applicable previous NEPA compliance documentation prepared by FERC, USDA-FS, USDI-BLM, or other parties to the maximum extent possible to avoid any unnecessary costs, duplication, and delay. Nothing in the Plan expands or alters PacifiCorp's obligations to conduct environmental analyses pursuant to the SA.

Section 21.1 of the SA requires that PacifiCorp prepare an RCP (PacifiCorp 2005) that unifies the processes for implementation of the New License conditions, ongoing operations, and maintenance activities consistent with the terms of the SA. The RCP is to be finalized within 1 year after the new license becomes final or 2005. One aspect of the RCP will be to provide more detail concerning needed environmental analysis, compliance, and permitting activities for implementation projects.

During the annual Plan meeting, PacifiCorp and the USDA-FS and USDI-BLM will consider environmental analyses, compliance, and permitting for all upcoming vegetation management projects. Because of the lead-time needed for some compliance activities (such as public input, cultural resource inventories, or ESA Section 7 consultation), advance scheduling is essential for timely implementation of vegetation management projects. Such activities should be scheduled 2 years in advance, to the extent possible. These activities will be identified in the Rolling 5-Year Vegetation Management Action Plan (see Exhibit B). To the extent possible, planned

vegetation management projects will be grouped together to minimize environmental analyses and permitting needs.

Planned activities will be reviewed for policy consistency with: (1) Project-related plans, such as the Erosion Control Plan (ECP) (PacifiCorp 2004b); and (2) non-Project-related plans, such as resource management plans, other guidance, or watershed analyses as listed below.

Project-Related Plans Prepared by PacifiCorp (PacifiCorp 2004a-e, 2005)

- Aesthetics Management Plan (AMP; PacifiCorp 2004a)
- ECP (PacifiCorp 2004b)
- Recreation Resource Management Plan (RRMP; PacifiCorp 2004c)
- Transportation Management Plan (TMP; PacifiCorp 2004d)
- Resource Coordination Plan (RCP; PacifiCorp 2005)

Non-Project-Related Plans

- Umpqua National Forest Land and Resource Management Plan, as amended (USDA-FS 1990)
- FSM 2700 – Special Uses Management, Chapter 2770 – Federal Power Act Projects, Amendment 2700-2003-2, as amended (USDA-FS 2003)
- Roseburg District Resource Management Plan, as amended (USDI-BLM 1990)
- Middle North Umpqua Watershed Analysis (USDA-FS 2001)
- Diamond Lake and Lemolo Lake Areas Watershed Analysis (USDA-FS 1998)
- Fish Creek Watershed Analysis (USDA-FS 1999)
- Calf-Copeland Watershed Analysis (USDA-FS 2001)
- Umpqua National Forest Integrated Noxious Weed Management Project EA (USDA-FS 2003).
- Draft Region 6 EIS on Invasive Plants (USDA-FS in prep.)

2.5 COORDINATION WITH OTHER PROJECT PLANS

This Plan is one of a number of management plans that provide implementation direction and guidance for various activities associated with the Project and addressed in the SA (Table 2.5-1). The plans generally cover a number of activities; but there is a primary plan for each of the activities listed in Table 2.5-1 that is the principal source of specific implementation direction. Where conflict in directions between two or more plans exists, the plan listed as "primary" will take precedence. For example, this Plan will address the treatment of noxious weeds at recreation sites, such as Toketee Campground, Bunker Hill Campground, and Soda Springs Day Use Area. The ECP, however, identifies specific sites that might require revegetation as part of erosion control measures.

Table 2.5-1. Summary of management plans for the North Umpqua Project[1]

Activity	Primary Plan	Funding Responsibility	Other References
Vegetation maintenance along Project roads	VMP	TMP	AMP
Revegetation associated with Project roads and improvements	VMP	TMP	VMP, AMP
Noxious weed control along Project roads	VMP	TMP	AMP
Vegetation maintenance in Project recreation sites	VMP	RRMP	AMP
Vegetation management adjacent to recreation sites	VMP	VMP	RRMP, AMP
Noxious weed control at recreation sites	VMP	RRMP, VMP	AMP
Noxious weed control along the transmission line ROW and other Project facilities	VMP	VMP	AMP
Revegetation for O&M-related construction projects	VMP	VMP	RRMP, AMP, ECP
Revegetation associated with erosion control projects	ECP	VMP	AMP
Vegetation maintenance along Project transmission lines and around Project facilities	VMP	VMP	AMP
Vegetation maintenance in the 11 visually sensitive sites along the Wild and Scenic River and State Route 138 corridors	AMP	VMP	TMP

[1]VMP is used to refer to the Vegetation Management Plan in this table.

3.0 VEGETATION MAINTENANCE

This chapter provides a set of measures and procedures to guide the routine removal and disposal of vegetation that potentially interferes with safe and effective Project operations. To facilitate use by PacifiCorp managers with different responsibilities and jurisdictions, the specific methods included in vegetation maintenance are organized into three main sections—the first two covering the transmission line and distribution line corridors, and the third addressing other Project facilities, including powerhouses, canals and penstocks, dams, roads, administrative sites, recreation sites, and impoundments.

3.1 TRANSMISSION LINE

The Project consists of eight individual hydroelectric plants that are connected to a 115 kV transmission system (see maps in Exhibit G [bound separately]). This system includes approximately 117.5 miles of 115 kV line and two switching stations. In general, power is transmitted from the Toketee switching station to the Dixonville substation, about 7 miles east of Roseburg, where there is a 230 kV transformation and connection to PacifiCorp's bulk transmission system (PacifiCorp 1992). There are eight separate transmission lines within the Project boundary (Table 3.1-1). There are 68.7 and 9.1 miles of transmission line corridor on lands managed by the USDA-FS and USDI-BLM, respectively.

Table 3.1-1. North Umpqua Project transmission lines.

Line No.	Distance (Miles)	Location/Description
39	49	Connects the Glide substation to the Dixonville substation; generally follows the North Umpqua River.
42	4	Collects output from the Toketee, Fish Creek, Slide Creek, and Soda Springs powerhouses and inputs to the Toketee switching station.
46	43	Connects the Toketee switching station to the Dixonville substation. Generally follows the North Umpqua River parallel to Line 39.
51	2.2	Connects the Clearwater and Toketee switching stations.
53	12	Connects the Lemolo No. 1 powerhouse to the Clearwater switching station.
55	1.3	Connects the Lemolo No. 2 powerhouse to the Clearwater switching station.
55-1	0.8	Connects the Clearwater No. 1 powerhouse to the Clearwater switching station.
57	5.2	Connects the Clearwater No. 2 powerhouse to the Clearwater switching station.

The majority of the Project transmission system was constructed in the 1950s, but numerous poles have been replaced since then (PacifiCorp 1992). Although most of the transmission lines cross lands managed by the USDA-FS, Lines 39 and 46 also transect several parcels of USDI-BLM land, as well as some private lands near Dixonville. This Plan covers activities on federal lands only.

The ROW clearance area, or corridor, associated with the Project transmission lines averages about 100 feet (50 feet on each side of the line) and is entirely within the Project boundary.

PacifiCorp manages vegetation within this corridor to provide for the safe transmission of electricity, with the following mission statement as a guide:

> *Manage trees and vegetation around transmission and distribution facilities in a professional, cost-effective, and environmentally conscientious manner to provide safe, reliable, and outstanding service to our customers.* (PacifiCorp 2002)

The eight transmission line ROWs include a number of sites that are occupied by rare plants, cultural resources, and/or sensitive wildlife species. The sites are shown on the North Umpqua Project (FERC Project No. 1927) Constraint Maps, which are confidential but available to PacifiCorp, USDA-FS, and USDI-BLM staff involved in planning processes. There are also sections of the ROWs proximal to wildlife habitats that are sensitive to disturbance during certain times of the year (e.g., the spring nesting season). All vegetation maintenance activities in the transmission line ROWs will be planned in accordance with spatial and temporal constraint zones associated with sensitive resource sites. The locations of vegetation maintenance activities along the transmission line corridor planned for a given year will be identified as part of the annual update of the Rolling 5-Year Vegetation Management Action Plan. These areas will then be mapped as an overlay that can be used to identify any areas with spatial or temporal constraints and/or opportunities.

The following measures will be implemented, as appropriate, for all vegetation maintenance clearance activities associated with the transmission lines:

- Crews working on USDA-FS and USDI-BLM lands will observe the Industrial Fire Precaution Level (IFPL) and have proper fire-suppression tools and materials, as required by the Oregon Department of Forestry (ODF).
- Gas power tools will be equipped with approved spark arresters.
- Areas of ground disturbance, as determined by the USDA-FS or USDI-BLM, will be subject to weed control activities and revegetated according the guidance in Sections 4.0 and 5.0 of this document.
- Heavy mechanical clearing will be conducted only when the ground is dry enough to support the equipment being used.
- Planting to encourage the establishment of low-growing plant communities in riparian reserves, highway buffers, or other segments of the ROW will use native species according to the guidance provided in Section 5.0 of this document.

PacifiCorp's vegetation maintenance in and along the transmission line corridor includes the following six types of activities:

- Inspection;
- Hazard tree removal;
- Under clearance;
- Side clearance;
- Access road clearance; and
- Slash and debris management.

These activities, along with methods and PacifiCorp/agency responsibilities, are defined in the following sections.

3.1.1 Inspection

3.1.1.1 Definition/Objectives

Inspection is the process of examining the transmission lines and associated ROWs with the objective of identifying damage, hazardous conditions, and/or normal wear requiring maintenance. Inspection of the Project lines occurs annually, after severe storms and fire events, and during outages.

3.1.1.2 Inspection Methods

Inspections of the transmission line are typically conducted by helicopter, with follow-up ground surveys where needed. Ground surveys are conducted by accessing the area by vehicle or on foot. Routine annual inspections are scheduled in spring so that maintenance activities can occur during the warmer drier weather in the summer and fall. Prior to conducting annual helicopter surveys, PacifiCorp will check for any areas along the transmission lines that have temporal constraints by referring to the North Umpqua Hydroelectric Project Constraint Maps and schedule inspections of these areas at an appropriate time or on foot.

3.1.1.3 Management Responsibilities, Planning, and Consultation

PacifiCorp will notify the USDA-FS and/or USDI-BLM prior to conducting any aerial inspection. Following each annual inspection, PacifiCorp will prepare a report that includes the following information:

- Date;
- Locations of hazard trees or hazardous conditions requiring immediate attention;
- Poles or conductors requiring maintenance or replacement;
- Areas in the ROW requiring vegetation removal within the current or following year; and
- Schedule for dealing with hazardous conditions, maintenance, and vegetation removal activities for the current year.

This inspection report will then be incorporated into the annual update of the Rolling 5-Year Vegetation Management Action Plan. All locations in the report will be referenced by global positioning system (GPS) coordinates and/or pole numbers, when available. The North Umpqua Hydroelectric Project Constraint Maps will be used to identify any sites with spatial or temporal constraints.

3.1.2 Hazard Tree Removal

3.1.2.1 Definition/Objectives

A hazard tree is defined as either: (1) a dead, dying, diseased, deformed, or unstable tree with a high probability of falling and contacting a substation, transmission conductors, structures, or

guy wires (PacifiCorp 2002); or (2) a green tree currently under or near the transmission line that will grow into the line within the next year. Hazard trees are typically large trees growing outside the cleared ROW for a transmission line. Prevailing winds, slope, and soil depth are factors that need to be considered when identifying hazard trees. These trees are usually identified during routine or periodic inspections conducted to assess damage from a specific storm or wind event. The primary objective in managing hazard trees is removal or topping, as safely as possible.

3.1.2.2 Removal/Disposal Methods

Cutting with chainsaws is the primary method for removing or topping hazard trees in the vicinity of transmission lines. To the extent possible, trees will be cut in a manner that minimizes damage to the trunk and root systems of adjacent trees. Where appropriate, conifers will be cut below the lowest live limb to eliminate the continued growth of lateral branches. Stumps will be cut parallel to the ground to prevent injury. Other considerations for removal and disposal of hazard trees include the species, size (height and diameter-at-breast height [dbh]), condition, and location. The USDA-FS or USDI-BLM, in consultation with PacifiCorp, will determine if the tree should be: (1) felled to preserve commercial value; (2) be converted to a wildlife tree by topping below a height that would contact the transmission line if the tree were to fall; or (3) felled and left in place or moved into the ROW to provide habitat for wildlife species that use down wood. The USDA-FS and USDI-BLM will consider Northwest Forest Plan (USDA-FS and USDI-BLM 1994) standards and guidelines in deciding disposal, but safety will be the prime consideration.

3.1.2.3 Management Responsibilities, Planning, and Consultation

Hazard trees, by definition, present an emergency situation that must be dealt with quickly and outside the annual vegetation management action planning process. PacifiCorp will be responsible for identifying hazard trees; coordinating with the USDA-FS or USDI-BLM on options for removal/topping and deposition of the tree; and conducting or overseeing the removal process. The USDA-FS and USDI-BLM will be responsible for assigning staff who can provide timely consultation to PacifiCorp on hazard trees issues. Upon notification of a hazard tree(s), the USDA-FS or USDI-BLM will respond by scheduling a consultation meeting or phone call, with removal and disposal methods to be agreed on at that time.

3.1.3 Under Clearance

3.1.3.1 Definition/Objectives

The National Electric Safety Code (American National Standards Institute [ANSI] 1997) requires utilities (such as PacifiCorp) to clear trees growing under power lines. Under clearance is the process of cutting trees growing under transmission lines, with the primary objective of preventing fires and outages that can result when vegetation contacts ungrounded supply conductors. Where possible, PacifiCorp will also minimize damage to existing low-growing species that do not conflict with power lines (PacifiCorp 2002), with the secondary objective of maintaining or promoting an early seral successional stage (grasses, forbs, and shrubs).

Under clearance along transmission lines is dependent on the height of the wires above the ground under maximum load conditions (heat, ice, etc.). For the North Umpqua Project transmission lines, the extent of under clearance varies across the following three zones and is also affected by the presence of riparian reserves or highways:

- **Zone A** – Areas where lines are less than 50 feet off the ground. The ROW in Zone A is cleared of all trees and tall shrubs growing within what is defined as the "wire zone." The wire zone includes the area directly under the transmission lines and an additional area extending from directly under the outside phases 10 feet toward the ROW edge (Figure 3.1-1). After clearing, the wire zone should consist of only grasses, forbs, and low growing shrubs (<5 feet tall at maturity; see Exhibit C). The 10-foot wide border outside the wire zone can include tall shrubs or small trees (5-25 feet tall at maturity), as well as grasses and forbs (PacifiCorp 2002). Conifers are removed from both the wire and border zones of Zone A.

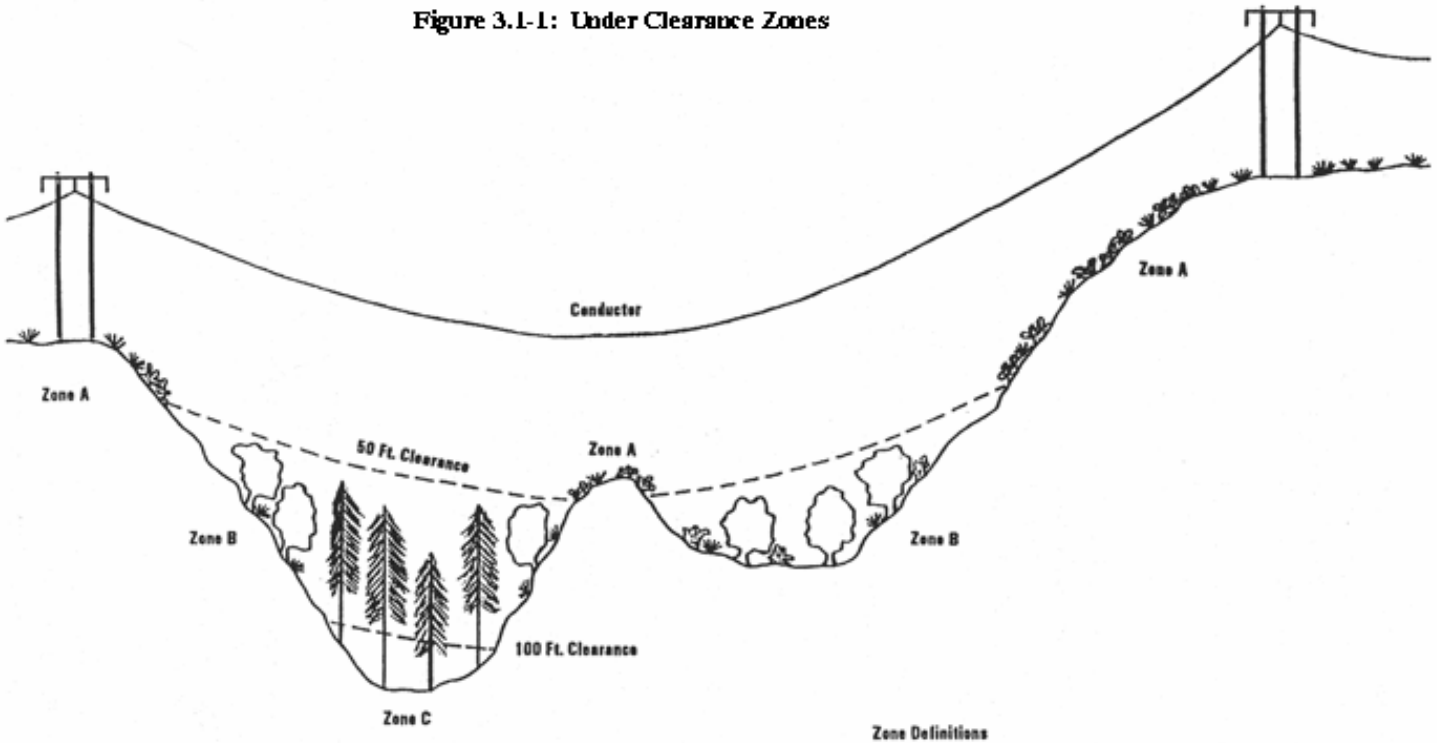
- **Zone B** – Areas where the lines are between 50 and 100 feet above the ground. The wire zone in Zone B is cleared of all trees with a potential mature height that is within 50 feet of a conductor (PacifiCorp 2002). Thus, all trees would be removed from an area where the wires are only 50 feet above the ground; trees with a mature height of 50 feet would be allowed to remain under wires that are 100 feet above the ground. Trees and shrubs with a mature height up to 25 feet (see Exhibit C) are allowed in the border zone. Conifers are removed from both the wire and border zones of Zone B (PacifiCorp 2002).

- **Zone C** – Areas where the lines are 100 feet or more above the ground. The wire zone is cleared of all trees that have grown to within 50 feet of a conductor (PacifiCorp 2002). Depending on clearance, conifers and other tall-growing species are allowed to remain in the wire zone, as well as the border zone.

- **Riparian Reserves** – Areas along the margins of standing and flowing water, intermittent stream channels, ephemeral ponds, and wetlands on lands managed by the USDA-FS and USDI-BLM within the range of the northern spotted owl (see maps in Exhibit G). These areas are required for maintaining hydrologic, geomorphic, and ecological processes that directly affect standing and flowing waterbodies and fish habitat (USDA-FS and USDI-BLM 1994). Riparian reserves range from 50 feet wide along non-fish bearing streams to over 300 feet wide for fish-bearing streams bordered by trees >150 feet tall (as defined by two site potential tree heights).

  Riparian reserves overlay Zones A-C, and the associated clearance requirements apply within the wire zone. Depending on clearance, conifers and other tall-growing trees will be allowed to remain in the border zones in riparian reserves, provided they have at least 50 feet of clearance from the conductors. Tall conifer trees will be removed, not topped. Young reproductive conifers will be thinned, with some allowed to remain. The growth of dense, tall native shrub communities will be encouraged in riparian reserves and may involve planting. Under clearance activities may need to occur more frequently in riparian reserves to ensure that tall trees in the border zone do not get too tall.

Figure 3.1-1: Under Clearance Zones



Zone Plant Species

Zone A: Grasses, legumes, herbs, ferns, and low growing shrubs.

Zone B: Small to medium height deciduous trees, no conifers.

Zone C: All Deciduous and conifer trees.

Zone Definitions

Zone A: When the conductor to ground clearance is less than fifty feet, all trees species should be removed.

Zone B: When the conductor to ground clearance is between fifty and one hundred feet, all tree species should be removed if at their mature height they have less than fifty feet of clearance. Conifers should not be allowed in Zone B.

Zone C: When the conductor to ground clearance is greater than one hundred feet, all tree species should be removed if they have less than fifty feet of clearance.

Source: PacifiCorp 2002

- **Highway Buffers** – Areas where the transmission lines cross highways. Highway buffers overlay Zones A-C, and the associated clearance requirements apply within the wire zone. Depending on clearance, conifers are allowed to remain in the border zones of highway buffers, provided they have at least 25 feet of clearance from the conductors and other tall-growing trees. Tall conifer trees will be removed, not topped. Young reproductive conifers will be thinned, with some allowed to remain. The growth of dense, tall native shrubs is encouraged in highway buffers and may involve planting. Allowing trees to grow to within 25 feet of the conductors will provide additional visual buffering as stipulated in the AMP, but will require more frequent under clearance activities in highway buffers to ensure that trees in the border zone do not get too tall.

In addition to clearing under the Project transmission lines according to zone specifications, PacifiCorp will clear all tall-growing trees (primarily conifers, alder, and big-leaf maple) growing within 25 feet of the wooden poles that hold the line.

3.1.3.2 Under Clearance Methods

Manual (i.e., hand pulling, lopping by hand crews) and mechanical (i.e., chainsaws, mowing) methods are used for under clearance. The specific methods selected will depend on the location, presence of sensitive resources, and USDA-FS or USDI-BLM land allocation. In general, trees will be cut before they reach a dbh of 6 inches (PacifiCorp 2002) and felled in a manner that minimizes damage to low-growing native shrubs. All trees that would encroach into the safety clearance area in the near future will be cut down except those in the 11 visually sensitive sites in the State Route (SR) 138 and the Wild and Scenic River corridors, as identified by the USDA-FS, that are crossed by the transmission line (see maps in Exhibit G). Conifers will be cut below the lowest live limb to eliminate the continued growth of lateral branches. Stumps will be cut parallel to the ground to prevent injury. Objectives for slash/debris management will determine if the cut trees are removed or left within or near the ROW (see Section 3.1.6). At some time in the future it may be possible to use herbicides as an under clearance method in select sites under specific conditions. Vegetation management efforts in the 11 sensitive sites are also addressed the AMP (PacifiCorp 2003a).

3.1.3.3 Management Responsibilities, Planning, and Consultation

PacifiCorp will be responsible for conducting all activities associated with under clearance along the transmission line. Following the annual inspection of the Project transmission lines, PacifiCorp will identify areas that require under clearance in the upcoming year, as well as the next 2 years. Areas to be cleared in the upcoming year will be listed and described in the annual update to the Rolling 5-Year Vegetation Management Action Plan. To the extent possible, areas likely to be cleared over the next 5 years will also be listed for planning purposes.

As part of the annual planning process, PacifiCorp, in consultation with the USDA-FS and/or USDI-BLM, will identify under clearance areas that may have restrictions or coordination requirements related to: (1) temporal constraints; (2) spatial constraints; (3) visual objectives; and/or (4) habitat management objectives (see North Umpqua Hydroelectric Project Constraint

Maps and maps in Exhibit G). Use of heavy equipment (track or rubber tired mowers) to mow brush in areas with specific visual objectives would be decided in consultation with the USDA-FS. In addition, riparian buffer widths will be defined for all stream corridors identified for under clearance work. Areas where planting may be necessary to promote low-growing plant communities will be identified as well. Under clearance activities in areas with temporal constraints will be scheduled to avoid sensitive periods. Under clearance in areas with spatial constraints will require consultation with USDA-FS or USDI-BLM specialists to ensure that sensitive resources are protected.

PacifiCorp will also coordinate with the USDA-FS or USDI-BLM to ensure that habitat and/or visual management objectives are met in and near the ROW. Areas bisected by the transmission line ROW that have specific habitat management objectives include Thorne Prairie, Mountain Meadows, Oak Flats, and several other locations that provide big game winter range (see maps in Exhibit G).

3.1.4 Side Clearance

3.1.4.1 Definition/Objectives

Side clearance is the process of removing trees and tree limbs that protrude into the ROW under or over the transmission line. Side clearance specifications vary by line type and pole construction. On long spans, side clearance may need to be increased at mid-span to accommodate conductor swing.

3.1.4.2 Side Clearance Methods

Cutting with chainsaws is the primary method for removing tree limbs that protrude into the transmission line ROW. Tree limbs are pruned from the ground up. Objectives for slash/debris management will determine if the limbs are removed or left within or near the ROW (see Section 3.1.6).

3.1.4.3 Management Responsibilities, Planning, and Consultation

PacifiCorp will be responsible for side clearance along the transmission line. Following the annual inspection of the Project transmission lines, PacifiCorp will identify areas that require side clearance in the upcoming year, as well as the next 2 years, if possible. Areas to be cleared in the upcoming year will be listed and described in the annual update to the Rolling 5-Year Vegetation Management Action Plan. To the extent possible, this plan will also include a list of all areas likely to be cleared over the next 5 years. As part of this process, PacifiCorp will identify side clearance areas that have temporal constraints (see North Umpqua Hydroelectric Project Constraint Maps) and schedule work in these areas to avoid sensitive periods. Work in areas with spatial constraints will be coordinated with the USDA-FS or USDI-BLM, depending on location.

3.1.5 Access Road Clearance

3.1.5.1 Definition/Objectives

PacifiCorp needs road access to the Project transmission lines for inspection and maintenance. Within the Project boundary on federal lands, there are two types of transmission line access roads. PacifiCorp or licensee-maintained transmission line (LMTL) roads include most roads that parallel the transmission line within the ROW, as well as roads used exclusively by PacifiCorp to access the line from either SR 138 or other roads. Joint access transmission line (JATL) roads are used by the general public, commercial users, the USDI-BLM or USDA-FS, as well as PacifiCorp. The JATL roads generally originate from either SR 138 or other roads and traverse the ROW on the way other destinations on USDA-FS or USDI-BLM lands; a few end in the ROW or run along the ROW for a short distance. See Volume 2 of the TMP for maps showing LMTL and JATL roads.

Clearance along access roads involves brushing, which is the removal of small trees and shrubs, and is conducted as needed to allow administrative access by high clearance vehicles (PacifiCorp 2002).

3.1.5.2 Clearance Methods

Manual (i.e., hand pulling, lopping by hand crews) and mechanical (i.e., chainsaws, mowing) methods are used for the clearance of transmission line access roads. The methods used to provide access for inspection and routine maintenance may be different than those used to provide access for the heavy equipment needed for occasional major maintenance (e.g., tower replacement) along the transmission line. The specific methods selected will depend on the type of equipment or vehicle that needs access, as well as location, presence of sensitive resources, and USDA-FS or USDI-BLM land allocation. Where possible, desirable vegetation (e.g., native low-growing shrubs) will be left in place along roadsides. Stumps will be cut parallel to the ground to prevent injury, and any stumps left in the roadbed will be cut as low as possible. Objectives for slash/debris management will determine if brush is removed or left within or near the ROW (see Section 3.1.6).

3.1.5.3 Management Responsibilities, Planning, and Consultation

PacifiCorp will be responsible for brushing required along LMTL roads. Notification responsibilities and procedures will follow those outlined in the TMP (PacifiCorp 2003d). Work in areas with temporal constraints will be scheduled to avoid sensitive periods; clearance activities in areas with spatial constraints will be coordinated with USDA-FS or USDI-BLM specialists to ensure protection of sensitive resources.

3.1.6 Slash/Debris Management

3.1.6.1 Definition/Objectives

Slash is defined as brush and limbs less than 6 inches in diameter that are removed during under clearance, side clearance, and hazard tree removal. Debris is woody material greater than 6

inches in diameter, and includes tree trunks and large limbs. The objective of slash/debris management is to ensure that these materials are either left in or near the transmission line ROW, or removed, as determined by resource objectives for the site.

3.1.6.2 Management/Disposal Methods

There are three primary ways of managing slash and debris. It can either be (1) chipped, with the residual chips blown on site; (2) lopped and scattered on site; or (3) piled on site. Leaving slash and debris on site is preferable whenever possible (PacifiCorp 2002), except along SR 138. Woody debris is typically left on site provided it does not block access or represent a safety or fire hazard. When slash is left on site, stems and limbs should be lopped into 3-foot maximum lengths; slash piles should be no more than 2 feet high (PacifiCorp 2002). Slash and debris left on site should be placed outside the wire zone whenever possible. Slash piles should not be obvious to the public; limit access; block drainages; be placed in streams, lakes/ponds, or wetlands; or create a fire hazard (PacifiCorp 2002).

3.1.6.3 Management Responsibilities, Planning, and Consultation

PacifiCorp will be responsible for managing slash and debris resulting from vegetation maintenance activities along the Project transmission lines. Following the annual inspection of the Project transmission lines, PacifiCorp will identify areas that require vegetation maintenance in the upcoming year, as well as the next 2 years, if possible. The areas identified for vegetation maintenance in the upcoming year will be listed and described as part of the annual update of the Rolling 5-Year Vegetation Management Action Plan; the rolling 5-year Action Plan will also include a list of all areas likely to be covered over the next 5 years. As part of this process, PacifiCorp will consult with the USDA-FS and USDI-BLM to identify sites where visual resource or fire management objectives require chipping to remove slash and/or other means of debris disposal. This process will ensure that that these sites are identified prior to the start of any vegetation management activities.

The USDA-FS and USDI-BLM will be responsible for the timely inspection of sites requiring the removal of slash to ensure that fire risk has been minimized, and the visual resource objectives have been met. Some proportion of the sites where slash is chipped and left in place will also be inspected to ensure that there is no fire hazard.

3.2 DISTRIBUTION LINES

PacifiCorp maintains 94 miles of distribution circuitry (lines that carry <69 kV) in the North Umpqua watershed, with portions of these lines located inside the Project boundary. As with its transmission system, PacifiCorp is required to maintain certain clearances between the distribution conductors and adjacent vegetation to ensure safe and reliable customer service . In addition to clearance requirements that are covered in the National Electric Safety Code, PacifiCorp must also abide by tree clearance requirements that are enforced by the State of Oregon through the Oregon Public Utility Commission.

Vegetation management on PacifiCorp distribution circuits is handled by scheduled cycle and interim maintenance throughout Oregon. Cycle maintenance is the most extensive vegetation

maintenance work that is performed on a circuit and is scheduled on a 4-year rotation. The objectives of a cycle maintenance project are as follows:

- Prune trees adjacent to distribution easements to ensure safe clearances throughout the duration of the pruning cycle (4 years);
- Remove trees to reduce inventories found inside the easement or ROW to reduce fire danger and improve access to PacifiCorp facilities;
- Remove danger trees that pose a hazard to nearby distribution facilities; and
- Apply herbicides where permissible to reduce growth of undesirable brush and tree species as well as noxious weeds growing in and adjacent to the easement.

A cycle maintenance project begins with a ground inspection of the circuit. The purpose of the ground inspection is to determine location of work needed, type of resources required to complete the work as safely and efficiently as possible, and to determine areas where environmental or cultural restrictions exist. Upon completion of the inspection, an activity report will be prepared that shows the locations of work needed within the Project boundary, with a copy provided to the USDA-FS and USDI-BLM for review. Upon approval of a project by the USDA-FS, the work will be scheduled for a period that does not conflict with environmental or cultural restrictions.

The amount of clearance achieved during scheduled vegetation maintenance activities depends upon species and associated growth rates and location in proximity to PacifiCorp facilities. Clearances achieved through pruning can range from 8 feet for slow-growing species adjacent to distribution conductors up to 14 feet for fast-growing species. The size of the easement cleared also depends upon the type of PacifiCorp distribution facility being cleared. Overall horizontal clearances on a single-phase primary distribution conductor with a neutral wire in the low position may range from 16 to 28 feet. Overall horizontal clearances on a three-phase primary distribution conductor may range from 26 to 38 feet. All pruning work will be in compliance with ANSI A-300 pruning standards (ANSI 1997). Slash disposal from this maintenance will be dealt with in the same fashion as described for the transmission line ROWs.

Hazard trees outside of the easements that are identified during the ground inspection of the circuit will be marked for inspection by the USDA-FS and USDI-BLM. Removal methods and disposition of hazard trees will be determined in consultation with the USDA-FS and USDI-BLM as described for the transmission line ROWs.

Interim vegetation maintenance is scheduled for all Oregon distribution circuits 2 years after cycle maintenance has been performed. The purpose of interim maintenance is to correct any conditions that pose a safety hazard to the distribution circuit and cannot wait until the next scheduled cycle maintenance of the circuit. Examples of conditions that would be identified and corrected during interim maintenance include removal of hazard trees and pruning or removal of fast-growing tree species that have encroached back into safety zone around the distribution

conductor. As with cycle maintenance, interim maintenance projects will begin with a ground inspection of the circuit to identify locations of conditions that warrant attention during the project. An activity report will be prepared listing those locations and forwarded to the USDA-FS for review prior to the commencement of the work. Timing of interim maintenance will take into consideration all environmental and cultural restrictions, and slash disposal will be handled according to guidelines developed for transmission line ROWs.

3.3 OTHER PROJECT FACILITIES

In addition to the transmission line, there are a variety of other facilities associated with the Project that are on USDA-FS lands (see maps in Exhibit G), including the following:

- **Powerhouses** - There are eight powerhouses associated with the Project. Although only Toketee powerhouse is staffed full-time, all of the powerhouses contain turbines and other equipment.

- **Canals and Penstocks** - The Project has over 30 miles of canals and penstocks that move water from diversion dams or structures to forebays or reservoirs to powerhouses.

- **Dams** - There are eight dams associated with the Project. Several of these, such as Lemolo No. 1 and Soda Springs, are concrete structures; others, including Clearwater Nos. 1 and 2, are constructed from rock and dirt fill.

- **Impoundments** – There are eight impoundments associated with the Project, including the following: Lemolo Lake, Lemolo No. 2 Forebay, Stump Lake, Clearwater No. 1 Forebay, Clearwater No. 2 Forebay, Toketee Lake, Fish Creek Forebay, and Soda Springs Reservoir.

- **Roads** - There are over 126 miles of roads within the Project boundary. Of these, 64 miles are associated with the transmission line and were covered in Section 3.1.5. Another 49 miles of roads are used to access PacifiCorp hydro facilities or recreation sites. These roads are defined in the TMP (PacifiCorp 2003d) as PacifiCorp maintained hydro (PMH) roads and recreation (PMR) roads. There are also 9 miles of hydro roads in the Project boundary that are jointly maintained by PacifiCorp and the USDA-FS (JMH roads).

- **Administrative Sites** - There are two primary administrative sites associated with the Project—Toketee and Clearwater villages. Facilities in one or both of these villages include the Project headquarters, vehicle shops, fuel storage and dispensing sites, storage buildings, equipment sheds, maintenance shops, staff houses, guest residences, a water filtration plant, a school, and a community building.

- **Substations/Switching Stations** – There are two substations (Lemolo No. 1 and Soda Springs) and three switching stations (Clearwater, Toketee, and Steamboat) that are part of the Project and on USDA-FS lands. These facilities produce sparks, and the surrounding vegetation is generally eliminated to reduce the risk of fire. Vegetation

within the fenced areas around each substation and switching station is treated with herbicides under an agreement with the USDA-FS. Karmex, Krovar, and Oust are the primary herbicides used to control vegetation around the switching stations and substations; other chemicals are also occasionally applied as needed. The mix changes from year to year, depending on what was sprayed in the previous year, and what the conditions are when the herbicide is applied (e-mail from Paul Birkeland, PacifiCorp, Albany Plant, to J. Neil, PacifiCorp, May 2, 2003).

- **Recreation Sites** – There are a number of Project-related recreation sites that are managed by the USDA-FS, with support from PacifiCorp for O&M. These facilities include the following:

  - Toketee Lake Campground
  - Toketee Lake Group Reservation Site
  - Toketee Lake Day Use Area
  - Toketee Lake Falls Trail Area
  - Toketee Lake Boat Launch
  - Toketee Lake Accessible Fishing Pier
  - Stump Lake Access
  - Clearwater No. 1 Forebay Access
  - Clearwater No. 2 Forebay Forest Camp
  - Poole Creek Campground
  - Poole Creek Group Reservation Site
  - Poole Creek Boat Launch
  - East Lemolo Campground
  - Inlet Campground
  - Bunker Hill Campground
  - Lemolo No. 2 Forebay Forest Camp
  - Fish Creek Forebay Access
  - Future Lemolo or Toketee area campground, group site, or boat launch expansions

A number of Project facilities are located near sites that are occupied by rare plants, cultural resources, and/or sensitive wildlife species. There are also some Project facilities adjacent to wildlife habitats that are sensitive to disturbance during certain times of the year (e.g., the spring nesting season). All vegetation maintenance activities associated with Project facilities will be planned in accordance with spatial and temporal constraint zones associated with sensitive resource sites (see North Umpqua Project Constraint Maps). The locations of vegetation maintenance activities planned for a given year will be identified in the annual update to the Rolling 5-Year Vegetation Management Action Plan. These areas will then be mapped as an overlay that can be used to identify any areas with spatial or temporal constraints and/or opportunities.

The following measures will be implemented, as appropriate, for all vegetation maintenance activities associated with Project facilities:

- Crews will observe the IFPL and have proper fire-suppression tools and materials, as required by the ODF.

- Gas power tools will be equipped with approved spark arresters.

- Areas of ground disturbance, as determined by the USDA-FS, will be subject to weed control activities and revegetated according the guidance in Sections 4.0 and 5.0 of this document.

- Heavy mechanical clearing will be conducted only when the ground is dry enough to avoid adverse soil compaction (e.g., no ruts >6 inches deep).

Vegetation management activities that occur in the vicinity of each of these facilities are listed in Table 3.3-1 and summarized in the following sections. All of the Project facilities discussed in these sections are on USDA-FS lands.

Table 3.3-1. Vegetation management activity by Project facility.

Facility	Vegetation Management Activity				
	Hazard Tree Removal	**Brush Maintenance**	**Slash/Debris Management**	**Large Wood & Debris Removal**	**Ornamental Landscape Management**
Powerhouses	X	X	X	--	--
Canals and penstocks	X	X	X	--	--
Dams	X	X	X	--	--
Impoundments	--	X	X	X	--
Roads	X	X	X	--	--
Company housing	X	X	--	--	X
Administrative sites	X	X	X	--	X
Substations	X	X	X	--	--
Recreation sites	X	X	X	--	X

3.3.1 Hazard Tree Removal

3.3.1.1 Definition/Objectives

Hazard trees are defined as dead, dying, diseased, deformed, or unstable trees that have a high probability of falling and hitting Project facilities, including powerhouses, canals, penstocks, dams, roads, administrative sites, and recreational sites. Hazard trees are typically large trees growing within 150 feet of the facility or site. Prevailing winds, slope, and soil depth are factors that need to be considered when identifying hazard trees. These trees are usually identified following a storm or wind event. The primary objective in managing hazard trees is removal or topping, as safely as possible.

3.3.1.2 Removal/Disposal Methods

Cutting with chainsaws is the primary method for removing or topping hazard trees near Project facilities. To the extent possible, trees will be cut in a manner that minimizes damage to the trunk and root systems of adjacent trees. Where appropriate, conifers will be cut below the lowest live limb to eliminate the continued growth of lateral branches. Stumps will be cut parallel to the ground to prevent injury. Other considerations for removal and disposal of hazard trees include the species, size (height and dbh), condition, and location. The USDA-FS, in consultation with PacifiCorp, will determine if the tree should be: (1) felled to preserve commercial value; (2) be converted to a wildlife tree by topping below a height that would contact the transmission line if the tree were to fall; or (3) felled and left in place or moved into

the ROW to provide habitat for wildlife species that use down wood. The USDA-FS will consider Northwest Forest Plan standards and guidelines in deciding disposal, but safety will be the prime consideration.

3.3.1.3 Management Responsibilities, Planning, and Consultation

Hazard trees, by definition, present an emergency situation and must be dealt with quickly. PacifiCorp will be responsible for identifying hazard trees near Project facilities and PacifiCorp-maintained hydro and recreation roads; coordinating with the USDA-FS on options for removal/topping and deposition of the tree; and conducting or overseeing the removal process. The USDA-FS will be responsible for identifying and removing hazard trees from recreation sites. The USDA-FS will also be responsible for assigning staff who can provide timely consultation to PacifiCorp on hazard trees issues. Upon notification of a hazard tree(s), the USDA-FS will respond by scheduling a consultation meeting or phone call, with removal and disposal methods to be agreed on at that time.

3.3.2 Brush Maintenance

3.3.2.1 Definition/Objectives

Brush is defined as shrubs and small trees. The objectives of brush maintenance vary by type of facility and are listed below.

- **Administrative sites, recreation sites, and powerhouse areas** – To clear dense shrubs and small trees that might present a fire hazard or eventually block access.

- **Canals** – To keep the sides of canals clear of dense shrubs and small trees that might either compromise the integrity of the canal wall or overhang the sides and obstruct water flow.

- **Penstocks** – To clear dense brush to allow for easy inspection for leaks.

- **Dams and impoundments** - To keep the sides of rock and earthen dams and impoundment berms clear of dense shrubs and small trees that might compromise the integrity of these structures.

- **Roads** - To keep the sides of roads clear of dense shrubs and small trees that might either reduce sight distance or eventually obstruct passage along PacifiCorp maintained hydro and recreation roads.

3.3.2.2 Brush Removal/Disposal Methods

Manual (i.e., hand pulling, lopping by hand crews) and mechanical (i.e., chainsaws, mowing) methods are used for brush removal in and around Project facilities and roads. Selected methods will depend on the type and amount of brush removal required. Objectives for slash/debris

management will determine if brush is removed or chipped and disposed on site (see Section 3.3.3). Other measures that will be implemented, as appropriate, include the following:

- Conifers will be cut below the lowest live limb to eliminate the continued growth of lateral branches.
- Stumps will be cut parallel to the ground to prevent personal injury.
- Stumps in roadbeds will be < 4 inches tall.
- Areas of ground disturbance, as determined by the USDA-FS or USDI-BLM, will be subject to weed prevention and control activities and revegetated according the guidance in Sections 4.0 and 5.0 of this document.
- Desirable vegetation (e.g., native low-growing shrubs) will be left in place, where possible, along road sides, canals, and penstocks.

3.3.2.3 Management Responsibilities, Planning, and Consultation

PacifiCorp will be responsible for brush removal in the vicinity of Project facilities and PacifiCorp-maintained hydro and recreation roads. The USDA-FS will be responsible for brush removal from recreation sites. As part of developing the annual update to the Rolling 5-Year Vegetation Management Action Plan, PacifiCorp will identify facilities, roads, or sites that require brushing. This plan will also include a list of all facilities, roads, or sites likely to be brushed over the next 4 years.

3.3.3 Slash/Debris Management

3.3.3.1 Definition/Objectives

Slash is defined as brush and limbs less than 6 inches in diameter that are removed from Project facilities or sites during brush maintenance and hazard tree removal activities. Debris is woody material greater than 6 inches in diameter, and includes tree trunks and large limbs. Slash/debris management is required for all sites where hazard trees or brush has been removed. The objective of slash/debris management is to ensure that these materials are either left near the facility, road, or site, or removed, as determined by resource objectives for the area.

3.3.3.2 Management/Disposal Methods

There are three primary ways of managing slash and debris in the vicinity of Project facilities. It can either be: (1) chipped, with the residual chips being blown on site; (2) lopped and scattered or piled on site, which is preferable whenever possible; or (3) removed from the site. Woody debris is typically left on site, provided it does not block access or represent a safety or fire hazard. When slash is left on site, stems and limbs should be lopped into 3-foot maximum lengths; slash piles should be no more than 2 feet high (PacifiCorp 2002). Slash piles should not be obvious to the public, especially in the foreground of SR 138 and recreational use areas; limit

access; be placed in wetlands, streams, or lakes/ponds; block drainages; or create a fire hazard (PacifiCorp 2002).

3.3.3.3 Management Responsibilities, Planning, and Consultation

PacifiCorp will be responsible for managing slash and debris resulting from brush and/or hazard tree removal activities associated with Project facilities and PacifiCorp-maintained hydro and recreation roads. The USDA-FS will be responsible for slash and debris management in recreation sites. At the start of each year, PacifiCorp will identify facilities, sites, and roads that require brush maintenance in the upcoming year, as well as the next 4 years, if possible. The areas identified for brush maintenance in the upcoming year will be listed and described in the annual update of the Rolling 5-Year Vegetation Management Action Plan; this plan will also include a list of all areas likely to be covered over the next 5 years. As part of this process, PacifiCorp will consult with the USDA-FS to identify sites where visual resource or fire management objectives require chipping to remove slash, and/or other means of debris disposal. This process will ensure that that these sites are identified prior to the start of any brush maintenance activities.

3.3.3.4 Inspection

The USDA-FS will be responsible for timely inspection of sites requiring the removal of slash to ensure that fire risk is minimized and the visual resource objectives are met. Some proportion of the sites where slash is chipped and left in place will also be inspected to ensure that there is no fire hazard.

3.3.4 Large Wood and Debris Removal from Impoundments

3.3.4.1 Definition/Objectives

Logs, tree limbs, brush, and other woody debris can enter Project impoundments from the shoreline, from upstream via canals, or from tributary streams. Booms keep logs and other woody debris from accumulating along the upstream face of dams and from intake structures. Periodically, these materials need to be removed from behind the booms and from other areas in Project impoundments where they may have accumulated and present a hazard to recreational boating. At Soda Springs and Slide Creek reservoirs, PacifiCorp provides for the downstream passage of woody debris past the dams (see the SA, Section 7.3).

3.3.4.2 Removal/Disposal Methods

Boats, cables, and heavy equipment (such as bulldozers and log lifters) are generally required to remove large logs and other woody debris from Project impoundments. Selected equipment and methods will depend on the amount, size, and location of the woody debris within a given impoundment. Most woody debris removed from impoundments is generally piled and left near the dams to compost; there are compost piles associated with all of the Project reservoirs and forebays. Large logs are sometimes moved to a burn site off of USDA-FS Road 3400000; PacifiCorp obtains a permit from the USDA-FS prior to burning.

3.3.4.3 Management Responsibilities, Planning, and Consultation

Large wood and debris in accumulations that potentially jeopardize booms or popular recreational boating areas must be removed from impoundments quickly, and PacifiCorp will be responsible for this activity. In general, woody debris will be removed from behind booms in all impoundments at least annually. This activity and the associated impoundments will be identified in the annual update to the Rolling 5-Year Vegetation Management Action Plan. No specific consultation with the USDA-FS is required for PacifiCorp to remove large woody debris from impoundments, except for Soda Springs and Slide Creek reservoirs. Large woody debris at these two reservoirs is to be passed downstream (SA, Section 7.3).

3.3.5 Ornamental Landscape Management

3.3.5.1 Definition/Objectives

Many Project facilities, particularly staff residences in Toketee and Clearwater villages, are surrounded by landscaping that includes lawns and native and horticultural tree, shrub, and herbaceous species. These landscapes generally require continual maintenance to ensure that trees and shrubs do not become overgrown or diseased. In addition, some horticultural species, such as English ivy, giant knotweed, vinca, and black locust, are invasive with a tendency to spread beyond landscape area boundaries. These species need to be managed to ensure that they do not invade nearby native habitats.

3.3.5.2 Management Methods

Manual (i.e., hand pulling, lopping by hand crews) and mechanical (i.e., mowing) methods are used for most landscape maintenance activities in and around administrative sites. Selected methods will depend on the type and amount of maintenance required. Associated brush will be chipped and disposed on site; grass clippings and other herbaceous waste will be composted on site. Noxious weeds and invasive ornamental plants (e.g., English ivy) will not be disposed of by composting or chipping. Burning or removal from the site are the preferred disposal methods for these plant materials. It may be possible to use herbicides to control unwanted vegetation around some administrative areas; this activity would require consultation with the USDA-FS.

To the extent possible, existing invasive horticultural species will be removed from landscapes in administrative sites within 2 years of issuance of the new license. PacifiCorp, in cooperation with the USDA-FS, will also develop an information packet with recommendations on garden species that should be avoided in residential and administrative landscapes. This information will be distributed to maintenance workers and staff that live and work in administrative sites, and will be made part of the standard agreement for PacifiCorp staff occupying the Project residences.

3.3.5.3 Management Responsibilities, Planning, and Consultation

PacifiCorp will be responsible for residential landscape management in administrative sites. These activities are continuous and ongoing and will not require any specific notification procedures, or inclusion in the Rolling 5-Year Vegetation Management Action Plan.

4.0 NOXIOUS WEED PREVENTION AND CONTROL

This chapter outlines the measures that PacifiCorp will use to limit the establishment of noxious weeds within the Project boundary and control the spread of existing populations. This chapter is organized into four main sections. The first section describes the laws and regulations governing noxious weeds and defines priority species. Section 4.2 covers inventory and monitoring methods and responsibilities; Sections 4.3 and 4.4 describe weed prevention and control for the Project.

4.1 POLICIES AND TARGET SPECIES

4.1.1 Laws, Regulations, and Policies

Noxious weeds are non-native plants specified by law as being especially undesirable, troublesome, and difficult to control (USDI-BLM 1995). By law, the USDA-FS and USDI-BLM are required to prevent and control noxious and invasive weeds on lands under their management and to develop and implement integrated weed management programs. The primary applicable federal laws include the following:

- Executive Order 13112. Directs federal agencies to "use relevant programs and authorities to: (1) prevent the introduction of invasive species; (2) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (3) monitor invasive species populations accurately and reliably; (4) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (5) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (6) promote public education on invasive species and the means to address them."

- Federal Noxious Weed Act of 1974, as amended by Section 15, Management of Undesirable Plants on Federal Lands, 1990. Authorizes cooperation among federal and state agencies and others in eradicating, suppressing, controlling, and preventing or retarding the spread of any noxious weed. Each federal agency will: "(1) designate an office or person adequately trained to develop and coordinate an undesirable plants management program for control of undesirable plants on federal lands under the agency's jurisdiction, (2) establish and adequately fund an undesirable plants management program through the agency's budgetary process, (3) complete and implement cooperative agreements with state agencies regarding the management of undesirable plant species on federal lands, and (4) establish integrated management systems to control or contain undesirable plant species targeted under cooperative agreements."

- Federal Land Policy and Management Act of 1976 (FLPMA). Directs the USDI-BLM and USDA-FS to "take any action necessary to prevent unnecessary and/or undue degradation of the public lands."

- Carlson-Foley Act of 1968. Directs agency heads to identify and destroy noxious plants growing on lands under their jurisdiction.

In response to the federal mandate to control noxious weeds on public lands, both the USDA-FS and USDI-BLM have developed various policies and procedures to direct programs and activities related to noxious weed prevention and control. These include the following:

- Umpqua National Forest Integrated Noxious Weed Management Project EA (USDA-FS 2003). Provides guidance for the use of selected herbicide to control a number of known weed populations on the North Umpqua Ranger District.

- Draft Region 6 EIS on Invasive Plants (USDA-FS in prep). Will update a 1988 EIS for noxious weed management in the Pacific Northwest, including education, prevention, and control objectives and methods.

- Final EIS for Northwest Area Noxious Weed Control Program, Final Supplemental EIS for Noxious Weeds, and respective Records of Decision (USDI-BLM 1985 and 1987). Declare that the USDI-BLM has the statutory duty to prevent and control noxious weeds on public lands and identifies the environmental impacts of such a program.

- USDA-FS Manuals 2080.1-2083. Provide guidance for controlling noxious weeds on USDA-FS lands.

- USDA-FS Umpqua National Forest Land and Resource Management Plan, as amended, 1990. Provides goals, standards and guidelines for maintaining natural ecosystem functions and preventing the introduction of non-native species.

- USDI-BLM Departmental Manuals 517 and 609. Prescribe policies for: (1) the use of pesticides on the lands and waters under USDI-BLM jurisdiction; (2) compliance with the Federal Insecticide, Fungicide, and Rodenticide Act, as amended; and (3) control of undesirable or noxious weeds on the lands, water, or facilities under USDI-BLM jurisdiction, to the extent economically practicable and as needed for resource protection and accomplishment of resource management objectives.

- USDI-BLM Manuals 9011, 9014, 9015, and 9220. Provide guidance for: (1) implementing integrated pest management on lands administered by the USDI-BLM, including policies for conducting chemical and biological control programs using an integrated pest management approach; and (2) the management and coordination of noxious weed activities among USDI-BLM, organizations, and individuals.

The original license for the North Umpqua Project had no provisions for noxious weed prevention or control. PacifiCorp did, however, attempt to eradicate some noxious weed infestations in areas where these plants hindered Project O&M. Under the SA, Section 12.2, PacifiCorp will implement measures to control and prevent the spread of noxious weeds on lands affected by Project operations.

4.1.2 Noxious Weed Definition/Criteria

In Oregon, both the USDA-FS and USDI-BLM use the definition for noxious weeds developed by the Oregon State Weed Board (OSWB), which defines noxious weeds as "exotic, non-indigenous species that are injurious to public health, agriculture, recreation, wildlife, or any public or private property." More specifically, noxious weeds include those plants that meet at least one of the following four criteria associated with detrimental effects:

- Reduce agricultural, range, and/or forestry productivity by displacing desirable species and capturing and utilizing valuable resources;
- Disrupt natural ecosystems by displacing native species, reducing natural diversity by replacing native communities with monotypic weed stands, or impact wildlife by altering habitat and watersheds;
- Have detrimental impacts on public health and reduce aesthetic and recreational values of public lands; or
- Are toxic, allelopathic, injurious, or otherwise harmful to humans and animals (OSWB 2002).

In 2002, the ODA listed 105 designated noxious weed species in Oregon. Several additional plant species are listed as noxious weeds in Douglas County. The U.S. Department of Agriculture (USDA) also maintains a list of federally designated noxious weed species under the Agricultural Plant Health and Inspection Service (APHIS). At least five federally listed noxious weed species are also designated as noxious weeds in Oregon by the ODA. Of the state and county designated noxious weeds, 36 species are known to or potentially occur in the vicinity of the North Umpqua Project (Table 4.1-1); of these, 24 are terrestrial species and 2 are aquatic plants.

The goal of the weed control program for the USDI-BLM's Roseburg District is to reduce noxious weeds to a point where they do not degrade public lands or lands under their management (pers. comm., J. Standley, Botanist, USDI-BLM, Roseburg District, Roseburg, OR, March 11, 2003). Noxious weed control on the UNF is focused on 15 high priority weeds, especially spotted knapweed and to a lesser extent Scotch broom. USDI-BLM priority weeds for control include all of the broom, knapweed, and knotweed species, as well as gorse and yellow starthistle. The USDA-FS and USDI-BLM try to eradicate or contain small populations of problematic species before they establish or spread (pers. comm., R. Helliwell, Botanist, USDA-FS, UNF, Roseburg, OR, May 2, 2002). PacifiCorp's priorities for noxious weed control are the broom species, gorse, and Himalayan blackberry. These species can quickly spread, blocking access roads and making other vegetation maintenance activities difficult, particularly along the transmission line ROW. Information for the high priority species that currently occur within the Project boundary species is summarized in Exhibit D.

Table 4.1-1. Designated noxious weed species known or potentially occurring in the vicinity of the North Umpqua Project[1].

Common Name[2,3,4]	Scientific Name[5]	ODA Class-ification[6]	Management Priority Rating		
			USDA-FS[7]	USDI-BLM[8]	PacifiCorp[9]
Biddy-biddy	*Acaena novae-zelandiae*	B	D	H	--
Broom, French	***Genista monospessulana***	B	A	H	H
Broom, Scotch	***Cytisus scoparius***	B	A	M	H
Broom, Spanish	*Spartium junceum*	B	D	H	H
Broom, Portuguese	***Cytisus striatus***	T, B	A	H	H
English ivy	***Hedera helix***	B	A	M	--
Eurasian water milfoil (A)	*Myriophyllum spicatum*	B	--	H	--
Gorse	***Ulex europaeus***	T, A	A	H	H
False brome	*Brachypodium sylvaticum*	B	A	H	--
Himalayan blackberry	***Rubus discolor***	B	B	M	H
Houndstongue	*Cynoglossum officinale*	B	D	H	--
Hydrilla (A)	*Hydrilla verticillata*	A	--	H	--
Knotweed, Japanese	*Polygonum cuspidatum*	B	A	H	---
Knotweed, giant	***Polygonum sachalinense***	B	A	H	--
Knapweed, diffuse	***Centaurea diffusa***	T, B	A	H	--
Knapweed, meadow	*Centaurea debeauxii (=pratensis)*	B	B	M	--
Knapweed, Russian	*Acroptilon (=Centaurea) repens*	B	D	H	--
Knapweed, spotted	***Centaurea biebersteinii (=maculosa)***	T, B	A	H	--
Medusahead rye	***Taeniatherum caput-medusae***	B	B	M	--
Orange hawkweed	*Hieracium aurantiacum*	A	D	H	--
Puncture vine	*Tribulus terrestris*	B	D	H	--
Purple loosestrife	*Lythrum salicaria*	B	D	H	--
Rush skeletonweed	***Chondrilla juncea***	T, B	A	H	--
Spiny cocklebur	*Xanthium spinosusm*	B	D	H	--
St. Johns wort	***Hypericum perforatum***	B	B	L	--
Sulfur cinquefoil	***Potentilla recta***	B	A	H	--
Tansy ragwort	***Senecio jacobaea***	B	B	L	--
Thistle, bull	***Cirsium vulgare***	B	B	L	--
Thistle, Canada	***Cirsium arvense***	B	B	M	--
Thistle, Italian	*Carduus pycnocephalus*	B	A	L	--
Thistle, milk	*Silybum marianum*	B	D	M	--
Toadflax, dalmatian	*Linaria genistifolia* ssp. *dalmatica*	B	D	H	--
Toadflax, yellow	***Linaria vulgaris***	B	A	H	--
Yellow nutsedge	*Cyperus esculentus*	B	D	M	--
Yellow starthistle	***Centaurea solstitialis***	T, B	A	H	--
Wooly distaff thistle	*Carthamnus lanatus*	T, A	D	H	--

[1] Source: Oregon Department of Agriculture ODA 2003 (http://www.oda.state.or.us/plant/weed_control/Weed_Policy.pdf). This list will be updated prior to the periodic inventories of noxious weeds conducted within the Project boundary.

[2] Species in **bold** are know to occur in the Project vicinity, either currently or in the past (based on weeds listed for the Diamond Lake and North Umpqua districts, UNF Noxious Weed List, June 2003).

[3] Shading indicates priority species. Priority species are noxious weeds that are known to occur in or near the Project and that have a USDA-FS rating of "A" or a high (H) management priority for PacifiCorp and/or the USDI-BLM.

[4] (A)=aquatic species.

Table 4.1-1. Designated noxious weed species known or potentially occurring in the vicinity of the North Umpqua Project[1] (continued).

Common Name[2,3]	Scientific Name[4]	ODA Class-ification[5]	Management Priority Rating		
			USDA-FS[6]	USDI-BLM[7]	PacifiCorp[7]

[5] Species nomenclature source: http://plants.usda.gov/.

[6] ODA classification definitions:

A: Weed of known economic importance which occurs in the state in small enough infestations to make eradication/containment possible; or it is not known to occur, but its presence in neighboring states makes future occurrence seem imminent.

B: Weed of known economic importance that is regionally abundant, but may have limited distribution in some counties. Where implementation of a fully integrated statewide management plan is infeasible, biological control shall be the primary control approach for B listed weeds.

T: "Targeted" weeds are priority weeds designated by the OSWB for focused control efforts.

[7] USDA-FS Rating:

A – An aggressive, non-native species of limited distribution on the UNF. These species would be subject to intensive control or eradication where feasible.

B – An aggressive, non-native species that is too widely distributed on the UNF to be efficiently treated by currently available intensive control methods. Isolated infestations and infestations threatening specific resource damage may be subject to intensive controls. Populations at large would be subject to less intensive methods such as biological controls or vegetative competition.

D – An aggressive, non-native species that has not yet been detected on the UNF but whose current distribution and ecological requirements suggest potential for movement onto the Forest. Any occurrences of these species discovered on the Forest would be subject to intensive control methods and the species would be elevated to the "A" list.

[8] USDI-BLM and PacifiCorp Ratings:

H-High management priority; **M** – Moderate management priority; **L** – Low management priority, as defined by representatives of the USDI-BLM for the Plan.

[9] PacifiCorp Rating:

– **H** – High management priority, as defined by representatives of PacifiCorp for the Plan.

4.2 INVENTORY

Inventory and monitoring involves two distinct tasks: (1) an initial inventory to document the location and extent of weed populations at Plan development (2003), and (2) periodic inventory/monitoring to collect the same information on known populations for comparison with initial inventory data and to identify any new infestations.

4.2.1 Initial Project Inventory

A comprehensive inventory is the first step in implementing a strategic noxious weed prevention and control program. The USDA-FS has previously identified, mapped, and treated some noxious weed infestations on their lands within the Project boundary; the USDI-BLM has also completed an inventory of their lands (see maps in Exhibit G). Most of these infestations are located along roads or near recreation facilities. Although most major infestations have probably been identified, a comprehensive inventory of noxious weed infestations on USDA-FS lands within the Project boundary had not been conducted prior to Plan development in 2003.

4.2.1.1 Objectives

The objective of the initial Project inventory is to identify and map noxious weed infestations within the Project boundary to document the location and extent of weed populations at Plan development (2003).

4.2.1.2 Methods

The initial Project inventory was conducted in July-August 2003 and included: (1) verifying the location and extent of terrestrial species of noxious weed occurrences previously identified by the USDA-FS; and (2) mapping previously unknown occurrences in high priority areas. High priority areas that could not be reached by vehicle were checked on foot or by boat. High priority areas include the following:

- Lands adjacent to Project facilities
- Residential areas
- Recreation sites
- Areas along canals
- Riparian corridors
- Reservoirs and impoundment
- Recreation trails
- Reservoir shorelines
- Transmission corridors
- Roadsides
- Newly closed roads

Forest lands outside of the direct influence of these areas were not surveyed, nor were USDI-BLM lands within the project boundary. New populations were either mapped onto U.S. Geological Survey (USGS) topographic maps or recorded using a GPS unit. The number of plants in each mapped infestation was estimated, as well as cover class, which were recorded using the cover classes developed by the North American Weed Management Association (NAWMA 2003): trace (T=<1%), low (L=1-5%), moderate (M=5.1-25%), and high (H=25.1-100%). Each infestation was mapped as accurately as possible, to a resolution of 0.1 acre.

4.2.1.3 Responsibilities

PacifiCorp was responsible for conducting the initial inventory/survey of noxious weed infestations on USDA-FS lands within the Project boundary. The USDA-FS reviewed the survey methods and inventory results.

4.2.1.4 PacifiCorp Mapping and Reporting

Using the data from the initial inventory, along with previously identified occurrences from the USDA-FS and USDI-BLM data, PacifiCorp created a noxious weed database in a geographic information system (GIS) and a map set to guide future prevention and control efforts.

4.2.1.5 Schedule for Completion

The initial inventory for terrestrial noxious weed species in the Project boundary was conducted in July and August of 2003. General locations of weed populations are shown on the maps in Exhibit G; a finer scale of information is provided in the GIS database and associated detailed

map layer. The initial inventory to identify any populations of aquatic weeds will be conducted in 2006.

4.2.2 Periodic Project Inventory

4.2.2.1 Objectives

The objectives of the periodic Project inventories are to identify any new infestations of noxious weeds within the North Umpqua Project boundary and to monitor existing infestations that have not been treated.

4.2.2.2 Methods

Periodic surveys for noxious weeds will be conducted using the same methods as the initial inventory (see Section 4.2.1.2). Prior to conducting the periodic inventories, PacifiCorp will consult with the USDA-FS, USDI-BLM, and the ODA to update the list of noxious weed species known or potentially occurring in the vicinity of the Project and the designated priority species.

4.2.2.3 Responsibilities

PacifiCorp will be responsible for conducting or funding periodic inventories for noxious weeds within the Project boundary that cover both USDA-FS and USDI-BLM lands. The USDA-FS and the USDI-BLM will be responsible for providing a review of inventory methods and results. In addition, PacifiCorp will train staff inspecting the transmission line ROW to recognize noxious weeds and provide them with forms and maps to record these species as they encounter them in the course of their normal duties. Information on weed location provided by inspection crews can be used to inform botanists conducting periodic inventories of areas that may need particular attention.

4.2.2.4 PacifiCorp Mapping and Reporting Requirements

Using the data from the periodic inventories and monitoring, PacifiCorp will update the noxious weed database and map set.

4.2.2.5 Schedule/Frequency

An inventory of the Project area for noxious weeds will be conducted every 3 years. This activity will be focused on the 11 high priority areas identified in Section 4.2.1.2. The noxious weed database and map will also be updated every 3 years.

4.3 PREVENTION AND MONITORING

Noxious weeds, particularly the priority species for the North Umpqua Project, are generally associated with disturbed areas, including transmission lines and road ROWs, erosion sites, and the lands surrounding Project facilities (dams, canals, recreation sites, company housing, administrative areas, etc.). For safe and effective Project operations, these ROWs and facilities need to be maintained, a process that requires repeated removal of invasive vegetation and

periodic use of heavy equipment. In addition, recreational boating has the potential to spread noxious aquatic weed species. Without specific prevention measures, including revegetation and public information, Project O&M activities and recreational boating on Project impoundments both have the potential to spread noxious weeds.

4.3.1 Objectives

Preventing establishment and spread is the most cost-effective means of managing noxious weeds. Preventing the establishment of noxious weeds will be one of the primary objectives of any activity within the Project boundary that involves ground disturbance, erosion control, or maintenance. Preventing the establishment of noxious aquatic weeds in Project impoundments is also an objective.

4.3.2 Methods

Best management practices (BMPs) can be implemented to prevent the establishment and spread of noxious weeds during ground disturbance, erosion control, and maintenance activities. BMPs include the following:

- Training to encourage weed awareness and prevention efforts among Project and contractor staff;
- Planning and scheduling construction and maintenance activities;
- Cleaning machinery and other equipment;
- Minimizing ground disturbance, particularly in riparian areas (FERC License Article 406, a, c, and d); and
- Revegetating after ground disturbing activities (see Section 5.0).

For Project-related activities, PacifiCorp will be responsible for implementing any and all appropriate BMPs to prevent the spread of noxious weeds within the Project boundary. PacifiCorp will also work with the USDA-FS to develop a public information program that addresses aquatic noxious weeds and ways to prevent the spread of these species. Each of the BMPs is discussed in more detail below.

4.3.2.1 Training

North Umpqua Project operations, construction, and maintenance activities are conducted by PacifiCorp and contractor staff who typically have little knowledge of noxious weeds. For the next license period, PacifiCorp will design and implement a training program to educate Project foresters, line workers, hydro workers, and contractors on the need for and importance of noxious weed prevention. This program will be designed and conducted by PacifiCorp and qualified staff from the USDA-FS, USDI-BLM, and ODA, and will include the following two main elements:

- Noxious Weed Identification Materials– With assistance from USDA-FS and USDI-BLM, PacifiCorp will develop a small booklet with photos and identifying characteristics of the priority weed species currently known to occur in the Project boundary, as well as others that are likely to occur . Information needed to prepare the booklet is included in Exhibit D of this Plan. The booklet will also include procedures for reporting and confirming any new noxious weed infestations. It will be designed to be easily carried in a field vest or vehicle. The booklet will be given to all staff and contractors who patrol Project canals, inspect the transmission lines, or maintain vegetation in the Project boundary, as well as project managers involved in any ground-disturbing activities.

- Annual Meeting – PacifiCorp's Environmental Coordinator will meet with Project operators, managers, and maintenance staff in the first quarter of each year to review the noxious weed maps and BMPs for preventing the spread of weeds relative to any construction, erosions control, and maintenance activities. Noxious weed information will also be handed out to new staff engaged in these activities.

4.3.2.2 Activity Planning and Scheduling

Minimizing the spread of noxious and invasive weeds by planning and scheduling is particularly applicable to vegetation clearance and erosion control activities, which are generally scheduled in advance. The noxious weed inventory map and GIS database will show the locations of known weed infestations relative to the transmission line and other Project facilities. When possible, PacifiCorp will incorporate one or more of the following measures into vegetation maintenance activities:

- Treat existing infestations before the maintenance activity occurs. If possible, PacifiCorp will treat known noxious weed infestations prior to initiating vegetation clearance and erosion control activities.

- Perform work in and through noxious weed infestations prior to seed set or after dispersal. Seed set times differ for the various noxious weed species in the Project boundary, and vary within species depending on elevation and aspect. Seed set time is not a factor for work performed in areas infested with species that spread mostly vegetatively. Approximate seed set time for the current list of priority species are as follows:
    - Scotch broom species: June-July
    - French broom: May-June
    - Gorse: May-June
    - Portuguese broom: July-August
    - Spotted knapweed: July -September
    - Diffuse knapweed: July-September
    - English ivy: Spreads mostly vegetatively
    - Himalayan blackberry: August-September
    - Giant knotweed: Spreads mostly vegetatively
    - Rush skeletonweed: July until frost
    - Sulfur cinquefoil: June-August

- Yellow toadflax: June-September
- Yellow starthistle: June-September

Seed set times of these species generally correspond to summer-fall, the same time period when most vegetation maintenance activities are scheduled. When possible, PacifiCorp will schedule specific maintenance activities to avoid the time of seed set, particularly for later blooming species, such as the two knapweeds and Himalayan blackberry. Alternatively, activities can be conducted with follow-up monitoring and early treatment to prevent establishment of new infestations.

- Work toward noxious weed infestations. The noxious weed inventory map will show the locations of infestations relative to ROW and facility access points (see maps in Exhibit G). Where possible, PacifiCorp will initiate vegetation maintenance activities in weed-free locations and work toward infested areas. This sequence will minimize the spread of weed seeds and/or rhizomes via equipment and vehicles. It is probably most applicable to vegetation maintenance projects that typically proceed in a linear fashion, such as side and under clearance activities along the transmission lines, and road and canal clearance.

4.3.2.3 Equipment and Vehicle Cleaning

The numerous weed infestations along roads indicate that disturbed habitats are easily colonized by weeds and that vehicles appear to be effective at transporting noxious weed seeds and plant parts. The extensive spread of yellow starthistle in particular is attributed to vehicles and equipment (DiTomaso 2001, 2002). Beginning in 2005, PacifiCorp will implement an equipment and vehicle cleaning program that will involve power spraying with water before and after working on Project lands, and when moving between locations. In general, this program will apply to the following:

- Equipment that arrives from locations outside the general Project vicinity;
- Vehicles that have been used off paved or gravel roads outside the North Umpqua drainage;
- Equipment and vehicles used for construction or vegetation maintenance that have finished working in area and are moving between locations within the Project (e.g., from Lemolo No. 1 to Fish Creek); and
- Equipment and vehicles that have been used off paved or gravel roads and that are being taken off Project.

PacifiCorp currently has a power washing station at Toketee, and use of this facility for cleaning vehicles and equipment is assumed to be adequate following most routine vegetation and construction work. For work in or through areas infested with priority noxious weeds, PacifiCorp will use a fire tanker or compressed air to clean equipment on site and prior to moving to another location. Operators of PacifiCorp-owned equipment will keep a log documenting the date, rationale for cleaning, work area, type of equipment, and location of

cleaning (on site, at wash station). PacifiCorp's Environmental Coordinator will review log books annually for compliance. Contracts for vendors will stipulate that equipment brought onto the Project must be washed and be free of all dirt, mud, and plant parts. The USDA-FS will be responsible for periodically checking equipment brought on site for major projects. On-site cleaning stations will need to be monitored and treated, if necessary, to ensure that weeds do not become established.

The Oregon Department of Environmental Quality requires a Wash Water Permit 1700-A or 1700-B for vehicle and equipment washing activity that potentially adversely affects water quality. However, the equipment and cleaning requirement for work on Project lands represents a deminimis activity and is allowed without a obtaining a permit provided that:

- No acids, bases, metal brighteners, steam, or heated water are used.
- Only cold water is used for cleaning (biodegradable, phosphate-free cleaners are allowed).
- Chemicals, soaps, or detergents are used sparingly.
- There is no runoff off-site or discharge to surface waters, storm sewer, or dry well.
- Washing is restricted to the exterior of the vehicle or equipment – no engines, transmissions, or undercarriages.
- Wash water is controlled by evaporation, seepage, and irrigation.

PacifiCorp will ensure that these provisions are met at the power washing station at Toketee and elsewhere on the Project where equipment/vehicle washing occurs.

4.3.2.4 Minimize Ground Disturbance

Since most noxious weeds are associated with disturbed areas, minimizing ground disturbance is key to preventing establishment. Project managers for PacifiCorp and contractors will prepare a plan for all construction and erosion control projects that stipulates the location and size of equipment storage pads, vehicle parking sites, and other areas expected to be cleared or disturbed. The estimated amount of disturbance and site characteristics will dictate how disturbance is managed (one concentrated site or several dispersed sites). In general, disturbance will be limited to sites that are as small and as contained as possible to accomplish the project at hand. To the extent possible, these sites will be placed in areas that have been disturbed previously.

The removal of trees and other vegetation that provides shade will be minimized, where practical (Potash 1999). Workers will be informed of the need to limit the extent of ground disturbance and vegetation clearance. Clearing limits will be identified and marked. Construction activity or movement of equipment into existing vegetated areas will not be initiated until clearing limits are marked (FERC License Article 406c). Because of the particular difficulty in controlling the establishment and spread of weeds along streams, alteration of stream banks and existing riparian vegetation will be minimized, to the extent possible. In addition, all vegetation within 15 feet of edge of the bank downstream of Soda Springs Dam will be retained to the greatest extent possible (FERC License Article 406 a and d).

4.3.2.5 Revegetation

Revegetation is critical in preventing the establishment of noxious weeds in areas that have been cleared or subject to ground disturbance. PacifiCorp will revegetate all sites disturbed by Project operations, maintenance, and construction activities that are greater than 100 square feet (0.25 ac) in size. Smaller areas will be reseeded using native plant seed mixes. (See Section 5.0 for more detail.)

4.3.3 Documentation and Reporting Requirements

During the annual planning process, PacifiCorp will meet with the USDA-FS and USDI-BLM to review upcoming vegetation maintenance, erosion control, and construction projects relative to the locations of known noxious weed infestations. For each project, the following will be determined:

- What measures are required under environmental review, either project-specific or programmatic?
- Are there existing nearby noxious weed infestations, either inside or outside the Project boundary, and are they likely to invade?
    - If so, can these existing infestations be treated prior to beginning the activity?
    - If treatment is not possible, can activities be scheduled to avoid the seed dispersal period of the noxious weed population?
    - If rescheduling is not an option, can activities be planned to proceed from uncontaminated areas toward the infestation?
- What, if any, revegetation is needed?
- What follow-up monitoring and treatment may be needed to prevent the establishment and spread of weeds?

Other noxious weed prevention measures will be identified for each project, as appropriate. The results of this analysis will be incorporated into a Noxious Weed Risk Assessment, which will be prepared for all routine vegetation maintenance, erosion control, and construction (see Exhibit F for a template). These will be prepared by PacifiCorp prior to project initiation, reviewed by the USDA-FS and USDI-BLM, and incorporated into the annual update to the Rolling 5-Year Vegetation Management Action Plan.

At project completion, PacifiCorp will summarize the noxious weed prevention measures that were implemented, as well as the amount and type of seed used for revegetation, if applicable, and a proposed monitoring schedule. For tracking and comparison purposes, the summary and monitoring schedule will use the same form as the Noxious Weed Risk Assessment (see Exhibit F for a template). PacifiCorp will use the information provided in the Noxious Weed Risk Assessment to develop a master schedule for implementation and effectiveness monitoring.

Emergencies requiring construction or hazard tree removal will not require a noxious weed prevention plan prior to beginning work. However, the USDA-FS or USDI-BLM will be responsible for making recommendations for noxious weed prevention during the project, and a revegetation plan may be designed, depending on the extent of ground disturbance.

4.3.4 Effectiveness Monitoring

The USDA-FS and USDI-BLM will be responsible for implementation and effectiveness monitoring of noxious weed prevention measures at vegetation maintenance, erosion control, and construction sites. During these activities, the USDA-FS or USDI-BLM will visit project sites to ensure that weed prevention measures have been implemented. Following project completion, the USDA-FS or USDI-BLM will visit project sites that did not require revegetation at least once to determine the effectiveness of the prevention measures and identify any infestations that may remain or have established. Project sites that include revegetation measures will be visited for at least 3 consecutive years, and will include spot reseeding if needed. Sites requiring monitoring will be included in the Rolling 5-Year Vegetation Management Action Plan. See Section 5.0 for more detail on effectiveness monitoring for revegetation. The level of monitoring effort may vary between USDA-FS and USDI-BLM lands. Monitoring activities on USDI-BLM lands within the Project boundary will be at the discretion of the USDI-BLM.

4.4 CONTROL AND MONITORING

4.4.1 Objectives

The primary objective of noxious weed control is to eradicate, reduce, or contain established infestations. If eradication or reduction is not possible, the secondary objective of control is to prevent the infestation from spreading to other areas.

4.4.2 Methods

There are a wide variety of methods available for noxious weed control. These can be broadly grouped into four main types:

- Manual
- Mechanical
- Chemical
- Biological

Controlling noxious weed infestations generally requires repeated and coordinated methods over time, a process referred to as integrated weed management, as well as revegetation. Since the overall goal of noxious weed management is to maintain or re-establish functioning native plant communities, revegetation must follow the application of control methods. The four types of control and associated methods are briefly discussed below. Detailed information on control methods for the priority species is summarized in Table 4.4-1; revegetation methods are discussed in detail in Section 5.0.

4.4.2.1 Manual Methods

Manual methods of weed control, and their advantages/disadvantages, include the following:

- Pulling – physically pulling weeds from the soil or using a weed wrench.
- Cutting/lopping – using shears, clippers, or brush saws to sever above-ground parts of noxious weeds.
- Solarizing – covering noxious weed infestations with black plastic or jute.
- Digging – using a pulaski or shovel to remove entire plants.
- Grazing – using livestock (cattle, sheep, or goats) to reduce the above-ground portions of noxious weeds (may also be considered a biological control).

In general, hand pulling, cutting, and digging have relatively limited use in controlling noxious weed populations. These methods are very labor-intensive and not applicable to large areas. They do not reduce seeds in the soil or eliminate root systems, and some species may resprout after being cut or pulled. Because seeds of some species can remain viable for many years, other follow-up methods may be necessary to supplement manual methods. Although hand removal of weeds can be selective and minimize effects to surrounding vegetation, trampling damage and/or soil disturbance can sometimes be worse than that of mechanical methods.

Digging and cutting may be appropriate for eradicating sporadically occurring plants in small areas, in sensitive habitats, or near streams. Cutting can effectively control annual and biennial weeds, although the timing of this technique is critical. Hand pulling, which can also result in additional soil disturbance, may be the best method for weed control in landscaped areas around Project administrative sites. Solarizing can be effective at controlling noxious weed infestations in small areas that do not have aesthetic concerns or native plants that should be retained.

Grazing, particularly by cattle, has long been used to control infestations of noxious weeds over relatively large areas. In recent years, the use of goats for weed control has gained popularity because they are browsers, not grazers, and therefore eat a wide variety of forbs and shrubs, including knapweed and yellow starthistle. While goats do not compact the soil as do cattle, they need to be contained to effectively reduce weed populations, and thus require fencing and/or careful tending. They are also not selective and are best used to control dense infestations. Grazing does not reduce seeds in the soil or eliminate root systems, and some species may re-sprout.

4.4.2.2 Mechanical Methods

Mechanical methods of weed control include, but are not limited to, the following:

- Cutting – using chainsaws and brush hogs to remove the branches and stems from noxious weeds that have woody stems and branches.

Table 4.4-1. Summary of control methods for the current list of priority noxious weed species for the North Umpqua Project[1].

Technique	Priority Noxious Weed Species								
	Broom Species & Gorse	**English Ivy**	**Himalayan Blackberry**	**Knotweed Species**	**Diffuse & Spotted Knapweeds**	**Sulfur Cinquefoil**	**Rush Skeletonweed**	**Yellow Toadflax**	**Yellow Starthistle**
Manual Methods									
Pulling	Effective for seedlings & small plants, best if done after rain; encourages germination	Generally effective if pulled plants are not left on the ground	May be effective for seedlings & plants <3 ft tall; particularly if soil is loose	Not recommended – spreads rhizomes	Not effective for control, but may reduce seed production	Can be effective for small infestations if the root crown is removed	Not recommended—stimulates growth & disturbs soil	May be effective for small infestations if repeated several times/yr over many years	Effective if done thoroughly with follow-up
Cutting/ lopping	Resprouting can be a problem; can be successful with follow-up	Effective with persistence; may be the best way to kill vines growing in trees	Only effective in combination with other methods that prevent resprouting	May be effective with persistence; cut 3+ times/ growing season	Not effective for control, but may reduce seed production	Cutting promotes growth of heavy root stock and dense low growth.	Will reduce number of viable seeds produced if done before seed set, but typically results in resprouting	Eliminates seed production if done before flowering; does not affect seed bank unless repeated annually for ≈10 yrs	Effective if all above ground material is removed
Digging	Effective for seedlings & small plants, especially if done after rain	Effective-provides immediate control with little regrowth	Effective if the entire plant & all roots are removed	Effective if thorough & with follow-up	Not recommended- unless entire plant & taproot can be removed. Maybe effective at removing scattered plants; does not affect seed bank	Can be effective for small infestations if the root crown is removed	Not recommended unless entire plant & all roots can be removed; does not affect seed bank	Not recommended-complete removal of root system is infeasible	May be effective but creates unnecessary ground disturbance
Solarizing	May be effective for killing seedlings	Not effective-difficult to control vine growth	Not effective-difficult to control vine growth	May be effective for small stands after plants have reached full height	May kill rosettes but does not affect seed bank; rhizomes spreading beyond the treated area will need to be managed	--	May kill rosettes but does not affect seed bank; rhizomes spreading beyond the treated area will need to be managed	May be effective at killing plants but does not affect seed bank	May kill rosettes but does not affect seed bank
Grazing (goats)	Only partially successful; resprouting can be a problem	May effectively eliminate plants not growing in trees	Likely effective in combination with other methods that prevent resprouting; must be done before fruiting	Probably spreads rhizomes	May be effective if done over several years & followed by revegetation	Goats are only animals that selectively graze. Other grazers avoid it.	May be effective if done over several years & followed by revegetation	May be effective if done over several years & followed by revegetation	May be effective if done over several year & followed by revegetation
Mechanical Methods									
Cutting	Resprouting can be a problem, effective with follow-up	Effective with persistence	May be effective with persistence; cut several times/ growing season & treat root crown with herbicide	May be feasible with persistence; cut 3+ times/ growing season	Not effective for control, but may reduce seed production	Cutting promotes growth of heavy root stock and dense low growth.	Will reduce number of viable seeds produced if done before seed set, but typically results in resprouting	Eliminates seed production if done before flowering, but does not affect seed bank unless repeated annually for ≈10 yrs	Effective if all above ground material is removed
Mowing	Only partially successful; resprouting problematic	Not effective – resprouts	May be effective with persistence; mow several times/ growing season	May be effective with persistence; mow 3+ times/ growing season	Not effective for control, but may reduce seed production	Mowing promotes growth of heavy root stock and dense low growth.	Not effective for control because of resprouting but reduces seed production	Not effective for control because of resprouting but reduces seed production	Reduces seed bank.
Discing	Not recommended – can resprout	Not recommended, may distribute pieces of vine that will resprout	Not recommended-may leave & spread roots that will resprout	Not recommended – spreads rhizomes	Effective if cultivated deeply (> 7 in. for spotted)	Not recommended. Will resprout if root crown not removed completely	Not recommended—stimulates growth & disturbs soil	Not recommended-complete removal of root system is infeasible	Effective, especially along roads
Steaming	Somewhat effective, but resprouting is problematic	May be effective, but also affects plants growing under vines	May be somewhat effective, but resprouting is problematic	May be somewhat effective, but does not kill rhizomes	Steaming the top kills adults plants but resprouting may occur; does not affect seed bank	--	Steaming the top kills adults, resprouting may occur	May effectively kill adults but does not affect seed bank	May effectively kill adults but does not affect seed bank
Chemical Methods[2]									
2,4-D	Effectively kills seedlings as emulsifiable esters at 1 lb/ac	Effective with 2 treatments at 1 lb/ac applied as a foliar spray	Probably effective	--	Temporary & inconsistent control, does not reduce seedling establishment.	Spring application of 2 lb/ac of ester is effective but for short duration	Somewhat effective if applied in the spring to rosettes at a rate of 1-2 lbs/ac	Not effective	Acceptable control when applied at rosette stage at 0.5-0.75 lb/ac
Dicamba	--	Not effective at 0.5 lb/ac	Effective	Effective	Diffuse - Effective control at rates of 0.5-1.0 lb/ac Spotted- Temporary & inconsistent	Similar results as 2,4-D ester when mixed with 2,4-D amine (1qt/ac+1qt/ac)	--	Effective at a rate of 2 lbs/ac	Acceptable control when applied at rosette stage at 0.25-1.0 lb/ac
Glyphosate	2% foliar application effectively kills adult plants, but resprouting can still occur	Not effective at 2 lbs/ac, but higher rates & concentrations provide better control	Probably effective	Very effective when applied in fall at 1.1 lb/ac, especially if combined with cutting	Control only in the year of application	Reported to be less effective than picloram in British Columbia	Controls rosettes but kills other desirable vegetation; allows new rosettes to emerge & grow with no competition	Control only in the year of application; need to apply 3.6 lb/ac for 90% eradication	Good post-emergent treatment for seedlings
Picloram	0.5 lb/ac application resulted in complete death of adult plants in 9 months	--	Suppresses cane growth; may need >1 application; best to spray in summer; can stimulate growth of adventitious roots	Effective at 2.4 lbs/ac	Diffuse - Most effective & recommended at rates of 0.25-0.5 lb/ac Spotted - Effective at 0.3-0.5 lb/ac for about 4 yrs	0.25 lb/ac applied in spring up to late bud stage provides several years of control	Effective but needs rainfall afterwards	Effective over a 2-yr period at a rate of 2 lbs/ac	Excellent post-emergent control at .25-0.375 lb/ac in late winter/ spring
Biological Controls	2 insect species – limited success	None available; development unlikely since plant is a widely used ornamental	None available	None – research underway	Diffuse - No single effective agent; 12 insect species reduce seed production or inhibit root & shoot growth Spotted - 4 insect species either reduce seed production or damage roots/slows reproduction	Known predators also attack strawberry. Rust fungus known to infect but effectiveness not tested	3 effective agents-2 insects (fly and mite) & a rust reduce plant vigor & seed production. A root feeding moth is being proposed for release on USFS land.	5 insects; 2 appear to effectively reduce seed production	6 insect species attack flower heads & reduce reproduction but not eradicate infestations

[1] Effectiveness of all methods is variable, depending on site conditions. Dashes (--) indicate no information available.
[2] Includes only those herbicides approved for use by the USDI-BLM; only applicable to USDI-BLM lands within the Project bound. Picloram can be used in select locations on USDA-FS lands.

- Mowing –cutting noxious weeds by mowing with a rotary head attached to tractors or rubber-tired vehicles.

- Discing – using a tractor-pulled disc to blade and turn the soil.

- Steaming – using a Waipuna machine to apply hot water to kill noxious weeds.

Chainsaws and brush hogs can be effective tools for removing noxious weeds that are shrubs. They can be applied selectively, so damage to nearby desirable vegetation is minimized. They can also be used near water and result in minimal soil disturbance. However, these mechanical cutting methods have the same disadvantages as hand cutting—they do not reduce seed in the soil or eliminate roots, and are practical only in small areas. Mowers can be effective in controlling some noxious weed species over large areas if used at the appropriate time. Mowers, however, are non-selective, cannot be used on steep or rocky sites, do not kill roots, and may spread seeds.

Discing is also non-selective and limited by terrain and soil type. This method can be effective at killing roots and preventing resprouting for some species, but results in substantial soil disturbance and may spread rhizomes.

Hot water is a relatively new method of controlling noxious weeds in the United States. Hot water is applied with a Waipuna machine. The Waipuna machine can be used selectively but generally requires road access. Both the USDA-FS and USDI-BLM use this technique to control noxious weed infestations along roads.

4.4.2.3 Chemical Methods

The USDA-FS allows use of picloram on its lands to control noxious weeds (USDA-FS 2003) in select locations, and the USDI-BLM allows use of four herbicides (2,4-D, dicamba, picloram, and glyphosate). Trichlopyr is also used by the USDA-FS in some situations and could be available for use within the Project boundary with some additional environmental documentation.

The effectiveness of picloram, 2,4-D, dicamba, and glyphosate depends on the application rate and the species on which it is applied (Table 4.4-1). Dicamba, picloram, and 2,4-D can all be used to control broad-leaved plants; they do not kill grasses. None of these three herbicides can be applied near water. Glyphosate is less selective—it kills both broad-leaved plants and grasses—but can be used near water because it breaks down quickly. There is also an aquatic formulation for glyphosphate. None of these four compounds kills seeds in the soil, so they typically need to be applied over a period of several years. Picloram, however, remains active for a long period of time and can kill seedlings as they emerge. Use of herbicides to kill adult Scotch broom may result in large areas of dead brush, which can present a fire hazard and make it difficult to monitor and treat broom seedlings (Bossard et al. 2000).

In general, herbicides should be applied before plants set seed, and care must be taken to avoid spraying non-target species (Carpenter and Murray 1998a, 1998b). Chemicals can be applied as

spot treatments, in which the chemical is applied to individual plants or a small area by hand, using either a squirt bottle, spray gun, backpack spray unit, or truck mounted sprayer with a handgun (BPA 2000). Herbicide application to larger areas can be accomplished by broadcasting with a spray gun, broadcast nozzle, or boom attached to a truck, all-terrain vehicle (ATV), or tractor (BPA 2000). Broadcast application should be limited to large, dense infestations where there is minimal risk of affecting non-target species. Shrubs, such as Scotch broom, can be treated by applying herbicide to a cut stem or to the base of the stem. Herbicide applications must follow label directions (includes rates, target species, application types, and personal protection equipment).

4.4.2.4 Biological Controls

Insects, diseases, and other pathogens attack plants, including noxious weeds. Since most noxious weeds in the United States are introduced species, their natural enemies are lacking, thus giving them a competitive advantage over native species. In recent years, however, selective insects and pathogens have been introduced to control the spread of some weed species. Extensive testing is conducted to ensure that the introduced agents that are host-specific. Not all noxious weed species have available biological controls. In addition, the effectiveness of biological controls is variable, differing for each noxious weed species and site (BPA 2000). Some can be extremely slow acting, taking 30 years to have a noticeable effect. Others may reduce seed production or inhibit shoot and root growth, but not significantly reduce plant density or cover (Carpenter and Murray 1998a, 1998b). None prevent germination from seed reserves in the soil. A good summary of biological control information is available in Rees et al. (1996).

Biological controls have two effects on noxious weeds—a direct impact by destroying plant tissue, and an indirect impact by stressing the weed species and reducing its ability to compete with desirable species. Biological controls can be distributed by helicopter over large areas or transported to specific sites by vehicle or on foot. The USDA-FS typically uses biological controls for naturalized nuisance species and noxious weed infestations in remote areas that have a very low chance of spreading.

4.4.3 Control Methods by Facility/Project

There is no single effective method for controlling noxious weed species. Controlling infestations of most species requires integrating a variety of methods depending on the size and location of the population (Table 4.4-2). These methods should be followed by revegetation when it is unlikely that surrounding native vegetation will readily recolonize the area.

Because the USDA-FS currently allows herbicide use in only select, approved locations, most noxious weed control in the Project boundary will involve manual and mechanical methods. The use of herbicides may be allowed in the future to control known noxious weed infestations at specific sites. In general, weed control efforts should be focused on infestations and in areas where there is the greatest chance of success. Manual methods will usually be restricted to infestations less than 1 acre in size or the treatment of scattered individuals over a larger area that are either just beginning to invade or remaining following application of another control method.

Table 4.4-2. Potential priority noxious weed control methods, by Project facility.

Facility / Area	Broom Species and Gorse	English Ivy	Himalayan Blackberry	Knotweed Species	Diffuse Knapweed	Spotted Knapweed	Sulfur Cinquefoil	Rush Skeletonweed	Yellow Toadflax	Yellow Starthistle
Transmission Line ROW – USDA-FS lands	Mowing or grazing for large infestations with suitable access & topography; cutting & biological controls elsewhere	Steaming or grazing for large ground infestations with suitable access & topography; hand pulling, cutting & digging elsewhere. Cut vines growing into trees or up transmission-line poles	Steaming, grazing, or mowing for large infestations with suitable access & topography; manual methods elsewhere	Steaming or mowing for large infestations with suitable access & topography; cutting elsewhere	Steaming or grazing for large infestations with suitable access & topography; pulling & grubbing elsewhere	Steaming, grazing, or mowing for large infestations with suitable access & topography; cutting, pulling, solarizing & biological controls elsewhere	Steaming or grazing for large infestations with suitable access & topography; pulling & digging elsewhere	Steaming, grazing, or mowing for large infestations with suitable access & topography; cutting, pulling, solarizing & biological controls elsewhere	Steaming, grazing, or mowing for large infestations with suitable access & topography; cutting, pulling, solarizing & biological controls elsewhere	Steaming, grazing, or mowing for large infestations with suitable access & topography; manual methods & biological controls elsewhere
Transmission Line ROW – USDI-BLM lands	2,4-D for large infestations away from water; mowing near water in areas with suitable topography & access; pulling seedlings in small areas; cutting or glyphosate for spot problems	2,4-D for large infestations away from water; steaming near water in areas with suitable topography & access; pulling, cutting & digging elsewhere. Cut vines growing up trees or transmission-line poles	Chemical controls for large infestations away from water; steaming & mowing near water in areas with suitable topography & access; cutting or glyphosate for spot problems	Chemical controls for large infestations away from water; steaming & mowing near water in areas with suitable topography & access; cutting, solarizing, or glyphosate for spot problems	Picloram or dicamba for large infestations away from water; steaming near water in areas with suitable topography & pulling for spot problems	Picloram for large infestations away from water; steaming & mowing near water in areas with suitable topography & access; manual methods for spot problems	Picloram or 2,4-D ester for large infestations away from water; steaming near water in areas with suitable topography & access; pulling and digging for spot problems	2,4-D or picloram for large infestations away from water; steaming & mowing near water in areas with suitable topography & access; cutting, solarizing, or glyphosate for spot problems	Picloram or dicamba for large infestations away from water; steaming near water in areas with suitable topography & pulling, cutting or solarizing for spot problems	Chemical controls for large infestations away from water; steaming & mowing near water in areas with suitable topography & access; manual methods for spot problems
Powerhouses	Manual & mechanical methods	Pulling, cutting, digging, steaming	Pulling, cutting, digging, steaming	Cutting, solarizing, or steaming	Pulling, solarizing, grubbing, steaming	Manual & mechanical methods	Pulling & digging. Try steaming & solarizing.	Cutting, solarizing, mowing, steaming	Pulling, cutting, solarizing, mowing, steaming	Manual & mechanical methods
Canals and penstocks	Manual & mechanical methods	Pulling, cutting, digging, steaming	Pulling, cutting, digging, steaming	Steaming in areas with suitable access; cutting or solarizing, elsewhere	Steaming in areas with suitable access; pulling or solarizing elsewhere	Steaming in areas with suitable access; cutting, pulling, or solarizing elsewhere	Pulling & digging. Try steaming & solarizing.	Steaming in areas with suitable access; cutting or solarizing elsewhere	Steaming in areas with suitable access; cutting or solarizing elsewhere	Steaming in areas with suitable access; cutting, pulling, or solarizing elsewhere
Dams	Manual & mechanical methods	Pulling, cutting, digging, steaming	Pulling, cutting, digging, steaming	Cutting, solarizing, or steaming	Pulling, steaming, solarizing	Manual methods	Pulling & digging. Try steaming & solarizing.	Cutting or solarizing	Pulling, cutting or solarizing	Manual methods
Impoundments	Manual & mechanical methods	Pulling, cutting, digging, steaming	Pulling, cutting, digging, steaming	Cutting, solarizing, or steaming	Pulling, steaming, solarizing	Manual methods, mowing & steaming	Pulling & digging. Try steaming & solarizing.	Cutting, solarizing, or steaming	Pulling, cutting, solarizing, steaming	Manual methods, mowing, & steaming
Access roads-USDA-FS lands	Mowing or grazing for large infestations with suitable access & topography; cutting & biological controls elsewhere	Steaming or grazing for large ground infestations with suitable access & topography; hand pulling, cutting & digging elsewhere. Cut vines growing into trees	Steaming, grazing, or mowing for large infestations with suitable access & topography; manual methods elsewhere	Steaming or mowing for large infestations with suitable access & topography; cutting elsewhere	Steaming, grazing, for large infestations with suitable access & topography; pulling & grubbing elsewhere	Mowing grazing, or steaming for large infestations with suitable access & topography; manual methods, grubbing & biological controls elsewhere	Steaming & grazing, for large infestations with suitable access & topography; digging & solarization elsewhere	Steaming, grazing, or mowing for large infestations with suitable access & topography; cutting, pulling, solarizing, & biological controls elsewhere	Steaming, grazing, or mowing for large infestations with suitable access & topography; cutting, pulling, solarizing & biological controls elsewhere	Mowing, grazing, or steaming for large infestations with suitable access & topography; manual methods, grubbing & biological controls elsewhere
Access roads-USDI-BLM lands	Picloram for large infestations away from water; mowing near water in areas with suitable topography & access; pulling seedlings in small areas; cutting or glyphosate for spot problems	2,4-D for large infestations away from water; steaming near water in areas with suitable topography & access; hand pulling, cutting & digging elsewhere. Cut vines growing up trees	Chemical controls for large infestations away from water; steaming & mowing near water in areas with suitable topography & access; cutting or glyphosate for spot problems	Chemical controls for large infestations away from water; steaming & mowing near water in areas with suitable topography & access; cutting or solarizing or glyphosate for spot problems	Picloram or dicamba for large infestations away from water; steaming near water in areas with suitable topography & access; pulling for spot problems	Picloram for large infestations away from water; steaming & mowing near water in areas with suitable topography & access; manual methods for spot problems	Picloram or 2,4-D ester for large infestations away from water; steaming near water in areas with suitable topography & access; pulling and digging for spot problems	2,4-D or picloram for large infestations away from water; steaming & mowing near water in areas with suitable topography & access; cutting, solarizing, or glyphosate for spot problems	Picloram or dicamba for large infestations away from water; steaming near water in areas with suitable topography & pulling, cutting or solarizing for spot problems	Picloram for large infestations away from water; steaming & mowing near water in areas with suitable topography & access; manual methods for spot problems
Administrative facilities	Manual & mechanical methods	Pulling, cutting, digging, steaming	Pulling, cutting, digging, steaming	Cutting, solarizing, or steaming	Pulling, steaming, solarizing	Manual & mechanical methods	Pulling & digging. Try steaming & solarizing.	Cutting, solarizing, steaming	Pulling, cutting, solarizing, steaming	Manual & mechanical methods
Recreation sites	Manual & mechanical methods	Pulling, cutting, digging, steaming	Pulling, cutting, digging, steaming	Cutting, solarizing, or steaming	Pulling, steaming, solarizing	Manual & mechanical methods	Pulling & digging. Try steaming & solarizing.	Cutting, solarizing, steaming	Pulling, cutting, solarizing, steaming	Manual & mechanical methods

Large existing infestations, as well as newly establishing populations, will require aggressive treatment, using a combination of methods over a number of years. Biological agents might be appropriate to control some species, particularly in more remote areas along the transmission line.

4.4.4 Schedule for Treatment of Specific Sites

PacifiCorp will begin controlling priority noxious weed species in the Project boundary beginning in 2004, starting with the infestations that have already been identified. In 2005, PacifiCorp will work with the USDA-FS and USDI-BLM to develop treatment plans and schedule for each identified population, using the USDA-FS criteria for treatment of new sites (see Exhibit F). PacifiCorp will conduct or fund all noxious weed control activities within the Project boundary and will coordinate with the USDA-FS and USDI-BLM on the treatment of infestations that extend outside the boundary.

4.4.5 Documentation and Reporting Requirements

Working with the USDI-BLM and USDA-FS, PacifiCorp will develop specific treatment plans for all infestations of priority noxious weeds within the Project boundary, as identified by the noxious weed inventory. Each plan will include initial and follow-up control methods to be used, as appropriate to location and species, and a schedule. Information in each plan will be used to develop a GIS-linked database to track the treatment of each infestation, as well as a master schedule. The plans will also incorporate the form used by the USDA-FS for updating information in the national database on noxious weeds. The plans and schedule will be updated annually until treatment and monitoring are discontinued. Development and review of the plans will be part of the annual planning process and will be incorporated into the Rolling 5-Year Vegetation Management Action Plan.

4.4.6 Effectiveness Monitoring

Each of the identified priority noxious weed infestations in the Project boundary will be monitored annually to determine the effectiveness of the control methods being used. This information will be used to update and change, if necessary, the methods in the treatment plans. Effectiveness monitoring is particularly important since different methods may become more appropriate over the period of treatment. For example, hot water treatment may be abandoned in favor of hand pulling if only a few individual plants remain. In addition, new control methods may be developed that are potentially more effective. Effectiveness monitoring will continue up to 3 years following eradication of an infestation. Result of effectiveness monitoring each year will be incorporated into the annual update to the Rolling 5-Year Vegetation Management Action Plan.

5.0 REVEGETATION

Revegetation is an integral part of vegetation maintenance, noxious weed prevention, and associated site restoration. It is also an aspect of Project maintenance, new construction, and erosion control. This Chapter on revegetation provides standards and guidelines for replanting/reseeding of disturbed areas resulting from operation and maintenance of the North Umpqua Hydroelectric Project. The overall intent of revegetation is to prevent the establishment of weeds, enhance wildlife habitat, control erosion, improve aesthetics, and restore land health in the Project area.

5.1 ACTIVITIES REQUIRING REVEGETATION

PacifiCorp will revegetate sites disturbed by Project O&M. Activities related to Project O&M that may involve revegetation include but are not limited to the following:

- Power pole replacement;
- Large-scale clearance under the transmission line that results in ground disturbance;
- Areas under the transmission line ROW identified by the PacifiCorp and the USDA-FS or USDI-BLM for conversion to a different plan community;
- Areas affected by leaks, overflows, or breaches from Project canals or impoundments;
- Road improvements;
- Erosion control projects identified in the SA (June 13, 2001);
- Construction of new recreation facilities;
- Improvements to existing recreation facilities;
- Some weed control projects;
- Projects to improve or restore wetlands and fish and wildlife habitat, as identified in the SA (June 13, 2001); and
- Projects using vegetation to improve aesthetics identified in the SA (June 13, 2001).

5.2 REVEGETATION POLICIES

Revegetation of disturbed areas within the Project boundary is guided primarily by the UNF Native Plant Program, which requires use of native plant species on the Forest (memo from J. Caplan, Forest Supervisor to UNF District Rangers, March 13, 2002; see Exhibit E). Exceptions to this policy require the approval of the Forest Supervisor and in general are limited to situations requiring emergency rehabilitation. This program was established to ensure that practices on the UNF were consistent with the standards and guidelines of the Northwest Forest Plan Record of

Decision (USDA-FS and USDI-BLM 1994), as well as requirements of the ESA and Executive Order 13112. The program also establishes a native species coordinator in each Ranger District who is responsible for determining appropriate native plant species and genetic sources for projects in the district. USDI-BLM Manual 1745 outlines a similar native plant policy for their lands.

Genetic guidelines for the use of native non-conifer species in revegetation projects on USDA-FS lands generally follow those for conifers. For the Project area, seeds and plant stock need to originate from zones 491 and 493, and from within 1,000 feet of one of three elevation bands, depending on the project: 0-2,500 feet; 2,500-3,500 feet; and 3,500-4,500 feet. The UNF currently contracts with the J. Herbert Stone Nursery in Jacksonville, Oregon to store native seeds and propagate native plant stock.

5.3 REVEGETATION PROCESS

The revegetation process involves the following five steps:

- Site assessment and planning
- Site preparation
- Seeding
- Planting
- Monitoring and contingency planning

Guidance for each of the steps in the revegetation process is provided below.

5.3.1 Site Assessment and Planning

The first step in the process of revegetation is to estimate the size of the disturbed site. As a general rule, revegetation of small sites (<0.25 acre [10,890 square feet]) associated with routine O&M (e.g., landings for pole replacement) will involve seeding with a native species mix. Large sites (>0.25 acre) disturbed by more major O&M activities or Project-related construction will usually be revegetated using a combination of seeding and planting with native stock, and will require development of a site-specific revegetation plan. Regardless of site size, site-specific plans will also be required for revegetation projects associated with erosion control/repair or the restoration/enhancement of wetlands, or fish and wildlife habitat. Site preparation requirements for small and large sites are summarized below.

5.3.1.1 Small O&M Sites

To the extent possible, routine O&M activities planned for the upcoming year will be listed in the annual update of the Rolling 5-Year Vegetation Management Action Plan for review by the USDA-FS and USDI-BLM. However, it is likely that not all sites will be known at the time of annual planning.

As part of the annual planning process, USDA-FS and USDI-BLM botanists will suggest one or two standard native seed mixes that can be purchased by PacifiCorp and used to seed sites <0.25 acres disturbed by O&M activities. Standard rates, based on slope, aspect, and elevation will

also be developed or reviewed/revised as part of the annual update to the Rolling 5-Year Plan. Additional consultation between PacifiCorp and USDA-FS or USDI-BLM will not be required for assessing revegetation of small sites disturbed by O&M activities.

5.3.1.2 Other Sites

Site-specific revegetation plans will be prepared for O&M activities expected to disturb >0.25 acres, as well as for projects involving erosion control/repair and wetland and fish and wildlife habitat restoration/enhancement. Planning well in advance for these projects is critical because it can take 2 years or more to acquire some native species in the amounts needed for revegetation. Each year, PacifiCorp, the USDI-BLM, and USDA-FS will use the Rolling 5-Year Vegetation Management Action Plan to identify proposed projects with site-specific revegetation requirements in year 3 of the plan (2 years from the current year). At that time, PacifiCorp and the USDA-FS or USDI-BLM will conduct a preliminary site assessment to evaluate specific revegetation needs for erosion control, aesthetics, wildlife, and weed prevention. After this meeting, the agency botanists will develop a list of native species to be used to seed/plant the site and estimate needed amounts of seed and/or plant stock. In addition, the USDA-FS wildlife biologist will be consulted to ensure that selected native plants are compatible with any habitat enhancement programs that include or are close to the site to be revegetated. PacifiCorp will be responsible for: (1) collecting seed from the appropriate zone and elevation band and outgrowing, or (2) providing funding to the USDA-FS to provide the approximate plant materials.

5.3.2 Site Preparation

Site preparation guidance for revegetation is presented in two sections—one for reseeding small O&M, sites and one for revegetating larger disturbed areas or sites involving revegetation for erosion control/repair and wetland, fish, and wildlife habitat restoration/enhancement. Most of the guidance provided in this section is based on information in a handbook on native plant revegetation prepared by the Colorado Natural Areas Program (CNAP)(1998).

5.3.2.1 Small O&M Sites

The first step in preparing small sites disturbed by O&M activities for seeding is hand raking to reduce soil compaction and to uniformly rough the surface in preparation for seeding. If needed, the soil will be amended by applying and incorporating compost and/or sawdust or woodchips. Application of fertilizer may be appropriate on a site-specific basis, but should not be applied where there is potential for direct delivery into waterways.

5.3.2.2 Other Sites

If possible, top soil salvage is the most effective preparation for revegetating larger disturbed areas or sites involving wetland, fish, and wildlife habitat restoration/enhancement. Top soil salvage is probably not an option for erosion control sites. But for other projects where soil compaction is a potential problem, topsoil will be removed and stockpiled. For salvage, topsoil is generally defined as the upper 6 to 12 inches; below this level, the biological activity is usually limited. If deeper subsoils are salvaged to increase the amount of material available for covering

a larger area, separating the topsoil from the subsoil is recommended. Subsoils will be stored separately and marked to distinguish them from true topsoil. During site preparation, subsoils will be spread first, with topsoil placed as the uppermost layer.

The goal of a topsoil salvage operation is to keep the soil alive, weed-free, and protected from damage until it can be returned to the site for replanting. Topsoils will be salvaged when dry or moist, but not wet. Top soils will be stored in a weed-free location for as short a period of time as possible. Soils stored over the winter will be sown with a cover crop to protect from erosion. Storage piles will be shallow (<2 feet) to allow more air exposure and benefit desirable soil organisms.

Topsoil will be replaced with a minimum number of machine passes to reduce disturbance to micro-organisms. It is not necessary to achieve uniform coverage since variable soil depths mimic natural systems. Once topsoil is replaced, the area will be seeded within a few days to minimize erosion and weed establishment. Preparing the seedbed includes using mechanical methods to scarify the site, if needed, followed by raking or harrowing. Harrowing and decompaction of the subsoil will be done before topsoil replacement. Once the topsoil is replaced, it will be lightly scarified or raked to prepare for seeding. The final step prior to seeding involves amending the soil with compost and/or sawdust/wood chips, if needed. Sawdust or woodchips can help control site erosion and inhibit weed growth. Application of fertilizer may be appropriate on a site-specific basis, but should not be applied where there is potential for direct delivery into waterways.

If topsoil has not been stockpiled, it may be necessary to reduce soil compaction and weed cover prior to replanting. Selected methods should not spread rhizomes of noxious weeds and should minimize disturbance to soil structure.

5.3.3 Seeding

Seeding is one of the most common methods of reestablishing native plants because it is relatively cost effective. However, plant establishment from seed can take several years and be difficult, particularly if weeds are present on or near the site. Consequently, seeding appears to work best for small sites that are bordered by areas that can provide a source of native plants to aid in colonization.

Seed mixes will contain only species from genetic stock that meet the standards of the USDA-FS and USDI-BLM native vegetation management programs. In addition, only "all-states" certified weed-free seed mixes will be used for revegetation within the Project boundary; mixes will be tested according to Association of Official Seed Analysts (AOSA) standards. Mixes will also be certified in writing by a Registered Seed Technologist and Seed Analyst as meeting the requirements of the Federal Seed Act and State Seed Law for Oregon regarding the testing, labeling, sale, and transport of prohibited and restricted noxious weeds.

When possible, sites will be seeded at a time that takes advantage of natural moisture. Seeding success is greatly influenced by temperature and precipitation; germination is typically successful when temperatures are above freezing and precipitation is high. For the Project area,

these conditions typically occur in the spring and fall, with the best times varying by site location. Overall, there needs to be adequate moisture and temperature conditions for seed germination and seedling growth and establishment.

There are three primary seeding methods: drilling, broadcasting, and hydroseeding. The best method depends on site accessibility and terrain, seedbed characteristics, and time of seeding. The advantages and disadvantages of each method as applied to the Project area are described in Table 5.3-1. In developing the site-specific revegetation plan, PacifiCorp will coordinate with USDA-FS or USDI-BLM botanists to determine the most appropriate method for the site, as well as the appropriate seeding rate.

After seeding, most sites will benefit from a protective cover of mulch. Mulch protects the soil and seeds from wind and water erosion and conserves soil moisture. Mulch should be applied immediately after seeding to protect the seeds and not damage emerging seedlings. To be

Table 5.3-1. Advantages and disadvantages of seeding methods.

Method	Advantages	Disadvantages
Drilling	• High revegetation rates. • Most successful on slopes 3:1 or flatter. • Seed depths & seeding rates can be controlled. • Seed-soil contact is high, which maximizes germination results.	• Cannot be accomplished in very rocky soils or on steep slopes. • Unless specially modified drills are used, all seeds are planted at the same depth; thus, small seeds may be planted too deep. • May result in high inter-seedling competition. • Leaves "rows," which often persist for many years. • Can result in erosion if use does not follow a contour.
Broadcasting	• Can be used on slopes that are steep, extremely rocky, remote or inaccessible. • The variable planting depths that result from broadcast seeding can result in better establishment of smaller seeds. • Does not create "rows," which may be more aesthetically acceptable on some sites.	• If not done correctly, seedling germination & establishment can be slow. • Requires 2-3 times the seeding rate than drilling; broadcast seeding can result in better establishment of smaller seeds. • Uniform seeding application is difficult. • Cannot be done on windy days. • Requires a carefully prepared seedbed & raking/harrowing immediately before & after seeding.
Hydroseeding	Can reach areas that may otherwise be inaccessible, such as the sides of very steep slopes.	• Tends to result in lower germination rates than the other two methods because seed/soil contact is lower. • Requires a local water supply for application. • Requires dependable moisture during the growing season to be successful. • On steep, hard slopes, the slurry can slip, resulting in uneven coverage. • Water from the slurry application can wash seeds off steep, hard slopes.

Source: CNAP 1998

effective, mulch should cover nearly the entire planting surface and persist through seed germination. Mulch types include the following:

- Straw or native grass hay
- Hydromulching
- Bonded fiber matrix
- Erosion control mats

Only weed-free materials will be used as mulch for revegetation in the Project area. In general, straw is the least expensive mulch material; there is, however, no weed-free straw certification in Oregon, so use of native grass hay may be the best way to avoid introducing weeds to the site. Bonded fiber matrix is often the most effective mulch material for steep, rocky slopes. PacifiCorp contractors or staff will determine the most appropriate mulch material for the site based on site conditions and the availability of suitable materials. Because straw and native grass hay can lower soil temperatures and thus delay seed germination in cooler climates, care will be taken to avoid applying too much mulch.

5.3.3.1 Small O&M Sites

Seeding will be the primary form of revegetation on small sites disturbed by O&M activities. It is likely that there will be number of small sites needing revegetation over the course of a year, and seeding should be a relatively routine process requiring little, if any, consultation between PacifiCorp and the USDA-FS and/or USDI-BLM. Consequently, PacifiCorp will work with the USDA-FS and USDI-BLM to identify the species composition of standard seed mixes for use on small O&M sites. Seed mixes will include blue wild rye, other native grasses, and several forb species. Mixes may vary from year to year, depending on seed availability. Several different mixes may be needed to meet the varying environmental conditions over the entire Project area.

The USDA-FS and/or USDI-BLM will develop standard seeding rates for small O&M sites that can be applied by PacifiCorp staff or contractors with a knowledge of slope, aspect, and general soil type. Rates will likely vary from 10 to 20 lbs/acre, depending on the species. Rates will be developed as part of the first annual update of the Rolling 5-year Vegetation Management Action Plan, and will be tested over the next few years on various sites to fine-tune the rates. It is expected that most small O&M sites will probably be seeded using the broadcast method.

5.3.3.2 Other Sites

Revegetating larger disturbed areas or sites involving revegetation for erosion control/repair and wetland, fish, and wildlife habitat restoration/enhancement will typically involve a combination of seeding and planting. In development of the site-specific plan, PacifiCorp and the USDA-FS or USDI-BLM will determine if any of the standard seed mixes developed for small O&M sites are suitable, or if a customized mix is required. To the extent possible, sites will be seeded as soon as final grading and/or topsoil placement has occurred. Seed application methods will be outlined in the site-specific plan, based on available equipment and site conditions.

5.3.4 Planting

Larger disturbed areas, erosion control/repair sites, and wetland, fish, and wildlife habitat restoration/enhancement sites may be replanted with trees, shrubs, and forbs, as appropriate to the location. These plant materials can be purchased as bare root and/or containerized stock but must be grown from seeds or cuttings from genetically appropriate native stock in accordance with the UNF native plant program. For some sites, it may be possible to use salvaged plant materials, which is preferable when possible. In developing the site plan, PacifiCorp will coordinate with USDA-FS or USDI-BLM botanists to select the species to be planted, type of material (bare root or containerized), stocking rates, and most suitable planting time. On the UNF, the USDA-FS has generally had success with planting containerized grasses in the fall and bare root shrubs in the spring. Selected species will depend on site location, terrain, soils, and any associated needs for habitat enhancement or aesthetics. A comparison of bare root and containerized plant materials is provided in Table 5.3-2.

Table 5.3-2. Comparison of bare root and containerized stock[1].

	Bare Root	Containerized
Processing	Requires greater care & planning during shipping, storage, handling, & planting.	Shorter production periods & increased survival after transplanting due to less root disturbance during processing.
Planting	Does not do well in rockier sites.	Performs better on adverse sites, especially in rocky or high-stress areas.
Establishment	Lacks the advantage of being established with their own soil.	On some occasions, roots fail to grow outside containered soil
Scheduling	Must be either harvested from the nursery in late fall, after the onset of dormancy, & held over the winter in cold storage or harvested early in the spring, before the onset of leaf emergence, & directly planted to the field.	Can be established during the spring or fall.
Advance planning time	Time from nursery establishment to field planting varies from 1- 3 years.	Time from nursery establishment to field planting averages <2 years.
Cost	Costs less & is less expensive to ship. Easier install for less cost.	More expensive to produce & ship. More costly to install.

[1] Modified from CNAP 1998.

Plant materials, whether bare root, containerized, or salvaged, should be handled as little as possible before transplanting. Planting holes can be made using mechanical or manual methods. To minimize labor, excavation time, and moisture loss, hole size should not be any larger than necessary to allow roots to contact the soil and approximately maintain their natural form.

5.3.5 Monitoring

There are two main types of monitoring associated with revegetation. Implementation monitoring will be conducted to confirm that sites have been revegetated as specified in the annual update of the Rolling 5-Year Vegetation Management Action Plan. Implementation monitoring will be conducted by the USDA-FS and USDI-BLM and will involve checking about 20 percent of all sites scheduled for revegetation in any given year.

Effectiveness monitoring will be conducted to determine the success of revegetation efforts or to identify problems that may need to be corrected. Small O&M sites will not be monitored for effectiveness. Other revegetated sites will be revisited at least once during the year following replanting. Any bare areas will be replanted, erosion repaired, and weeds treated. Some areas, particularly those associated with erosion control/rehabilitation and wetland or habitat enhancement/restoration, may require longer-term and more intensive monitoring to ensure success. A long-term monitoring program, if needed, will be included in the site-specific revegetation plan to be developed by PacifiCorp in coordination with the USDA-FS and USDI-BLM. These monitoring programs will include quantitative objectives for plant survival and cover, and weed and erosion control over a 3- to 5-year period. Sites may need to be visited more than one time per year. Monitoring techniques may include transects to record plant cover, plot frames to record plant density, and/or photo points.

Potential problems that can affect a revegetation project after initial planting include the following:

- The establishment of noxious weeds or other non-native invasive species.
- Foraging by wildlife, which may affect plant survival or growth.
- Erosion that damages plant materials and/or removes substantial amounts of soil.
- Flooding, windstorm, hail, etc. that severely damage plants or remove soil.
- Failure or lack of vigor in introduced plantings.
- Unexpected successional changes that shift species composition or abundance.
- Unfavorable amounts of moisture (too little, too much, or wrong time of year).
- Mulch layers that are too thick and inhibit seed germination.

5.4 RESPONSIBILITIES

PacifiCorp will be responsible for identifying sites where O&M activities are expected to disturb >0.25 acre, wetland and habitat restoration/enhancement projects, and erosion control projects. These sites will be identified in the Rolling 5-Year Vegetation Management Action Plan 2 years prior to any routine or planned activity. The USDA-FS and USDI-BLM will be responsible for consulting with PacifiCorp to develop site-specific revegetation plans, and providing information on the amounts and sources of plant materials needed. These agencies will also assist PacifiCorp in the development of standard seed mixes to revegetate small O&M sites (<0.25 acre). PacifiCorp will order the materials and contract or conduct all tasks associated with site revegetation, including monitoring. The USDA-FS and USDI-BLM will participate in the monitoring process and develop criteria for determining success at each site. Monitoring results for each year, and any needed contingency measures, will be incorporated into the Rolling 5-Year Vegetation Management Action Plan.

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Vegetation Management Plan

Exhibits

A	Settlement Agreement Section 12 (Vegetation Management Plan) and Consultation Record for the Plan
B	Framework for Rolling 5-Year Vegetation Management Action Plan
C	Tree Heights
D	Summary Information for Priority Noxious Weed Species
E	USDA-FS Umpqua National Forest Native Plant Policy
F	USDA-FS Umpqua National Forest Criteria for Treatment of New Sites
G	Plan Maps

Exhibit A

Settlement Agreement
Section 12
Vegetation Management and
Consultation Record for the Plan

SETTLEMENT AGREEMENT

AMONG
PACIFICORP
USDA FOREST SERVICE
NATIONAL MARINE FISHERIES SERVICE
USDI FISH & WILDLIFE SERVICE
USDI BUREAU OF LAND MANAGEMENT

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
OREGON DEPARTMENT OF FISH AND WILDLIFE
OREGON WATER RESOURCES DEPARTMENT

DATED

JUNE 13, 2001

CONCERNING THE RELICENSING OF THE
NORTH UMPQUA HYDROELECTRIC PROJECT
FERC PROJECT NO. 1927-008
DOUGLAS COUNTY
OREGON

for wetland enhancement or creation include Stump Lake (by the second anniversary of the New License), Stinkhole area (by the sixth anniversary of the New License), Fallen Mountain Creek in the vicinity of the historic channel (by the fourth anniversary of the New License), Expanded Lemolo 1 forebay (by the fifth anniversary of the New License), and near the campgrounds at Lemolo Lake (by the first anniversary of the New License). PacifiCorp shall enhance or create an additional three wetlands by the eleventh anniversary of the New License at locations to be determined in consultation with USDA-FS and ODFW. Locations for these additional three wetlands potentially include Ranawapiti, Fallen Mountain Creek, and Lemolo Reservoir (PacifiCorp shall make necessary modifications to campgrounds and restore vegetation to improve wetland species diversity) and other areas surrounding Toketee Reservoir.

SECTION 12. VEGETATION MANAGEMENT

12.1 Vegetation Management Plan. PacifiCorp shall develop, in consultation with the USDA-FS and BLM, a Vegetation Management Plan (the "VMP") within 18 months after the Effective Date. Full implementation of the VMP will commence promptly after the VMP is approved by the USDA-FS and the BLM and the New License becomes final. Pending implementation of the VMP, PacifiCorp shall continue its current vegetation management practices. The procedures identified in the VMP will allow for the continued operation of the hydroelectric facilities and transmission and distribution system in a reliable, safe, and environmentally responsible manner. The plan will include vegetation management procedures to be implemented within the FERC Project Boundary and in other areas on federal land directly affected by Project operations. Procedures contained in the plan will be consistent with USDA-FS and BLM objectives and plans for noxious weeds and vegetation management on federal lands, which include, but are not limited to, the following: noxious-weed prevention, weed control strategies, treatments, weed inventory and monitoring, erosion control, ground cover objectives, native plant species, wildlife habitat objectives, visual resource objectives, riparian reserve objectives, weed-free seed certification, monitoring and evaluation schedule for the length of the New License period, and adaptive management provisions. Procedures will also be consistent with hazard tree control practices that ensure the integrity and reliability of the transmission line and hydroelectric facility operation. A schedule for implementing the VMP will be identified in the final VMP.

12.2 Noxious-Weed Control. PacifiCorp shall commence measures to control and prevent the spread of noxious weeds in conjunction with actions coordinated by the RCC, with emphasis on known populations of noxious weeds.

SECTION 13. AVIAN PROTECTION

13.1 Power Pole Modification. Commencing upon the Effective Date, PacifiCorp shall continue to implement measures to minimize adverse interactions between Project power lines and birds. Any pole involved in a bird fatality will be retrofitted or rebuilt to increase safety for large perching birds. In addition, all new or rebuilt power poles will be constructed following guidelines in the publication entitled "Suggested Practices for Raptor Safety on Power Lines: The State of the Art in 1996" (APLIC 1996).

PACIFICORP

Sent Via Email/Fax

MEETING NOTES

TO:	Jeff Bohler (USFS, Diamond Lake RD), Carl Corey (USFS, Region 6), Clint Emerson (USFS, Diamond Lake RD), Richard Helliwell (USFS, Umpqua National Forest), Colleen McShane, (EDAW), Randall Miller (PacifiCorp), Jay Neil (PacifiCorp), John Sample (PacifiCorp), Pam Sichting (USFS, Umpqua National Forest), John Sloan (USFS, Umpqua National Forest), and Jeanne Standley (BLM, Roseburg)
FROM:	Diane Robb-Barr, PacifiCorp Environmental Coordinator
DATE:	July 5, 2002
RE:	**May 29, 2002 Meeting Notes - Revised** North Umpqua Hydroelectric Project: Vegetation Management Plan (VMP) - Meeting #1

The meeting discussion followed the agenda, which included the following topics:

- Introductions
- Overview of intended outcomes
- Overview of the Settlement Agreement Section 12.0
- Overview of other Management Plans
- Desired elements to be contained in the VMP
- Timeline for completing the VMP
- Schedule of meetings and identification of individuals to be involved
- Recap of action items

Eleven people attended the ½-day meeting, including: Jeff Bohler and Clint Emerson (USFS, Diamond Lake RD); Richard Helliwell, Pam Sichting, and John Sloan (USFS, Umpqua National Forest); Jeanne Standley (BLM, Roseburg); Colleen McShane, (EDAW); and Diane Robb-Barr, Randall Miller, Jay Neil, and John Sample (PacifiCorp). Carl Corey (USFS, Region 6) participated by phone conference.

Introductions

John Sample (PacifiCorp) opened the meeting and all participants introduced themselves.

Overview of Intended Outcomes

Diane Barr (PacifiCorp) explained that the purpose of the meeting was to kick-off the process of developing the Vegetation Management Plan (VMP) for the North Umpqua Project. PacifiCorp expected to prepare the VMP in consultation with the USFS and BLM. EDAW, a consultant to PacifiCorp would actually write the document.

Overview of Settlement Agreement Section 12.0

The group reviewed Section 12 of the Settlement Agreement, a very short section that covers the development of a VMP for the North Umpqua Project. As stated in Section 12, procedures contained in the VMP must be consistent with USFS and BLM objectives and plants for noxious weeds and vegetation management on federal lands, which include but are not limited to the following:

- Noxious weed prevention;
- Weed control strategies, treatments, inventory, and monitoring;
- Erosion control;
- Ground cover objectives;
- Native plant species;
- Wildlife habitat objectives;
- Visual resource objectives;
- Riparian reserve objectives;
- Weed-free seed certification; and
- Monitoring and evaluation schedule

After reviewing this list, John Sloan (USFS) said that the USFS would like to add several other elements for inclusion in the VMP. These include the following:

- Fuels management around PacifiCorp facilities – This issue was included in the USFS's 4E conditions but was not part of the negotiated Settlement Agreement. It may be more cost effective to include fuels management in the VMP, or it may be better dealt with in the Fire Control Plan.

- Hazard tree reduction – This is an ongoing activity by PacifiCorp that the USFS would like to have covered in the VMP.

Overview of Other Management Plans

Diane Barr asked the group to identify other management plans or policies that should be or need to be considered in the development of the VMP. The following plans and general policies were discussed:

- The Bonneville Power Administration's (BPA) Transmission System Vegetation Management Program – Randy Miller (PacifiCorp) mentioned that the BPA had recently released an Environmental Impact Statement (EIS) on it's vegetation

management program for transmission lines in the Pacific Northwest. The USFS and BLM were both cooperating agencies on this EIS. Randy thought that this document would provide a good basis for the VMP because it provides a scientifically-based toolbox of methods for controlling vegetation and includes input from the USFS and BLM. Furthermore, Randy understood the BLM is in the process of developing a programmatic vegetation management EIS, and that the results to date are consistent with those of the BPA.

Herbicide use is one of the methods covered in the BPA and BLM EISs. Randy stressed the importance of using herbicides, when warranted, to control vegetation along the transmission rights-of-way. He said that PacifiCorp would be better able to control weeds and establish preferred shrub communities under the transmission line if they had the ability to spot treat with herbicides. Randy cited 50 years of research by Bramble and Burns in the eastern U.S. that showed that transmission line right-of-ways (ROWs) treated with herbicides had a higher diversity of wildlife habitats than ROWs that were not. An article from the Spring 2001 *UAA Quarterly* (the newsletter of the Utility Arborists Association) explains the history of this research, and includes a complete bibliography.

For transmission rights-of-way, the purpose of herbicides is to help convert cover types to stable, low-growing plant communities that will never threaten the transmission lines, and will out-compete incompatible tall-growing species. The research by Bramble and Burns documents that these plant communities also provide a variety of habitats which promote wildlife diversity. Randy said that judicious use of herbicides is essential to establish low-growing plant comminutes. Vegetation managers reduce herbicide use to periodic spot treatments once the compatible plant community is established. Clint Emerson (USFS) emphasized the USFS's concerns about the use herbicides, particularly in Riparian Reserves.

Randy said he understood that as part of the BLM's vegetation management EIS process, that the they were planning to petition the Justice Department to lift the 1984 injunction on herbicide use on federal lands. Jeanne Standley (BLM) said that the were told to do some additional work prior to submitting such a petition and that it would probably be another 5 years or so before this actually happened.

- The USFS's Noxious Weed Control Program – Richard Helliwell (USFS) said that the USFS program of noxious weed control on the Umpqua National Forest (UNF) is focused on high priority weeds, especially spotted knapweed, and Scotch broom, to a lesser extent. Other high priority weeds include yellow starthistle, diffuse knapweed, and knotweed. In general, there is very little funding available for weed control, although it has increased somewhat over the last few years and more is available through partnerships. The USFS tries to initiate control of small populations of problematic species before they get out of control.

The USFS does not have the funding to conduct a formal program of inventorying weeds on the UNF, but they have all priority weed sites identified and mapped into their GIS. The USFS has not inventoried the transmission line ROW through the UNF, however they do have a good map of the Scotch broom infestations in the North Umpqua District. Richard said that Highway 138 and the areas around some of PacifiCorp's facilities have a lot of high priority weeds. For example, there is knotweed around Toketee Lake.

Richard also said that the USFS is in the process of preparing an EIS for noxious weed control. They are currently operating under an EIS from the 1980s, which has a very limited list of approved herbicides. He said that the USFS uses mechanical means for Scotch broom control, which actually works quite well. They would however, like to be able to consider herbicide use to control spotted knapweed. In addition, there are a lot of weed sites next to water and the USFS is investigating a number of new techniques.

- The UNF's Native Plant Program - Richard Helliwell said that the UNF has an official native plant policy, with the objectives of replacing weeds with native species and to linking revegetation with ecosystem management principles. The use of native plants from local genetic sources for revegetation projects is a priority. Plants used for revegetation projects must be genetically adapted to soils and climate of the planting site. Richard said that the entire North Umpqua Hydroelectric Project is within a single zone, and that the UNF has a good seed bank, which is stored at the J. Herbert Stone Nursery in Jacksonville. Adherence to the native plant program typically requires at least a 2-year planning window. The USFS uses bare root stock for shrubs and seeds for grasses.

- The BLM's Noxious Weed Strategy – Jeanne Standley said that the BLM has a Noxious Weed Strategy that has the following components:

  - ❖ Prevention - Recommended preventions measures include using clean straw as mulch and washing vehicles.

  - ❖ Early detection and eradication

  - ❖ Biological control – Biological controls are recommended especially for species on Oregon's B list of weeds, especially in recreation areas and research natural areas.

  Under this strategy the BLM treats weeds on about 750 acres per year, mostly along roads. This year the BLM is spraying all roads that cross PacifiCorp's transmission line ROW. Jeanne also said that the Oregon Department of Agriculture will fund the treatment of any sites with gorse. On the North Umpqua, this species has been found as far upstream as Steamboat Springs. The BLM knows the location of 12 sites that have had gorse infestations and treats any found sites immediately. .

The BLM uses any and all methods available for weed control, including boiling water with an organic foaming agent. They are currently allowed to use 5 herbicides to control only those species that are actually designated as noxious weeds on state and county lists. There are 35 known noxious weeds on the lands managed by the BLM in the Roseburg District. The BLM also tracks several invasive species that are not designated as noxious weeds. The do not treat Himalayan blackberry , primarily because there are no good control methods for this species.

- PacifiCorp's Plans – Under the Settlement Agreement PacifiCorp has completed or is in the process of preparing 5 other plans for the North Umpqua Project. These include the following:

  - ❖ Recreation Management Plan (in process)
  - ❖ Transportation Management Plan (in process)
  - ❖ Erosion Control Plan (in process)
  - ❖ Cultural Resource Management Plan (in process beginning fall 2002)
  - ❖ Aesthetics Plan (in process)

Diane Barr said that for each of these plans the resource area will drive the content of the plan, but that there will be a great deal of cross-referencing between plans to ensure that they are usable and coordinated. There will be a minimum 3-year rolling operation program associated with each plan.

Desired Elements to be Contained in the VMP

The group began the discussion of desired elements in the VMP by developing a list of potential issues to be considered. These included the following:

- Noxious weed control – The VMP must be consistent with the USFS and BLM strategies;

- Transmission line ROW vegetation management – The VMP should deal with fire concerns and hazard tree removal. PacifiCorp's goal is to create stable plant communities based on the wire-zone border zone technique of Bramble and Burns, which is explained in the BPA's EIS. This technique prescribes a grass-forb-low growing shrub community directly under the lines, with a tall shrub-short tree community between the lines and the edge of the right-of-way.

- Fuels reduction/fire issues – The VMP should include measures to reduce fuels along the transmission line ROW, around the Toketee community, and in the Lemolo Lake Basin, Thorne Prairie, and Oak Flat areas.

- Wildlife habitat – The VMP, as well as other plans, should incorporate improvements to wildlife habitat into other activities as appropriate. For example,

it may be appropriate to identify specific wildlife habitat objectives for vegetation management activities along different sections of the transmission line ROW. Portions of the ROW over canyons and through the Late Successional Reserve (LSR) should focus on maintaining and improving habitat connectivity. More open areas may have a big game management objective. Use of native plants for revegetation will also improve wildlife habitat.

- Ground cover – The VMP should include provisions to meet the UNF standard for ground cover, as defined in the 1990 Land and Resource Management Plan (LRMP). This guideline is applied to timber harvest areas in the UNF and deals with preventing the loss of soil productivity. The USFS also tries to identify other areas with ground cover problems and fix them as funds become available. Actions are driven by specific projects. Richard Helliwell said that the USFS would like to the VMP to focus on the restoration of ground cover in areas that are being treated for weeds or erosion. He also said that in general, the USFS is not expecting PacifiCorp to revegetate the bare steep slopes along the canals and in other places in the project areas. However, Carl Corey (USFS) mentioned that improvements to nearby ground cover might be considered as part of mitigation for new ground-disturbing activities. Richard also stated that there has been some new work involving the establishment of native species on steep slopes with poor soil.

- Restoration plans – The VMP needs to be compatible with restoration plants for Oak Flats, Thorne Prairie, and other areas. The amended LRMP will have new guidance on how Thorne Prairie is to be managed, which may be more compatible with how the transmission line ROW is managed in this area.

After a great deal of discussion on how the VMP should be organized and the elements it should include, the group came to several conclusions:

- First, the VMP should be the main or driver document for overall weed control and prevention in the project vicinity and vegetation management along the transmission line ROW. The VMP may be the driver document for fuels reduction, but this issue might best be covered in another plan, such as a Fire Control Plan.

- Second, the VMP should be the reference document for revegetation and weed control/prevention methods for projects related to erosion control, recreation, transportation, and aesthetics that are covered in other plans.

Timeline for Completing the VMP

The VMP is scheduled to be complete by spring 2003.

Next Meetings and Individuals Involved

The next meeting for the VMP is scheduled for **Wednesday, July 3 at 9:00** am at the Umpqua National Forest office in Roseburg. The meeting after that is tentatively planned for Wednesday, August 14. Clint Emerson and Pam Sichting will represent the USFS at future meetings; Jeanne Standley will be the BLM representative. PacifiCorp will be represented by Randy Miller, Jay Neil, and Diane Barr. As PacifiCorp's consultant, Colleen McShane (EDAW) will be responsible for facilitating the meetings and preparing sections of the VMP for review.

Summary of Action Items

Action items from the meeting are summarized below:

- Richard Helliwell agreed to provide a copy of the UNF's native plant policy (attached).
- Colleen McShane will prepare a draft outline of the VMP for review at the July meeting.
- Randy Hill will provide a copy of the Bramble and Burns article from the Spring 2001 UAA Quarterly (attached).
- Jeanne Standley will provide a copy of the BLM's Noxious Weed Strategy (attached).

PACIFICORP

Sent Via Email/Fax

MEETING NOTES

TO:	Jeff Bohler (USFS, Diamond Lake RD), Carl Corey (USFS, Region 6), Clint Emerson (USFS, Diamond Lake RD), Richard Helliwell (USFS, Umpqua National Forest), Colleen McShane, (EDAW), Randall Miller (PacifiCorp), Jay Neil (PacifiCorp), John Sample (PacifiCorp), Pam Sichting (USFS, Umpqua National Forest), John Sloan (USFS, Umpqua National Forest), and Jeanne Standley (BLM, Roseburg)
FROM:	Diane Robb-Barr, PacifiCorp Environmental Coordinator
DATE:	July 24, 2002
RE:	**July 3, 2002 Meeting Notes** North Umpqua Hydroelectric Project: Vegetation Management Plan (VMP) - Meeting #2

The meeting discussion followed the agenda, which included the following topics:

- Introductions / review of agenda items / updates
- Review meeting notes from 5/29/02 meeting
- Review VMP outline, including major elements/components and organization
- Action items and coordination for the next meeting

Six people attended the ½-day meeting, including: Jeff Bohler and Clint Emerson (USFS, Diamond Lake RD); Pam Sichting (USFS, Umpqua National Forest; Colleen McShane, (EDAW); and Diane Robb-Barr and Jay Neil, (PacifiCorp).

Introductions / Review of Agenda Items / Updates

Colleen McShane (EDAW) opened the meeting and provided a review of the agenda. She explained that the main purpose of the meeting was to begin developing the outline for the VMP.

Review of 5/29/02 Meeting Notes

Colleen handed out a copy of the 5/29/02 meeting notes that had some revisions from Randy Miller (PacifiCorp) in redline strikeout. The group agreed to approve the notes as

revised by Randy, with the addition of a sentence from Clint Emerson (USFS) emphasizing the USFS's concerns with herbicide use, particularly near water.

Review VMP Outline

The group reviewed a draft outline of the VMP that was prepared by Colleen McShane as a basis for discussion. The group agreed on the 3 main topics to be included in the VMP:

(1) Vegetation Management;
(2) Weed Prevention and Control; and
(3) Revegetation

These topics would each be a major section in the outline. After some discussion, the group decided that, to the extent possible, the material in the 3 major sections should be organized by facility. It was understood that this organization would result in some redundancy, but it was thought that this was necessary to make the VMP a truly user-friendly implementation document. The facilities to be covered in each section, as necessary, include the following:

- Transmission line
- Powerhouses
- Canals/penstocks
- Dams
- Impoundments
- Roads
- Administrative sites (shop areas, residences)
- Recreation sites
- Waste/recycle areas

After listing facilities to be included in the VMP, the group began developing the draft outline. This process involved listing the various vegetation management, weed prevention/control, and revegetation activities that might be expected to occur at each facility. By the end of the meeting, the outline was complete through the vegetation management section, and part of the weed control section was done. Colleen McShane agreed to use the format developed by the group and produce a more complete a draft outline for review and discussion at the next meeting (attached).

Next Meetings and Individuals Involved

The next meeting for the VMP is scheduled for Monday**, August 12 from 10:00 am to 4:00 pm** at the Umpqua National Forest office in Roseburg. The meeting after that is tentatively planned for Monday, September 16. .

Summary of Action Items

Action items from the meeting are summarized below:

- Colleen McShane will prepare a more complete draft outline of the VMP for review at the August meeting (attached).

- Colleen McShane will send copies of the USFS's Native Plant Policy and the BLM's Noxious Weed Strategy to the entire group.

- Pam Sichting will make sure that Ron Maertz (USFS, North Umpqua District) is informed about the VMP process.

- Colleen McShane will prepare and distribute a list of names and addresses of the individuals who are the main participants in VMP process.

PACIFICORP

Sent Via Email/Fax

MEETING NOTES

TO:	Jeff Bohler (USFS, Diamond Lake RD), Carl Corey (USFS, Region 6), Clint Emerson (USFS, Diamond Lake RD), Richard Helliwell (USFS, Umpqua National Forest), Colleen McShane, (EDAW), Randall Miller (PacifiCorp), Jay Neil (PacifiCorp), John Sample (PacifiCorp), Pam Sichting (USFS, Umpqua National Forest), John Sloan (USFS, Umpqua National Forest), and Jeanne Standley (BLM, Roseburg)
FROM:	Diane Robb-Barr, PacifiCorp Environmental Coordinator
DATE:	September 17, 2002
RE:	**August 28 , 2002 Meeting Notes** North Umpqua Hydroelectric Project: Vegetation Management Plan (VMP) - Meeting #3

The meeting discussion followed the agenda, which included the following topics:

- Introductions / review of agenda items / updates;
- Review notes from the meeting on July 3, 2002;
- Review VMP outline, including major elements/components and organization;
- Action items and coordination for the next meeting

Six people attended the 1-day meeting, including: Jeff Bohler and Clint Emerson (USFS, Diamond Lake RD); Pam Sichting (USFS, Umpqua National Forest); Colleen McShane, (EDAW); and Diane Robb-Barr and Jay Neil, (PacifiCorp). A representative from the BLM also attend a portion of the meeting.

Introductions / Review of Agenda Items / Updates

Colleen McShane (EDAW) opened the meeting and provided a review of the agenda. She explained that the main purpose of the meeting was to complete the development of the outline for the VMP.

Review of 5/29/02 Meeting Notes

The group approved the notes from the meeting on July 3, 2002 with no revisions

Review VMP Outline

The group reviewed the revised draft outline of the VMP that was prepared by Colleen McShane and dated July 17, 2002. The group approved the major section headings and overall organization. Suggested revisions and additions to each of the 3 major sections of the VMP outlines are summarized below:

- Vegetation Management
    - Include maps in the introductory section that show constraint zones – areas where vegetation management activities could be restricted either spatially or temporally by resource sensitivities (i.e. rare plants, raptor nest sites, areas of wildlife sensitivity, cultural resources).
    - Include coordination with USFS wildlife programs as one of the objectives of vegetation management under the transmission.
    - Add a subsection discussion monitoring and inspection (2.1.4.1) to the section on Slash/Debris Management (2.1.4)
- Noxious Weed Prevention and Control
    - Include photographs of priority species in section 3.1
    - Define inventory responsibilities for the USFS, BLM, and PacifiCorp in section 3.2.2.1
    - Assume an inventory and monitoring schedule of 3-5 years in section 3.2.3.1.
    - Move the section on prevention to proceed control.
    - Make sure that revegetation is an integral part of all control methods.
    - Prevention methods include the following: machinery cleaning/sanitation; working towards infestations; scheduling activities before seed set; revegetating after ground disturbing activities; and minimizing ground disturbance.
    - Add a schedule to treat specific sites as section 3.4.4.
- Revegetation
    - Include weed prevention, wildlife habitat, aesthetics, and erosion control as objectives in section 4.1

- Include information on seed zones and elevation bands in section 4.2. Expand this section to include site preparation techniques (subsoil analyses, mulching, fertilizing).

- Consider changing section 4.4, revegetation by facility/project, to general revegetation prescriptions. This section would deal with the steps needed to revegetate any disturbed site, and would cover erosion control, aesthetics, wildlife habitat, and weed prevention considerations.

Colleen McShane will incorporate the suggested changes and produce a revised draft outline for review by mid-September (attached) . The group agreed to review the revised draft and provide Colleen with any additional changes by October 1, 2002.

Next Meetings and Individuals Involved

The next meeting for the VMP is scheduled for Tuesday, **October 22 from 9:00 a.m. to 12:00 p.m.** at the Umpqua National Forest office in Roseburg.

Summary of Action Items

Action items from the meeting are summarized below:

- Colleen McShane will prepare a revised draft outline of the VMP by mid-September (attached).

- The group will review the revised outline and provide comments and suggestions to Colleen McShane by October 1, 2002.

- PacifiCorp will revise the project area maps with constraints. Jeff Bohler will provide PacifiCorp with land management allocation GIS coverages. These include LSRs, winter range, wildlife unique mosaics, owl cores, falcon nest zones, eagle nest zones, and designated owl recovery zones. Clint Emerson will provide PacifiCorp with GIS data on weed and TES plant locations. Erosion control sites, recreation sites, and sites with aesthetic issues will also be included as a map layer.

- Colleen McShane will begin writing a preliminary draft of the VMP. She will prepare section 1.0, the introduction, and several subsections of section 2.0, vegetation management. These sections will be provided to the group at least 1 week prior to the next meeting, which will be focused on review.

PACIFICORP

Sent Via Email/Fax

MEETING NOTES

TO:	Jeff Bohler and Clint Emerson (USFS, Diamond Lake RD); Carl Corey (USFS, Region 6); Pam Sichting, Richard Helliwell, Christine Lilienthal, and John Sloan (USFS, Umpqua National Forest); Jeanne Standley (BLM, Roseburg); Jay Neil, Randall Miller, and John Sample (PacifiCorp), and Colleen McShane, (EDAW);
FROM:	Diane Robb-Barr, PacifiCorp Environmental Coordinator
DATE:	November 20, 2002
RE:	**October 25, 2002 Meeting Notes** North Umpqua Hydroelectric Project: Vegetation Management Plan (VMP) - Meeting #4

The meeting discussion followed the agenda, which included the following topics:

- Introductions / review of agenda items / updates;
- Review notes from the meeting on August 28, 2002;
- Update the status of the maps for the VMP
- Review a preliminary draft of the first few sections of the VMP;
- Action items and coordination for the next meeting

Eight people attended the 1/2-day meeting, including: Jeff Bohler and Clint Emerson (USFS, Diamond Lake RD); Pam Sichting (USFS, Umpqua National Forest); Jeanne Standley (BLM); Colleen McShane, (EDAW); and Diane Robb-Barr and Jay Neil, (PacifiCorp). One of PacifiCorp's contractors for vegetation clearance along the transmission lint also attended the meeting.

Introductions / Review of Agenda Items / Updates

Colleen McShane (EDAW) opened the meeting and provided a review of the agenda. She explained that the main purpose of the meeting was to review the preliminary draft of the first few sections of the VMP.

Review of 8/28/02 Meeting Notes

The group approved the notes from the meeting on August 28, 2002 with no revisions.

Maps Status Update

Members of the VMP planning group provided the following updates regarding maps that will eventually be included in the VMP:

- Clint Emersion – Clint provided a CD of with mapped locations of noxious weeds, sensitive plants, and survey and manage (S/M) lichen, bryophyte, and plants. He was planning the send the CD to Vestra by the end of the day. The CD covers the Diamond Lake District, so Vestra will need to extract the data for the area included in the VMP. Clint still needs to get similar plant data from the North Umpqua District, particularly for the transmission line corridor.

- Jeff Bohler – Jeff will send a CD of data on land allocations for the Diamond Lake and North Umpqua districts to Vestra by the end of the day.

- Jeanne Standley – Jeanne will send a CD of weed locations, land allocations, and sensitive wildlife locations on BLM lands to Vestra in a week or so.

- Diane Barr – Diane will continue to coordinate with Vestra and will try to have draft maps available for review by the next VMP meeting.

Preliminary Draft VMP Review

The group reviewed the preliminary draft of the first few sections of VMP prepared by Colleen McShane and dated October 22, 2002. The group spent most of the time discussing and revising the goals and objectives for the VMP, but covered all the draft sections. Major suggestions, revisions, and additions are summarized below:

- Introduction
    - Move Objective 1c to Goal 4
    - Revise Goal 4 to be more procedural
    - Move the list of procedures in Goal 4 to other more appropriate objectives.
    - Add an objective to define the term “disturbed”
- VMP Planning and Coordination
    - The role of the Resource Coordination Committee in the implementation of the VMP needs to be better understood by the group.
    - The rolling 3-year plan should cover the current year and the next 2 years, as well as a summary of the past year’s activities.

- Contacts for VMP implementation will be as follows:
  BLM – Swift Water Field Office Manager
  USFS – Umpqua National Forest Supervisor
  PacifiCorp – Area Forester and Hydro Supervisor

  Each of these individuals will most likely appoint someone else to act in their behalf in coordinating and implementing VMP programs.

- There may be a programmatic EA covering project-related activities and ESA issues on federal lands. If this document exists, it needs to be included as an appendix to the VMP (***Action item for Diane***).

- The BLM has a determination of NEPA adequacy checklist that can be used to update annual project lists under the existing programmatic EA for noxious weeds. (***Action item for Diane***)

- Vegetation Maintenance

  - It was decided that each of the 3 VMP programs should be a separate chapter, not sections under a single chapter on implementation programs.

  - In general, it was decided to minimize the need for separate reports and notification for routine survey activities along the transmission line.

  - Colleen McShane and Jay Neil will work together to refine Section 3.1, which deals with the transmission line.

  - Side-trimming of trees should be avoided if at all possible.

  - Overall, it was agreed that the various methods used for vegetation control along the transmission line should be as general as possible to allow changes in technology to be implemented without rewriting the section.

Next Meetings and Individuals Involved

The next meeting for the VMP is scheduled for Thursday, **December 5, 8:30 a.m. to 12:30 p.m.** at PacifiCorp's Green District Office in Roseburg.

Summary of Action Items

Action items from the meeting are summarized below:

- Jeanne Standley will send a CD of weed locations, land allocations, and sensitive wildlife locations on BLM lands to Vestra.

- Diane Barr will try to get a better understanding of the role of the Resource Coordination Committee in the implementation of the VMP.

- Diane Barr will find out if there is a programmatic EA covering project-related activities and ESA issues on federal lands.

- Diane Barr will get a copy of the BLM determination of NEPA adequacy checklist that can be used to update annual project lists under the existing programmatic EA for noxious weeds.

- Clint Emerson and Pam Sichting will figure out how to deal with the issue of 20 percent green tree retention under the transmission line.

- Diane Barr will check on how emergency flights of the transmission lines are currently conducted through areas with temporal restrictions.

- Pam Sichting will determine if there are any specific USFS concerns regarding notification of aerial and ground surveys along the transmission line.

- Pam Sichting will find out if an EA or EIS is need for the VMP.

- PacifiCorp and Vestra will revise the project area maps with constraints. These maps will be available for review at the December meeting.

- Colleen McShane will incorporate comments from the October meeting and revise Chapters 1, 2, and 3 (through Section 3.4) of the VMP by November 26 (attached).

- Colleen McShane will complete Chapter 3 of the VMP by November 26 (attached).

PACIFICORP

Sent Via Email/Fax

MEETING NOTES

TO:	Jeff Bohler and Clint Emerson (USFS, Diamond Lake RD); Carl Corey (USFS, Region 6); Pam Sichting, Richard Helliwell, Christine Lilienthal, and John Sloan (USFS, Umpqua National Forest); Jeanne Standley (BLM, Roseburg); Jay Neil, Randall Miller, and John Sample (PacifiCorp), and Colleen McShane, (EDAW);
FROM:	Diane Robb-Barr, PacifiCorp Environmental Coordinator
DATE:	December 16, 2002
RE:	**December 5, 2002 Meeting Notes** North Umpqua Hydroelectric Project: Vegetation Management Plan (VMP) - Meeting #5

The meeting discussion followed the agenda, which included the following topics:

- Introductions / review of agenda items / updates;
- Review notes from the meeting on October 25, 2002;
- Review a preliminary draft of the chapters 1, 2, and 3 of the VMP;
- Action items and coordination for the next meeting

Six people attended the 1/2-day meeting, including: Jeff Bohler (USFS, Diamond Lake RD); Christine Lilienthal (USFS, Umpqua National Forest); Colleen McShane, (EDAW); and Diane Robb-Barr and Jay Neil, (PacifiCorp). One of PacifiCorp's contractors for vegetation clearance along the transmission lint also attended the meeting.

Introductions / Review of Agenda Items / Updates

Colleen McShane (EDAW) opened the meeting and provided a review of the agenda. She explained that the main purpose of the meeting was to review the preliminary draft of chapters 1 through 3 of the VMP.

Review of 10/25/02 Meeting Notes

The group approved the notes from the meeting on October 25, 2002 with no revisions.

Preliminary Draft VMP Review

The group reviewed the preliminary draft of the VMP prepared by Colleen McShane and dated December 3, 2002. The group revisited the goals and objectives in chapter 1, and made a few minor changes in the goals and objectives. More time was spent on chapter 2 and there were a number of issues and questions related to NEPA and ESA compliance and the VMP that clearly need to be resolved. Issues related to compliance are summarized below:

- Programmatic EA – There will need to be a programmatic EA prepared for the VMP but this process has not been started yet.

- Existing Biological Opinion – There is a current Biological Opinion (BioOp) that covers vegetation management activities along the transmission line (letter from R. Harris, U.S. Fish and Wildlife Service [USFWS], Roseburg Field Office, July 25, 2002). However, this BioOp is for the period from 2002 -2010, does not cover the entire new license period. In addition, there are several attached mitigation measures that the group would prefer not to have included in the VMP and warrant some further discussion.

- Draft Settlement Agreement BioOp – The BioOp that will cover all activities related to the North Umpqua Project Settlement Agreement (SA) is currently in draft form and is being reviewed by PacifiCorp and the USFS (letter from C. Tuss, Field Supervisor, USFWS, Roseburg Field Office, to Magalie R. Salas, FERC, November 18, 2002)

- Regional noxious weed EIS – Christine Lilienthal (USFS) mentioned that she had attended a public meeting about a regional noxious weed EIS that is currently being prepared by the USFS. There may be parts of this EIS that have implications for the VMP.

Suggestions, revisions, and additions to chapter 3, which deals with the vegetation maintenance program, are summarized below:

- The draft VMP that was distributed to the group on December 3, 2003 has chapter 3 divided into 9 sections, 1 addressing each type of project facility (transmission line, powerhouse, roads, etc.). However, most of the vegetation management activities occurring in the project are virtually the same for most facilities except for the transmission line. The result is a great deal of redundancy that adds unnecessary length and makes the document difficult to read with any level of attention. As a solution, Colleen McShane (EDAW) recommended this chapter be organized into 2 major sections—1 covering vegetation maintenance activities along the transmission line and 1 addressing these activities at all other facilities. Colleen handed out a version of the chapter that reflected this new organization and the group agreed that it was an improvement that should be incorporated.

- Colleen McShane (EDAW) also recommended that the waster/recycle areas be dropped from the list of facilities included in the VMP. The purpose of waste/recycle areas is the disposal of brush and slash and there was little if anything specific to discuss about the management of these sites. The group agreed.

- "Danger" trees will be changed to "hazard tree" throughout the document.

- PacifiCorp requested that any reference to topping be taken out of the under clearance section. They believe this practice results in trees that look unnatural and is difficult to accomplish safely. In sensitive areas, such as highway crossing, the preferred method of under clearance would be to remove trees that are too tall and leave those that are not. PacifiCorp said that they realized this practice would result in more frequent maintenance in these areas.

- The issue of leaving 20-25 percent of small conifers within the transmission line corridor needs to be resolved. Retention of 20-25 percent of conifer 4-8 feet tall in the ROW is currently listed as a mitigation measure in the existing BioOp, with the purpose of providing wildlife cover and future recruitment (letter from R. Harris, U.S. Fish and Wildlife Service [USFWS], Roseburg Field Office, July 25, 2002). However, one of the primary of goals of under clearance in the ROW is to discourage conifer recruitment. One way to do this is to promote the establishment and maintenance of early successional stages dominated by shrubs. In addition to reducing the amount of tree removal required along the line, dense stands of shrubs, such as ceanothus, elderberry, and willow, can provide effective cover for wildlife.

- Christina Lilienthal (USFS) brought up the issue of visual objectives for the transmission line ROW through the Wild and Scenic river area. She will check to determine if there are any visual resource objectives that might apply to the transmission line.

- PacifiCorp would like to use the annual planning process to develop specific riparian buffer widths for streams that would be affected by under clearance activities planned for the upcoming year. Currently, buffer widths are defined by the site potential tree height (x2). However, it is often difficult for vegetation maintenance crews to estimate buffer widths in the field. PacifiCorp and the USFS would develop and assign buffer widths each stream crossing identified in the annual plan.

- The USFS is responsible for hazard tree removal from recreation sites. Colleen McShane (EDAW) needs to check on brush removal responsibilities for PacifiCorp maintained recreation roads.

Next Meetings and Individuals Involved

The next meeting for the VMP is scheduled for Monday, **January 13, 12:30 to 4:30 p.m.** at PacifiCorp's Green District Office in Roseburg.

Summary of Action Items

Action items from the meeting are summarized below:

- Clint Emerson and Pam Sichting will figure out how to deal with the issue of 20 percent green tree retention under the transmission line.

- PacifiCorp and Vestra will revise the project area maps with constraints. These maps will be available for review at the January meeting.

- Christina Lilienthal (USFS) will check to determine if there are any visual resource objectives that might apply to the transmission line in areas where it can be seen from the Wild and Scenic River section of the North Umpqua River.

- Colleen McShane will incorporate comments from the December meeting and revise Chapters 1, 2, and 3 of the VMP by December 20 (attached).

- Colleen McShane will complete Chapter 4 of the VMP by January 6, 2003.

PACIFICORP

Sent Via Email/Fax

MEETING NOTES

TO:	Jeff Bohler and Clint Emerson (USDA-FS, Diamond Lake RD); Carl Corey (USDA-FS, Region 6); Pam Sichting, Richard Helliwell, Christine Lilienthal, and John Sloan (USDA-FS, Umpqua National Forest); Jeanne Standley (BLM, Roseburg); Jay Neil, Randall Miller, Jim Wazlow, and Mark Stenberg (PacifiCorp), and Colleen McShane, (EDAW);
FROM:	Diane Robb-Barr, PacifiCorp Environmental Coordinator
DATE:	March 1, 2003
RE:	**February 14, 2003 Meeting Notes** North Umpqua Hydroelectric Project: Vegetation Management Plan (VMP) - Meeting #6

The meeting discussion followed the agenda, which included the following topics:

- Introductions / review of agenda items / updates;
- Review notes from the meeting on December 5, 2002;
- Review a preliminary draft of chapters 4 of the VMP;
- Action items and coordination for the next meeting

Eight people attended the 1/2-day meeting, including: Jeff Bohler and Clint Emerson (USDA-FS, Diamond Lake RD); Pam Sichting (USDA-FS, Umpqua National Forest); Colleen McShane, (EDAW); and Mark Stenberg, Diane Robb-Barr and Jay Neil, (PacifiCorp). One of PacifiCorp's contractors for vegetation clearance along the transmission line also attended the meeting.

Introductions / Review of Agenda Items / Updates

Colleen McShane (EDAW) opened the meeting and provided a review of the agenda. She explained that the main purpose of the meeting was to review the preliminary draft of chapter 4 of the VMP. Mark Stenberg, PacifiCorp, joined the group for the first time. He will be working with Diane Barr on implementation of the Settlement Agreement and will be involved in the VMP process from now until completion.

Review of 12/5/02 Meeting Notes

The group approved the notes from the meeting on December 5, 2002 with no revisions.

Preliminary Draft VMP Review

The group reviewed the preliminary draft of the VMP prepared by Colleen McShane and dated January 7, 2003. Very little time was spent on chapters 1-3 since there were only a few changes in these sections since the previous meeting. There was, however, some discussion related to Chapter 3 on the issue of leaving 20 percent reproductive trees in the ROW. This requirement is included in the USDA-FS's Biological Evaluation (BE) for the Biological Opinion (BioOp) covering vegetation management activities along the transmission line for activities for the period from 2002-2010 (letter from R. Harris, U.S. Fish and Wildlife Service [USFWS], Roseburg Field Office, July 25, 2002). PacifiCorp was concerned that leaving 20 percent reproductive trees in the ROW would result inconsiderably more effort to maintain the transmission line, and would prefer to encourage the growth of tall shrubs to minimize under clearance. USDA-FS members in the VMP group managed to resolve this issue and the 20 percent reproduction requirement will not be included in the VMP or the BE for the Settlement Agreement BioOp (letter from C. Tuss, Field Supervisor, USFWS, Roseburg Field Office, December 13, 2002).

- Suggestions, revisions, and additions to chapter 4, which deals with the noxious weed prevention and control , are summarized below:

- Pam Sichting (USDA-FS) suggested that some of the detail on priority weed species should be removed or moved to an appendix.

- Clint Emerson (USDA-FS) added 4 more priority weed species to the list and suggested several other changes to the table that lists noxious weed species known or potentially occurring in the project area.

- Clint Emerson (USDA-FS) added several USDA-FS regulations and policies covering noxious weed prevention and control to Section 4.1.1. He also mentioned a regional weed EIS and a UNF EA are currently in preparation. These documents may change how the USDA-FS controls weeds; the EA will cover only a few specific know populations in the UNF and may not be applicable to treating weeds in the project area.

- Jay Neil (PacifiCorp) recommended moving all discussion relating to revegetation to the Chapter 5.

- Several group members had suggested changes to the tables in the section.

Next Meetings and Individuals Involved

The next meeting for the VMP is scheduled for **Tuesday, March 11, 2003** at PacifiCorp's Green District Office in Roseburg.

Summary of Action Items

Action items from the meeting are summarized below:

- PacifiCorp and Vestra will revise the project area maps with constraints. These maps will be available for review at the April meeting.

- Christina Lilienthal (USDA-FS) will check to determine if there are any visual resource objectives that might apply to the transmission line in areas where it can be seen from the Wild and Scenic River section of the North Umpqua River.

- Colleen McShane will incorporate comments from the February meeting and revise Chapters 1, 2, 3, and 4 of the VMP by March 6 (attached).

- Colleen McShane will complete Chapter 5 of the VMP by March 6, 2003 (attached).

PACIFICORP

Sent Via Email/Fax

MEETING NOTES

TO:	Jeff Bohler and Clint Emerson (USDA-FS, Diamond Lake RD); Carl Corey (USDA-FS, Region 6); Pam Sichting, Richard Helliwell, Christine Lilienthal, and John Sloan (USDA-FS, Umpqua National Forest); Jeanne Standley (BLM, Roseburg); Jay Neil, Randall Miller, Diane Robb-Barr, and Mark Stenberg (PacifiCorp)
FROM:	Colleen McShane, (EDAW)
DATE:	April 28, 2003
RE:	**March 11, 2003 Meeting Notes** North Umpqua Hydroelectric Project: Vegetation Management Plan (VMP) - Meeting #7

The meeting discussion followed the agenda, which included the following topics:

- Introductions / review of agenda items / updates;
- Review notes from the meeting on February 14, 2002;
- Review a preliminary draft of chapter 5 of the VMP;
- Action items and coordination for the next meeting

Eight people attended the 1/2-day meeting, including: Jeff Bohler and Clint Emerson (USDA-FS, Diamond Lake RD); Pam Sichting (USDA-FS, Umpqua National Forest); Jeanne Standley, BLM; Colleen McShane, (EDAW); and Mark Stenberg, and Jay Neil, (PacifiCorp). One of PacifiCorp's contractors for vegetation clearance along the transmission line also attended the meeting.

Introductions / Review of Agenda Items / Updates

Colleen McShane (EDAW) opened the meeting and provided a review of the agenda. She explained that the main purpose of the meeting was to review the preliminary draft of Chapter 5 of the VMP.

Review of 2/14/03 Meeting Notes

The group approved the notes from the meeting on February 14, 2003 with no revisions.

Preliminary Draft VMP Review

The group reviewed the preliminary draft of the VMP prepared by Colleen McShane and dated March 4, 2003. Very little time was spent on chapters 1-3 because there were only a few changes in these sections since the previous meeting. There was, however, some discussion related to Chapter 3 on the issue of leaving 20 percent reproductive trees in the ROW. This requirement is included in the USDA-FS's Biological Evaluation (BE) for the Biological Opinion (BioOp) covering vegetation management activities along the transmission line for activities for the period from 2002-2010 (letter from R. Harris, U.S. Fish and Wildlife Service [USFWS], Roseburg Field Office, July 25, 2002). The USFS has received clarification that it is not necessary to meet the 20 percent reproduction requirement in the transmission line ROW.

Jeanne Standley, BLM, provided here comments on chapter 4 (weeds). She thought that the level of detail in a few places may prove to be too constraining to PacifiCorp operations. Jeanne gave her marked up copy of the VMP to Colleen McShane so that her more specific comments could be incorporated into the document. It was also agreed to move all of the species information into an appendix.

The group provided comments on Chapter 5 for the next version of the document. In general, most of the comments on this section were suggestions on wording and the different treatments for large (>0.25 acres) and small (<0.25 acre) sites. There was an attempt to develop some standard procedures for small sites to reduce the amount of consultation and coordination needed.

Next Meetings and Individuals Involved

The next meeting for the VMP is scheduled for **Thursday, May1, 2003** at PacifiCorp's Green District Office in Roseburg.

Summary of Action Items

Action items from the meeting are summarized below:

- PacifiCorp and Vestra will revise the project area maps with constraints. These maps will be available for review at a future meeting.

- Christina Lilienthal (USDA-FS) will check to determine if there are any visual resource objectives that might apply to the transmission line in areas where it can be seen from the Wild and Scenic River section of the North Umpqua River.

- Colleen McShane will incorporate comments from the March meeting and revise all chapters of the VMP by mid-April .

- The group will review the entire VMP prior to the next meeting, and will be will prepared to present final comments on the document. After this meeting, the VMP will go to the larger agency and PacifiCorp group for review.

PACIFICORP

Sent Via Email/Fax

MEETING NOTES

TO:	Jeff Bohler and Clint Emerson (USDA-FS, Diamond Lake RD); Carl Corey (USDA-FS, Region 6); Pam Sichting, Richard Helliwell, Christine Lilienthal, and John Sloan (USDA-FS, Umpqua National Forest); Jeanne Standley (BLM, Roseburg); Jay Neil, Randall Miller, Diane Robb-Barr, and Mark Stenberg (PacifiCorp)
FROM:	Colleen McShane, (EDAW)
DATE:	May 2, 2003
RE:	**May 1, 2003 Meeting Notes** North Umpqua Hydroelectric Project: Vegetation Management Plan (VMP) - Meeting #8

The meeting discussion followed the agenda, which included the following topics:

- Introductions / review of agenda items / updates;
- Review notes from the meeting on March 11, 2002;
- A final group review of the entire VMP;
- Action items and coordination for the next meeting

Seven people attended the 1/2-day meeting, including: Jeff Bohler and Clint Emerson (USDA-FS, Diamond Lake RD); Pam Sichting and Richard Helliwell (USDA-FS, Umpqua National Forest); Colleen McShane, (EDAW); and Mark Stenberg, and Jay Neil, (PacifiCorp).

Introductions / Review of Agenda Items / Updates

Colleen McShane (EDAW) opened the meeting and provided a review of the agenda. She explained that the main purpose of the meeting was to review the entire draft of the VMP one last time before it was sent to the next level of review.

Review of 3/11/03 Meeting Notes

The group approved the notes from the meeting on March 11, 2003 with no revisions.

Draft VMP Review

The group reviewed the draft of the VMP prepared by Colleen McShane and dated April 7, 2003. The more substantive comments are summarized below:

- Pam Sichting (USDA-FS) noted that the document needs a table of contents, list of acronyms and abbreviations, title page, and signature page.

- The group agreed that the USDA-FS and BLM native plant policies should be included as appendices or exhibits. Thus, there will be 3 exhibits or appendices to the document: (1) the list of native shrubs and tree heights; (2) information on the 9 priority weed species; and (3) native plant policies.

- Richard Helliwell (USDA-FS) mentioned that the Draft EA for the Integrated Noxious Weed Management Plan for the Umpqua National Forest is nearly complete and that the VMP will need to be consistent with the EA. He said that picloram may be used on spotted and diffuse knapweeds in a few select locations, none of which are within the project boundary. The EA also identifies several other locations that could be treated with picloram if either of the two knapweeds establish. Several of these sites may be near the project boundary. There may be a few additional sites near the project that are covered under the regional noxious weed EIS. This is EIS is in preparation, with an unknown completion date.

- Clint Emerson (USDA-FS) suggested cross-referencing the VMP objectives presented in Chapter 1 with the sections in which they are covered. As part of the review process the group decided to make sure that the objectives were addressed in each section.

- Pam Sichting (USDA-FS) noted that the BO for project operations mentions that avoiding disturbance in white-tailed deer fawning areas. USDA-FS lands and most of the project are outside the range of the white-tailed deer, but some of the BLM lands along the western portion of the transmission line ROW may include some fawning areas. This issue will need further investigation to resolve.

- Jay Neil (PacifiCorp) mentioned that the VMP should cover the 6-10 substations that are part of the project. These facilities produce sparks that can cause fires if the surrounding vegetation is not eliminated. Vegetation within the fenced area around each substations is treated according to an agreement with the USDA-FS. It is possible that herbicides are used.

- Mark Stenberg (PacifiCorp) brought up the issue of maps and explained that he thought that it might be best to have one set of constraint maps that would be applicable to all the management plans. These maps would be bound separately and updated as needed.

- After some discussion, it was decided that the maps for the VMP would in a separate volume and would include the following data:

    1) Locations of known noxious weed populations;
    2) Riparian reserves
    3) Areas along the transmission line ROW that represent joint opportunities for wildlife habitat enhancement; and
    4) Sites along the transmission line ROW with aesthetic concerns.

- Richard Helliwell (USDA-FS) cautioned against a standard treatment of all "small sites" (<0.25 acres). He thought that a standard process might be applicable to small sites disturbed by maintenance, but that other small areas, such as those affected by erosion, weed control activities, or 1-time construction projects, should be reviewed on a case-by-case basis to determine the vegetation the best suits the site.

- EDAW will complete a draft of the VMP for distribution to the USDA-FS, BLM, and PacifiCorp by June 19. These entities will then have 30 days to review and comment on the document.

Next Meetings and Individuals Involved

The next meeting for the VMP is scheduled for **Thursday, July 24, 2003** at PacifiCorp's Green District Office in Roseburg. This meeting will be at the close of the 30-day comment period for the larger group of reviewers from the USDA-FS, BLM, and PacifiCorp. The VMP group will review the comments received and decide how to revise the document.

Summary of Action Items

Action items from the meeting are summarized below:

- Mark Stenberg (PacifiCorp) will work with Vestra to produce the constraint maps and the maps for VMP. Mark will try to the maps ready by early June. The maps will be volume 2 of the VMP.

- Clint Emerson (USDA-FS) will get shape files on locations of sensitive plants and weeds for the North Umpqua District to Vestra for the maps.

- Richard Helliwell (USDA-FS) will review the VMP by May 19 to ensure consistency with the Draft EA for the Integrated Noxious Weed Management Plan for the Umpqua National Forest. He will also review the 2 tables in the noxious weed section and provide any comments to Colleen McShane.

- Jay Neil (PacifiCorp) will check into the procedures now being used by PacifiCorp to keep substations clear of vegetation.

- Colleen McShane (EDAW) will check with Diane Barr about the status of the washing station being constructed for the project.

- Colleen McShane (EDAW) will check with the USFWS on the locations of any white-tailed deer fawning areas along the transmission line ROW on federal lands.

- Colleen McShane will incorporate comments from the May meeting and revise all chapters of the VMP by mid-June.

PACIFICORP

Sent Via Email/Fax

MEETING NOTES

TO:	Jeff Bohler and Clint Emerson (USDA-FS, Diamond Lake RD); Carl Corey (USDA-FS, Region 6); Pam Sichting, Richard Helliwell, Christine Lilienthal, and John Sloan (USDA-FS, Umpqua National Forest); Jeanne Standley (BLM, Roseburg); Jay Neil, Randall Miller, Diane Robb-Barr, and Mark Stenberg (PacifiCorp)
FROM:	Colleen McShane, (EDAW)
DATE:	July 28, 2003
RE:	**July 24, 2003 Conference Call Notes** North Umpqua Hydroelectric Project: Vegetation Management Plan (VMP) - Meeting #9

Members of the VMP development group for the North Umpqua Project participated in a conference call on Thursday, July 24, 2003. The primary purpose of the conference call was to review the USDA-FS comments on the 80% Draft VMP, which was dated June 19, 2003. Seven people participated in the 3-hour call, including: Jeff Bohler and Clint Emerson (USDA-FS, Diamond Lake RD); Pam Sichting and Richard Helliwell (USDA-FS, Umpqua National Forest); Colleen McShane, (EDAW); and Mark Stenberg and Jay Neil, (PacifiCorp).

Introductions / Review of Agenda Items / Updates

Colleen McShane (EDAW) opened the conference call and provided an overview of the agenda. She explained that the main purpose of the meeting was to review the USDA-FS comments on the 80% draft of the VMP and resolve any outstanding issues before it goes out as a 100% draft for signature. Pam Sichting (USDA-FS) noted that several key USDA-FS staff (John Sloan and Jake O'Dowd) had not yet reviewed the VMP.

80% Draft VMP Review

The group reviewed the draft of the VMP prepared by Colleen McShane and dated June 20, 2003. Mark Stenberg (PacifiCorp) reminded the group that the maps for the were in progress but would not be complete until the noxious weed surveys were done. An EDAW botanist is conduction the noxious weed surveys, and should be finished in August. These data will be entered into the project GIS and added to the VMP maps.

A number of issues relating to consistency of the VMP with the other plans and cross-referencing between plans were discussed, particularly in chapters 1 and 2. Pam Sichting suggested using the RRMP (Recreation Resource Management Plan) and AMP (Aesthetics Management Plan) as references for boilerplate changes. The more substantive comments on the VMP are summarized below:

- **Aquatic Nuisance Species** - Richard Helliwell (USDA-FS) noted that the current VMP does not cover prevention and control of nuisance aquatic species, although there are several aquatic weed species listed in Table 4.1-1. Mark Stenberg (PacifiCorp) said that the Settlement Agreement (SA) does not mention aquatic nuisance species in project impoundments. He said that he thought that aquatic nuisance species would have been included in the SA if the settlement group agreed that there were concerns relating to these species in the project area that needed to be addressed during the next license. Richard agreed that there are probably not any specific problems with aquatic nuisance species in project impoundments at this time. Preliminary surveys conducted to document aquatic plants were conducted in a few project impoundments by Dr. Scott Sundberg about 10 years ago. One aquatic species of relatively minor concern (curled pondweed=*Potamogeton crispus*) was found, but the surveys were not comprehensive and are now somewhat dated. Richard's main concern was to make sure that there is a mechanism to identify the presence of aquatic nuisance species in project impoundments before they become problematic for recreation, water quality, or project operations. Mark said that he would check into the issue.

- **Shoreline Vegetation** – Pam Sichting (USDA-FS) mentioned that the USDA-FS reviewers were concerned that the VMP did not address revegetation of shoreline erosion areas. However, the Erosion Plan states that revegetation of these areas is covered in the VMP. The primary plan dealing with this issue needs to be identified. Mark Stenberg and Pam will review the SA to determine where shoreline revegetation methods would be best addressed. Mark Stenberg brought up that SA Section 9.4, revegetation and erosion control of reservoir banks was not addressed in either the ECP or the VMP and would need to be included in one of the plans.

- **Plan Updates** – Pam Sichting and Richard Helliwell (USDA-FS) noted that there needs to be some discussion of how the VMP will be periodically updated. This process is outlined in the RRMP and includes 6 year updates that involve reprinting the plan. The group agreed that chapter 2 of the VMP should include a bulleted list of changes/issues that would trigger an update. This list would be reviewed every year at the annual VMP meeting. In years that the VMP is not scheduled to be reprinted, there would be an insert page at the front of the document that would list revisions by page and paragraph replacements. The maps and the list of noxious weed species would probably be updated annually.

- **Cross-referencing** – Pam Sichting (USDA-FS) suggested adding a table to section 2.5 that lists primary plan and funding responsibilities covering project-related

activities associated with operations and maintenance. This is consistent with the other management plans.

- **Distribution Lines** – Pam Sichting (USDA-FS) noted that the VMP does not address vegetation management along distribution lines within the FERC boundary. Jay Neil (PacifiCorp) said that the same vegetation management practices are used along distribution lines and transmission lines. He thought that the terminology in the VMP could be simply changed from "transmission lines" to "transmission/distribution lines". Jay will write a couple of sentences on distribution lines to be included in the introductory sections of chapter 3.

  Jay also mentioned that PacifiCorp is in the process of preparing a Memorandum of Agreement with the USDA-FS relating to vegetation management in transmission/distribution line corridors on all National Forest lands. The signing of this MOA could be one of the triggers for reviewing and updating the VMP.

- **Herbicides** – Richard Helliwell (USDA-FS) mentioned that the Umpqua National Forest Integrated Noxious Weed Management Project EA (2003) was complete and had been signed. Richard also recommended that Table 4.4.-1 include a note that the chemical treatments included in the table are those that are currently in common use on BLM lands and that there are others that may be available for use on National Forest lands in the future. Jay Neil (PacifiCorp) asked that trichlopyr be added to the table since it is one that PacifiCorp often uses to control weeds on their lands.

Summary of Action Items

Action items from the meeting are summarized below:

- Mark Stenberg (PacifiCorp) and Pam Sichting (USDA-FS) will review the SA and determine how to best deal with aquatic nuisance species.

- Mark Stenberg (PacifiCorp) and Pam Sichting (USDA-FS) will review the SA and the Erosion Control Plan to determine which plan should address the feasibility of revegetation of shoreline erosion areas. If it is determined that the VMP will address shoreline revegetation

- The entire group will add activities to Table 2.5-1 and provide the additions to Colleen McShane (EDAW) by Thursday, August 7.

- Jay Neil (PacifiCorp) will write several sentences on distribution lines for the introductory section of chapter 3 and send these onto Colleen McShane (EDAW) for inclusion in the VMP.

- Jay Neil will check on the status of the vegetation maintenance MOA.

- Pam Sichting (USDA-FS) will check on additional review input from the USDA-FS (i.e. John Sloan and Jake O'Dowd). Mark Stenberg and Jay Neil (PacifiCorp) will do likewise for PacifiCorp. Colleen McShane (EDAW) will check on the status of BLM review.

- Colleen McShane (EDAW) will begin revising the VMP to reflect the editorial and boiler plate changes.

- Mark Stenberg will get copies of the AMP and TMP to Jay Neil.

Next Steps

The date for a new version of the VMP will be set once the USDA-FS and PacifiCorp have decided how to address the issues of aquatic nuisance species and shoreline revegetation. Pam Sichting (USDA-FS) and Mark Stenberg will coordinate with Colleen McShane on setting a distribution date for the 100% version of the VMP. It may be necessary for the VMP development group to meet prior to completion of the next version of the document (late August or September, 2003).

Exhibit B

Framework for Rolling 5-Year Vegetation Management Action Plan

ROLLING 5-YEAR VEGETATION ACTION PLAN
CALENDAR YEAR _____

North Umpqua Hydroelectric Project
FERC Project No. 1927

AUTHORIZATIONS

Final Approved:	PacifiCorp	_____ (date)	_____ (signature)
	USDA – FS	_____ (date)	_____ (signature)
	USDI-BLM	_____ (date)	_____ (signature)

ATTACHMENTS

PacifiCorp	Project Work Plan (PWP) #s: _____ (insert #s)
USDA–FS	Project Work Plan (PWP) #s: _____ (insert #s)
USDI–BLM	Project Work Plan (PWP) #s: _____ (insert #s)

SUMMARY OF PLANNED ACTIVITIES FOR THIS FY _____

(insert bullet summaries with PWP #)

Vegetation Maintenance Projects - Transmission Line (O&M)

-
-

Vegetation Maintenance Projects - Project Facilities (O&M)

-
-

Noxious Weed Inventory

-
-

Noxious Weed Prevention and Monitoring Projects

-
-

Noxious Weed Control and Monitoring Projects

-
-

Revegetation Projects

-
-

VMP PLANNED ACTIVITIES SUMMARY BY YEAR

Program/Activities	PRIOR YEAR FY _____ Dates	$	CURRENT YEAR FY _____ Dates	$	OUT YEAR #1 FY _____ Dates	$	OUT YEAR #2 FY _____ Dates	$	OUT YEAR #3 FY _____ Dates	$
VEGETATION MAINTENANCE PROJECTS - TRANSMISSION LINE (O&M)										
• Work description (PWP # __):										
• NEPA and ESA Compliance and Other Permitting										
VEGETATION MAINTENANCE PROJECTS - PROJECT FACILITIES (O&M)										
• Work description (PWP # __):										
• NEPA and ESA Compliance and Other Permitting										
NOXIOUS WEED INVENTORY										
• Work description (PWP # __):										
NOXIOUS WEED PREVENTION AND MONITORING PROJECTS										
• Work description (PWP # __):										
NOXIOUS WEED CONTROL AND MONITORING PROJECTS										
• Work description (PWP # __):										
• NEPA and ESA Compliance and Other Permitting										
REVEGETATION PROJECTS										
• Work description (PWP # __):										
• NEPA and ESA Compliance and Other Permitting										
REPORTING REQUIREMENTS										
• Rolling 5-Year Action Plan development										
• Annual Reporting to the RCC										

SUMMARY OF RESULTS FROM THE PREVIOUS VMP CALENDAR YEAR ACTION PLANS

(Insert bullet summaries below)

Projects Completed Last Year

-
-
-

Projects Not Completed and Carried forward to the Current Year

-
-
-

Unanticipated Events

-
-
-

Annual Calendar Year Balance Sheet (in Excel)

Item by PWP #	Budget Planned $	Budget Spent $	Budget Variance $	Comments

SUMMARY OF PLANNED ACTIVITIES FOR THE NEXT TWO FOLLOWING CALENDAR YEARS

(Insert bullet summaries below)

Vegetation Maintenance Projects - Transmission Line (O&M)

-
-

Vegetation Maintenance Projects - Project Facilities (O&M)

-
-

Noxious Weed Inventory

-
-

Noxious Weed Prevention and Monitoring Projects

-
-

Noxious Weed Control and Monitoring Projects

-
-

Revegetation Projects

-
-

Reporting Requirements

-
-

CHANGES IN VMP RESPONSIBILITIES OF THE PARTIES: ASSUMPTIONS, RATIONALE, AND PERCENTAGES

-
-

Exhibit C

Tree Heights

Exhibit C

Common native trees and shrubs in the North Umpqua Project vicinity[1].

Low Shrub Species (≤6 ft tall)		Tall Shrub/Small Tree Species (>6 and <40 ft tall))		Tall Conifer & Deciduous Tree Species (>40 ft tall)	
Common/Latin Name	**Max. Height (ft)**	**Common/Latin Name**	**Max. Height (ft)**	**Common/Latin Name**	**Max. Height (ft)**
Dwarf Oregon grape (*Berberis nervosa*)	1.5	Willow species (*Salix* spp.)	5-30	Western white pine (*Pinus monticola*)	120-180
Swamp current (*Ribes lacustre*)	4	Hazel (*Corylus cornuta*)	15-30	Sugar pine (*Pinus lambertina*)	150-200+
Little wood rose (*Rosa gymnocarpa*)	6	Mock orange (*Philadelphus lewsii*)	12	Jeffery pine (*Pinus jeffreyi*)	80-140
Thimbleberry (*Rubus parviflorus*)	3-6	Red-flowering currant (*Ribes sanguineum*)	10	Ponderosa pine (*Pinus ponderosa*)	125-180
Trailing blackberry (*Rubus ursinus*)	1-3	Serviceberry (*Amelanchier alnifolia*)	40	Knobcone pine (*Pinus attenuatta*)	40-80
Douglas spiraea (*Spiraea dougalsii*)	2-4	Black hawthorn (*Crataegus dougalsii*)	10-30	Lodgepole pine (*Pinus contorta*)	30-100
Prostrate ceanothus (*Ceanothus prostratus*)	<1	Ocean spray (*Holodiscus discolor*)	15	Engelmann spruce (*Picea engelmaninii*)	80-120
Oregon boxwood (*Pachistima myrsinites*)	3	Indian-plum (*Oemleria cerasiformis*)	15	Douglas-fir (*Pseudotsuga menziesii*)	100-250
Hairy manzanita (*Arctostaphylos columbiana*)	1	Western crabapple (*Pyrus fusca*)	40	Western hemlock (*Tsuga heterophylla*)	125-200
Green manzanita (*Arctostaphylos patula*)	6	Ninebark (*Physocarpus capitatus*)	12	Pacific silver fir (*Abies amabilis*)	100-180
Pine mat (*Arctostaphylos uva-ursi*)	<1	Common chokecherry (*Prunus virginiana*)	30	White fir (*Abies concolor*)	200
Salal (*Gaultheria shallon*)	1-2.5	Salmonberry (*Rubus spectabilis*)	3-10	Grand fir (*Abies grandis*)	125-250
Slender leaf salal (*Gaultheria ovatifolia*)	<1	Western mountain ash (*Sorbus scopulina*)	15	Red fir (*Abies magnifica*)	125-200
Big huckleberry (*Vaccinium membranaceum*)	1-5	Sitka mountain ash (*Sorbus sitchensis*)	10	Noble fir (*Abies procera*)	140-200
Snowberry (*Symphoricarpos albus*)	6	Poison oak (*Rhus diversiloba*)	3-10	Incense-cedar (*Calocedrus decurrens*)	70-110
Spreading snowberry (*Symphoricarpos mollis*)	1.5	Vine maple (*Acer circinatum*)	20-40	Western redcedar (*Thuja plicata*)	150-200
Twin-flower (*Linnaea borealis*)	<1	Narrowleaf buckbrush (*Ceanothus cuneatus*)	3-8	Black cottonwood (*Populus trichcocarpa*)	100-200
		Deerbrush (*Ceanothus integerrimus*)	4-12	Red alder (*Alnus rubra*)	20-120
		Blueblossom (*Ceanothus thyrsiflorus*)	12	Golden chinkapin (*Castanopsis chrysophylla*)	90-150

Low Shrub Species (≤6 ft tall)		Tall Shrub/Small Tree Species (>6 and <40 ft tall))		Tall Conifer & Deciduous Tree Species (>40 ft tall)	
Common/Latin Name	**Max. Height (ft)**	**Common/Latin Name**	**Max. Height (ft)**	**Common/Latin Name**	**Max. Height (ft)**
		Redstem ceanothus (*Ceanothus sanguineus*)	5-10	Oregon white oak (*Quercus garryana*)	40-80
		Sticky laurel (*Ceanothus velutinus*)	2-10	Bitter cherry (*Prunus emarginata*)	20-80
		White thorn (Ceanothus cordulatus)	3-8	Big-leaf maple (*Acer macrophyllum*)	40-100
		Western dogwood (*Cornus stolonifera*)	15	Cascara (*Rhamnus purshiana*)	50
		Fremont silktassel (*Garrya fermontii*)	10	Pacific dogwood (Cornus nuttallii)	60
		Pacific rhododendron (*Rhododendron macrophyllum*)	12	Pacific madrone (*Arbutus mernziesii*)	60-100
		Evergreen huckleberry (*Vaccinium ovatum*)	10	Oregon ash (*Fraxinus latifolia*)	40-80
		Red huckleberry (*Vaccinium parvifolium*)	4-10		
		Black twinberry (*Lonicera involucrate*)	10		
		Red elderberry (*Sambucus racemosa*)	8-20		
		Blue elderberry (*Sambucus cerulea*)	10-20		
		Western viburnum (*Viburnum ellipticum*)	12		

Source: PacifiCorp 1995; Jensen et al. 2002

Exhibit D

Summary Information
for Priority Noxious Weed Species

Scotch Broom, French Broom and Portuguese Broom

Scotch broom, French broom, and Portuguese broom are three similar looking shrubs known to occur in the Project area. Scotch broom is by far the most abundant of the three species.

Growth Habit: All 3 species grow as large shrubs up to 12 feet tall.

Scotch broom plants with "broom-like" appearance
J.M. Randall/TNC

Scotch broom flowers *WSNWCB*

Leaves: The leaves of all three species are very small (1/4 to 1 inch in length). Scotch broom and Portuguese broom appear to be almost a leafless during much of the year. French broom typically maintains more leaves throughout the year.

Stems: The stems of all three species are green with angled stems in cross-section. Young plants of Scotch broom and Portuguese broom can have the appearance of an upsidedown broom with a number of individual, green, mostly unbranched stems extending up in the air.

Flowers: Scotch broom and French broom have large, bright yellow pea-like flowers less than 1 inch long. Portuguese flowers are of similar size as the other two broom species but are pale-yellow. All three broom species have numerous flowers in the spring and early summer. Young Scotch broom plants can be difficult to see growing among grasses and forbs in cleared areas near transmission line poles, canals, roadsides, and Project facilities.

Fruits/Seeds: The mature fruit of French and Scotch broom are about 3 inches long and are dark brown to black pea-pods that are most visible on larger plants long after the flowers have disappeared. Portuguese broom differs from the other two broom species in having similar but hairy pea-pod fruit.

Scotch broom "pea-pod" fruit
Charles Webber/Cal Academy of Sciences

Other: Young Scotch broom can be removed by hand-pulling, particularly after a rain when the soil is loose.

Sulfur Cinquefoil

Growth Habit: Sulfur cinquefoil is a perennial species with a woody rootstock. It produces several erect stems that can reach 1-3 feet in height.

Stems: Stems are stout and leafy with long hairs that stick straight out. They are unbranched until they divide into flower stems.

Leaves: The leaves are rough, hairy and have 5-7 leaflets arranged in a palm shape, each 2 to 4 inches long by ½ to 1 inch wide. Leaves on the stems are angled more or less upward and have a yellowish coloration. There are few, if any, leaves at the base of the plant.

Flowers: Each flower has five light yellow petals surrounding a dark yellow center. Flowers are arranged in loose, flat-topped clusters that are 3 to 6 inches across.

Sulfur cinquefoil with erect, yellow-ish stem leaves
Nevada Project Weeds

Fruits/Seeds: Fruits are dark brown and with lighter ridges that form a net pattern.

Other: This weed is very difficult to identify because it is similar to many other native species. Consult a botanist for positive identification.

Sulfur cinquefoil flowering stem, fruit and leaf
N.L. Britton and A. Brown

Sulfur cinquefoil leaf and flower
WSNWCB

English Ivy

Growth Habit: English ivy is primarily a woody vine as a juvenile plant. The growth of mature plants is more vertical and shrub-like. Juvenile plants can have very aggressive growth, overtaking entire trees and stands of trees.

English ivy growing aggressively in forest *J.M. Randall/TNC*

Stems: Juvenile stems are capable of producing roots that serve to anchor the vining stems to new surfaces as they grow as well as to uptake resources. Mature plants do not produce stem roots

Leaves: English ivy leaves are leathery and evergreen. Their shape is variable, ranging from more or less diamond-shaped on mature plants to nearly the shape of a maple leaf on young plants.

Flowers: The flowers are green and white and arranged in dome-like clusters.

Fruits/Seeds: The fruits are dark berries with few seeds.

Other: English ivy can be eradicated by digging out the roots, but several attempts are often required to remove enough roots to prevent resprouting. Vines that climb trees, can be cut off of the tree, but the roots of these vines also need to be dug out of the ground.

English ivy leaves
1985 Joe DiTomaso

Giant Knotweed

Growth Habit: Giant knotweed grows to be a very large, non-woody plant up to 12 feet tall. This species can increase its distribution by roots or root fragments that send up new shoots.

Stems: The stems are hollow and swollen at points where leafs and side-branch originate.

Leaves: The leaves can grow up to 1 foot in length and are 2/3 as wide. The leaf shape is most often heart-shaped.

Flowers: The small, flowering stems several inches in length arise from the confluence of the stem and the leaf stalk. The flowers are inconspicuous and greenish in color.

Giant knotweed: relatively small plant CDFA


Giant knotweed stem CDFA

Fruits/Seeds: The fruits are extremely small, shiny, smooth, and black.

Other: There were only a couple of large patches of this species found in the Project area. The roots of giant knotweed can be easily transported from these sites to new areas because the root fragments are capable of sprouting and forming new colonies. The only method capable of controlling large stands of this species is repeated herbicide application. Giant knotweed and Japanese knotweed are both highly invasive species.


Giant knotweed (larger leaf) and Japanese knotweed leaf comparison WSNWCB

Gorse

Growth Habit: Gorse is an evergreen shrub that can reproduce by creeping roots or by seed.

Gorse mature shrubs *CDFA*

Stems: Mature gorse shrubs have stout, erect spreading branches with angular stems with a terminal thorn. Younger stems are light green and turn brown with age.

Leaves: The dense spines that cover the stems of mature gorse plants are modified leaves. Juvenile plants do not have spines and thorns but instead have leaves comprised three small leaflets.

Flowers: Like the brooms described above, gorse has shiny yellow pea-like flowers clustered at the ends of branches.

Fruits/Seeds: The fruits are hairy pea-pods, similar to Portuguese broom pods but much smaller (ca ½ inch) and are brown when ripe. The green to brown seeds very small, smooth, and shiny.

Other: Gorse can be distinguished from the brooms by its smaller fruit and very spiny stems.


Gorse: young plants
J.M. Randall/TNC


Gorse: flowers and spines *2001 CDFA*


Gorse: hairy "pea-pod" fruit *2001 DFA*

Himalayan Blackberry

Growth Habit: Himalayan blackberry is a sprawling shrub that can form impenetrable thickets or large mounds. Young plants often consist of a few arching stems radiating outward from a central root wad.

Stems: Stems grow upright then typically arch onto nearby vegetation. The stems and leaf stalks are covered with stout, curved thorns.

Leaves: The leaves consist of five toothed leaflets. The leaves are dark green on top and lighter green on the bottom.

Flowers: Flowers have five petals that are white to pink.

Himalayan blackberry: mature red stem with large prickle and leaves with 5 large segments.
Athena Demetry/NPS

Fruits/Seeds: Fruits are large black berries that ripen in mid- to late-summer

Other: Himalayan blackberry could be confused with a native species of raspberry (western or blackcap raspberry) that is common in the Project area. Blackcap raspberry has a growth habit similar to younger clumps of Himalayan blackberry (see photographs of blackcap raspberry)

Himalayan blackberry: fruit, flower and leaf
2003 Penn Martin II

Blackcap raspberry: fruit and leaf
Joe DiTomaso

Blackcap raspberry: arching stems
Joe DiTomaso

Spotted Knapweed

Growth Habit: Spotted knapweed forms a small clump or rosette of leaves in its first year of growth. At the start of the second year of growth, an upright stem emerges from the rosette of first-year leaves, produces flowers and fruit, and then dies.

Spotted knapweed: upright stem branched from top-half of stem J.M. Randall/TNC

Spotted knapweed: first-year rosette J.M. Randall/TNC

Stems: Spotted knapweed in the Project area generally produces 1 to 5 stems that can grow up to 3.5 feet in height. The stems are typically unbranched on the lower part of the stem.

Leaves: The first-year leaves form a small clump or rosette of leaves. The stem leaves are often divided or dissected into many smaller segments. The leaves are covered with fine, light-colored hairs that can give the plant a silvery appearance.

Flowers: There are typically many flowers toward the top of the plants especially in late summer. The flowers are light pink to pale purple in color. Once the flowers go to seed, the "spent" flower head remains on the plant often next to fresher young flowers

Fruits/Seeds: Seeds are oval, brown to black with long whitish hairs at one end.

Other: Spotted knapweed resembles meadow knapweed, a far more abundant species in the Project area, and diffuse knapweed, a common but not particularly abundant species in the Project vicinity.

Spotted knapweed "spent" flower J.M. Randall/TNC

Spotted knapweed buds and flower J.M. Randall/TNC

Diffuse Knapweed

Growth Habit: Diffuse knapweed, like spotted knapweed, first forms a rosette or low-growing cluster of leaves. Once the rosette reaches a certain size (less than 1 to several years), it produces a stem that flowers and dies in one growing season. Mature plants often have a roundish shape but can look similar to spotted knapweed (see photo to right for both growth forms).

Diffuse knapweed growth forms
2001 CDFA

Stems: Stems are upright and up to 2 feet in height. The stems are usually highly branched from the base of the stem upward in contrast to spotted knapweed, which is often branched only in the upper portions of the stem.

Leaves: The leaves of the basal rosette are often highly divided into smaller segments and die back once the stem starts growing. The leaves on the stems are less divided and have no leaf stalk.

Flowers: Flower petal color ranges from white to lavender. The tiny leaves below the petals are often spiny.

Diffuse knapweed rosette
2001 CDFA

Fruits/Seeds: The tiny seeds are light brown to black and may have very tiny hairs attached to one end.

Other: Diffuse knapweed and spotted knapweed have similar leaves and a silver appearance but are more easily distinguishable when they are flowering. Meadow knapweed has a similar flower color as spotted knapweed, but its foliage typically is a darker green color. Meadow knapweed is far more common than spotted knapweed and diffuse knapweed.

Diffuse knapweed flower
2001 Molly Elizabeth Bagley

Meadow knapweed flower
2001 CDFA

Yellow Starthistle

Growth Habit: Primarily an annual species that produces small rosettes of grayish leaves during the winter, at which time the tap root can grow as much as 1 meter. Stems emerge from the rosettes during the growing season, produce flowers and fruit, then die back in the fall.

Yellow starthistle flower *CDFA*

Stems: Stems are gray, densely hairy, and irregularly "winged." The upright stems branch from near or above the base. Stems of plants observed growing in the Project area were only about 12 inches in height. Old stems of yellow starthistle tend to persist and may be the most obvious indication that this species is present outside of the flowering period from mid- to late-summer.

Leaves: The clumps of leaves or rosettes that grow over the winter have leaves that are much longer than wide and often have deeply lobed or wavy margins. Stem leaves are often less deeply lobed. The stem leaves have margins that often extend down along the stems, giving the stems a "winged" appearance. The leaves appear silvery from a dense covering of hairs.

Yellow starthistle rosette *CDFA*

Flowers: The flowers are yellow and the tiny leaves below the yellow flower petals have long yellowish spines.

Fruits/Seeds: Seeds come in two forms: a dark brown form with tan colored speckles, and a gray to tan form with light colored mottling. Seeds are approximately 1/8 inch in length.

Other: This species is currently very uncommon in the Project area and was found in only two small patches in close proximity to one another.

Yellow starthistle old gray stems and "Q-tip" tips
CDFA


Yellow starthistle "winged" stems *CDFA*

Rush Skeletonweed

Growth Habit: Rush skeletonweed plants exist as a basal rosette until flowering stems develop, after which rosette leaves die back. Rush skeletonweed can form a taproot 6 to 9 feet deep and can also produce roots that grow short distances laterally and produce new rosettes connected to the parent plant.

Stems: Tall, rigid stems with relatively few leaves give this plant its characteristic "skeleton" appearance. Rush skeletonweed often has persistent old clusters of past flowers on old stems. The base of the stem typically has coarse, straight hairs.

Skeletonweed plants 2001 CDFA

Leaves: Rosette leaves are 2 to 6 inches in length and lie nearly flat on the ground. The leaves are dark green with a lighter colored vein running down the middle of the leaf. The margin of the leaf has lobes that point backward; the margins are often purple. The leaves on the stems are similar to the rosette leaves, but there are usually few of them.

Flowers: Flowers are yellow and occur as single flowers or as small clusters of flowers along the stem.

Fruits/Seeds: The seeds are approximately 1/8 inch in length and are dark brown and tapered at both ends. There is usually a thin beak at one end of the seed topped with fine white hairs.

Skeletonweed stem base (look for straight stiff hairs) 2001 CDFA

Other: Rush skeletonweed was not observed in the Project area but has been documented in the Project vicinity by the USDA-FS. Rush skeletonweed is difficult to see when only the rosette (no stems) is present and resembles the common dandelion.

Skeletonweed rosette and old stem 2001 CDFA

Skeletonweed flowers
2000 Molly Elizabeth Bagley

Yellow Toadflax

Growth Habit: Yellow toadflax is a perennial herb (not woody) that grows to heights of approximately 3 feet. It is capable of increasing its distribution either from seed or from roots that give rise to new stems connected to the parent plant.

Stems: The stems are light green and very smooth with no hairs.

Leaves: The leaves are very narrow (approximately 1/16 to 3/16 inch), not rigid, and up to 2 inches in length. There is no leaf stalk, and the leaf blade is attached directly to the stem.

Flowers: The flowers are yellow with some orange coloration and are generally present from May to August. The flowers are very showy and resemble a snapdragon flower. The flower petals about 1.5 inches in length including a ½-inch long yellow spur.

Yellow toadflax colony
Br. Alfred Brousseau/ Saint Mary's College

Fruits/Seeds: Yellow toadflax seeds are less than 1/16 inch wide. They are round and more or less flattened, with tiny flaps or wings that aid in dispersing the seed.

Other: Dalmation toadflax is a similar appearing species but is generally larger in almost all aspects. When yellow toadflax does not have any flowers, it easily blends in with other plants making it difficult to see.

Yellow toadflax "spurred" flower
J.M. Randall/TNC

Yellow toadflax leaves, flowers and fruit
J.M. Randall/TNC

Exhibit E

USDA-FS Umpqua National Forest
Native Plant Policy

United States Department of Agriculture | **Forest Service** | **Umpqua National Forest** | **2900 NW Stewart Parkway**
PO Box 1008
Roseburg, OR 97470
(541) 672-6601
FAX (541) 957-3495

File Code: 2600
Route To: 2470

Date: March 13, 2002

Subject: Native Vegetation Management

To: District Rangers

The objective of the Umpqua National Forest Native Plant program is to link revegetation with ecosystem management principles, existing legislation, and policy. The appropriate use of native plants from local genetic sources for our revegetation projects is a Forest priority. Native species propagation needs to follow the same principles and practices that have been cultivated in our conifer program over many decades. Specifically, it is critical that plants used for revegetation projects be genetically adapted to soils and climate of the planting site. Projects that may require sources of genetically appropriate native plants include recreational developments, roadside vegetation management, road decommissioning, pine/oak savannah understory restoration, meadows restoration, riparian plantings, wildlife enhancement projects, fire recovery, and other mitigation projects.

I am requesting that each District Ranger designate an individual to act as the native species coordinator. In the Supervisor's Office, the Forest botanist will function in that role working closely with the Forest silviculturist, geneticist, wildlife biologist, and others. The native species coordinator will be responsible for determining appropriate native plant species and genetic sources for projects as well as identification of seed collection, testing, propagation, storage, and planting methods. In addition, this individual will coordinate with other disciplines in the selection of appropriate species to meet diverse needs and will be responsible for native species reporting and monitoring. The native species coordinator will be the principle contact with nurseries for non-conifer species.

All vegetation management projects on the Umpqua National Forest will use native plant species. The Forest Supervisor will be responsible for approving exceptions, such as some administrative site situations and emergency rehabilitation. Failure to adequately plan for revegetation needs is not a suitable reason for exception. It will therefore be necessary for revegetation needs to be determined during the earliest stages of project planning. All existing non-native seed supplies on the Forest will be disposed of in accordance with Forest Service property disposal regulations. This direction is consistent with the Watershed Restoration Business Plan and the Northwest Forest Plan (ROD C-19). This letter replaces the August 18, 1993 Umpqua Policy signed by Abel Camarena.

It is anticipated that the use of native species in disturbed areas will reduce the sharp contrast between the managed and unmanaged landscape. In addition, the encouragement of species that

are naturally adapted to early-seral openings and edges will be more compatible with the needs of native wildlife flora and ecosystems processes.

Any questions concerning native species management on the Umpqua National Forest may be directed to either Richard Helliwell or Karla Bird.

/s/ Karla Bird (for)
JAMES A. CAPLAN
Forest Supervisor

KB/pg

Exhibit F

USDA-FS Umpqua National Forest
Criteria for Treatment of New Sites

CRITERIA FOR TREATMENT OF NEW SITES

A set of criteria that can be used for future noxious weed problems that may occur would also be established. Detailed criteria and treatment are found in the appendices. Sites that are discovered subsequent to completion of this assessment would require evaluation and potential treatment. If the effects were found to be within the scope of this assessment, then these new populations would also be treated. The following criteria are designed to prescribe the potential treatment methods that would be effective and consistent within certain types of sites. For the purposes of this project, noxious weed species would to be grouped at follows:

1. **High Priority Annuals:** Yellow Starthistle, (Wooly Distaff Thistle), Italian Thistle, (Puncturevine)[1]
2. **Low Priority Annuals:** Medusahead Rye
3. **High Priority Perennials and Biennials:** Spotted Knapweed, Diffuse Knapweed, Meadow Knapweed, Rush Skeletonweed, False Brome, Gorse, Spanish Broom, Scotch Broom, French Brome, Portuguese Broom, Yellow Toadflax, Giant Knotweed, Japanese Knotweed, English Ivy, Sulfur Cinquefoil, (Russian Knapweed), Purple Loosestrife, Milk Thistle, Houndstongue, Hydrilla, Poison Hemlock, South American Waterweed (Elodea), and (Yellow Nutsedge)
4. **Low Priority Perennials and Biennials:** Bull thistle, Canada Thistle, Tansy Ragwort, St. Johnswort, Himalayan Blackberry, English Ivy, Field Bindweed

Treatments of future noxious weeds included as part of this project would be limited to the following types of sites:

A. Roads, road shoulders, cut-slopes, road-fill, and gabion barriers.
B. Clearcuts, plantations, landings, skid-trails, staging areas, fire drop-points, fire camps, and other cleared or compacted forest sites.
C. Quarries, rock pits, mines, adits, cinder, rock, tailings, or soil piles, and clearings associated with rock or mineral operations.
D. Recreation sites including campgrounds, trails, trailheads, picnic areas, boat and raft launches, parking areas, lookouts, and horse corrals.
E. Hydroelectric features and facilities including canals, flumes, transmission lines, distribution lines (powerlines), forebays, powerhouses, and penstock.
F. Natural meadows and openings including woodlands, rock outcrops, and wetlands.
G. Wilderness, threatened, endangered, or sensitive plant or animal sites.

[1] Species within parenthesis are "detection" species that have not been located on the Umpqua NF, but their current range and habitat requirements suggest they could move onto the Forest.

H. Cultural Heritage sites including rock cairns, lithic scatters or any area with evidence of historic occupation where disruption of the soil profile could impact the integrity of the site.

Treatment methods for these future sites would include:

1. Hand-pulling or grubbing out with pulaski or hoe;
2. Digging or use of weed-winch to uproot weeds;
3. Mowing;
4. Steam treatment;
5. Use of the herbicide Picloram using a hand-held nozzle at a rate of 2 pts/ac. (0.5 lbs. a.e/ac.);
6. Solarization;
7. Biological controls;
8. Livestock grazing;
9. Use of prescribed fire;
10. Competitive seeding;
11. Competitive planting;
12. No action.

Table 2 displays the potential treatment options for groups of weeds, by site type. The criteria to determine the appropriate treatment would be based on the species, the number of plants at the site, the potential that the species has to do damage or spread, and the location of the infestation.

Table 2. Potential Treatment Options for Weed Species Groups at Selected Site Types.

	Weed Groups			
Site Types	**High-Priority Annuals**	**Low-Priority Annuals**	**High-Priority Perennials & Biennials**	**Low-Priority Perennials & Biennials**
Roads	1,4,10	4,6,11,12	1,2,3,4,5,6,7,8,10	1,2,3,4,6,7,10,12
Clearcuts	1,4,6,7,10,11	4,6,9,10,11,12	1,2,3,4,5,6,7,8,10,11	1,2,3,4,7,8,10,11,12
Quarries	1,4,6,7,10	4,6,10,12	1,2,3,4,5,6,7,10	1,2,3,4,6,7,10,12
Recreation	1,4,6,7,10,11	4,6,10,11,12	1,2,3,4,6,7,10,11	1,2,3,4,6,7,10,11,12
Hydro	1,4,6,7,10,11	4,6,10,11,12	1,2,3,4,5,6,7,10,11	1,2,3,4,6,7,10,11,12
Meadows	1,4,6,7,8,9,10, 11	4,6,8,9,10,11,1 2	1,2,3,4,5,6,7,8,9,10,1 1	1,2,3,4,6,7,8,9,10,11,1 2
Sensitive*	1,7	4,6,10,12	1,2,3,4,6,7,10,11	1,2,3,46,7,10,11,12
Cultural*	1,4,6,7,10	4,6,10,11,12	1,3,4,5,6,7,10	1,3,4,6,7,10,11,12

* The treatments listed would normally be expected to be compatible with these types of sites. However, any treatment that could cause a negative affect upon any threatened, endangered, or sensitive species or a cultural heritage site would require additional environmental analysis and would not be covered under this Environmental Assessment.

Exhibit G
Plan Maps

Vegetation Management Plan
North Umpqua Hydroelectric Project
(FERC No. 1927)

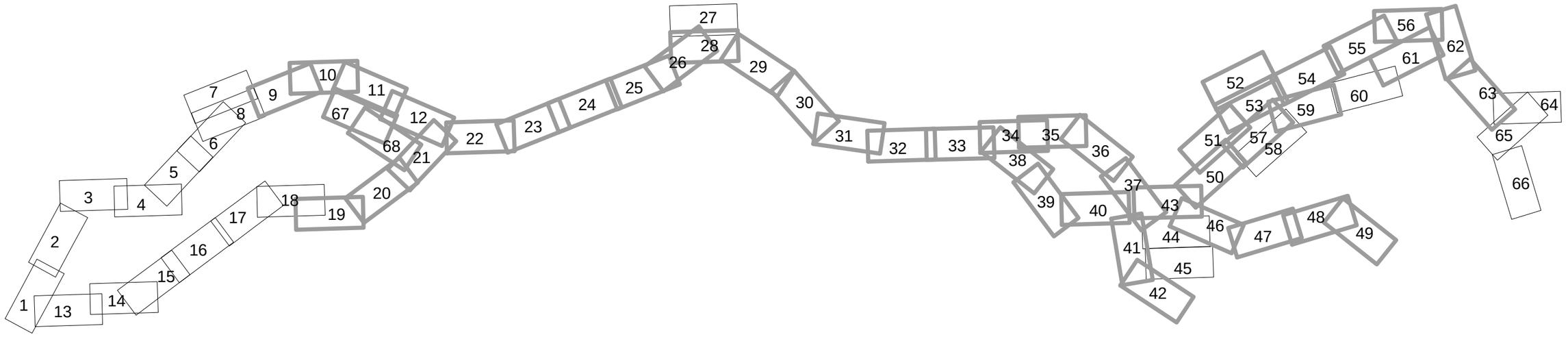
Prepared by:

PacifiCorp
Portland, Oregon
and
VESTRA Resources, Inc.
Redding, California

In Consultation with:

USDA Forest Service
Pacific Northwest Region
Umpqua National Forest
and
USDI Bureau of Land Management
Roseburg District

April 2004



PACIFICORP

North Umpqua Hydroelectric Project

Sheets With Identified Vegetation Sites

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TL39_01/14
TL39_02/14
TL39_03/14
TL39_04/14
TL39_06/14
TL39_02/15
TL39_03/15
TL39_04/15
T.L. # 39
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4/15
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MP 19
MP 20
SR 138
North Umpqua River
Old Hatchery Creek
Kennaday Lane
9
10
1000
800
1200
1400
1600

Legend

- Noxious Weeds
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- USDA-FS (Wilderness)
- Private Ownership

North Umpqua Hydroelectic Project
Vegetation Management Plan
Exhibit G
April 2004

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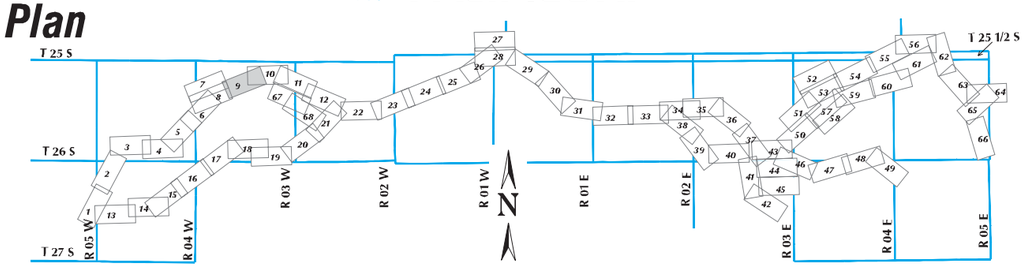

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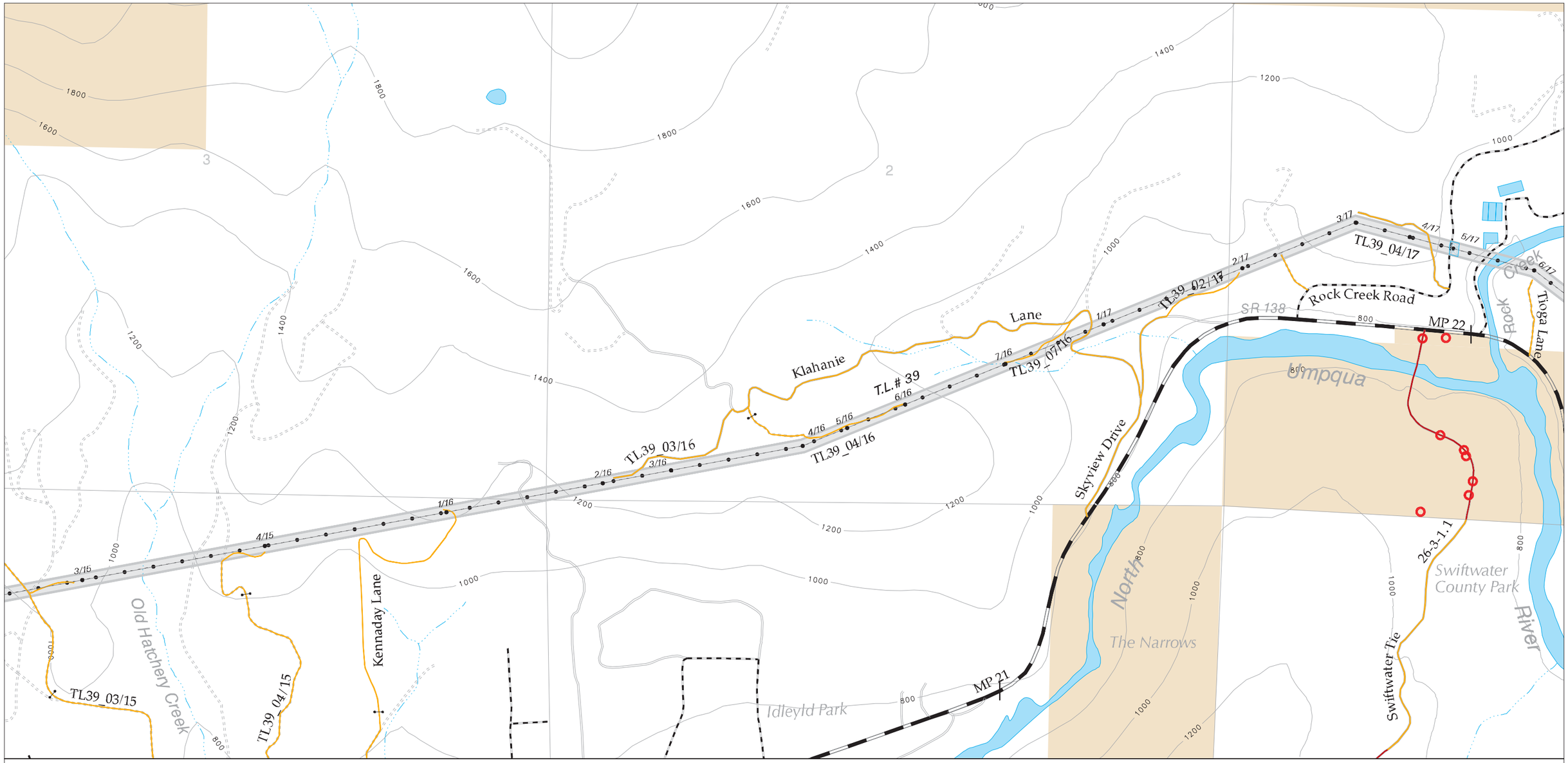

Legend

- Noxious Weeds
- Wetlands
- PacifiCorp Maintained Hydro Roads
- PacifiCorp Maintained T-line Roads
- PacifiCorp Maintained Recreation Roads
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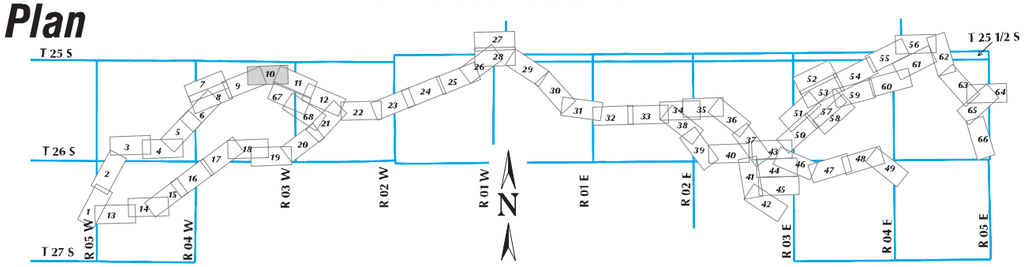

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Rock Creek
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26-3-1.1
Swiftwater Tie
Swiftwater County Park
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The Narrows
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12
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Vegetation Management Plan
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PACIFICORP

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Hogsback Creek
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8
16
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37
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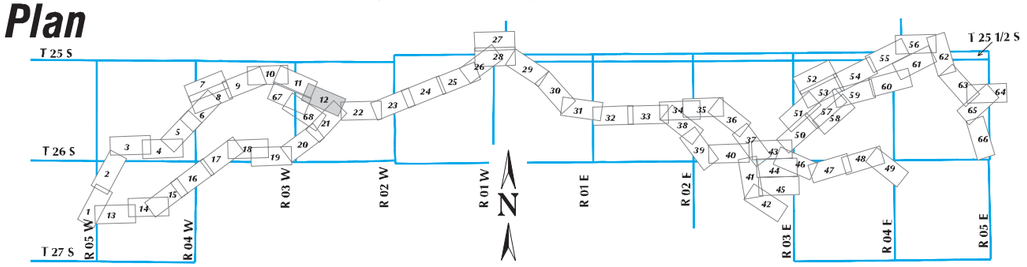

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Lindsell Road
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Ace Williams Mtn SP
Engles
Creek
Little River
County Route 17
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36
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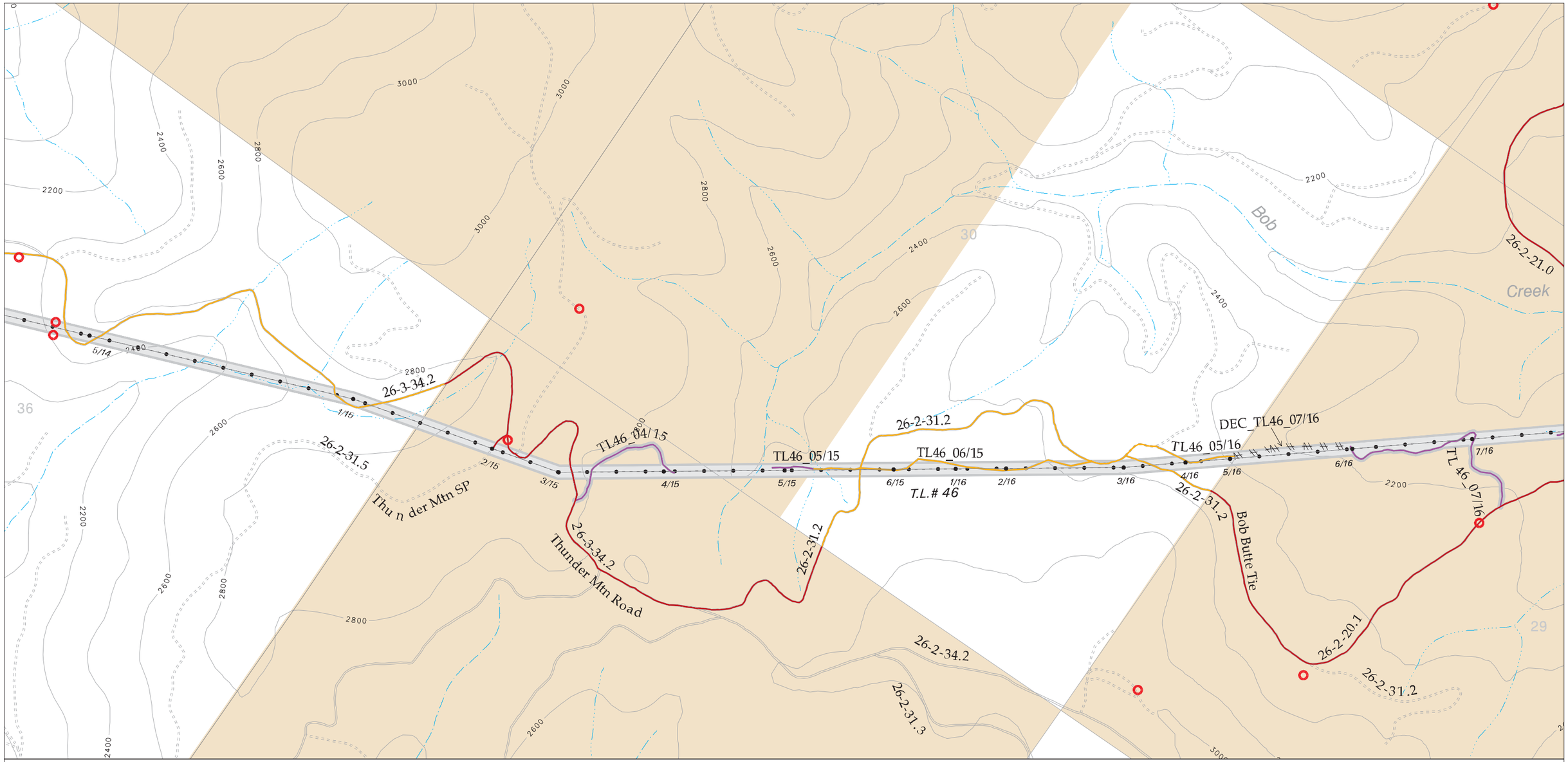

Legend

- Noxious Weeds
- Wetlands
- PacifiCorp Maintained Hydro Roads
- PacifiCorp Maintained T-line Roads
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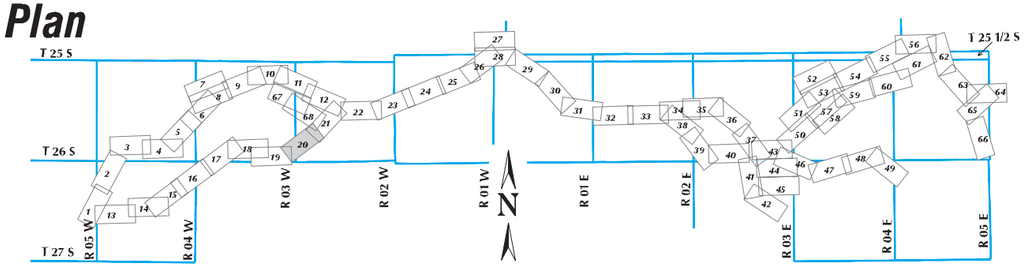

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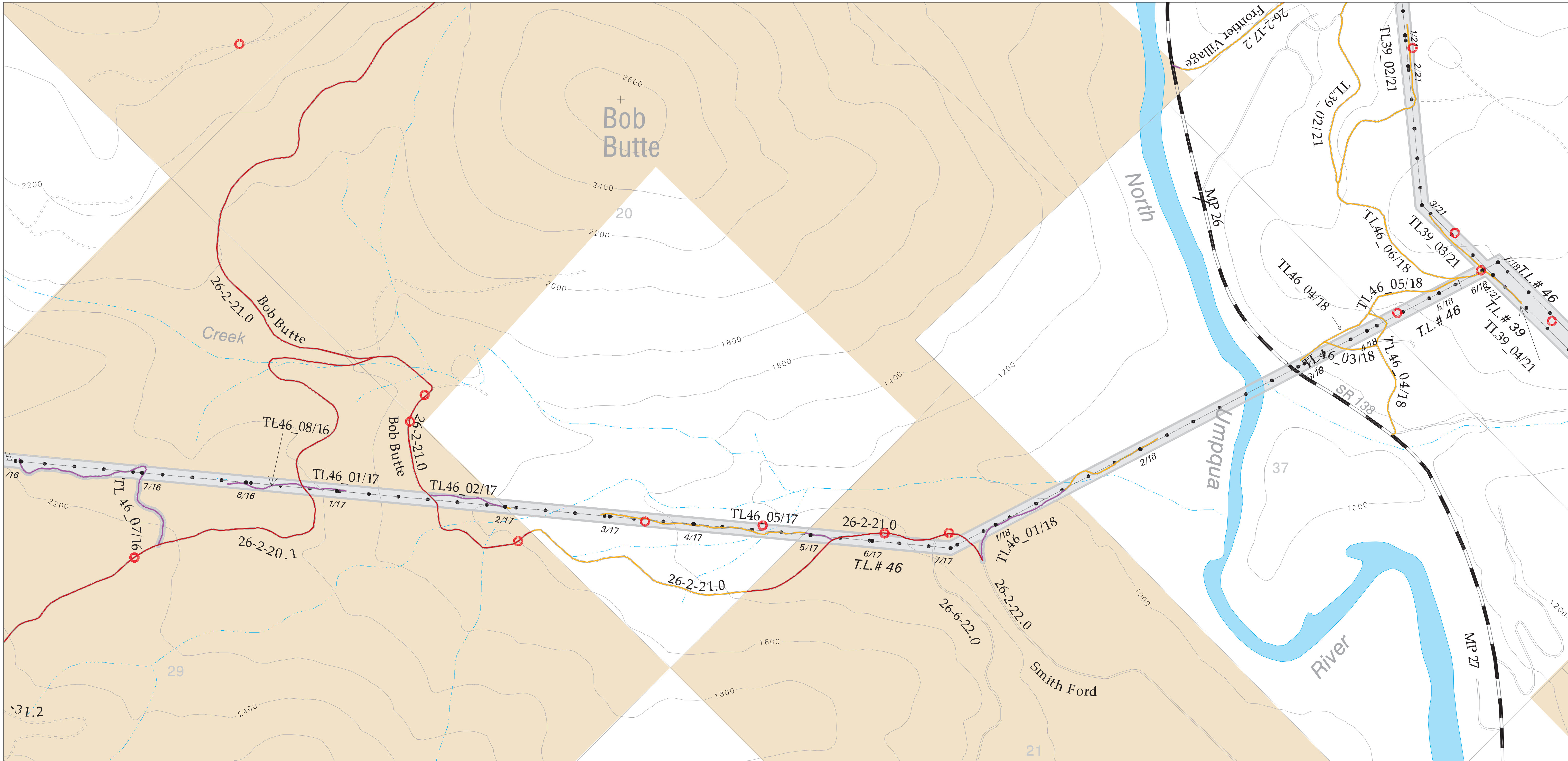

Legend

- Noxious Weeds
- Wetlands
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- PacifiCorp Maintained T-line Roads
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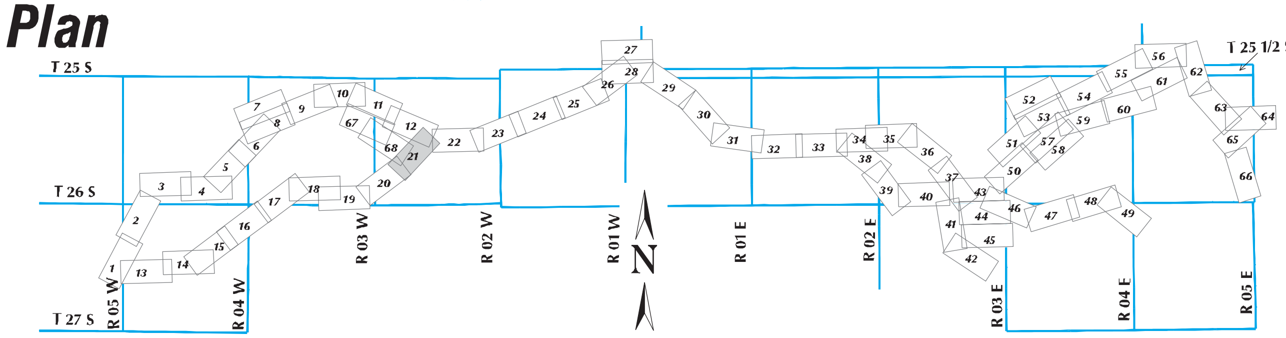

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26-2-23.0
26-2-14.5 SUSAN CR. CONNECTOR
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Susan Creek Falls
Susan Creek
Susan Creek Trail
Smith Springs
Boundary Road
SR 138
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Susan Creek Day Use Area
North Umpqua River
Cole Creek
15
14
1400
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Legend

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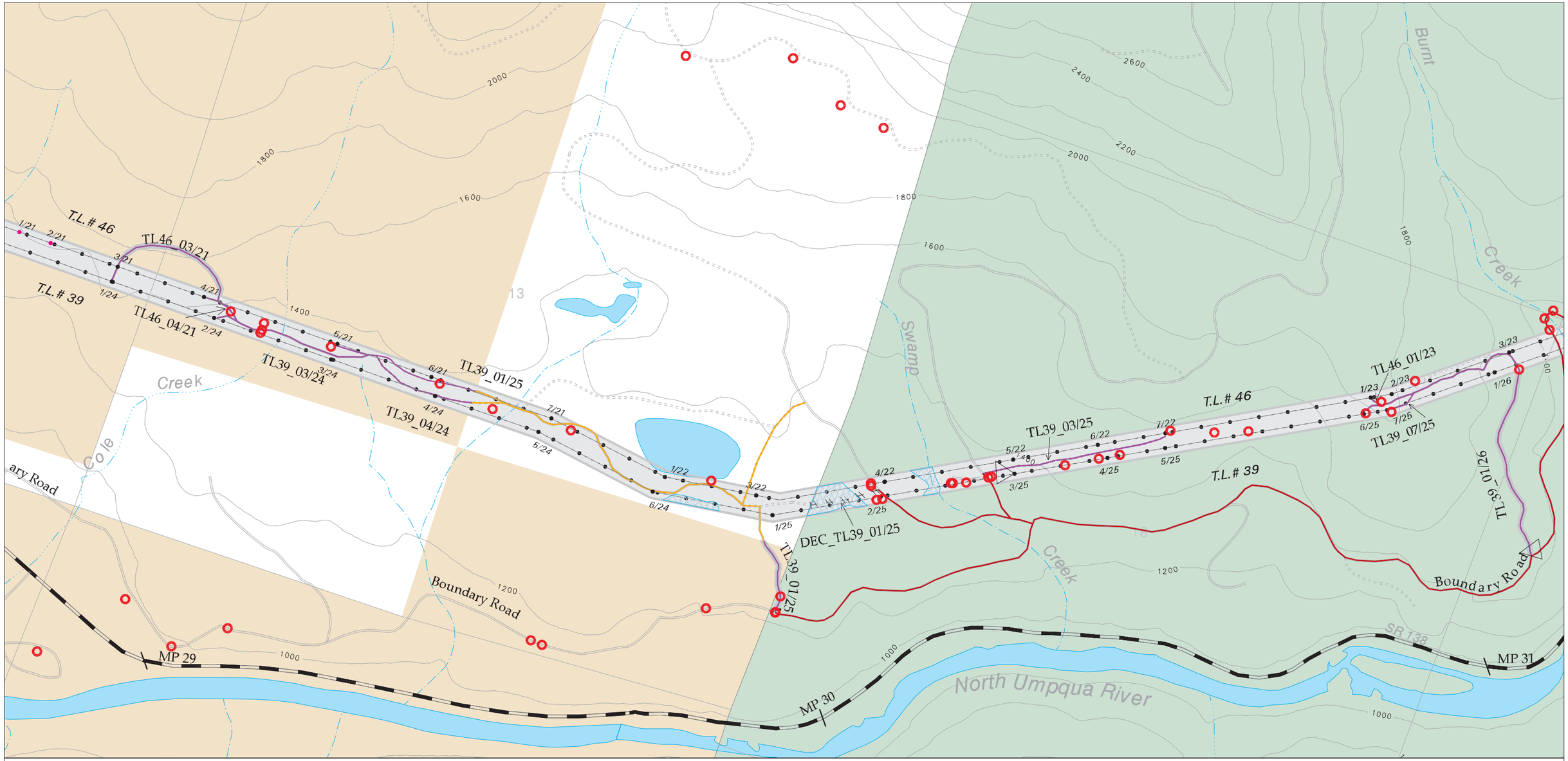
Sheet 22



Legend

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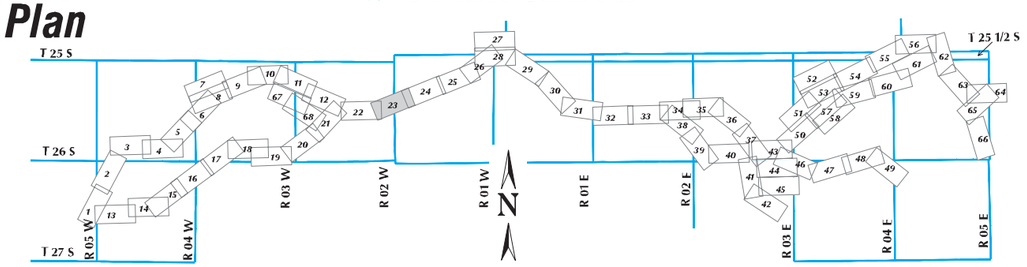

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4710445
Boundary Road
Boundary Road
Moore Hill Lane
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Burnt Creek
North Umpqua River
Fall Creek Picnic Area

Legend

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Bogus Creek Campground

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- Private Ownership

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T 26 S

T 27 S

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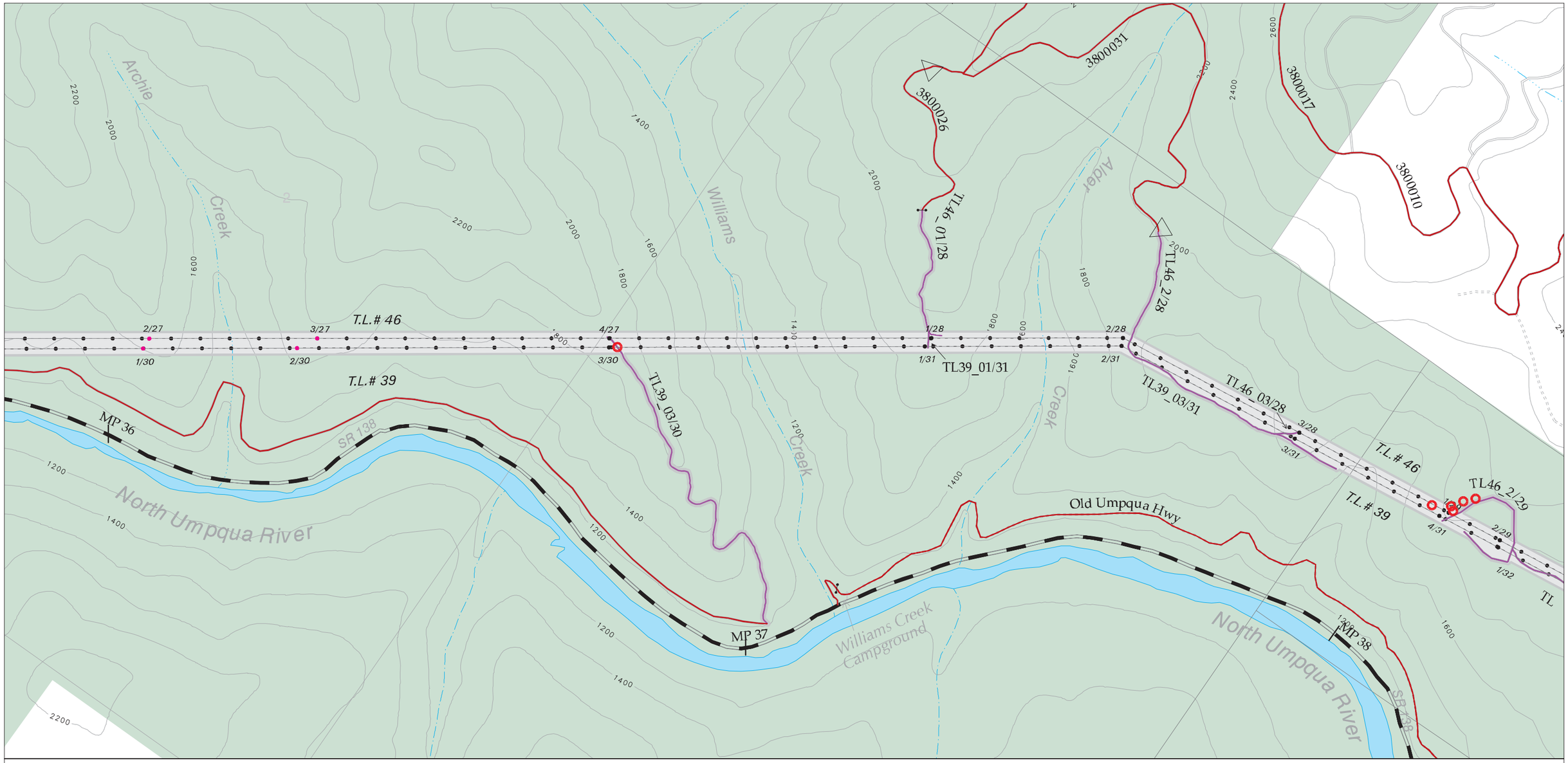

Legend

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- PacifiCorp Maintained T-line Roads
- PacifiCorp Maintained Recreation Roads
- Jointly Maintained Hydro Roads
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- Private Roads
- Roads To Be Decommissioned
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- Gate
- Barrier
- Signed Closure
- Accessible Pole
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Creek
Williams
Creek
Creek
Old Umpqua Hwy
North Umpqua River
Steamboat Creek
Steamboat
Point
Steamboat
Inn
STEAMBOAT
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TL39_01/34
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Steamboat Point
Canton Creek Campground
Island Campground
North Umpqua River
Redman Creek
STEAMBOAT

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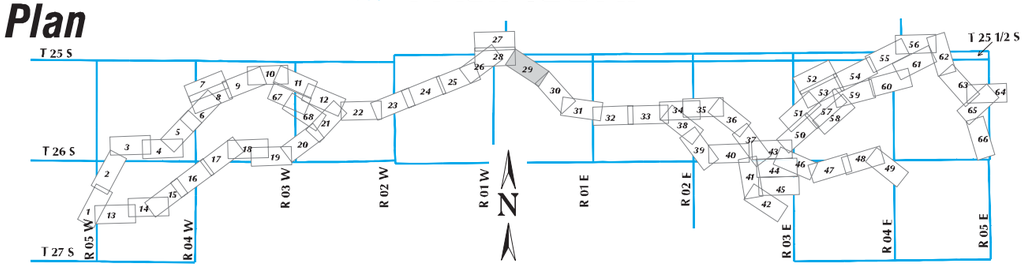

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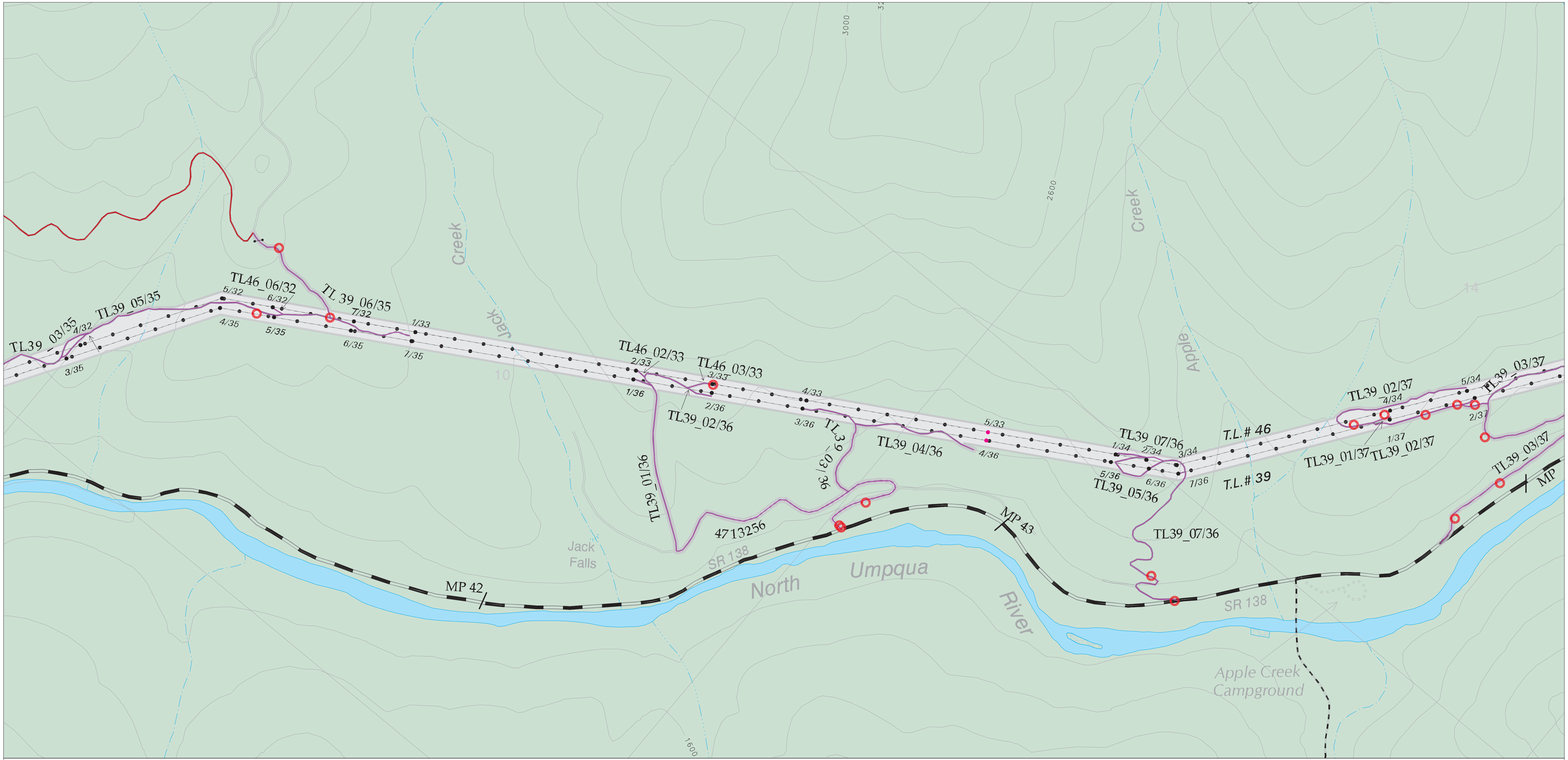

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TL39_02/38
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TL46_04/36
T.L.# 46
T.L.# 39
MP 44
MP 45
SR 138
3000
2400
2200
1800
2000
1600
13
14
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T 27 S
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R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
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TL46_02/37
TL46_04/37
TL39_03/40
TL39_04/40
TL39_02/40
TL39_05/40
TL39_05/40
TL39_06/40
TL46_03/38
T.L.# 46
T.L.# 39
TL39
Happy Creek
Dry Creek Store
Dry Gulch
47600 00
SR 138
MP 46
MP 47
North Umpqua River
Panther Leap
Horseshoe Bend
1800
2200
2000
1600
1400

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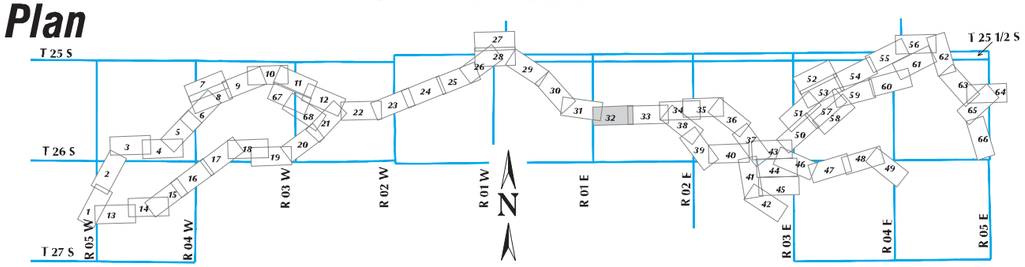

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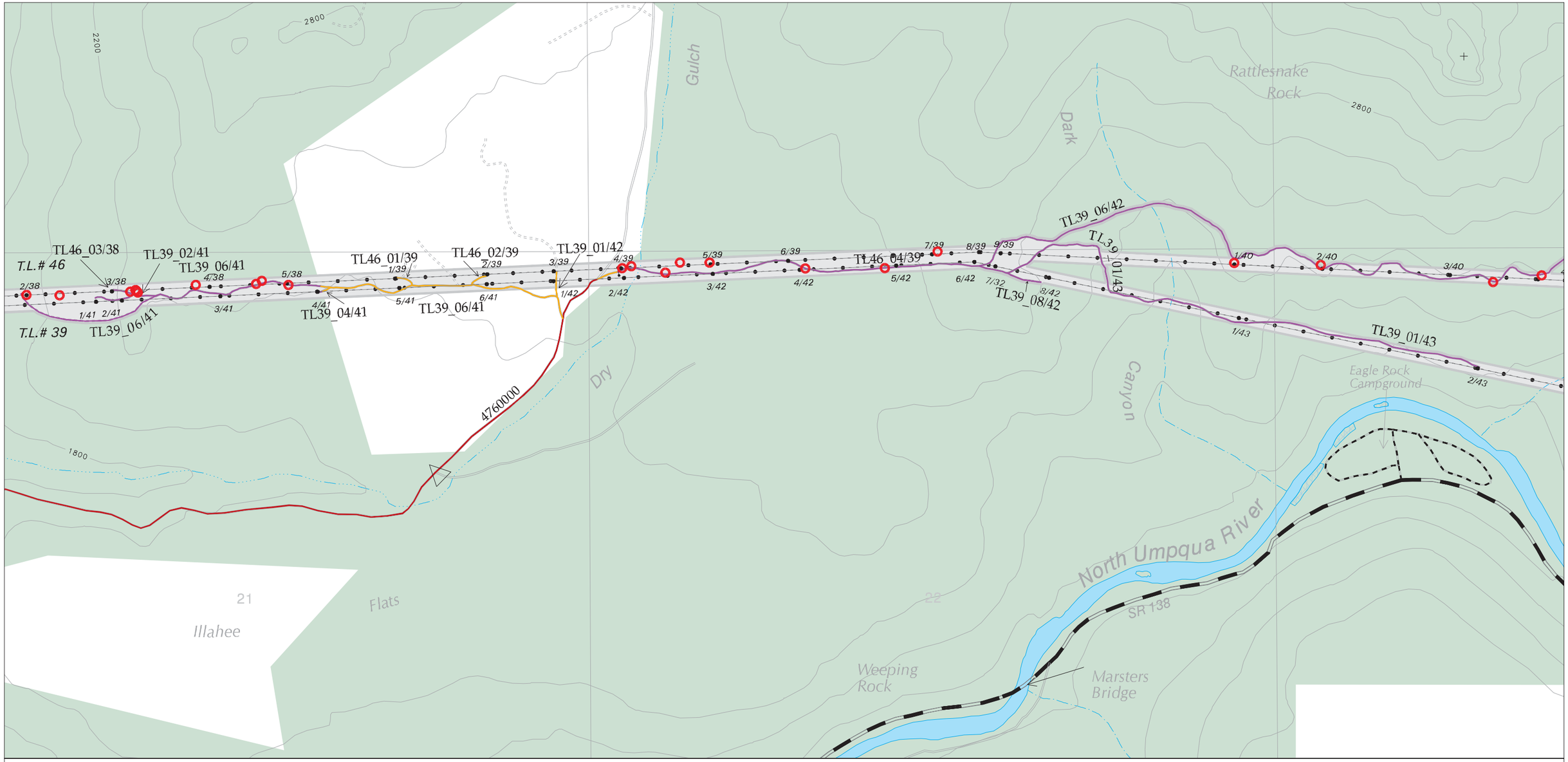

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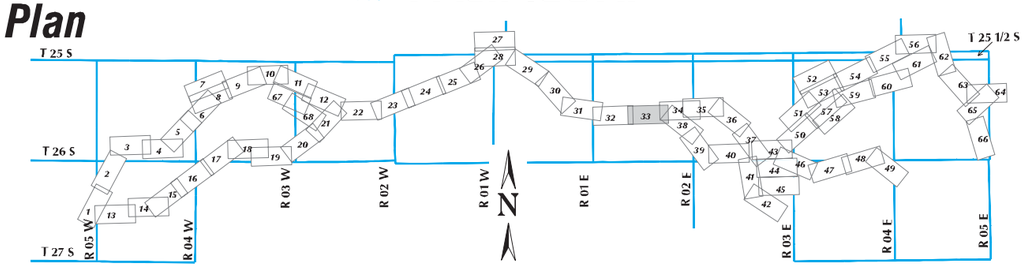

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TL46_04/42
TL46_06/42
TL46_05/42
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TL46_08/41
TL46_05/41
TL46_06/41
TL46_03/41
TL39_06/42
TL39_01/43
MP 53
MP 52
SR 138
SR T38
Boulder Creek Campground
Eagle Rock Campground
Water Quality Station
Old Man Rock
Eagle Rock
Eagle Creek
North Umpqua River
6545
6550
3600
3200
2800
2400
2000

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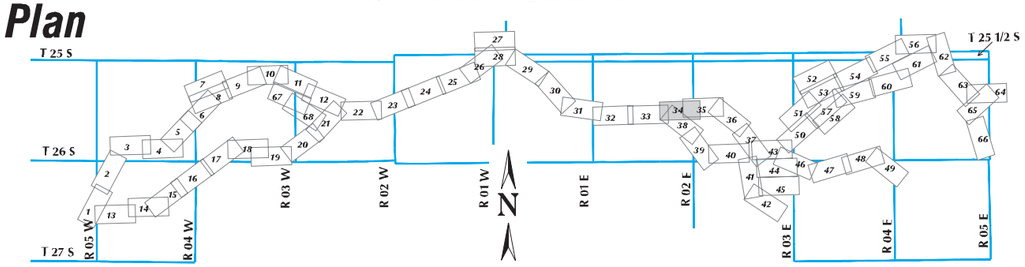

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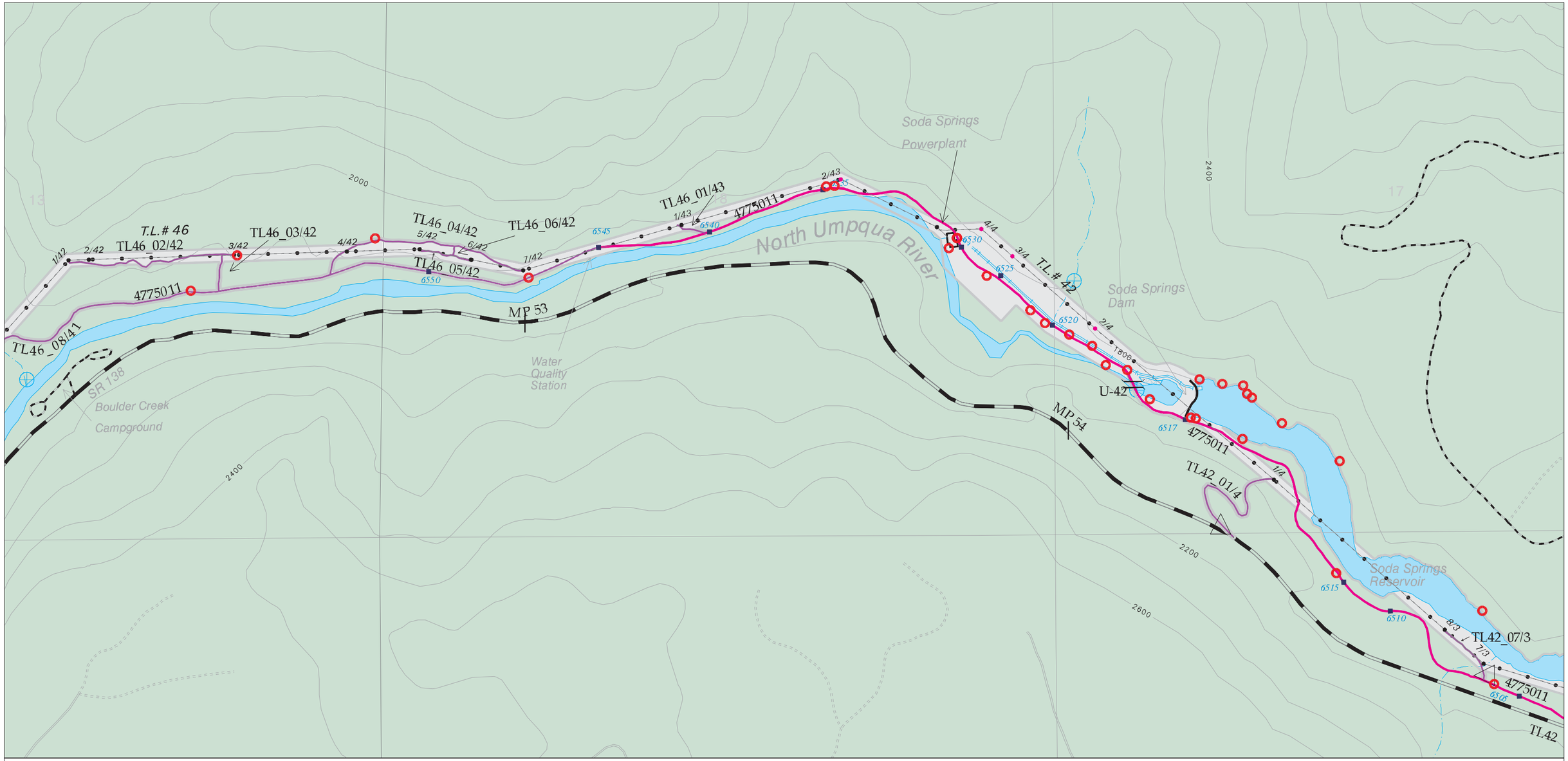

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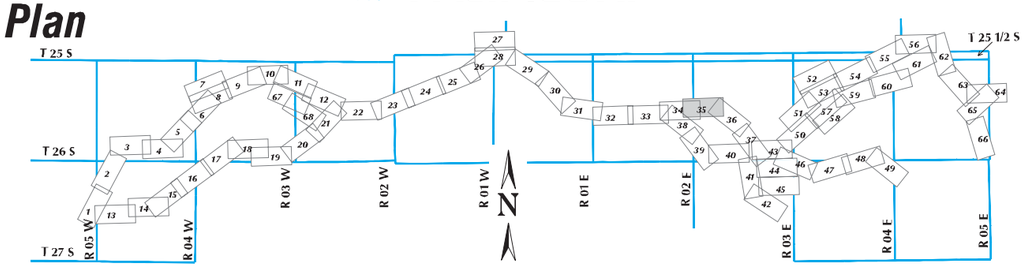

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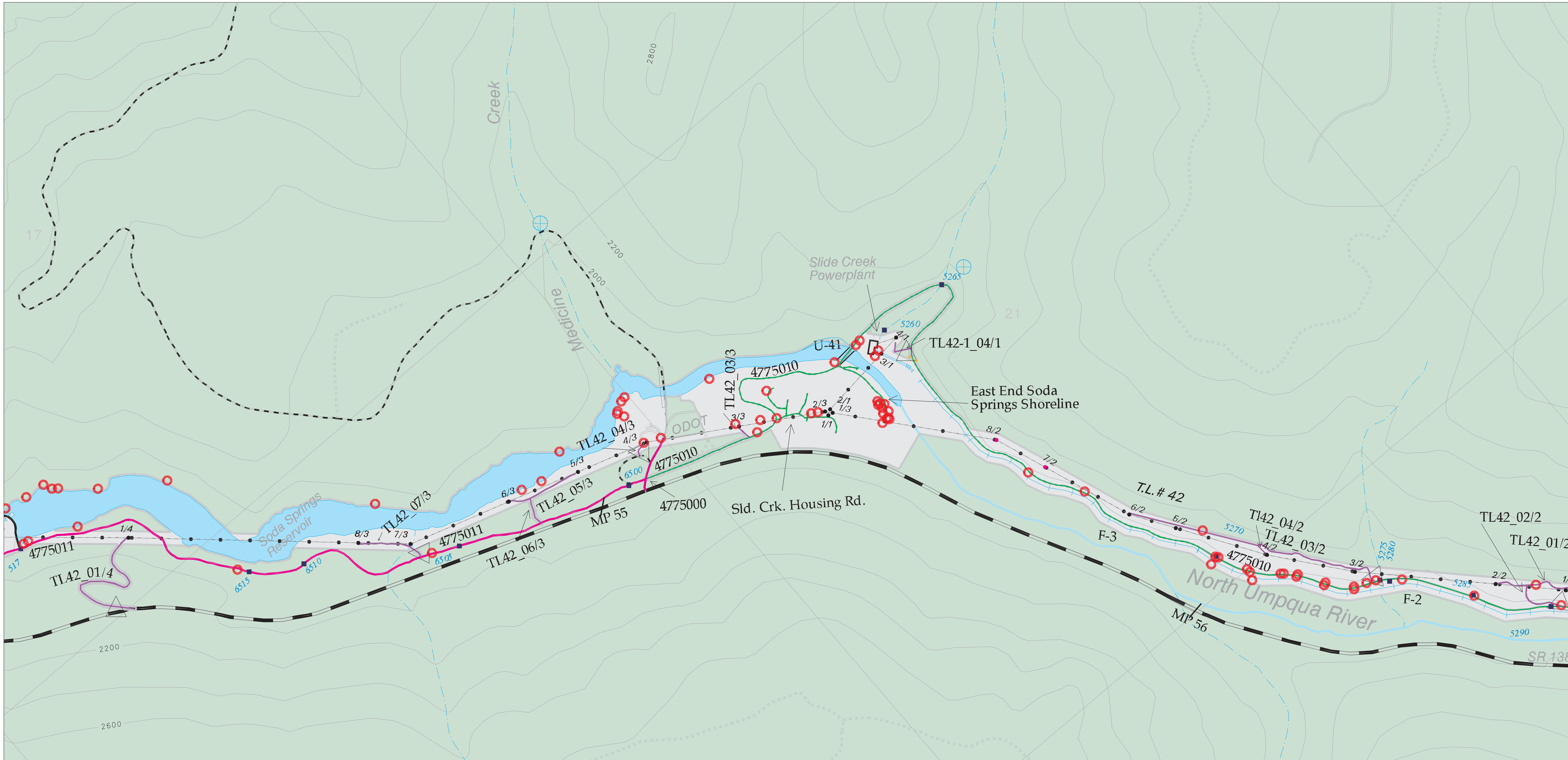

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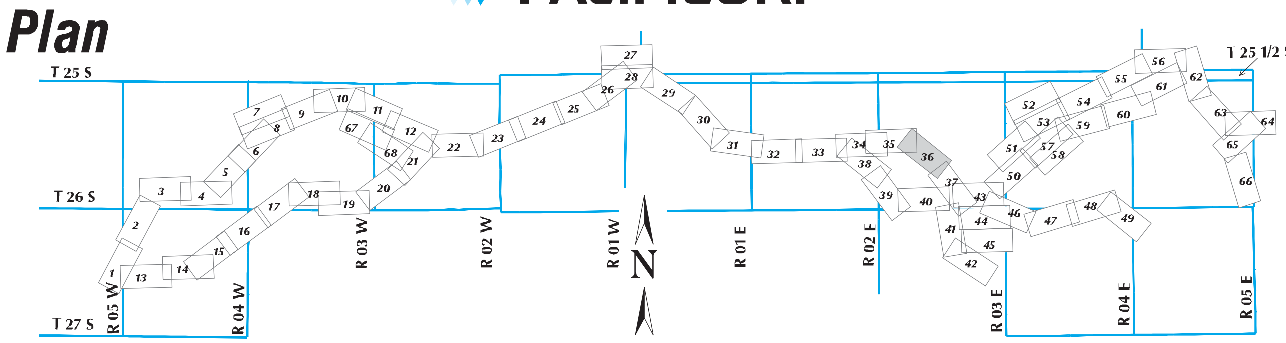

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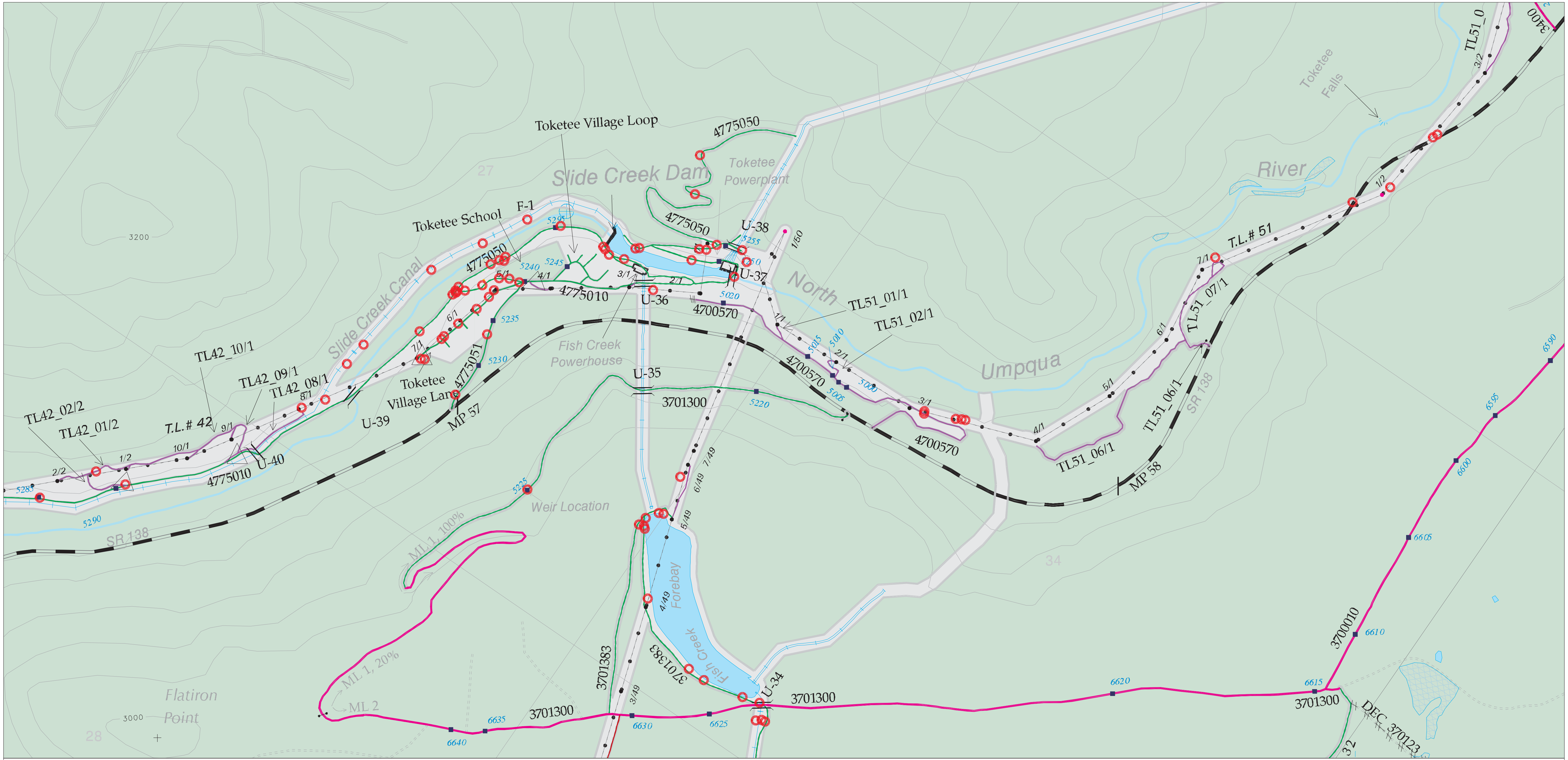
Toketee Village Loop
4775050
Slide Creek Dam
Toketee Powerplant
Toketee School
F-1
U-38
U-37
U-36
4775010
4700570
North
Umpqua
River
Toketee Falls
T.L.# 51
TL51_01/1
TL51_02/1
TL51_06/1
TL51_07/1
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Fish Creek Powerhouse
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3701300
TL42_10/1
TL42_09/1
TL42_08/1
TL42_02/2
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4775051
U-39
U-40
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MP 58
SR 138
Weir Location
ML 1, 100%
ML 1, 20%
ML 2
Forebay
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3700010
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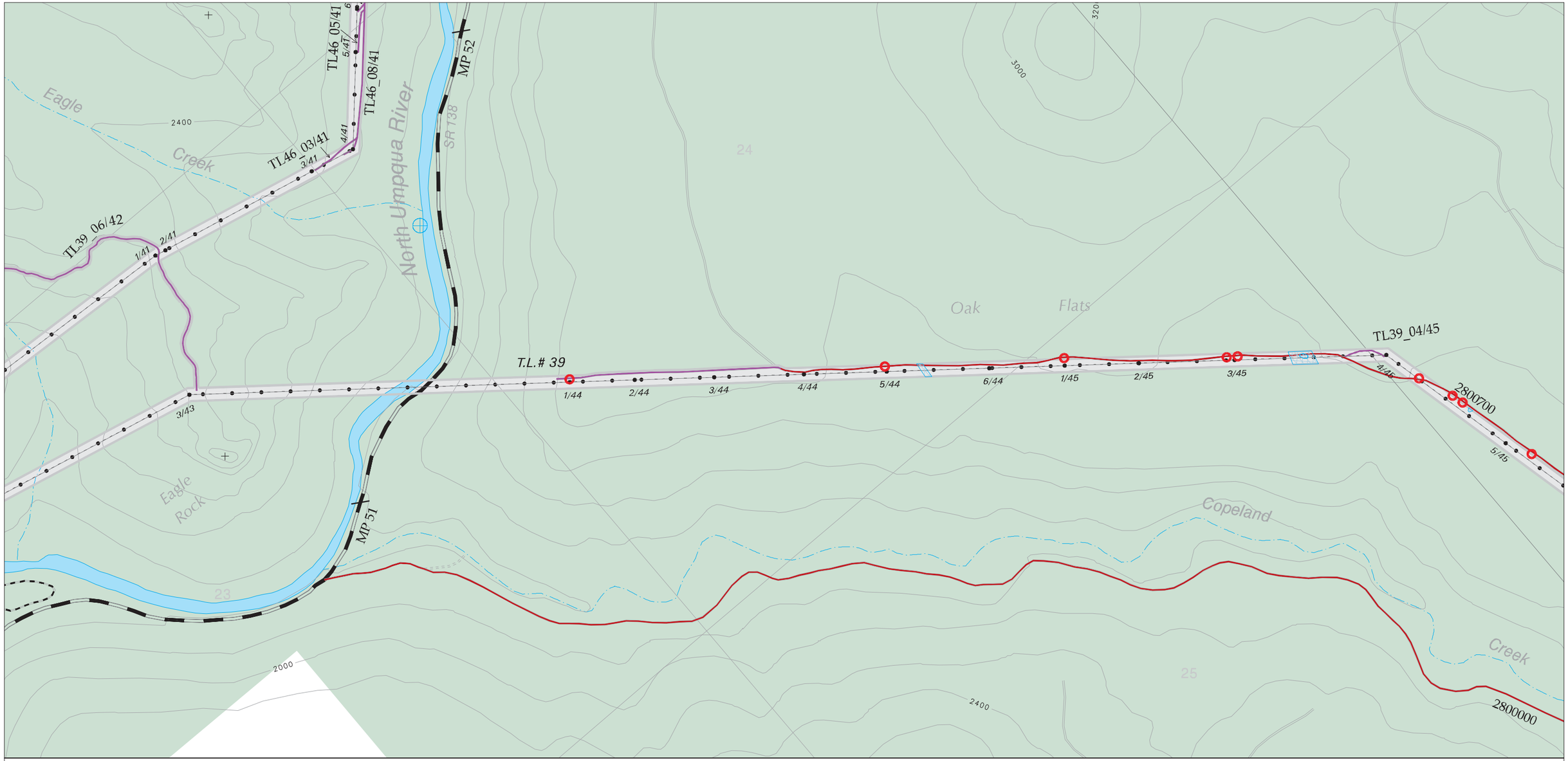

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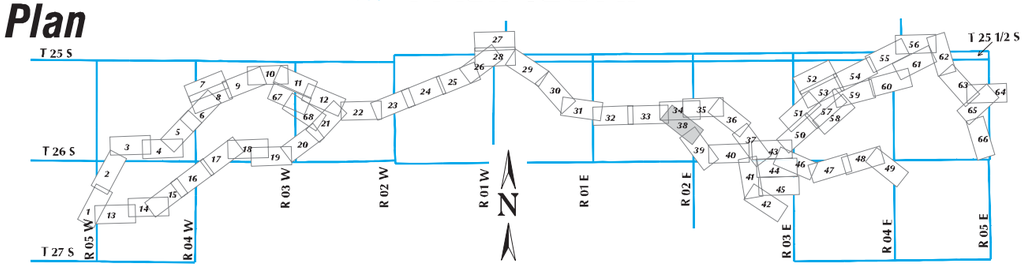

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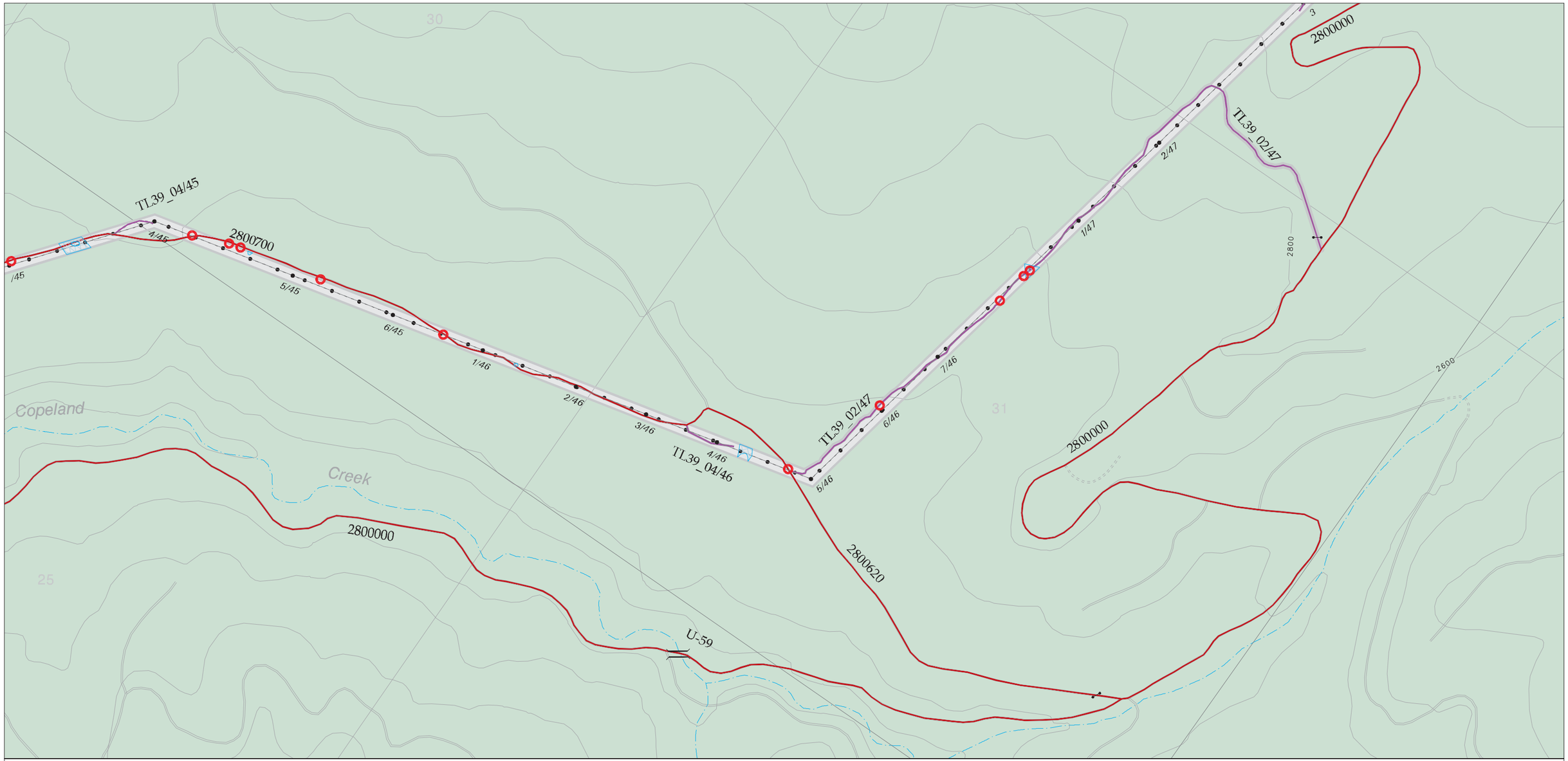

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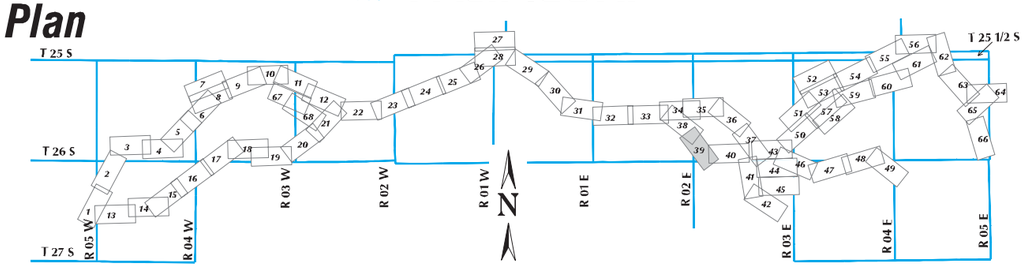

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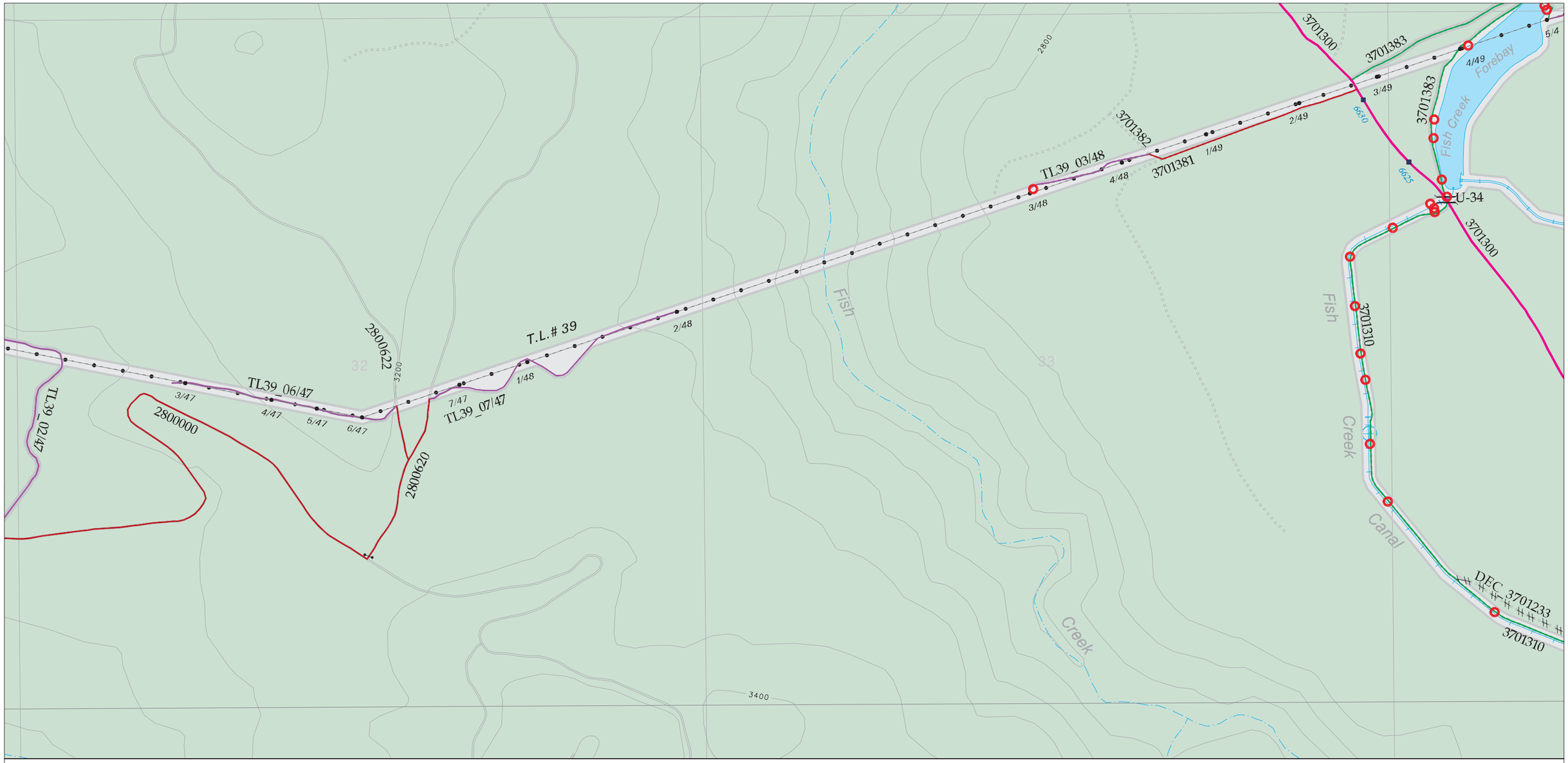

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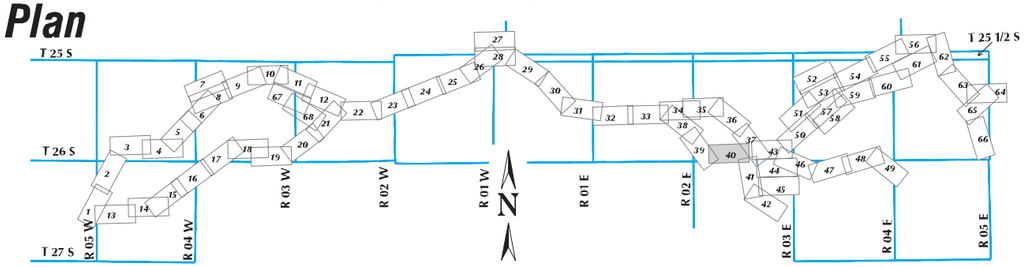

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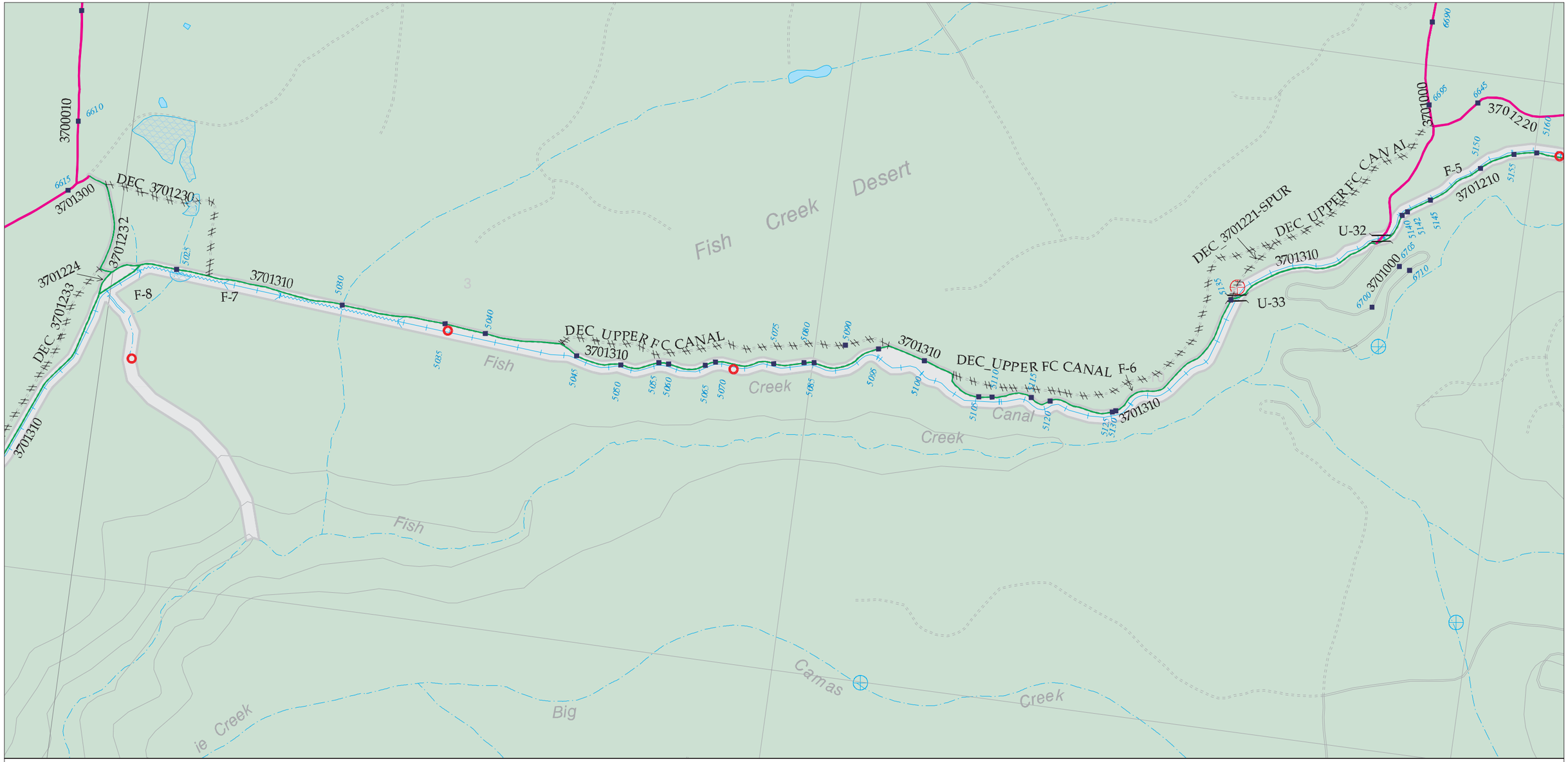

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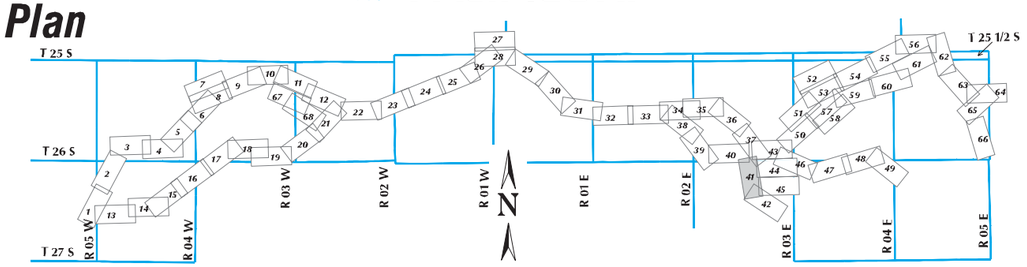

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Toketee Airstrip

DEC_3701221-SPUR

DEC UPPER FC CANAL

3701310

U-33

U-32

3701000

3701000

F-5

3701210

3701220

F-4

DEC_3701210-SPUR

Fish Creek

3701210

3701220

U-31

3701211

Fish Dam Road

F-1

U-30

3701220

Fish Creek Diversion Dam

Fish Creek

14

15

3600

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Toketee Powerplant
North Umpqua River
Toketee Falls
Toketee Falls Rd.
BONE YARD
Toketee Lake
Toketee Campground
Upper Clearwtr Vill
Lower Clearwtr Vill
Clearwater 2 Powerhouse
CLWTR. PENSTOCK ROAD
Clearwater 2 Forebay
Sediment Disposal
Clearwater Sub Station
Toketee Ranger Station
Clearwater Village
Clearwater River
SR 138
MP 58
T.L.# 51
T.L.# 53
DEC 3400016
3400020
3400025
3400000
3400006
3400008
3400000
4776105
4776000
4776090
4776080
4776100
4776201
4776200
4776250
4776200
U-19
U-20
U-25
U-26
U-28
U-29
U-53
TL51_01/1
TL51_02/1
TL51_04/2
TL51_06/1
TL51_07/1
TL53_01/3
TL53_02/1
TL57_02/1
TL57_03/1
TL57_06/1
TL57_07/1
TL57_08/1
TL57_09/1
75050
U-38

Legend

- Noxious Weeds
- Wetlands
- PacifiCorp Maintained Hydro Roads
- PacifiCorp Maintained T-line Roads
- PacifiCorp Maintained Recreation Roads
- Jointly Maintained Hydro Roads
- Joint Access T-line Roads
- Private Roads
- Roads To Be Decommissioned
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- Gate
- Barrier
- Signed Closure
- Accessible Pole
- Inaccessible Pole
- Traffic Counter
- Culvert
- Bridge
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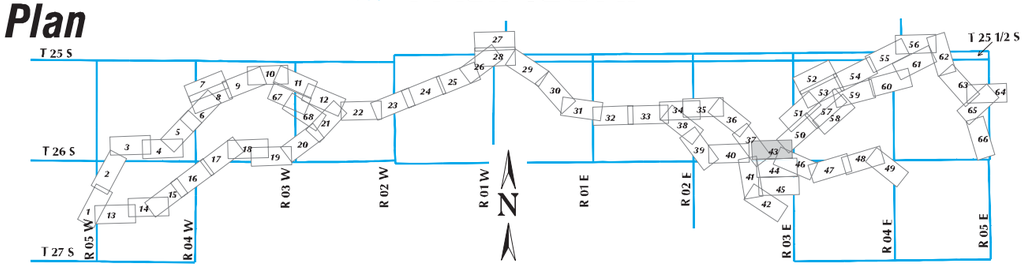
- USDA-FS
- USDA-FS (Wilderness)
- Private Ownership

North Umpqua Hydroelectic Project
Vegetation Management Plan
Exhibit G
April 2004

0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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Sheet 43

CLWTR. PENSTOCK ROAD
Clearwater 2 Powerhouse
Sediment Disposal
Clearwater 2 Forebay
Clearwater Sub Station
Toketee Ranger Station
Clearwater River
SR 138
Watson Falls Picnic Ground
Clearwater 2 Canal
T.L.# 53
T.L.# 57
4776100
4776201
4776200
4776250
4776000
4776300
4776350
4776352
TL57_02/1
TL57_03/1
TL57_06/1
TL57_07/1
TL57_08/1
TL57_09/1
TL57_03/2
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U-53
U-56
F-7
F-8
F-9
F-10
F-11
3700000

Legend

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0 1000 2000 Feet

Scale 1:9,000

PACIFICORP

T 25 S
T 25 1/2 S
T 26 S
T 27 S
R 05 W
R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
R 04 E
R 05 E

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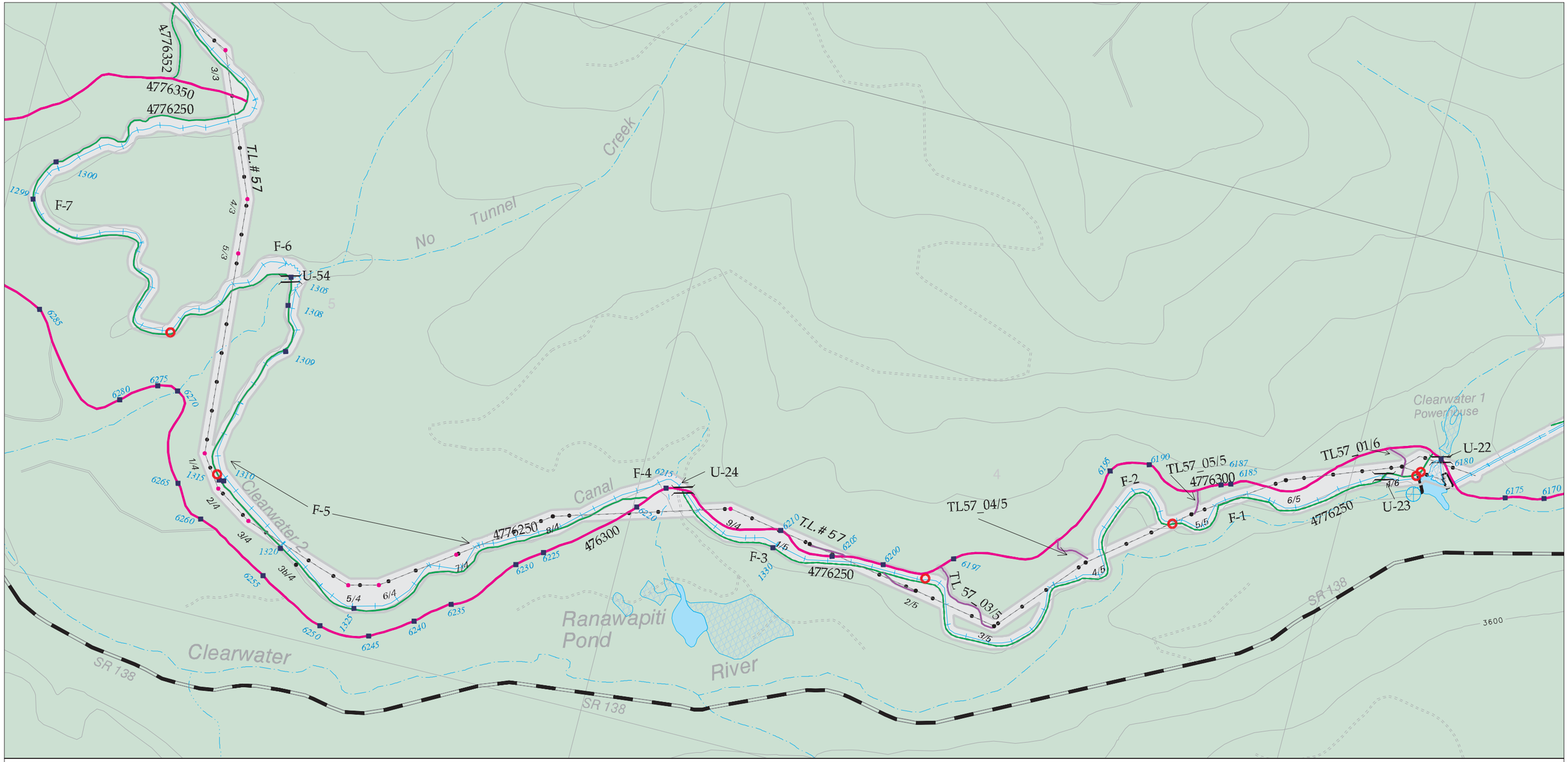
Sheet 46



Legend

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- Wetlands
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0 1000 2000 Feet

Scale 1:9,000

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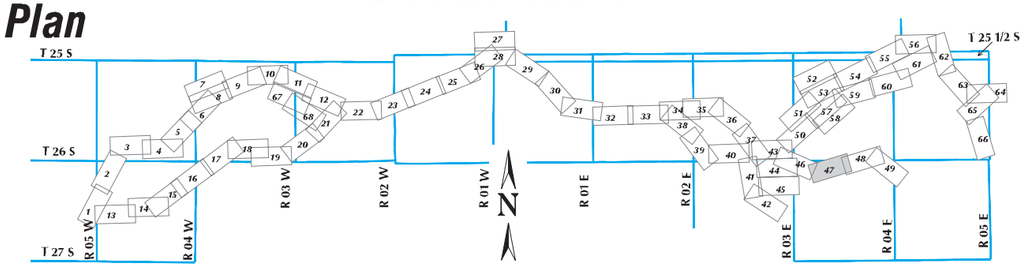

INDEX MAP

Sheet 47

Creek
Mowich
Mowich Park
Spillway
Clearwater 1 Powerhouse
Clearwater 1 Forebay
Sediment Disposal
U-22
U-55
23
35
3
3600
3800
4776700
4776650
4776300
4776010
4776061
4780000
4776063
4776065
6180
6175
6170
6165
6160
6155
6150
6145
6140
6135
6130
6125
6120
6115
6113
6112
6110
6105
6100
6095
6090
6085
6075
6070
6065
6060
6055
6050

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0 1000 2000 Feet

Scale 1:9,000

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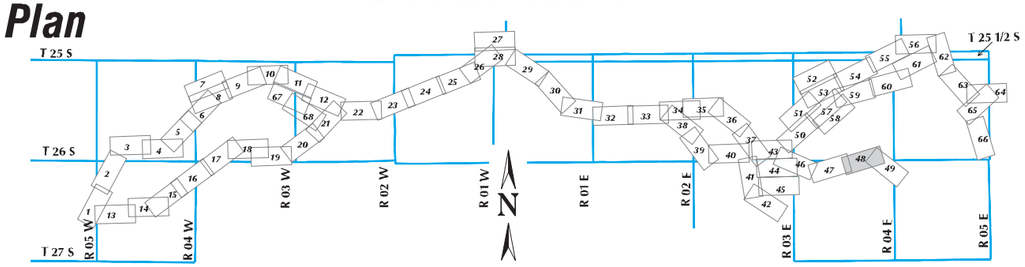

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0 1000 2000 Feet

Scale 1:9,000

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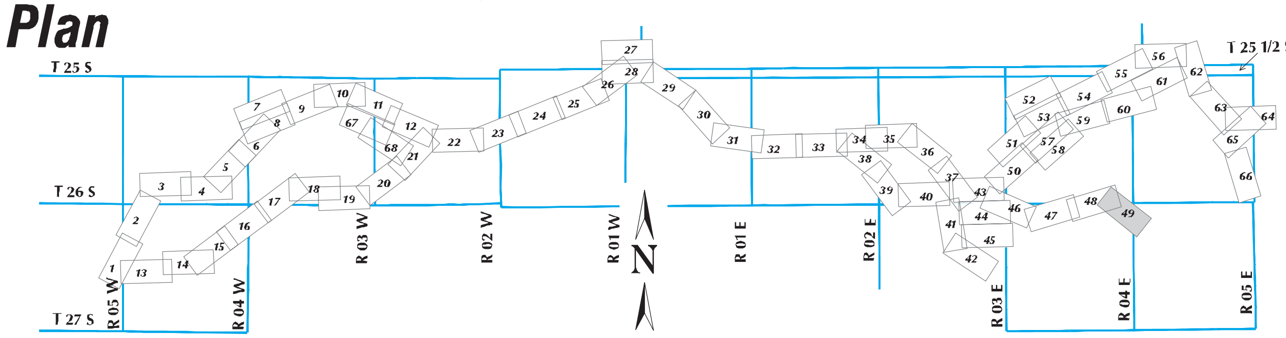

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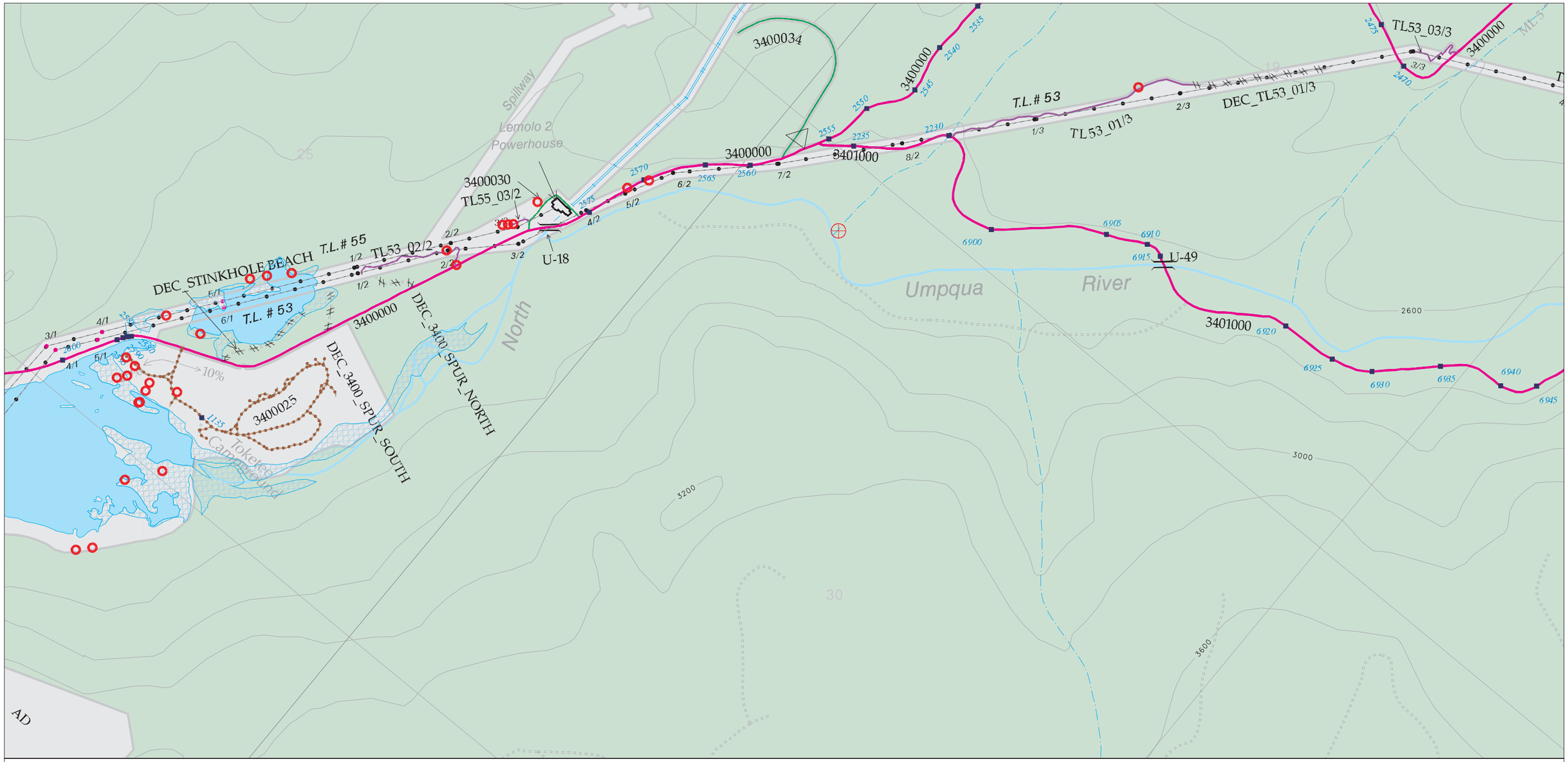
Sheet 49



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- PacifiCorp Maintained Recreation Roads
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0 1000 2000 Feet

Scale 1:9,000

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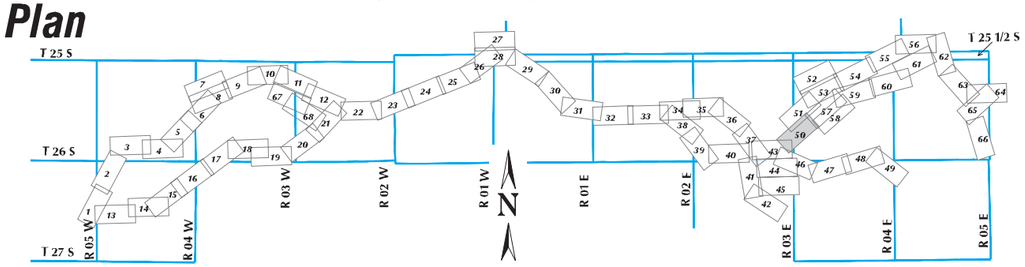

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Sheet 50

Mill Creek Diversion
Lem. No2 C.G.
Lemolo 2 Forebay
Sediment Disposal
Upper Mountain Meadows
Lemolo 2 Canal
Thorne Creek
Deer Creek
BURN PILE ACCESS
T.L.# 53
DEC_TL53_01/3
TL53_01/3
TL53_03/3
TL53_04/3
ML 3
ML 5
F-25
F-26
F-27
U-16
U-17
3402000
3402052
3402053
3402071
3400000
3400034
3400071
3400052
3400053
3400020
3401000

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PACIFICORP

T 25 S
T 25 1/2 S
T 26 S
T 27 S
R 05 W
R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
R 04 E
R 05 E
N

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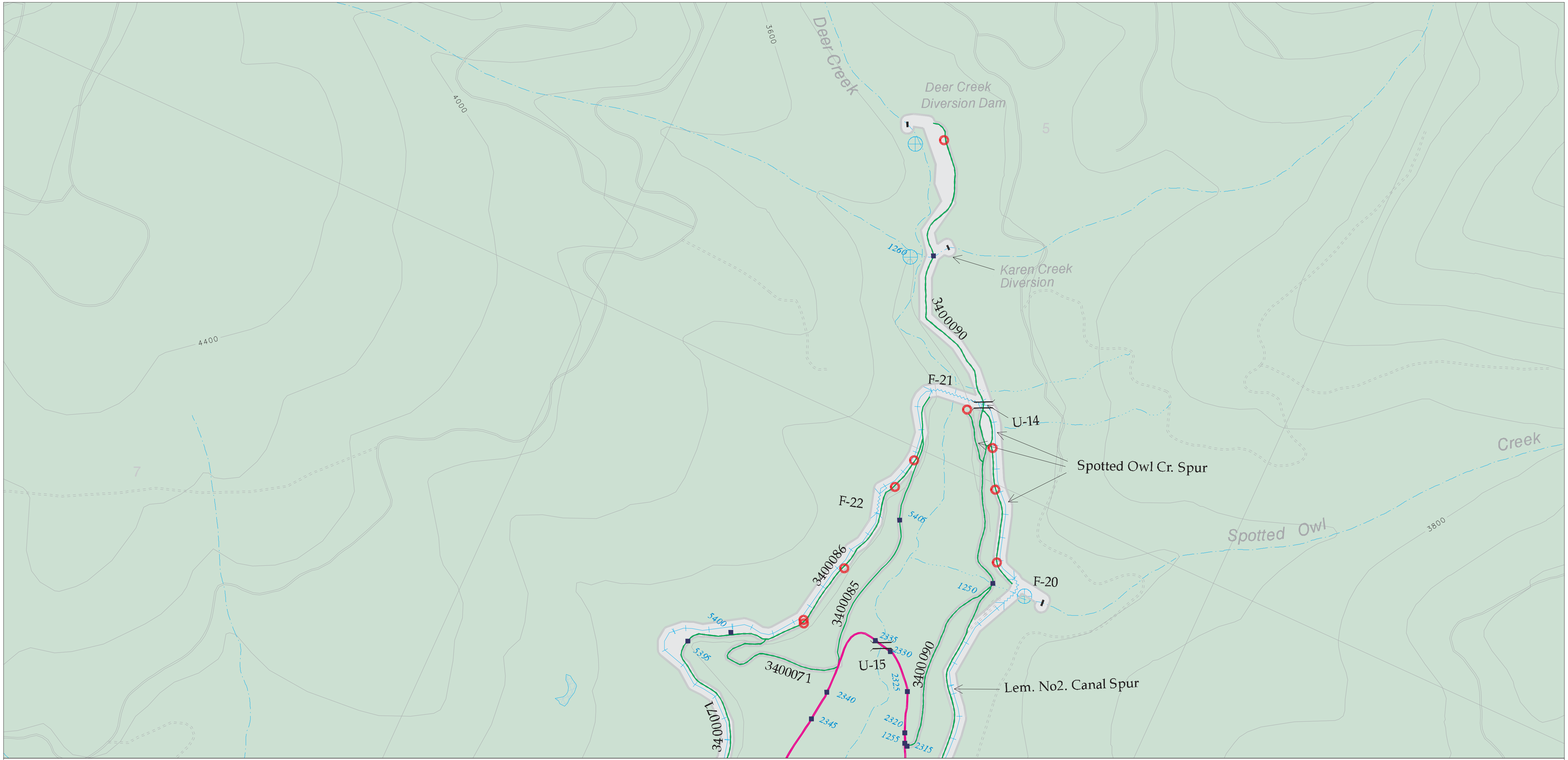
Sheet 51



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Legend

Noxious Weeds	Accessible Pole
Wetlands	Inaccessible Pole
PacifiCorp Maintained Hydro Roads	Traffic Counter
PacifiCorp Maintained T-line Roads	Culvert
PacifiCorp Maintained Recreation Roads	Bridge
Jointly Maintained Hydro Roads	Proposed FERC Project Boundary
Joint Access T-line Roads	USDI-BLM
Private Roads	USDA-FS
Roads To Be Decommissioned	USDA-FS (Wilderness)
Susan Creek Trail	Private Ownership
Gate	
Barrier	
Signed Closure	

0 1000 2000 Feet

Scale 1:9,000

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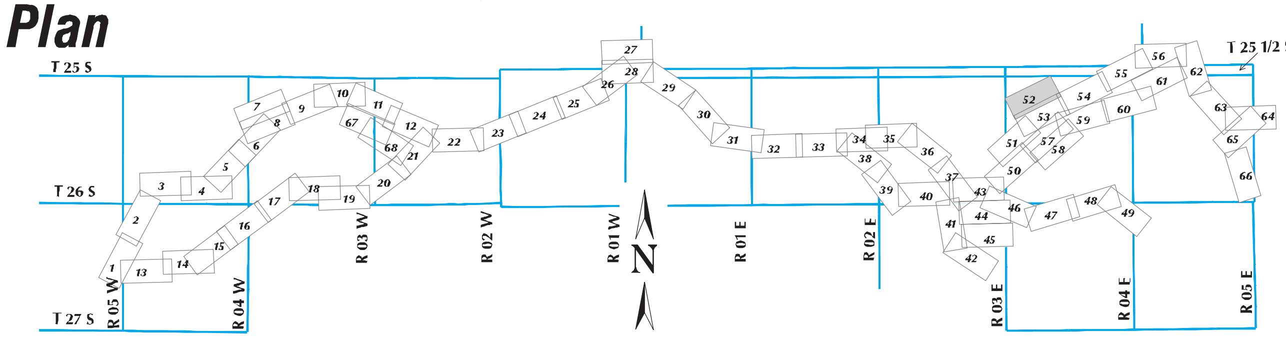

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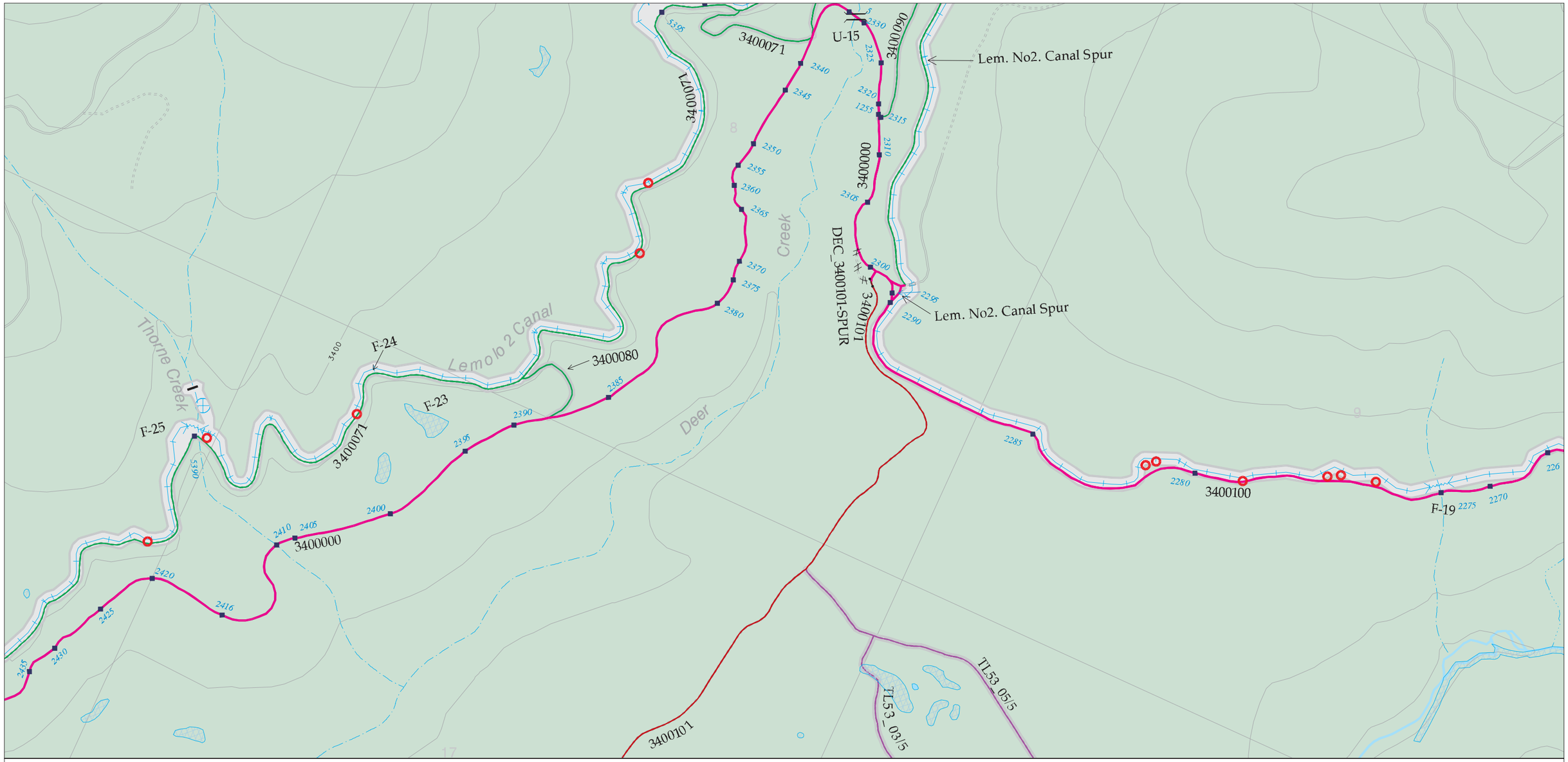

Legend

- Noxious Weeds
- Wetlands
- PacifiCorp Maintained Hydro Roads
- PacifiCorp Maintained T-line Roads
- PacifiCorp Maintained Recreation Roads
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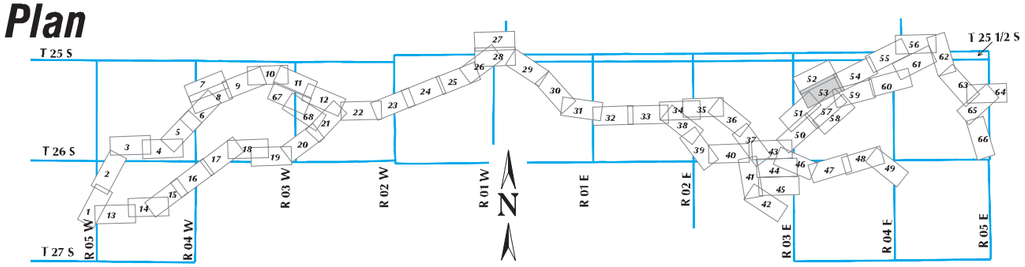

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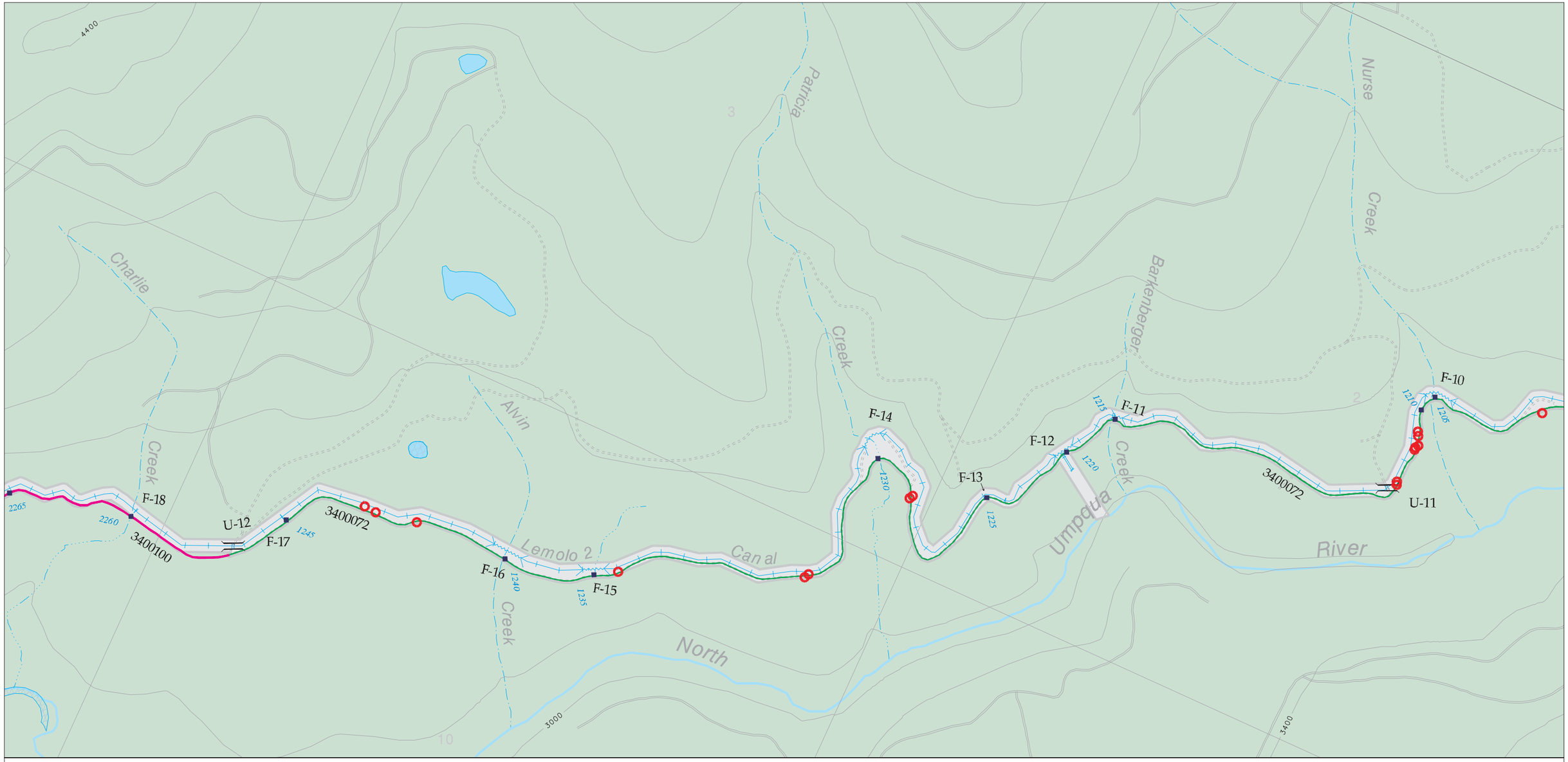
Sheet 53



Legend

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- Wetlands
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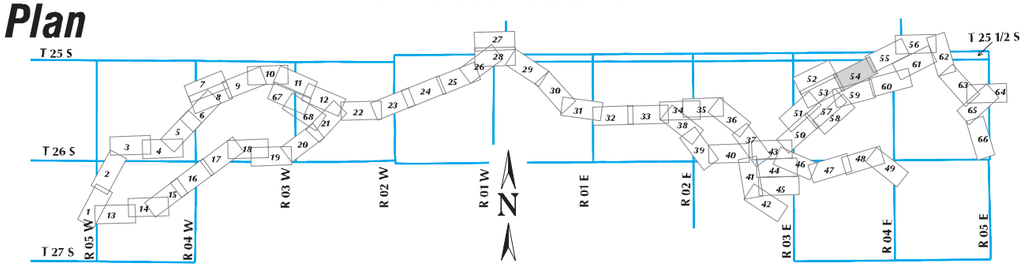

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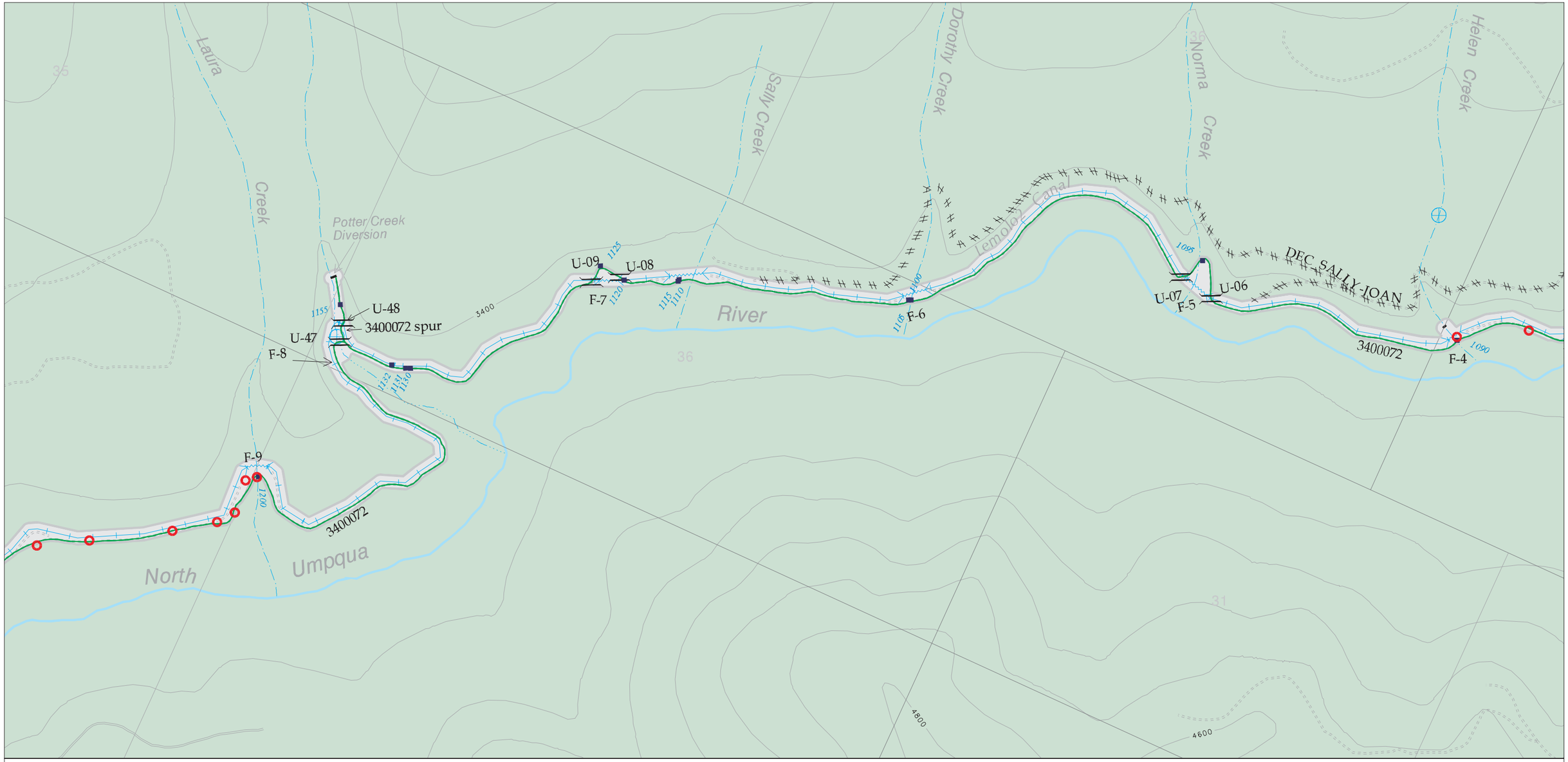

Legend

- Noxious Weeds
- Wetlands
- PacifiCorp Maintained Hydro Roads
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- PacifiCorp Maintained Recreation Roads
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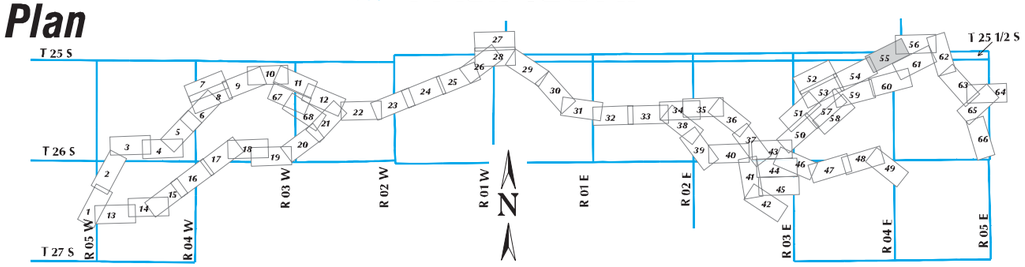

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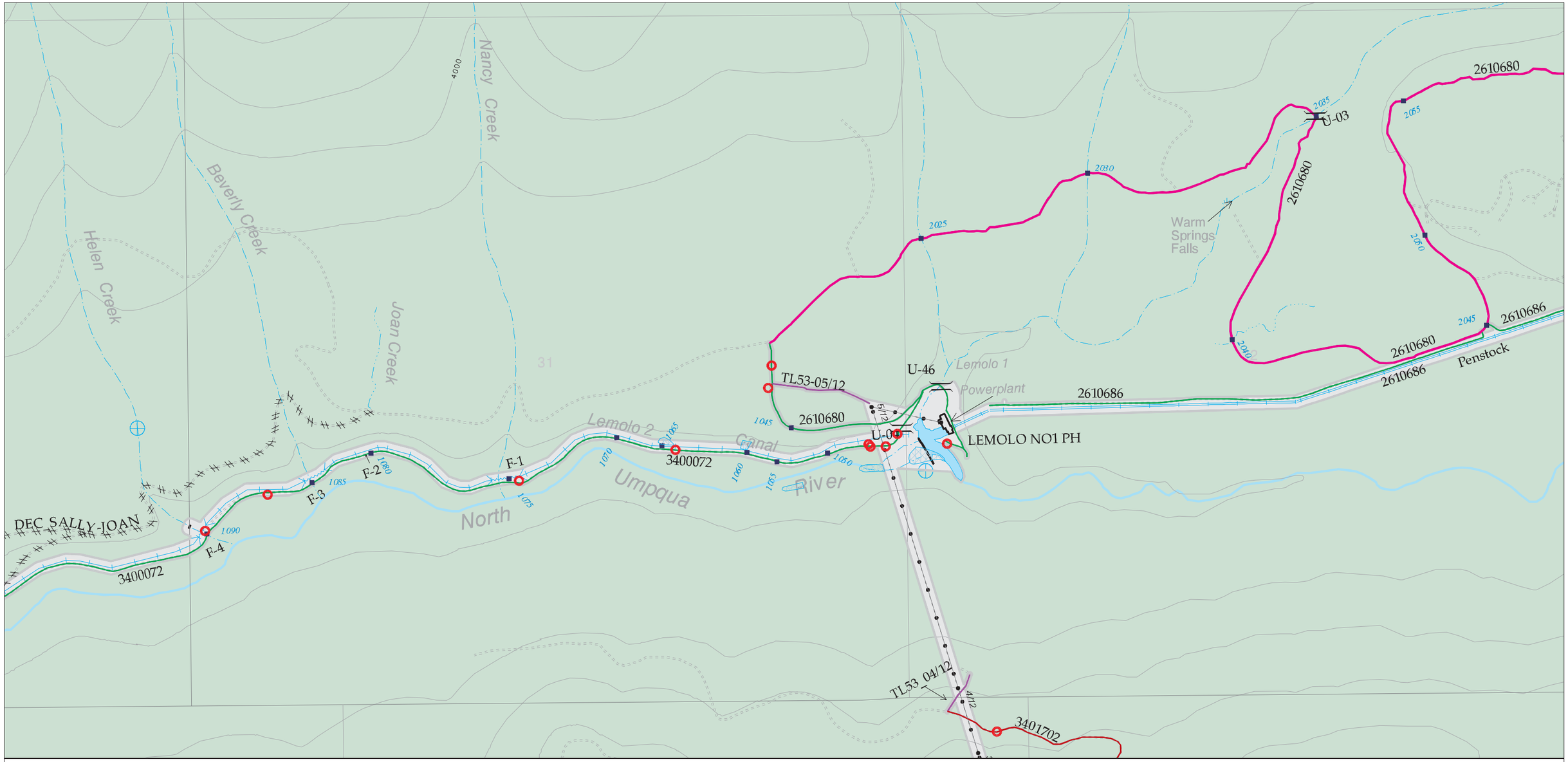

Legend

- Noxious Weeds
- Wetlands
- PacifiCorp Maintained Hydro Roads
- PacifiCorp Maintained T-line Roads
- PacifiCorp Maintained Recreation Roads
- Jointly Maintained Hydro Roads
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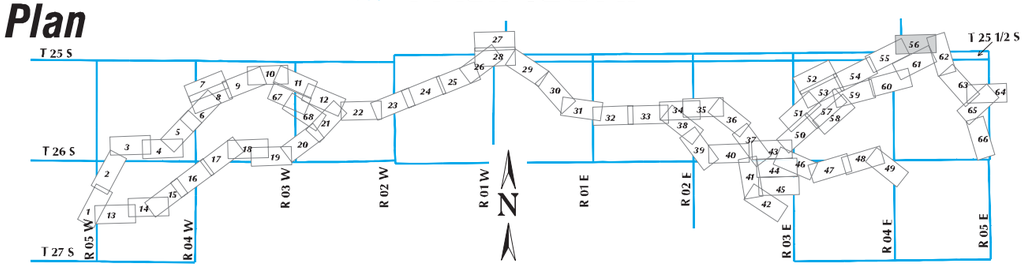
0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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TL53_04/3
4/3
1/4
3400050
Deer Creek
Upper Mountain Meadows
2800
3400101
TL53_04/4
2/4
3/4
4/4
5/4
1/5
TL53_03/5
2/5
3/5
TL53_04/5
4/5
5/5
6/5
TL53_03/5
TL53_05/5
6950
6955
6960
6965
6945
3401000
6970
North Umpqua River
6975
6980
6985
6990
6995
7000
7005
7010
7015
7020
7025
Umpqua Hot Springs
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Thorn Prairie

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PACIFICORP

T 25 S
T 26 S
T 27 S
T 25 1/2 S
R 05 W
R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
R 04 E
R 05 E
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T.L.# 53

3401701

3401601

3401650

3401000

3401700

6/5 1/6 2/6 3/6 4/6 5/6 1/7 2/7 3/7 4/7 5/7 6/7 1/8

7060 7065 7070 7075 7080 7085 7090

3200

North Umpqua River

Prairie

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PACIFICORP

T 25 S

T 26 S

T 27 S

T 25 1/2 S

R 05 W R 04 W R 03 W R 02 W R 01 W R 01 E R 02 E R 03 E R 04 E R 05 E

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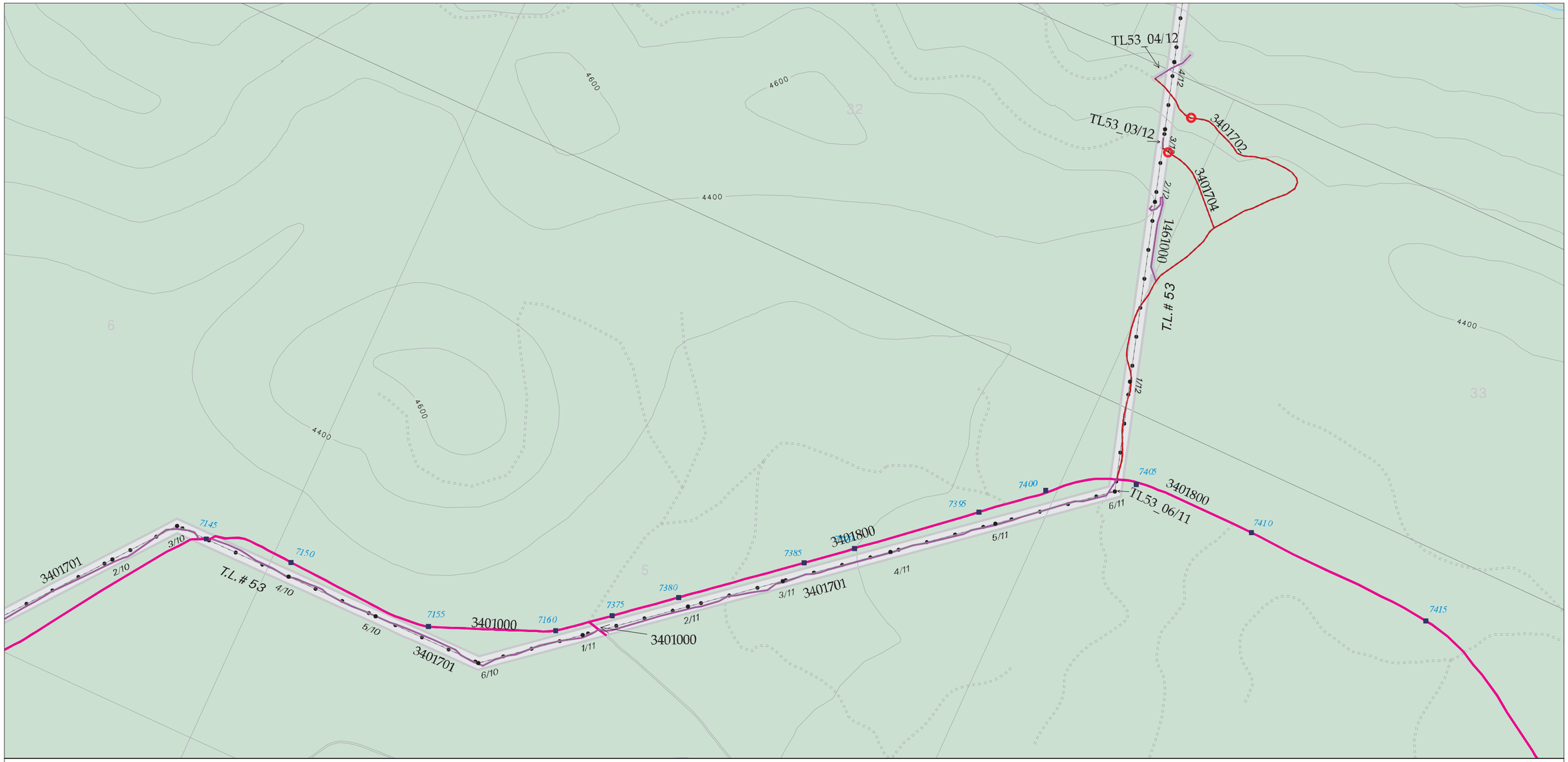
Sheet 59



Legend

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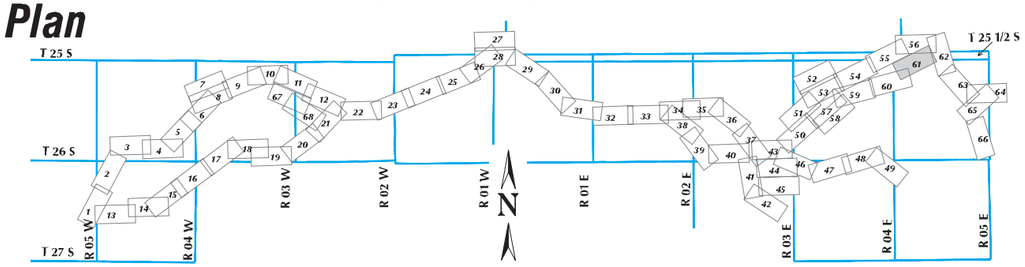

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Sheet 61

Lemolo 1
Forebay Expansion

U-02

2610670

2610680

2610686

2610686

Penstock

2610680

2610686

2610680

Lemolo 1 Canal

2610000

2610672

North Umpqua River

Lemolo Falls

3401800

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T 27 S
T 25 1/2 S
R 05 W
R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
R 04 E
R 05 E

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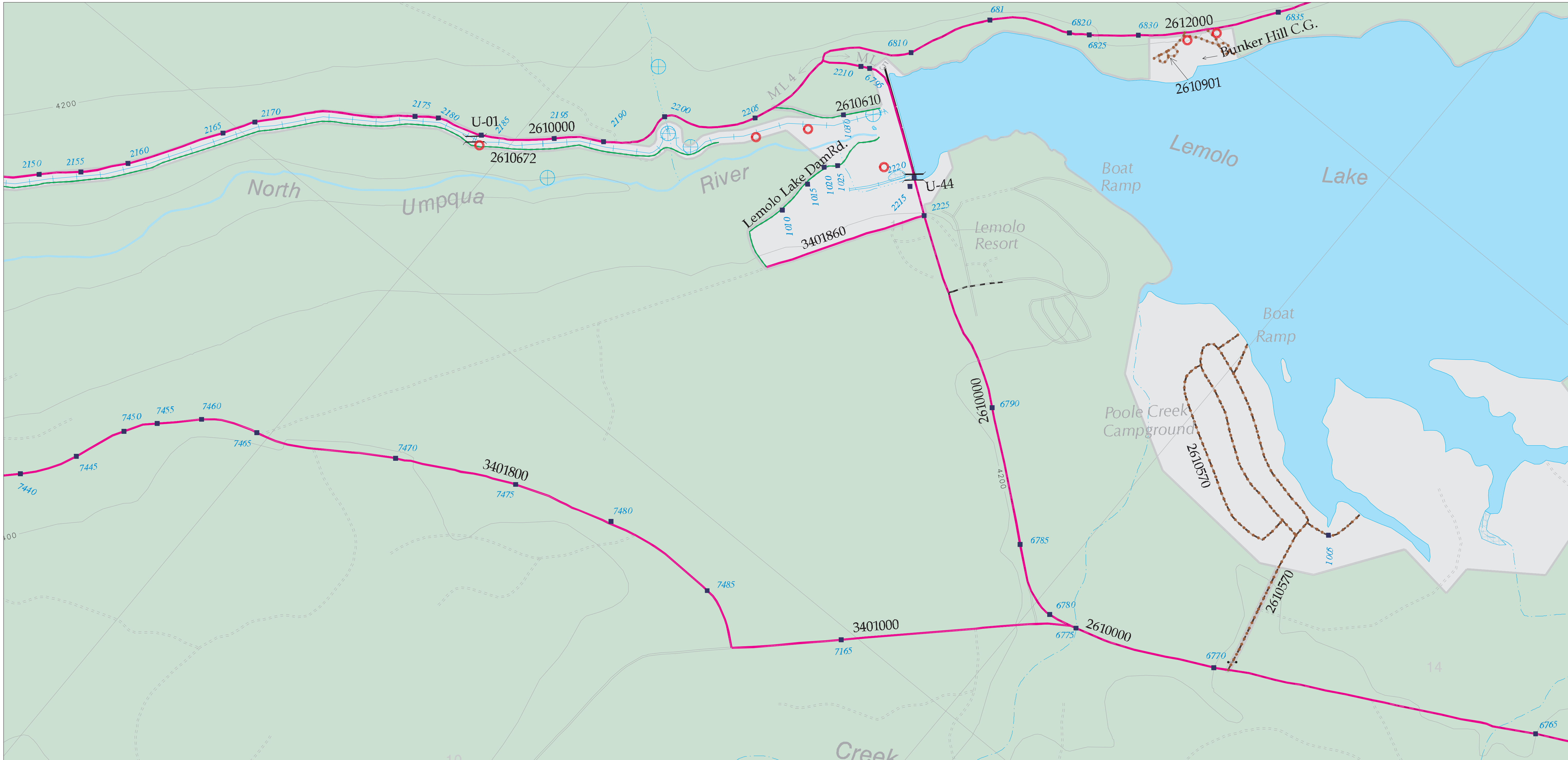

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- Inaccessible Pole
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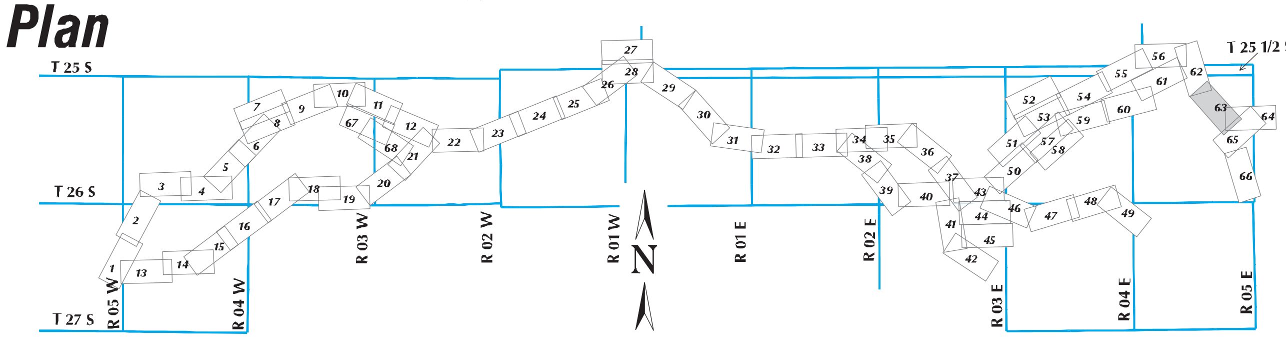
- Culvert
- Bridge
- Proposed FERC Project Boundary
- USDI-BLM
- USDA-FS
- USDA-FS (Wilderness)
- Private Ownership

North Umpqua Hydroelectic Project
Vegetation Management Plan
Exhibit G
April 2004

0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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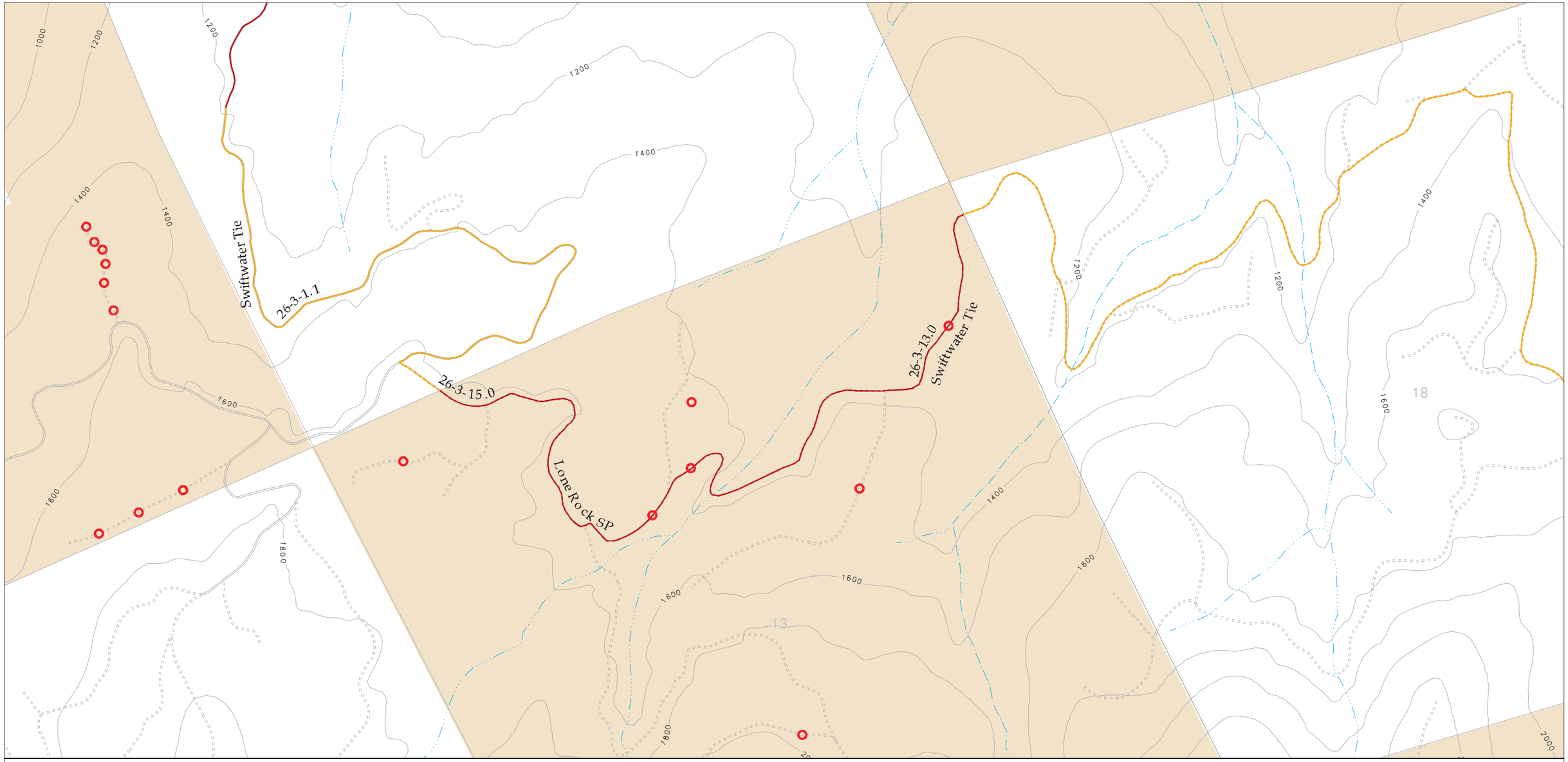

Legend

- Noxious Weeds
- Wetlands
- PacifiCorp Maintained Hydro Roads
- PacifiCorp Maintained T-line Roads
- PacifiCorp Maintained Recreation Roads
- Jointly Maintained Hydro Roads
- Joint Access T-line Roads
- Private Roads
- Roads To Be Decommissioned
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- Gate
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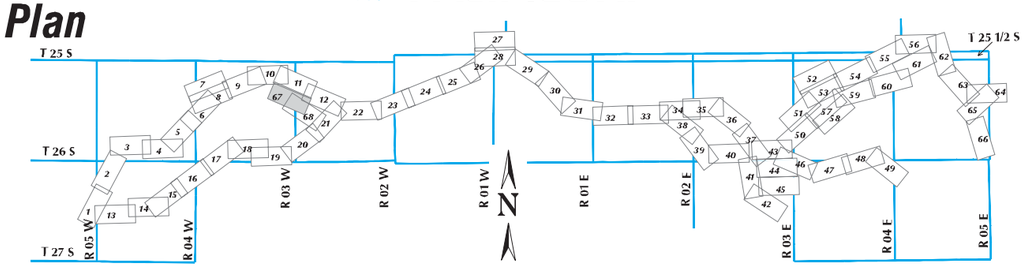
North Umpqua Hydroelectic Project
Vegetation Management Plan
Exhibit G
April 2004

0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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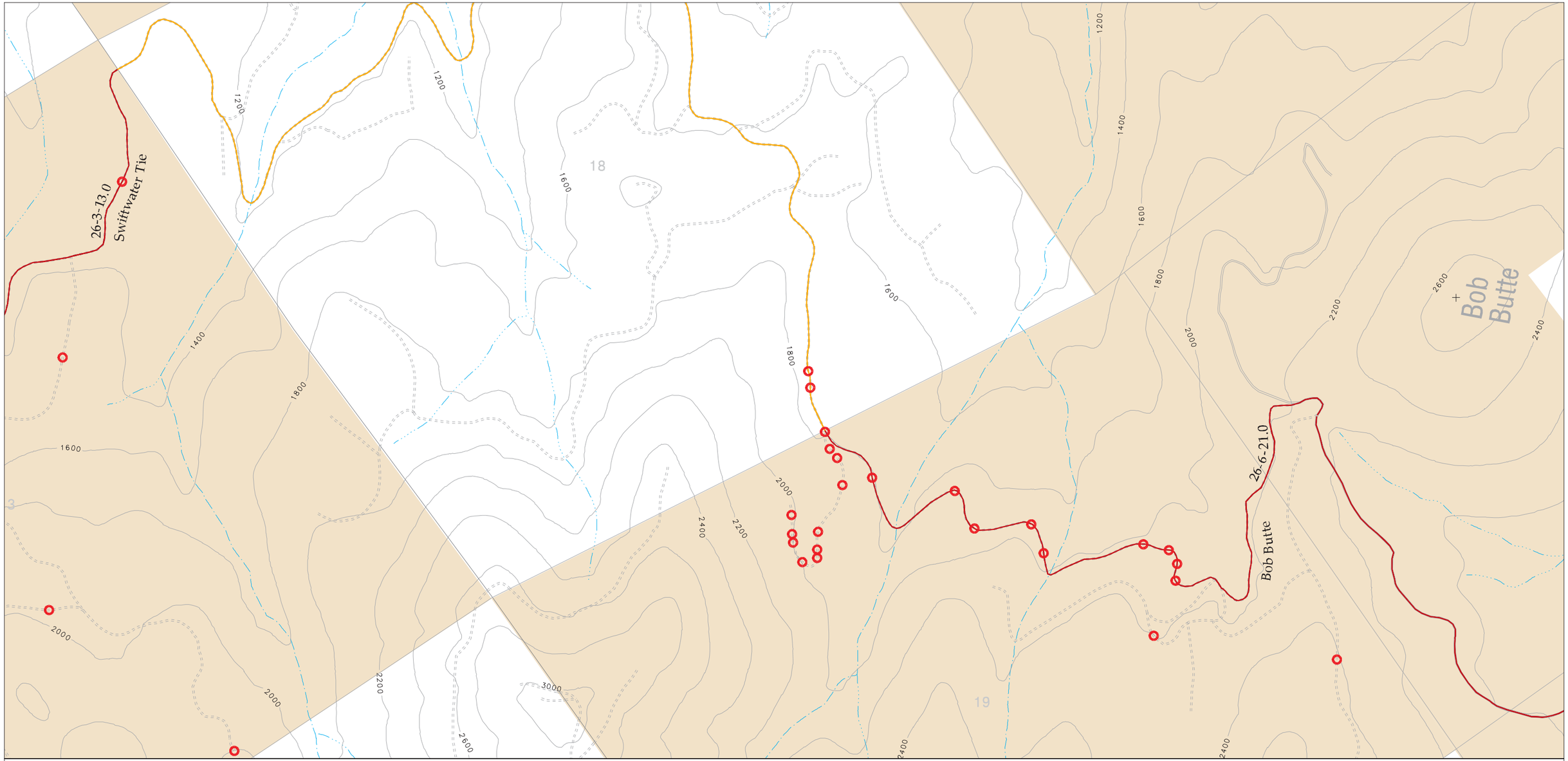
Sheet 67



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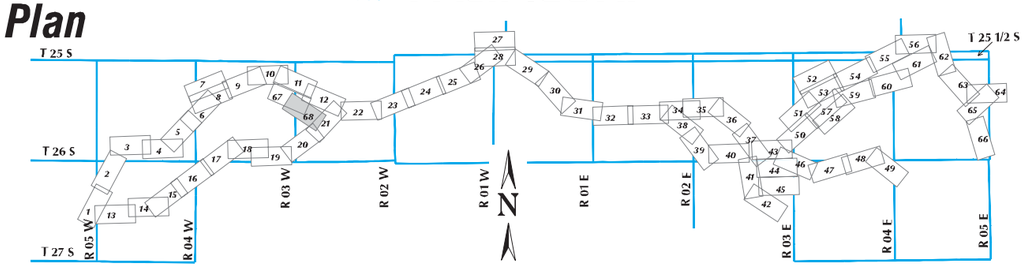
April 2004

0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



INDEX MAP

Sheet 68

Vegetation Management Plan (Detailed)

Species (Count, Cover)

Species

Species	Latin Name	Common Name
AGRE	Agropyron repens	Quackgrass
CAPY	Carduus pycnocephalus	Italian Thistle
*CEDET	Centaurea debeauxii	Meadow Knapweed
CEMA	Centaurea maculosa	Spotted Knapweed
*CEPR	Centaurea x pratense	Meadow Knapweed
CIAR	Cirsium arvense	Canada Thistle
CIVU	Cisium vulgare	Bull Thistle
CYSC	Cytisus scoparius	Scotch Broom
GEMO2	Genista monspessulana	French Broom
HEHE	Hedera helix	English Ivy
HYPE	Hypericum perforatum	St. Johnswort/Klamath Weed
POSA	Polygonum sachalinense	Giant Knotweed
PORE	Potentilla recta	Sulfur Cinquefoil
ROPS	Robinia pseudoacacia	Black Locust
RUDI	Rubus discolor	Himalayan Blackberry
SEJA	Senecio jacobaea	Tansy Ragwort
SIMA3	Silybum marianum	Milk Thistle
SPJU2	Spartium junceum	Spanish Broom
TACA	Taeniatherum caput-medusae	Medusahead
* populations of CEDET are synonomous with CEPR		

Count

Label	Count
1	<10
2	10-100
3	100-1000
4	>1000

Cover

Label	Cover %
T	<1
L	1-5
M	5.1-25
H	25.1-100

(The "- number" following some species names represents the unique population as sampled.

PACIFICORP

April 2004

TL39_01/14
TL39_02/14
TL39_03/14
TL39_04/14
TL39_06/14
TL39_02/15
TL39_03/15
TL39_04/15
T.L. # 39
1/14
2/14
3/14
4/14
5/14
6/14
1/15
2/15
3/15
4/15
1/16
MP 19
MP 20
SR 138
North Umpqua River
Old Hatchery Creek
Kennaday Lane
9
10
RUDI2(2,L)
CYSC4(2,M)
RUDI2(2,M)
SIMA3(2,T)
SPIU2(1,T)
CYSC4(2,H)
CIAR4(2,L)
CEDET(3,M)
1000
1200
1400
1600
800

Legend

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0 1000 2000 Feet

Scale 1:9,000

PACIFICORP

T 25 S
T 26 S
T 27 S
T 25 1/2 S
R 05 W
R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
R 04 E
R 05 E

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TL39_04/17
TL39_02/17
TL39_07/16
TL39_04/16
TL39_03/16
TL39_03/15
TL39_04/15
T.L.# 39
Klahanie Lane
Rock Creek Road
SR 138
MP 22
MP 21
Rock Creek
Tioga Lane
Skyview Drive
Kennaday Lane
Old Hatchery Creek
Idleyld Park
Umpqua
North
The Narrows
Swiftwater Tie
Swiftwater County Park
River
26-3-1.1
CYSC4(2,H)
RUDI2(2,M)
CYSC4(2,H)
RUDI2(2,L)
CYSC4(2,L)
CYSC4(2,H)
CEDET(2,L)
1/16
2/16
3/16
4/15
3/15
1/17
2/17
3/17
4/17
5/17
6/17
7/16
4/16
5/16
6/16

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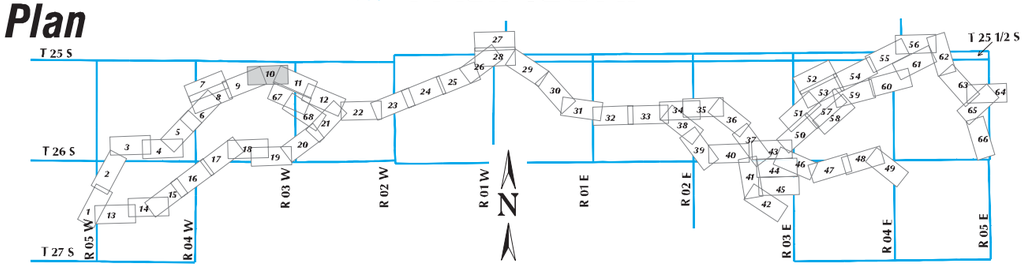
N

0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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Sheet 10

TL39_04/17
Rock Creek Road
MP 22
Rock Creek
Tioga Lane
SR 138
Umpqua
Swiftwater County Park
River
26-3-1.1
Swiftwater Tie
North
The Narrows
TL39_04/18
TL39_07/18
MP23
TL39_04/18
26-2-7.0
T.L.# 39
Hill Creek
TL39_03/19
TL39_04/19
TL39_05/19
MP 24
TL39_03/19
26-2-7.2
SR 138
Richard G Baker Memorial County Park
HEHE(1,T)
RUDI2(2,M)
CYSC4(2,H)
RUDI2(2,L)
CYSC4(2,L)
CEDET(2,L)
CYSC4(3,L)
RUDI2(3,L)
RUDI2(3,H)
CYSC4(2,L)
RUDI2(3,L)
CYSC4(3,L)
RUDI2(4,L)
CIAR4(3,L)
CIAR4(2,L)
RUDI2(2,M)
CYSC4(3,L)
CIAR4(3,M)

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0 1000 2000 Feet

Scale 1:9,000

PACIFICORP

T 25 S
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T 27 S
T 25 1/2 S
R 05 W
R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
R 04 E
R 05 E

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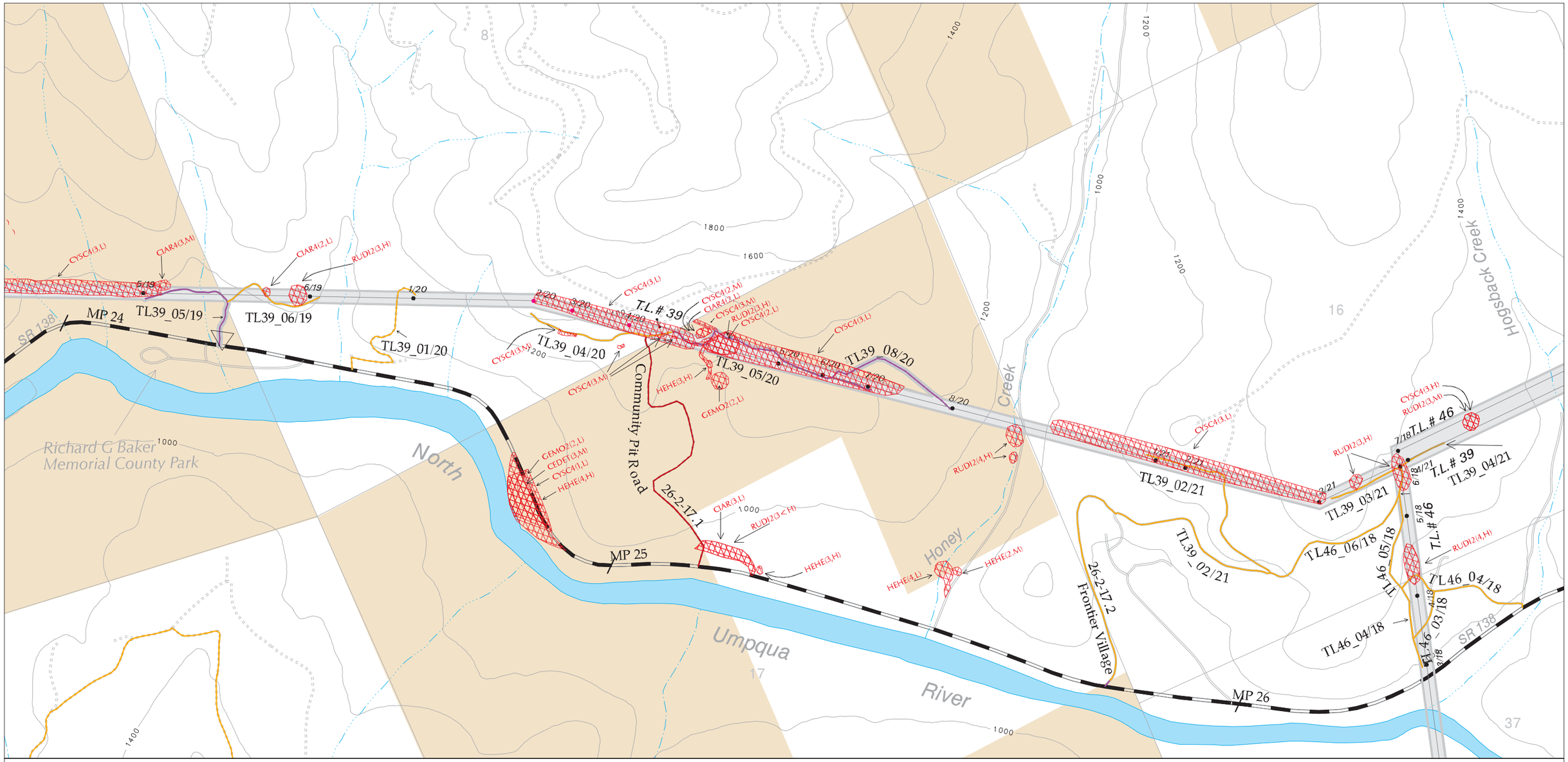

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0 1000 2000 Feet

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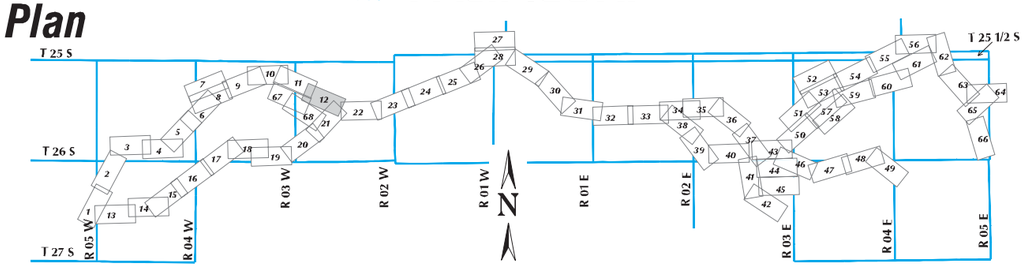

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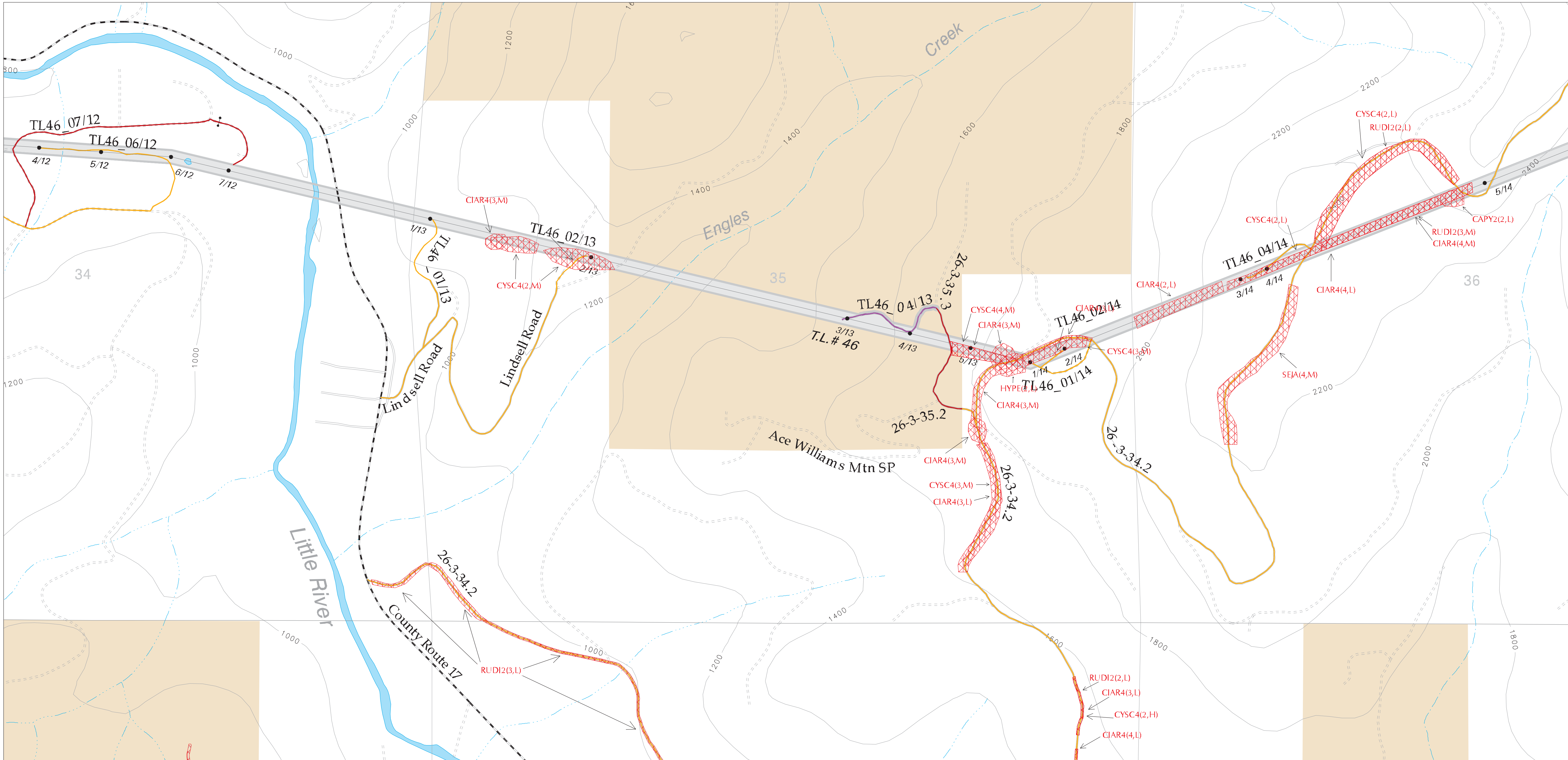

Legend

Noxious Weeds	Accessible Pole
Wetlands	Inaccessible Pole
PacifiCorp Maintained Hydro Roads	Traffic Counter
PacifiCorp Maintained T-line Roads	Culvert
PacifiCorp Maintained Recreation Roads	Bridge
Jointly Maintained Hydro Roads	Proposed FERC Project Boundary
Joint Access T-line Roads	USDI-BLM
Private Roads	USDA-FS
Roads To Be Decommissioned	USDA-FS (Wilderness)
Susan Creek Trail	Private Ownership
Gate	
Barrier	
Signed Closure	

North Umpqua Hydroelectic Project
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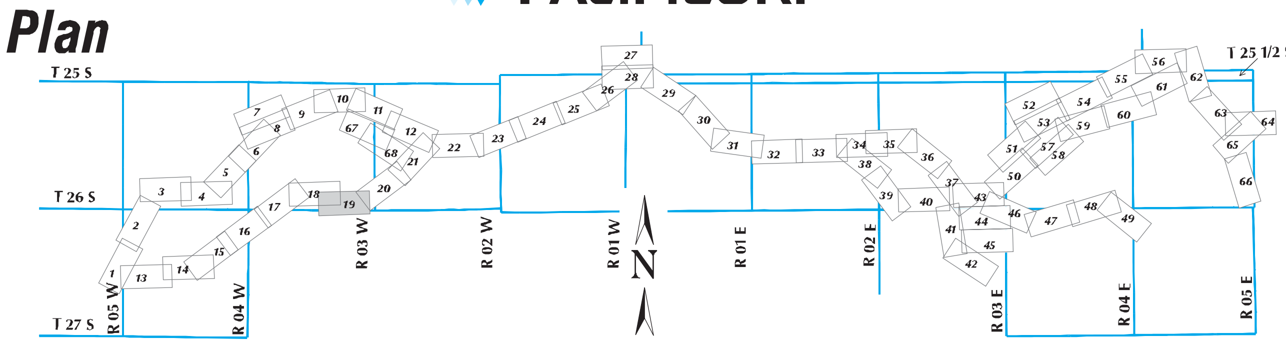
N

0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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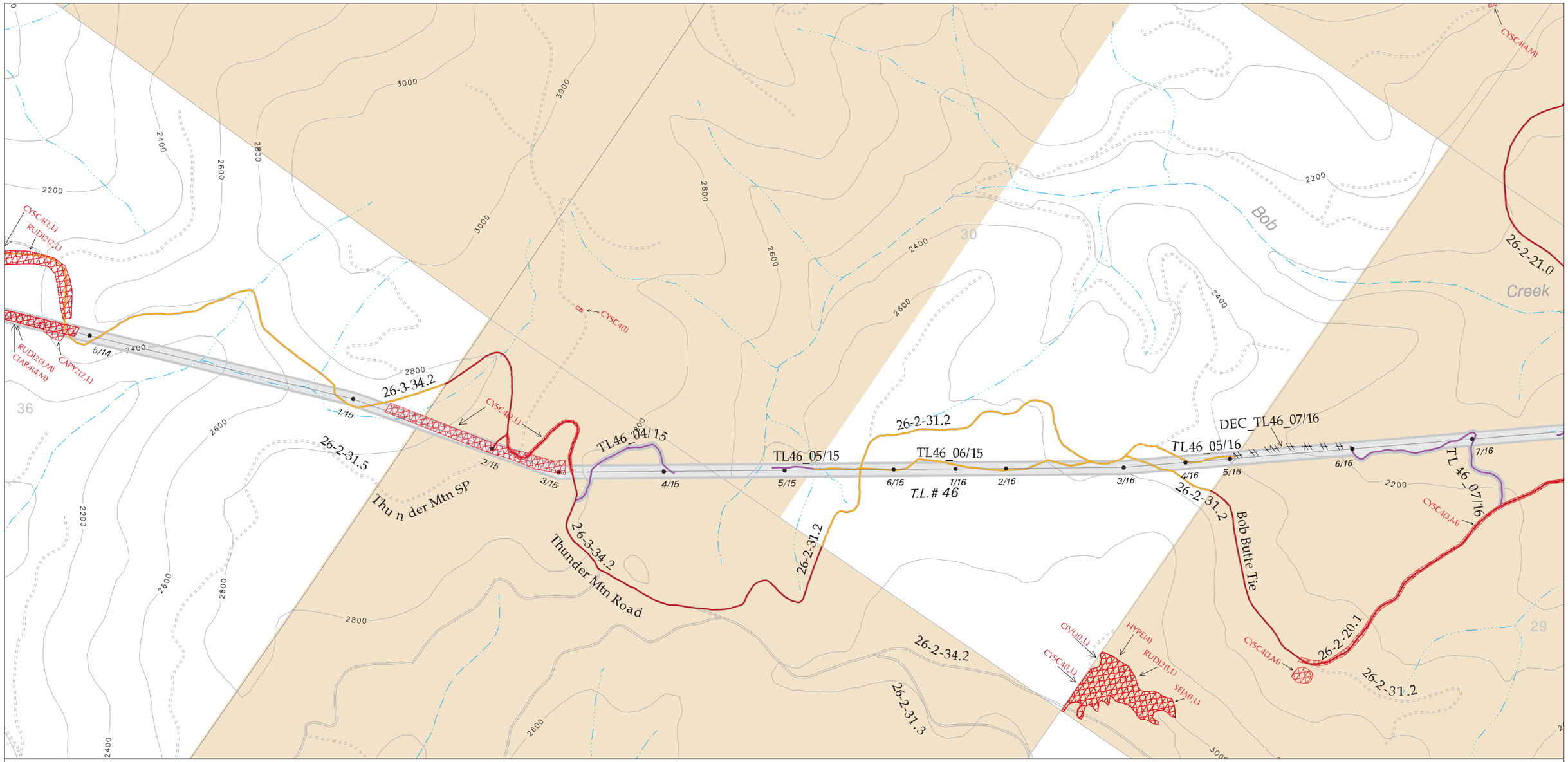

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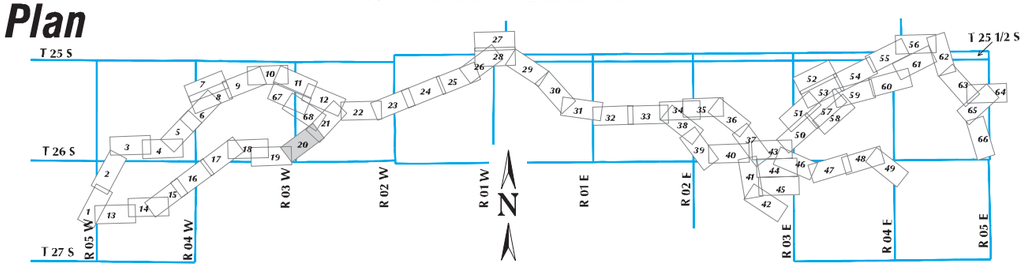
Scale 1:9,000

PACIFICORP



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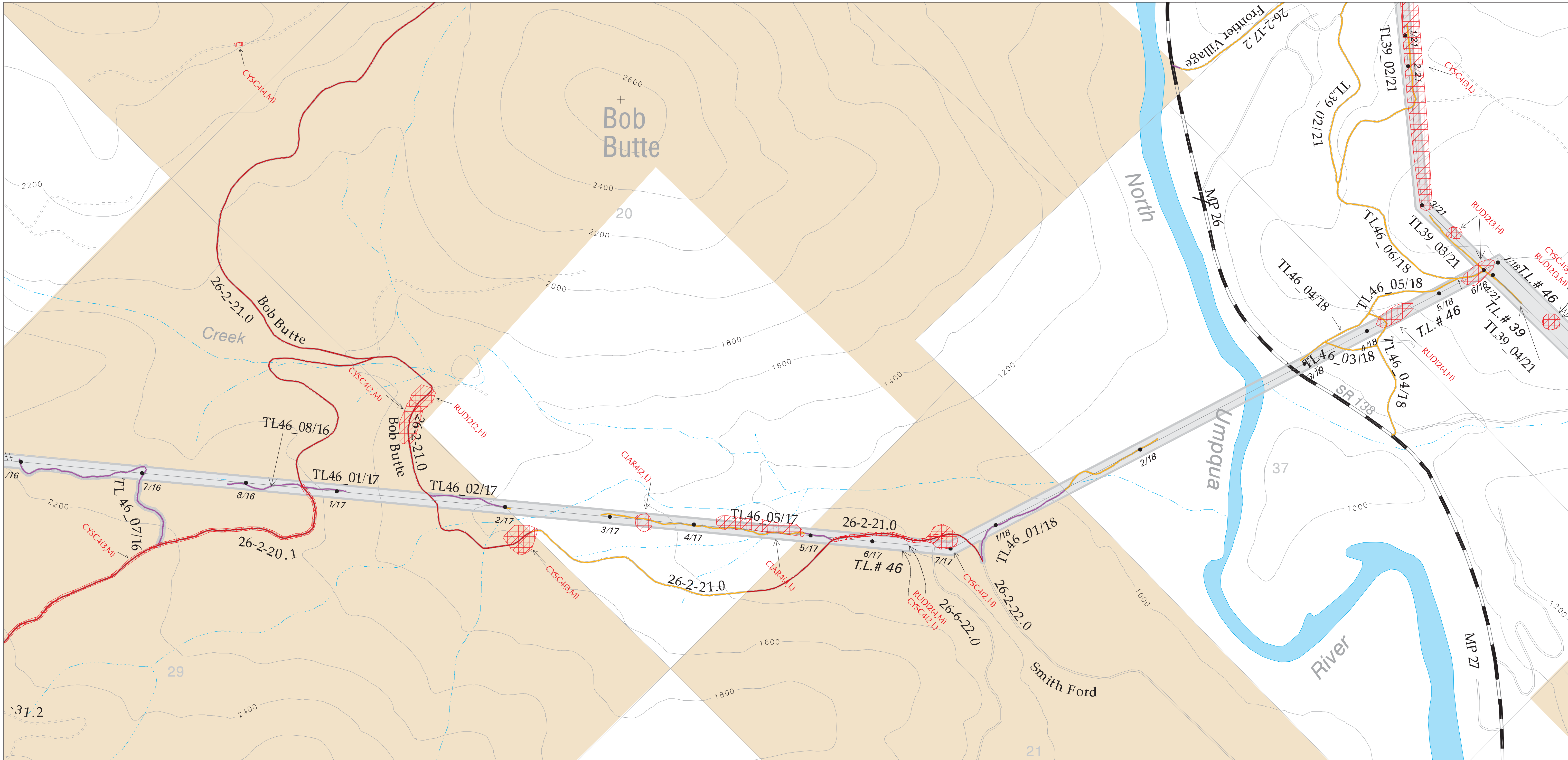

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Legend

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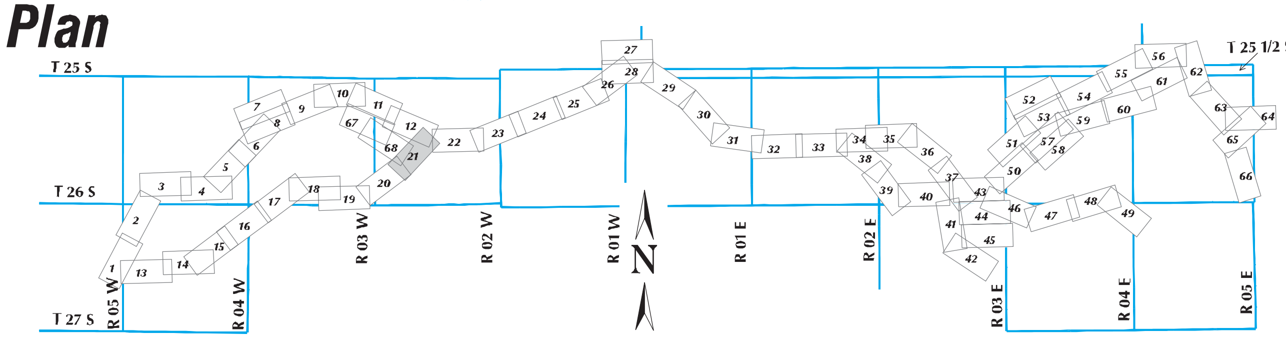

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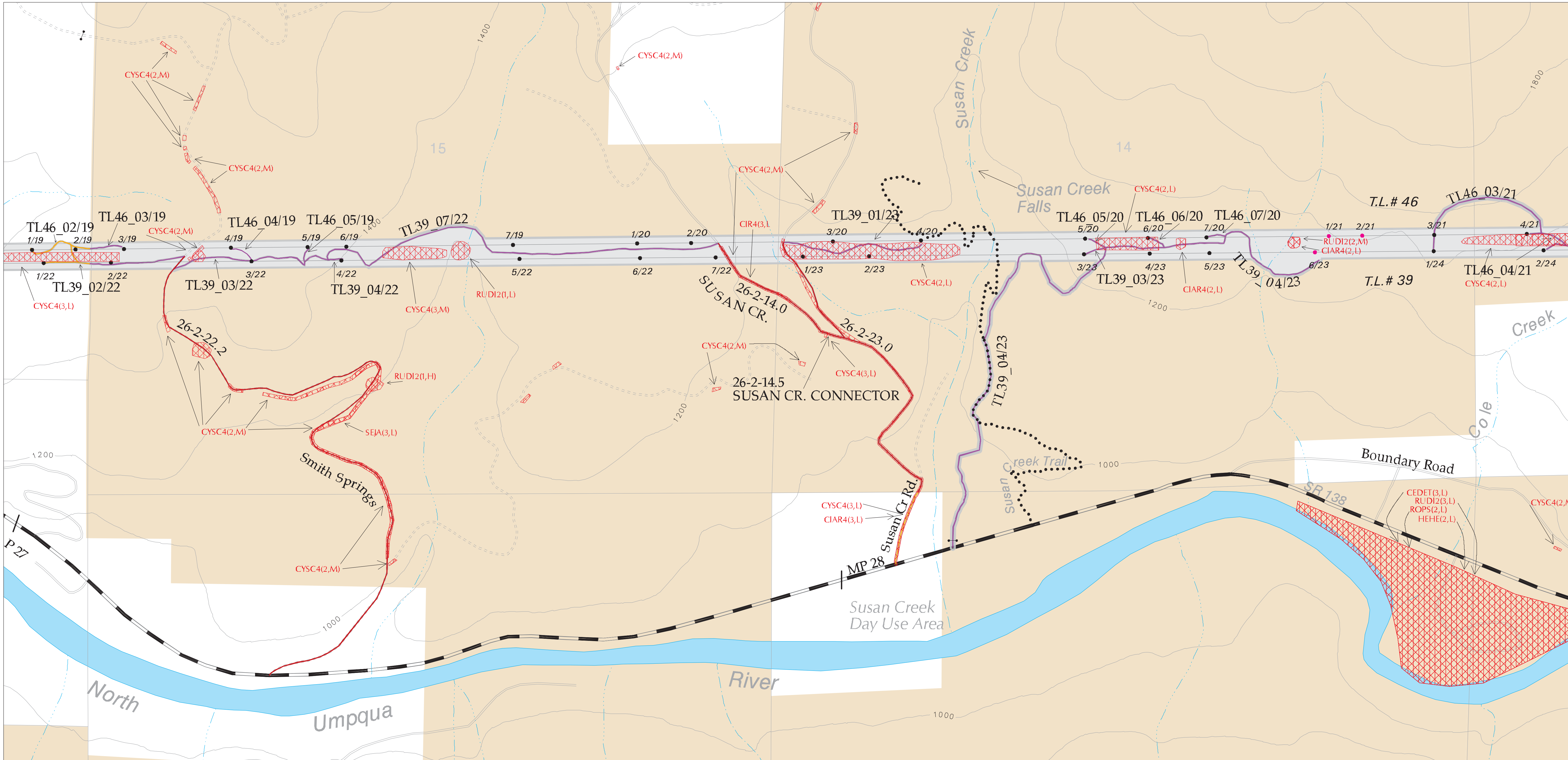

TL46_02/19
TL46_03/19
TL46_04/19
TL46_05/19
TL39_07/22
TL39_02/22
TL39_03/22
TL39_04/22
TL39_01/23
TL46_05/20
TL46_06/20
TL46_07/20
TL39_03/23
TL39_04/23
TL46_03/21
TL46_04/21
T.L.# 46
T.L.# 39
Susan Creek
Susan Creek Falls
SUSAN CR.
26-2-14.0
26-2-23.0
26-2-22.2
26-2-14.5
SUSAN CR. CONNECTOR
Smith Springs
Susan Cr Rd.
MP 28
Susan Creek Day Use Area
Boundary Road
SR 138
Cole Creek
North Umpqua River
15
14
CYSC4(2,M)
CYSC4(3,L)
CYSC4(2,L)
CYSC4(3,M)
CIAR4(3,L)
CIAR4(2,L)
RUDI2(1,L)
RUDI2(1,H)
RUDI2(2,M)
SEJA(3,L)
CEDET(3,L)
RUDI2(3,L)
ROPS(2,L)
HEHE(2,L)

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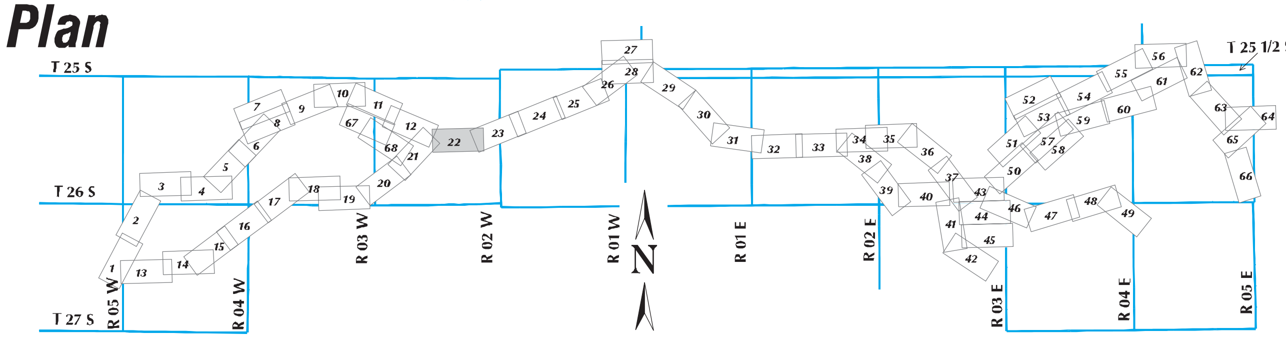
N

0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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PACIFICORP

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- Bridge
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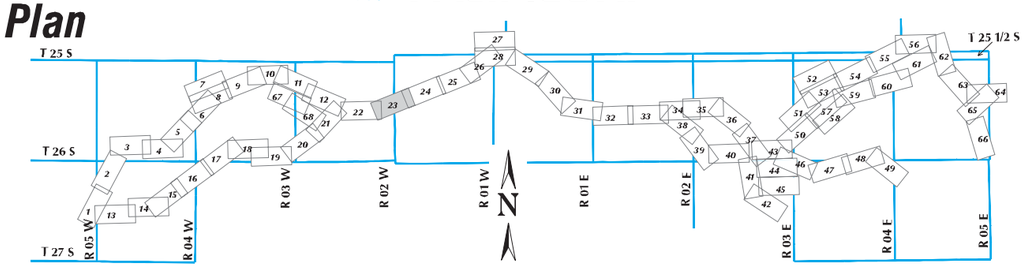
- USDA-FS
- USDA-FS (Wilderness)
- Private Ownership

0 1000 2000 Feet

Scale 1:9,000



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Sheet 23

Burnt Creek
Boundary Road
TL46_06/23
TL46_05/23
TL46_04/23
TL46_01/23
TL39_07/25
TL39_01/26
TL39_06/26
TL39_02/27
TL46_03/24
TL46_01/25
T.L.# 46
T.L.# 39
U-61
U-60
4710445
Moore Hill Lane
MP 31
MP 32
MP 33
SR 138
North Umpqua River
Fall Creek Picnic Area
1000
1200
1400
1600
1800
2000
2400

Legend

- Noxious Weeds
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0 1000 2000 Feet

Scale 1:9,000

PACIFICORP

T 25 S
T 26 S
T 27 S
T 25 1/2 S
R 05 W
R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
R 04 E
R 05 E

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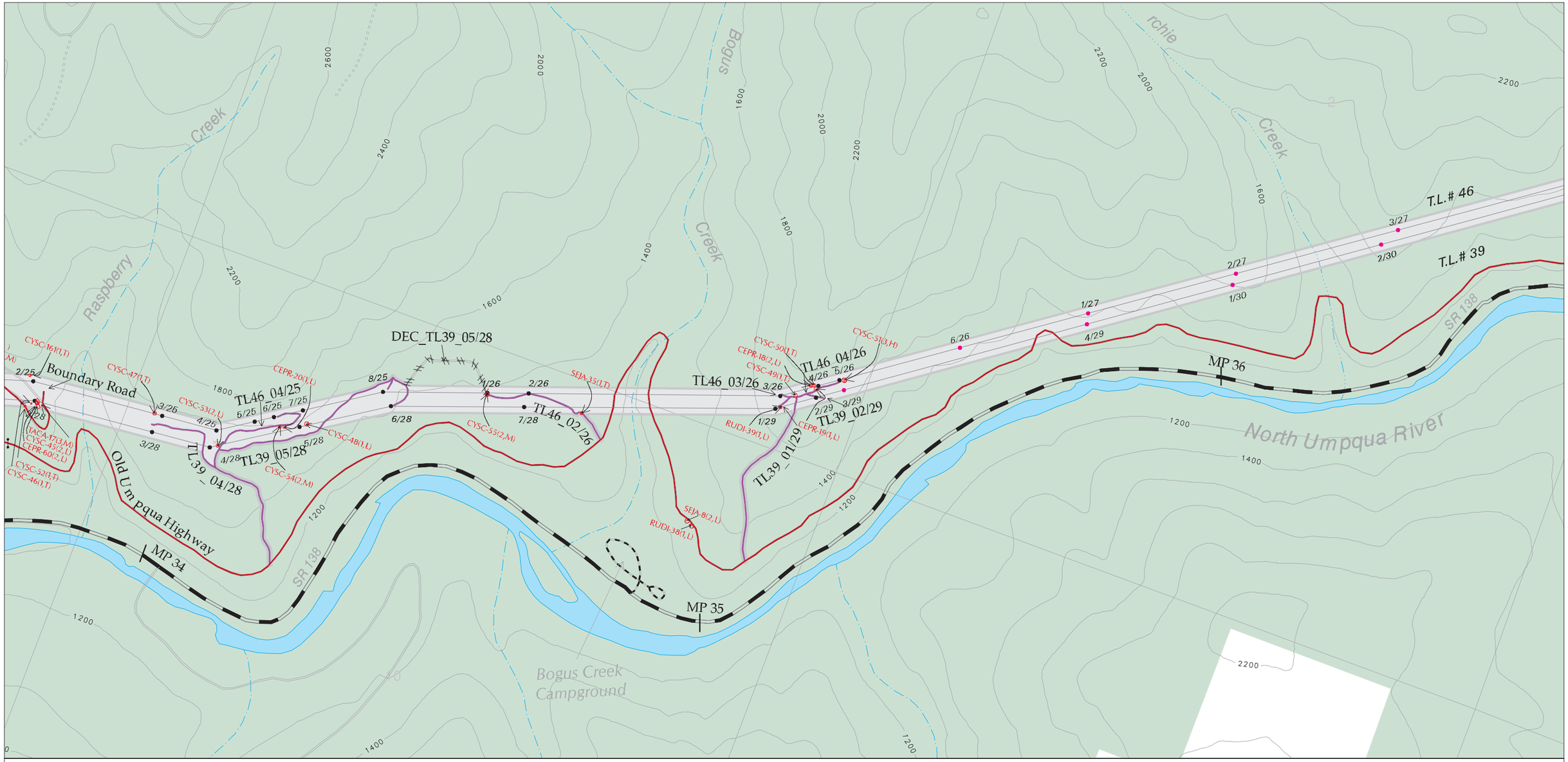
Sheet 24



Legend

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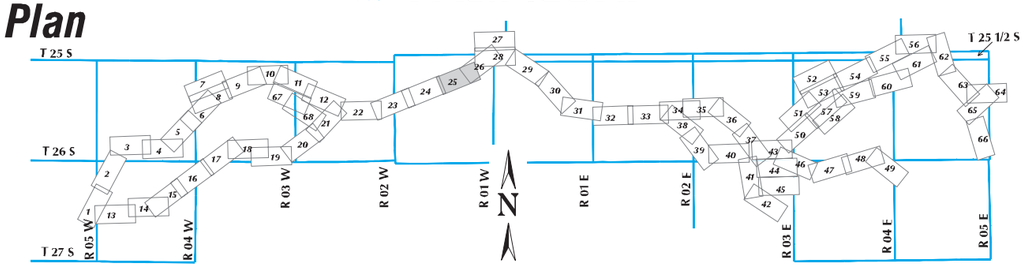
0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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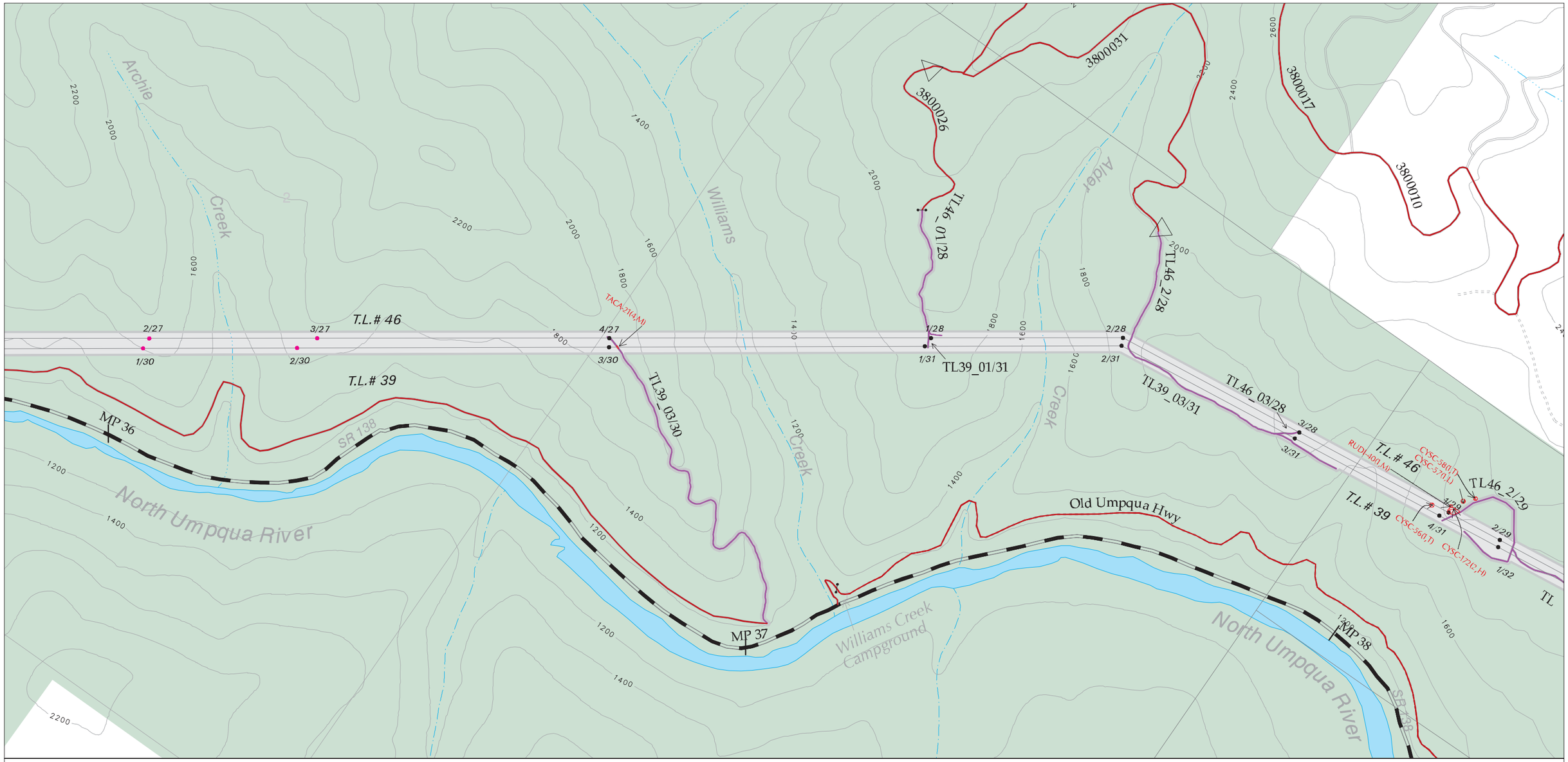

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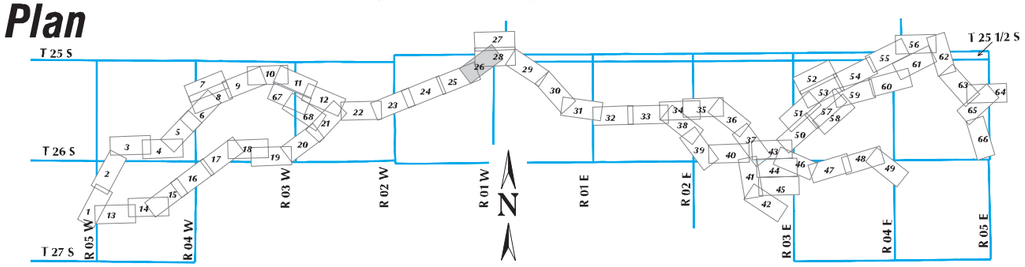
0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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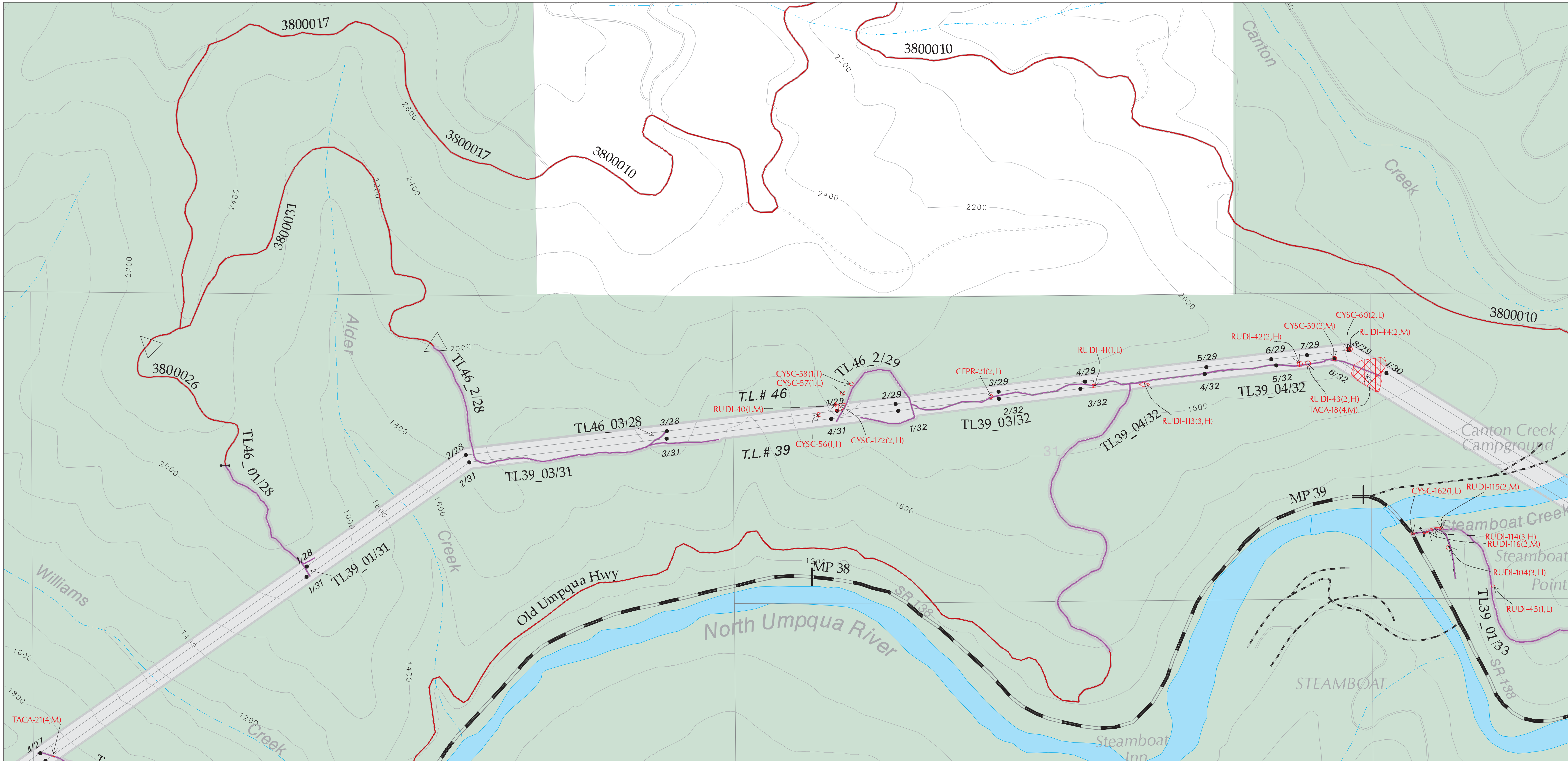

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3800010
3800031
3800026
TL46_01/28
TL46_2/28
TL46_03/28
TL46_2/29
TL39_01/31
TL39_03/31
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Williams
Canton
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STEAMBOAT
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RUDI-113(3,H)
RUDI-42(2,H)
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RUDI-43(2,H)
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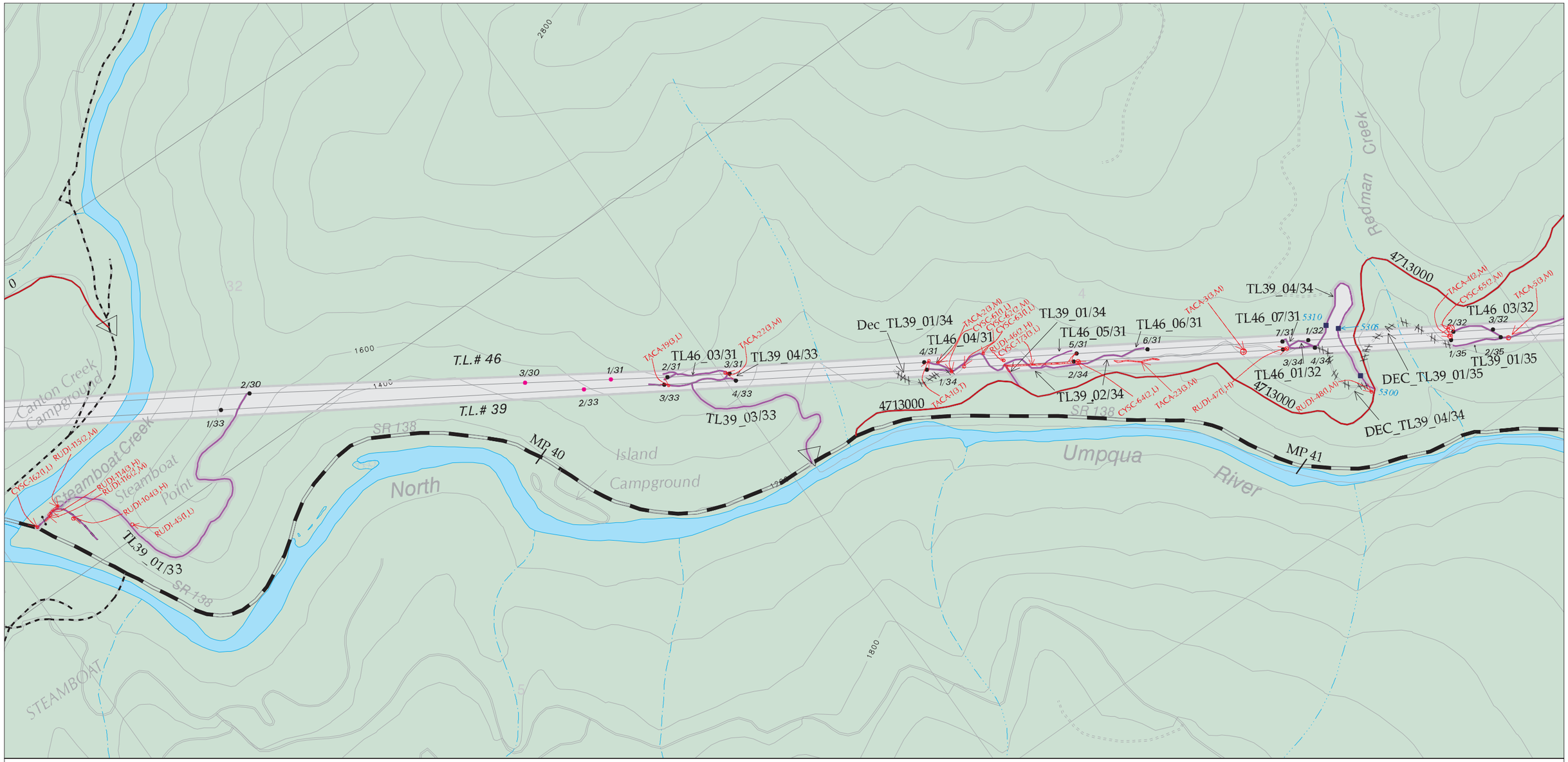

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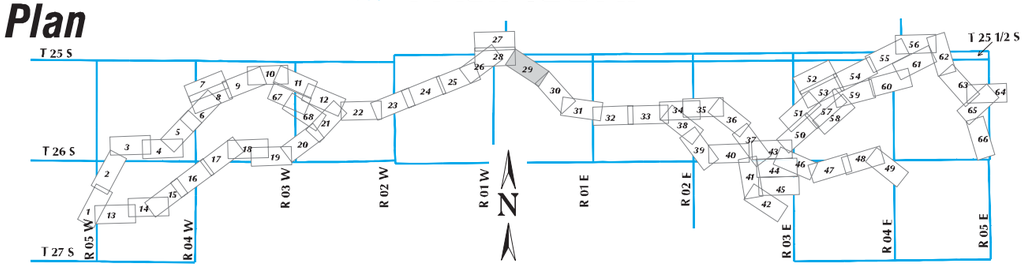

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TL39_03/37
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Apple Creek Campground
3000
2600
1600

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CYSC-69(1,T)
TL39_03/37
CYSC-163(1,T)
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RUDI-51(1,L)
TL39_03/37
CYSC-70(1,T)
MP 44
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2400
2200
1800
2000
1600
13
14
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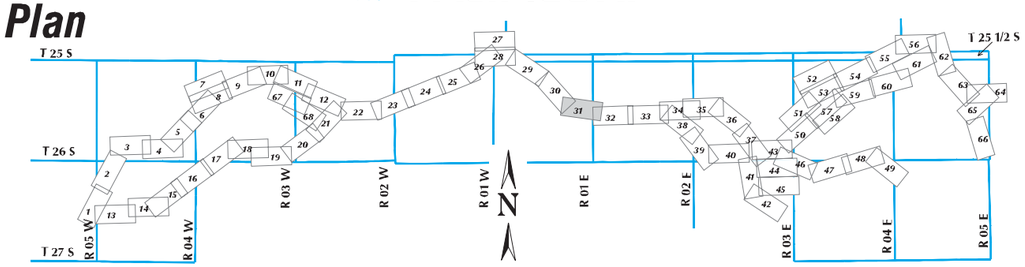

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T.L.# 39
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CIAR-12(2,H)
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CIAR-13(3,H)
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TL46_02/37
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TL39_03/40
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TL39_04/40
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TL39_02/40
TL39_05/40
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TL39_06/40
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T.L.# 39
TL39
CYSC-72(3,M)
Happy
Creek
Dry Creek
Store
Dry
Gulch
SR 138
MP 47
MP 46
Panther
Leap
North Umpqua River
Horseshoe
Bend
47600 00
2200
2000
1800
1600
1400
20
19

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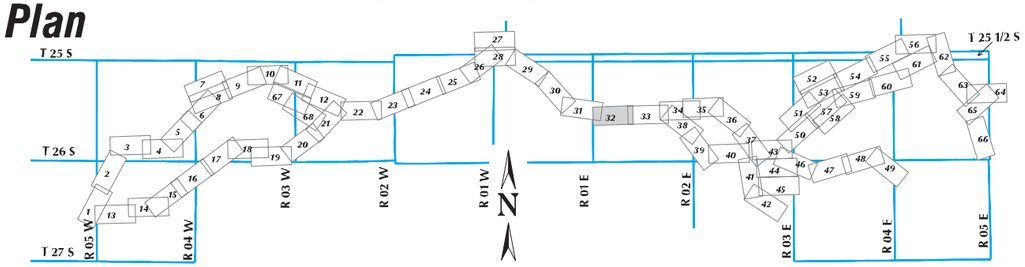

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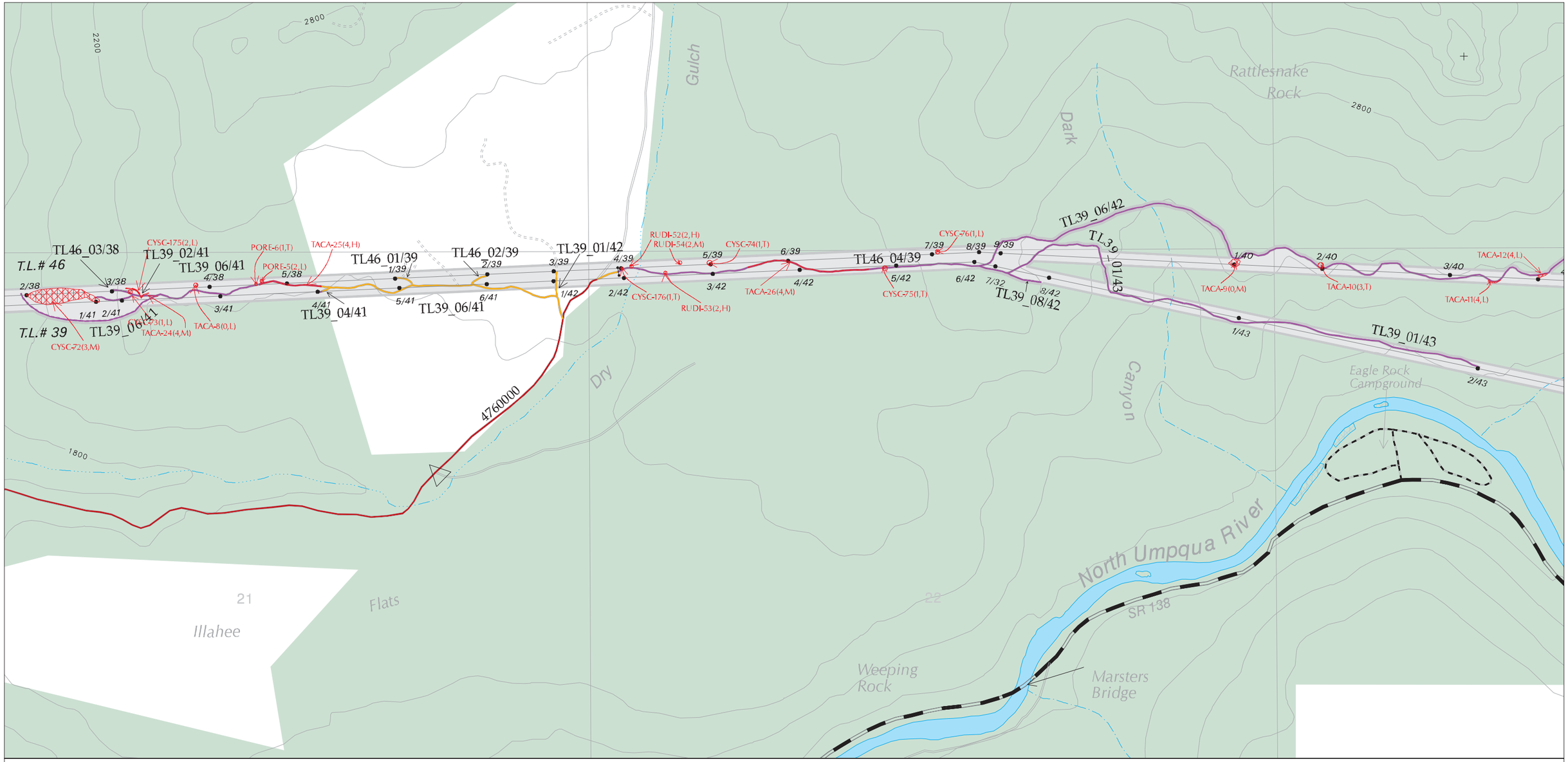

Legend

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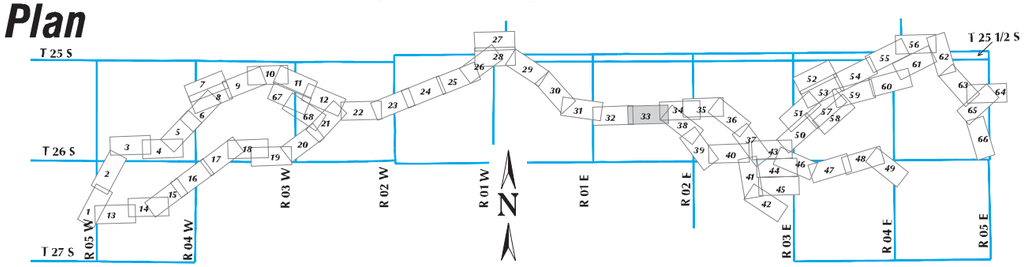

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TL46_06/41
TL46_03/41
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TL39_01/43
RUDI-55(1,H)
CYSC-77(1,M)
CYSC-78(1,T)
CEPR-24(1-L)
CEPR-25(1-L)
4775011
TACA-10(3,T)
TACA-11(4,L)
TACA-12(4,L)
MP 53
MP 52
SR 138
Boulder Creek Campground
Water Quality Station
Eagle Rock Campground
Old Man Rock
Eagle Rock
Eagle Creek
North Umpqua River
6545
6550
2000
2400
2800
3200
3600

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R 05 W
R 04 W
R 03 W
R 02 W
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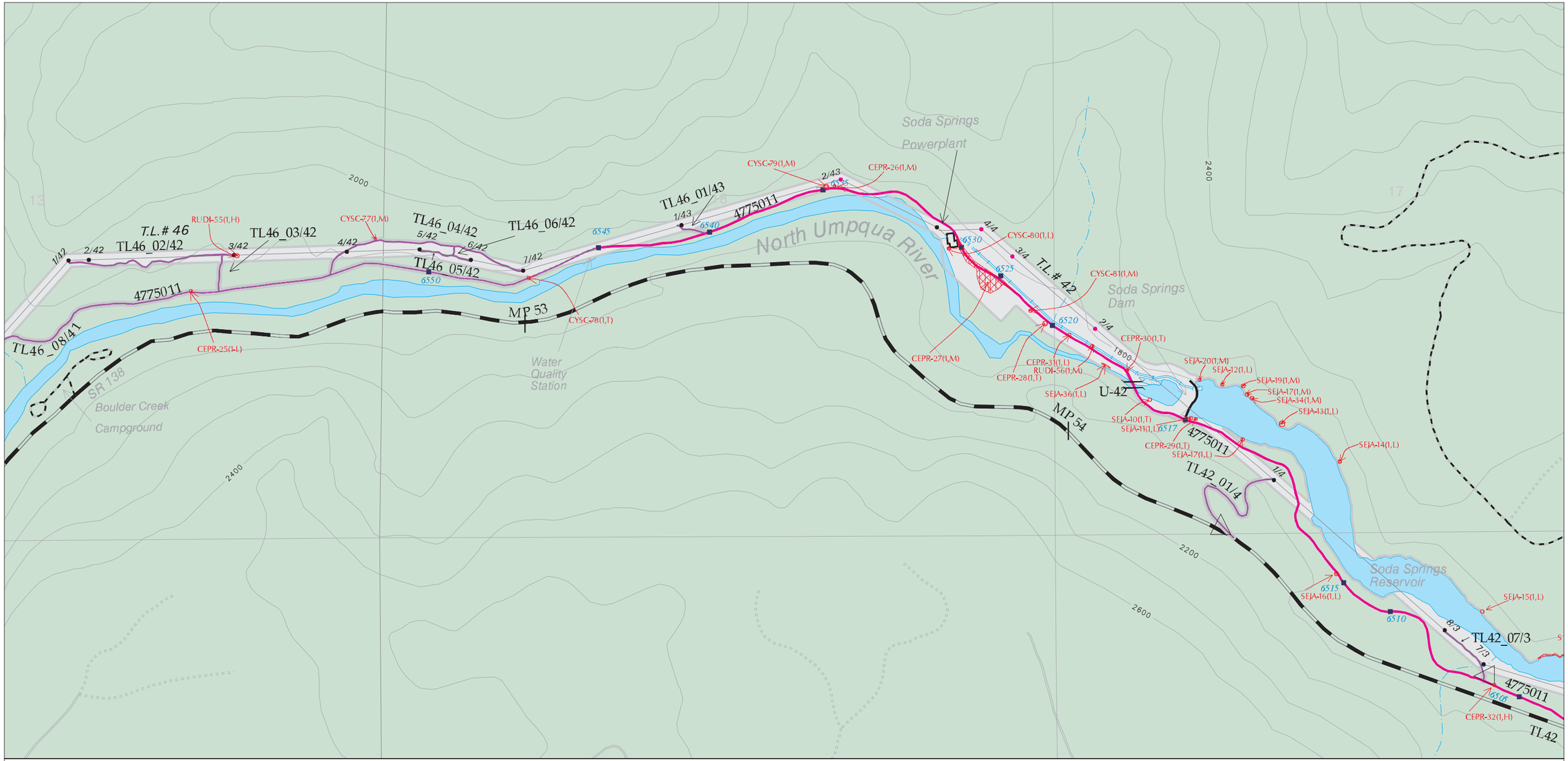

Legend

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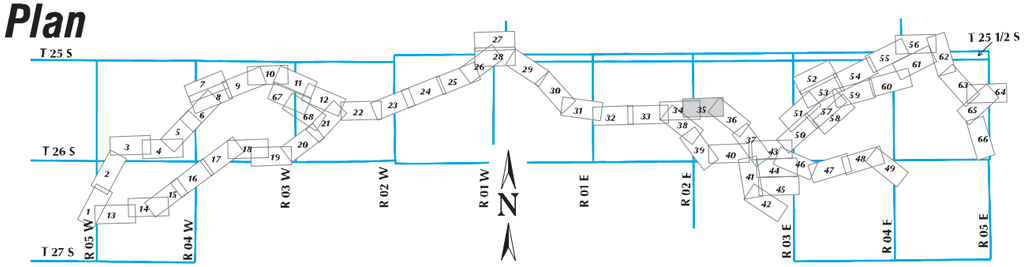

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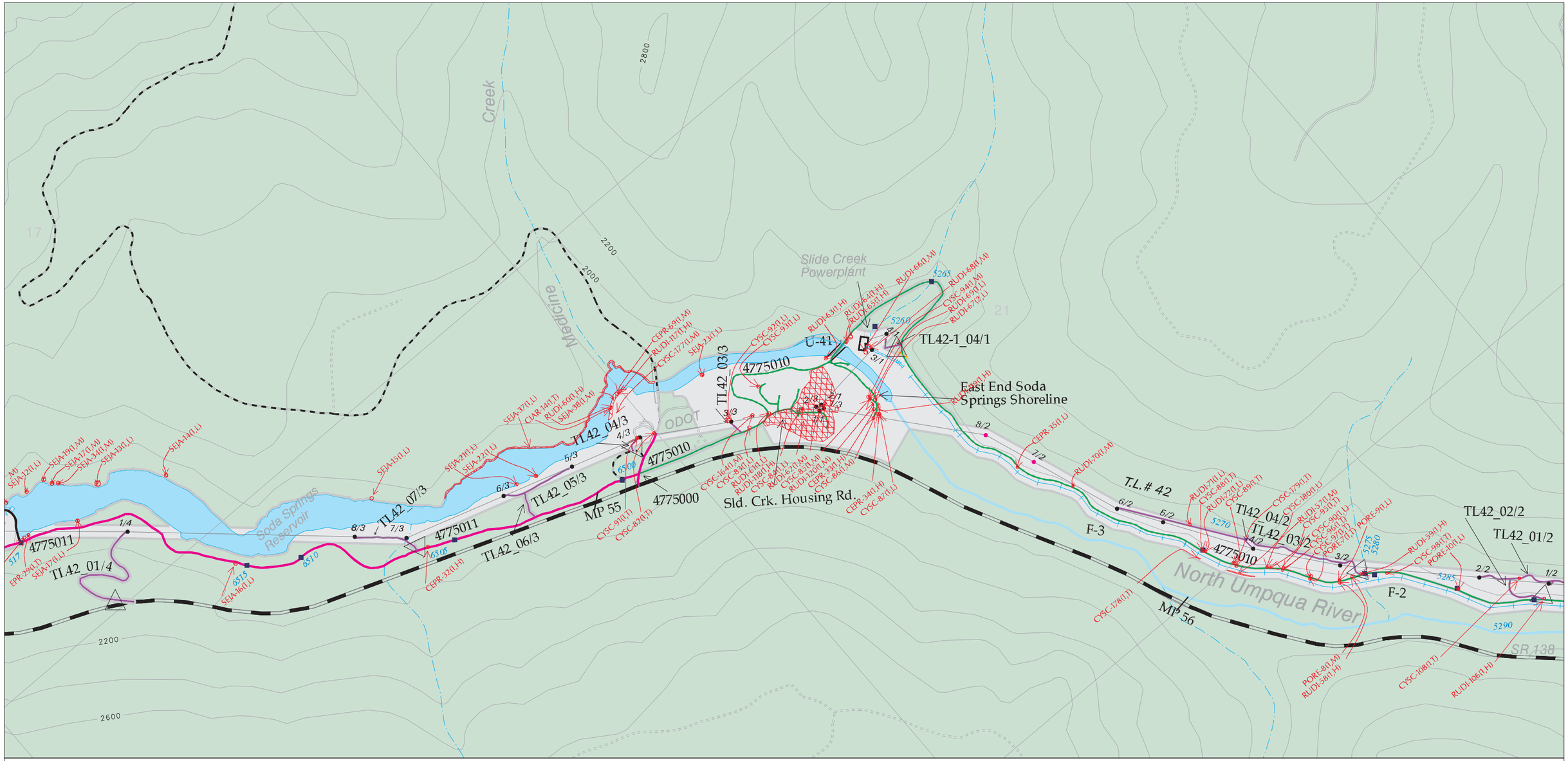

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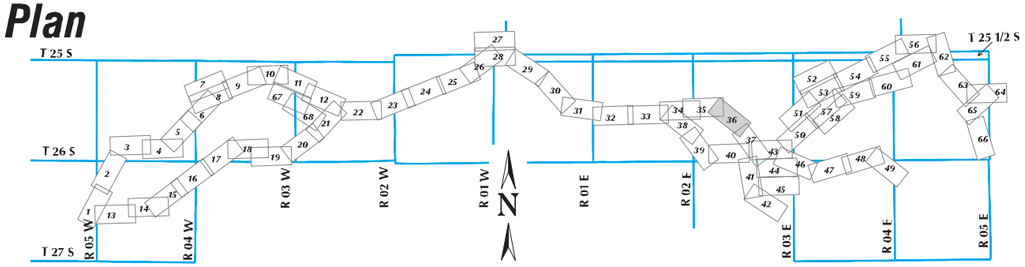

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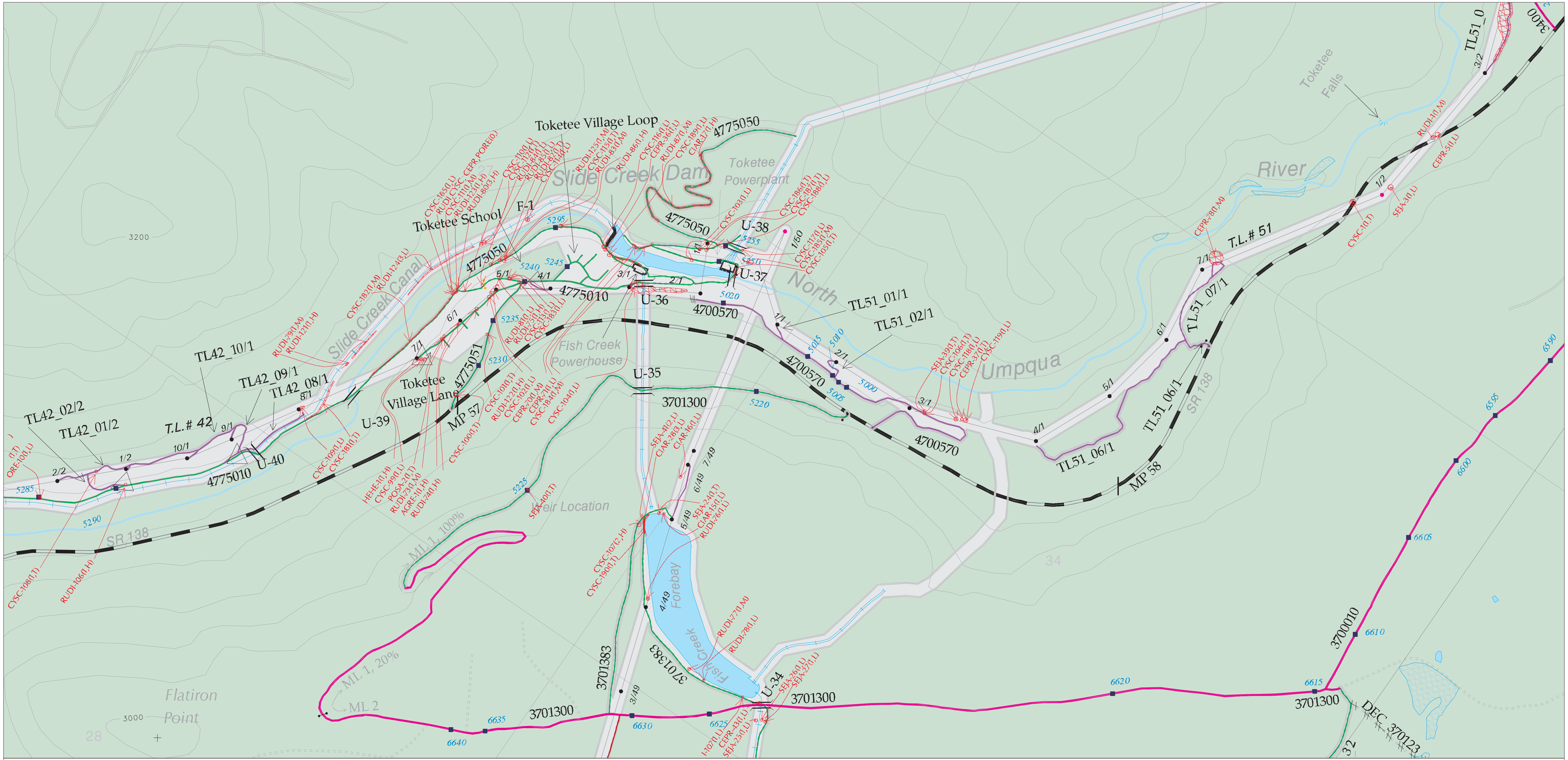

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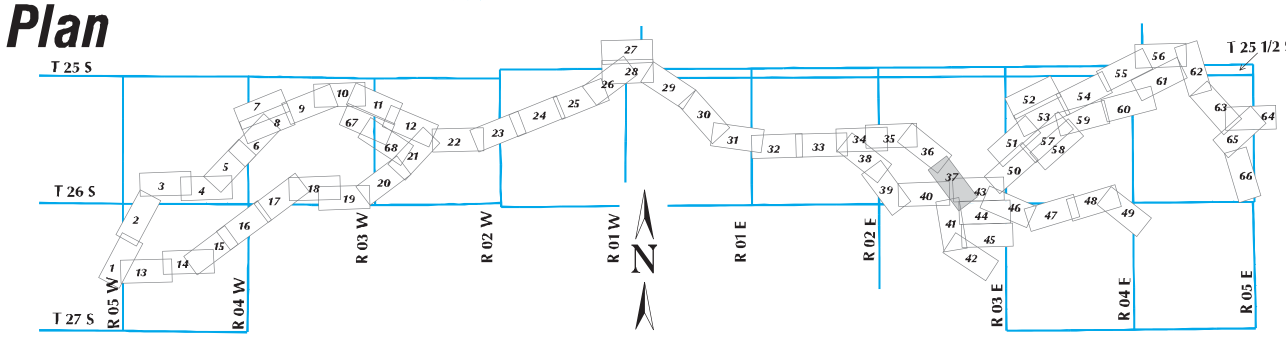

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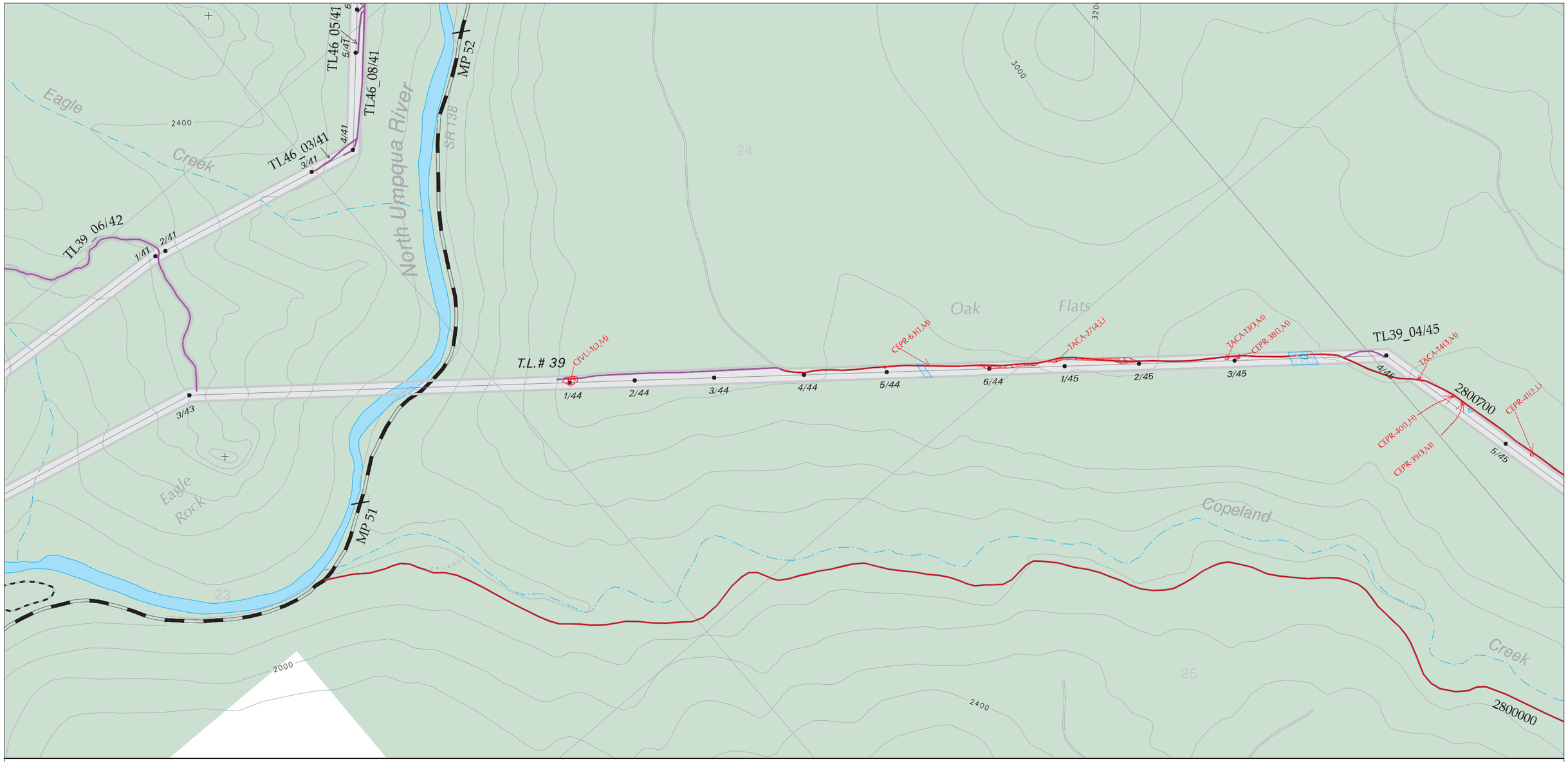

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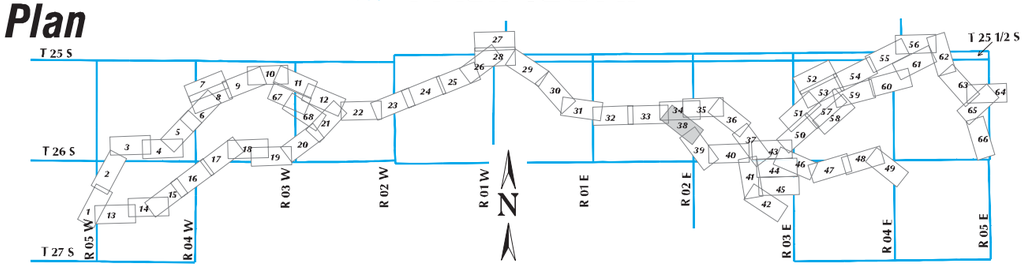

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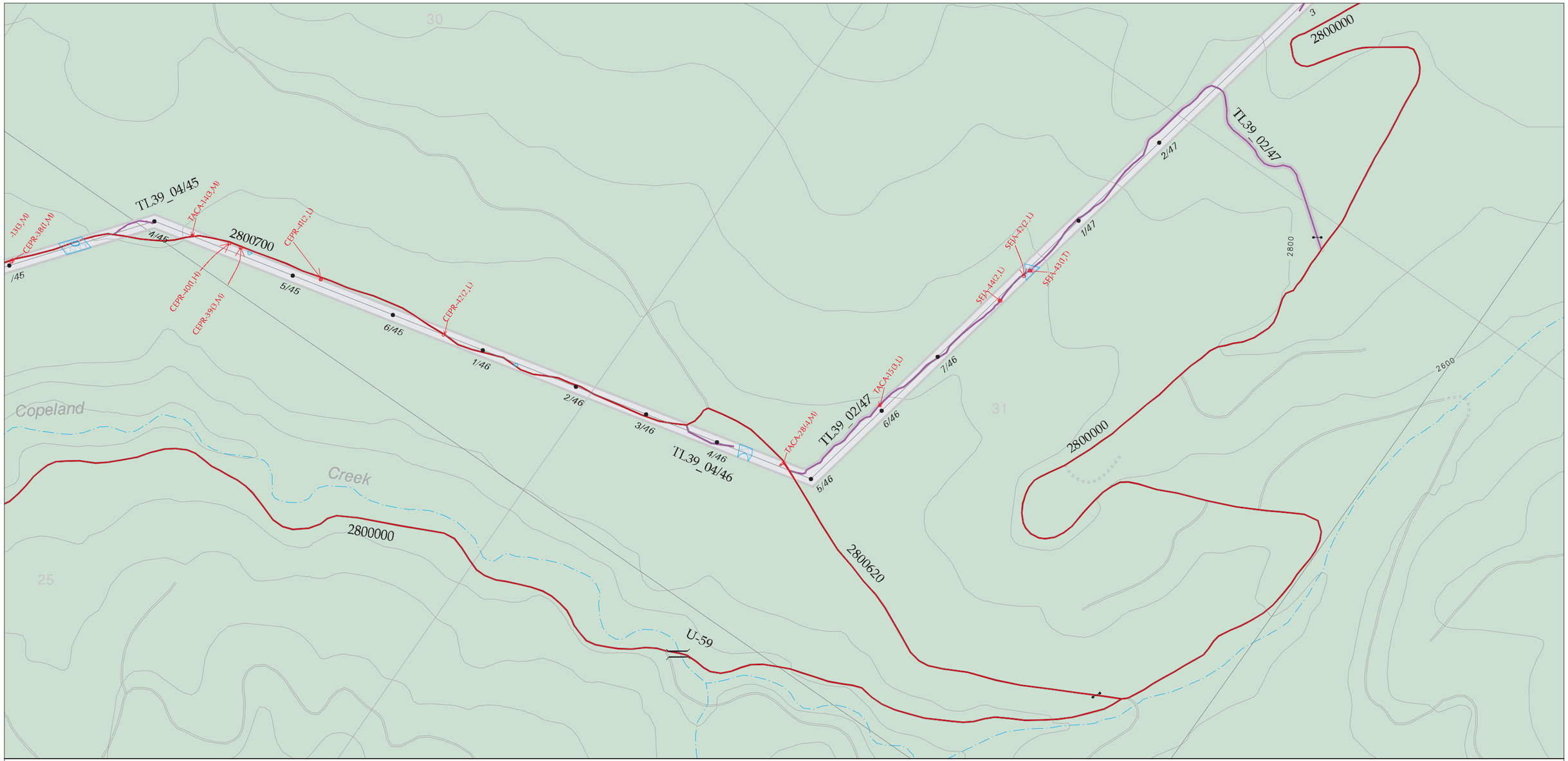

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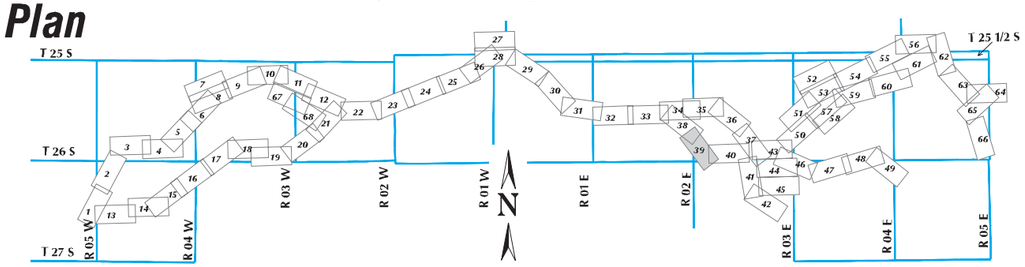

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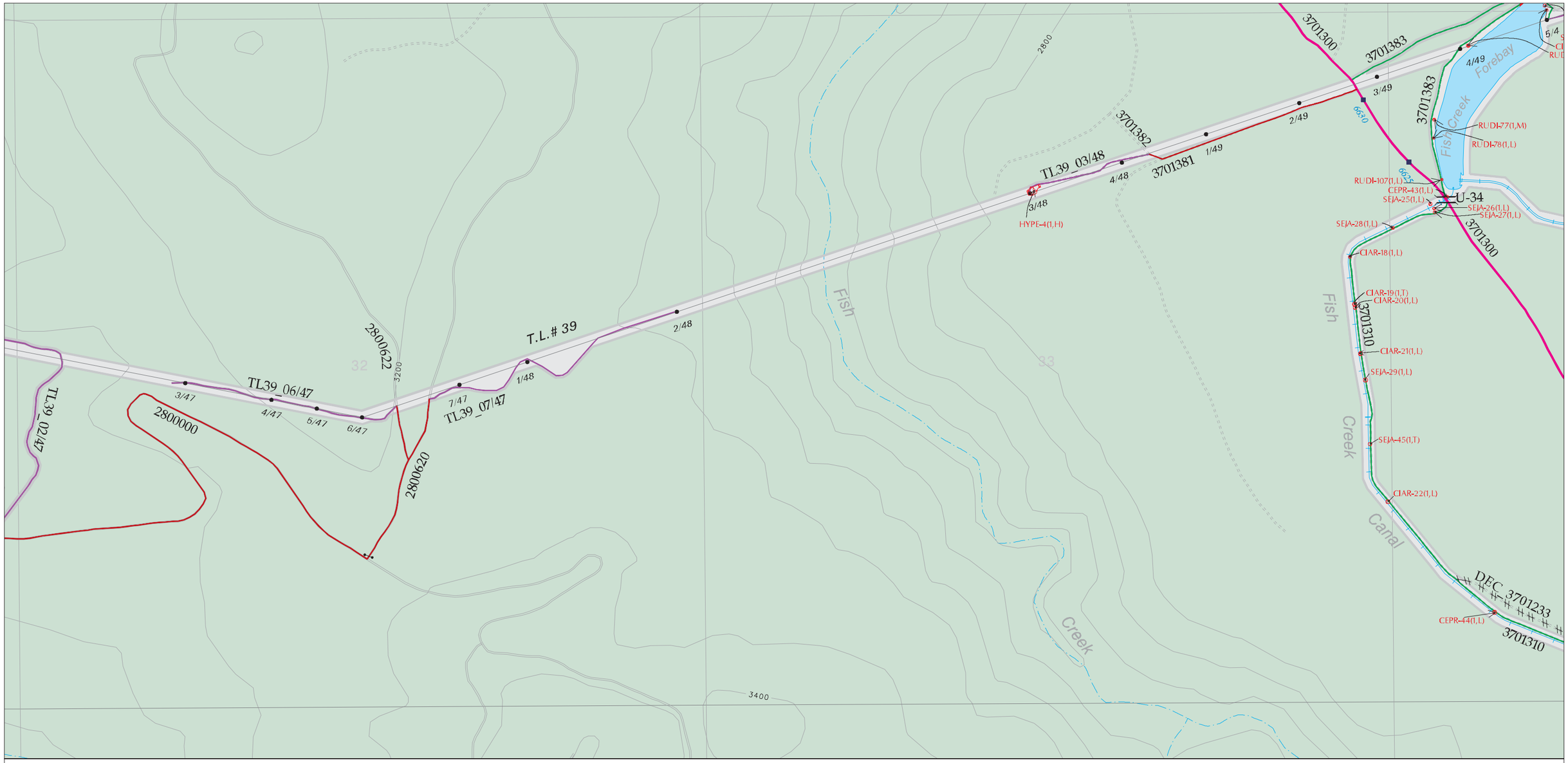

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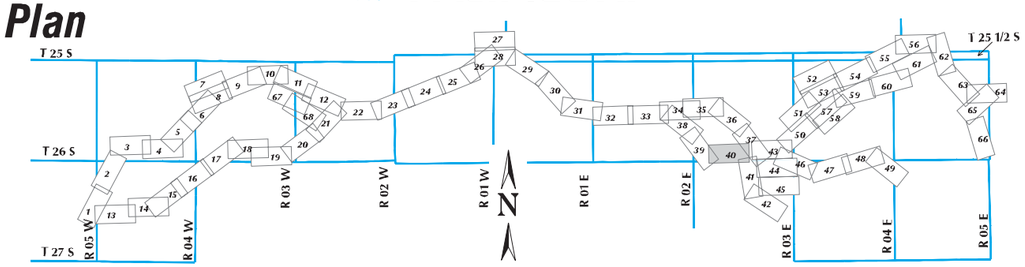

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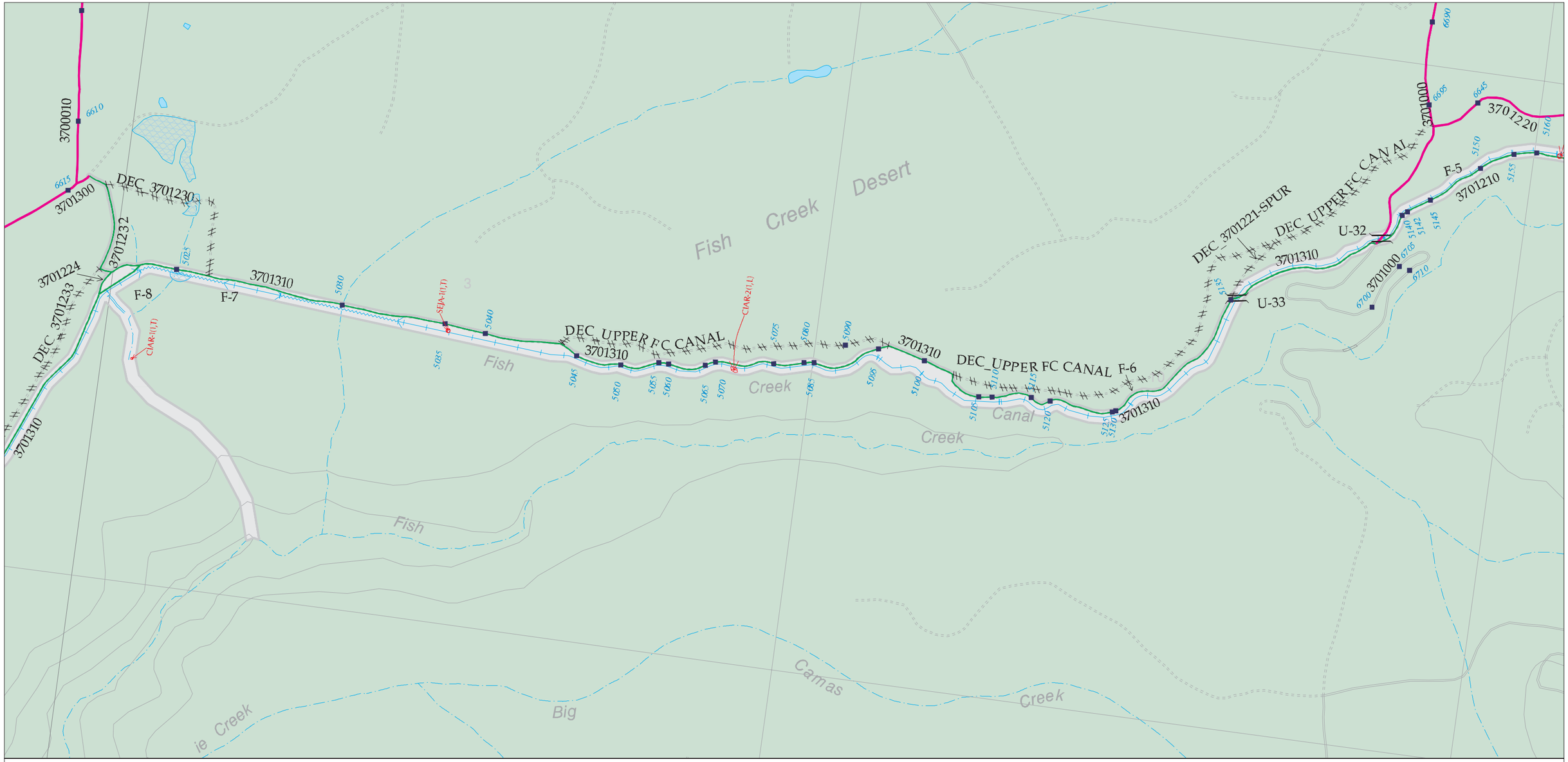

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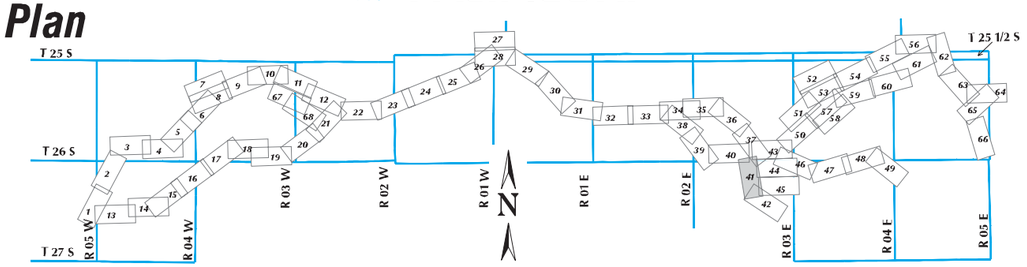

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Toketee Airstrip

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DEC UPPER FC CANAL

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3701220

SEJA-20,D

F-4

DEC_3701210-SPUR

Fish Creek

3701210

U-31

3701211

PORE-10,L

CYSC-20,D,L

3701220

F-1

U-30

CEPR-30,M,M

CEPR-40,D

CEPR-70,D

3701220

Fish Dam Road

Fish Creek Diversion Dam

Fish Creek

14

15

3600

Legend

- Noxious Weeds
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0 1000 2000 Feet

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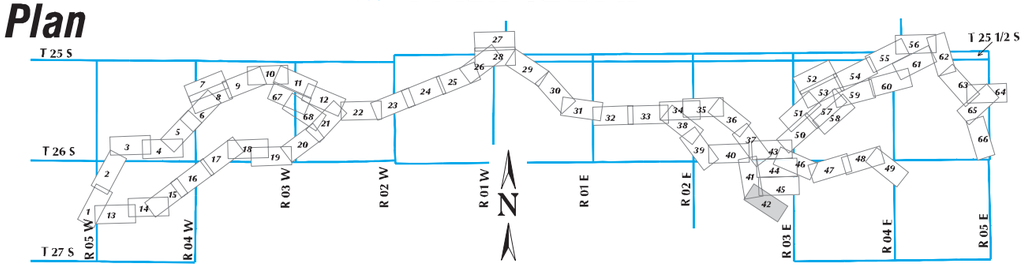

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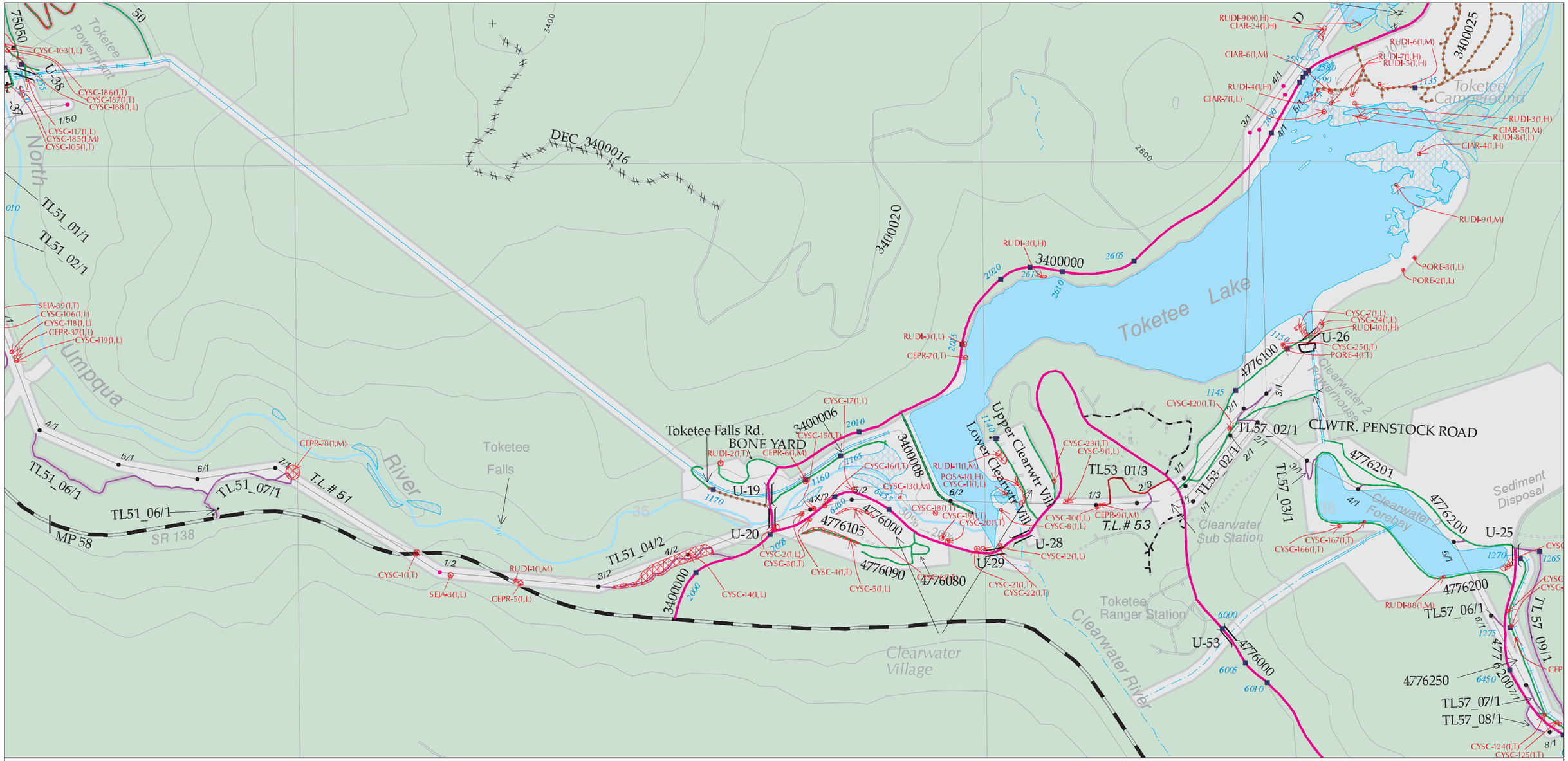

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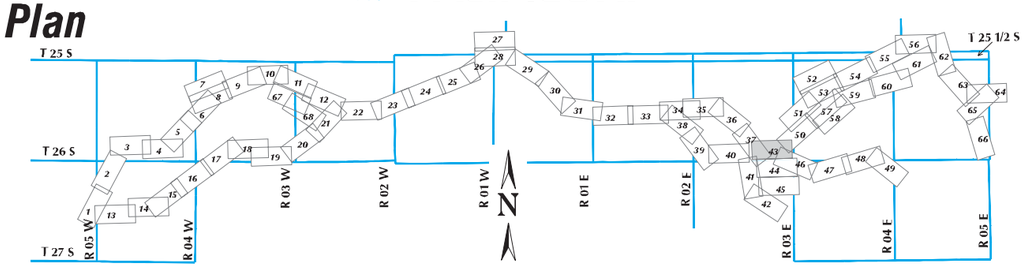

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Toketee Ranger Station
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4776200
4776250
4776000
4776300
4776350
4776352
3700000
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CYSC-121(2,L)
CYSC-122(1,L)
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CEPR-46(2,L)
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PACIFICORP

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T 25 1/2 S
T 26 S
T 27 S
R 05 W
R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
R 04 E
R 05 E

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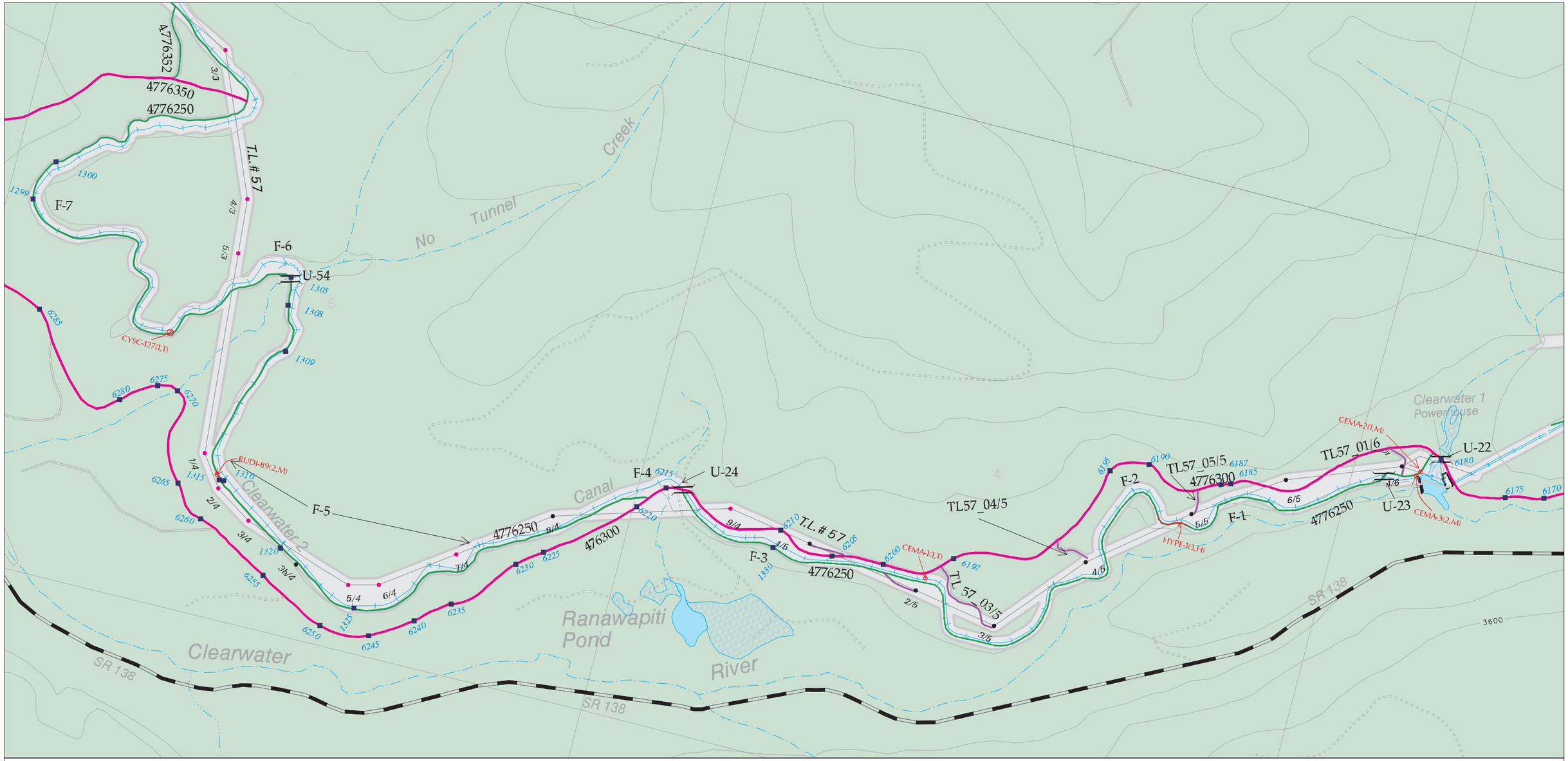

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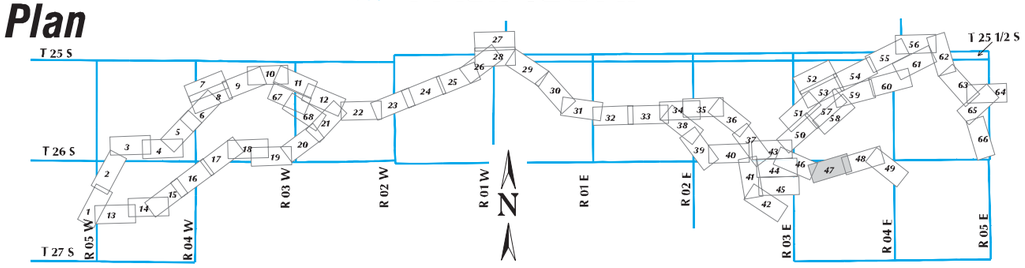

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CIAR-23(2,M)
CYSC-128(2,M)
HYPE-5(4,M)
4776700
4776650
4776300
4776010
4776061
4780000
4776063
4776065
6180
6175
6170
6165
6160
6155
6150
6145
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6135
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6125
6120
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6113
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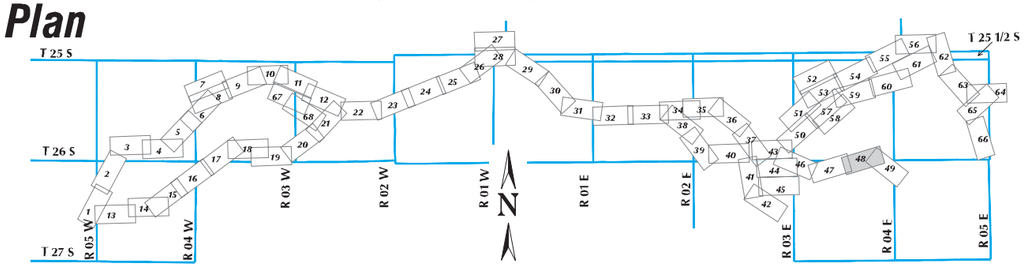

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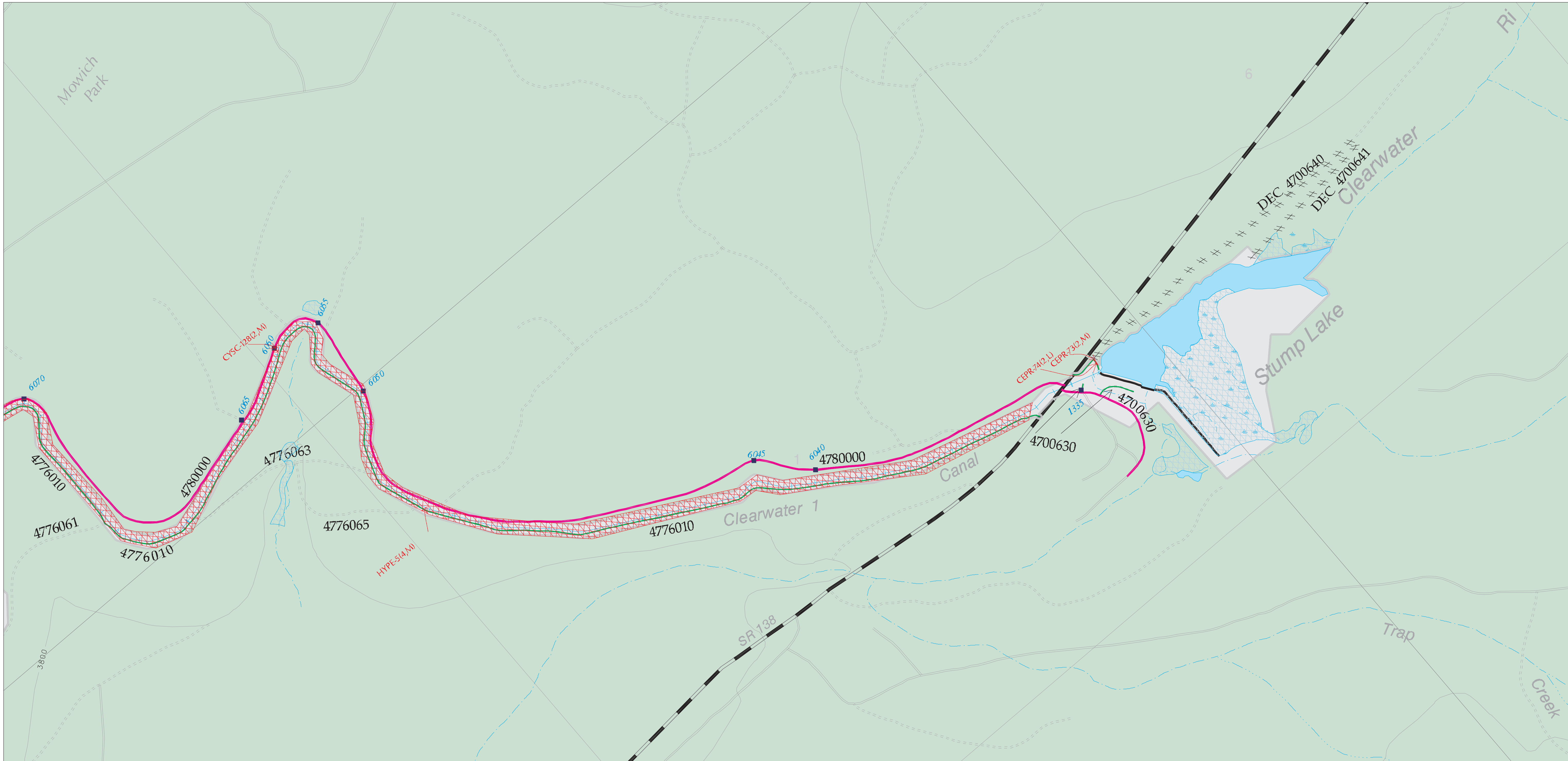

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Wetlands	Inaccessible Pole
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PacifiCorp Maintained T-line Roads	Culvert
PacifiCorp Maintained Recreation Roads	Bridge
Jointly Maintained Hydro Roads	Proposed FERC Project Boundary
Joint Access T-line Roads	USDI-BLM
Private Roads	USDA-FS
Roads To Be Decommissioned	USDA-FS (Wilderness)
Susan Creek Trail	Private Ownership
Gate	
Barrier	
Signed Closure	

0 1000 2000 Feet

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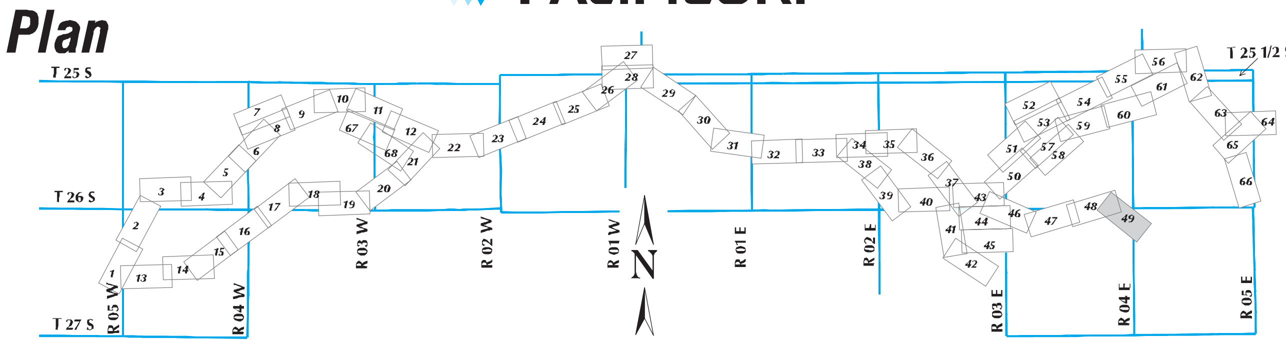

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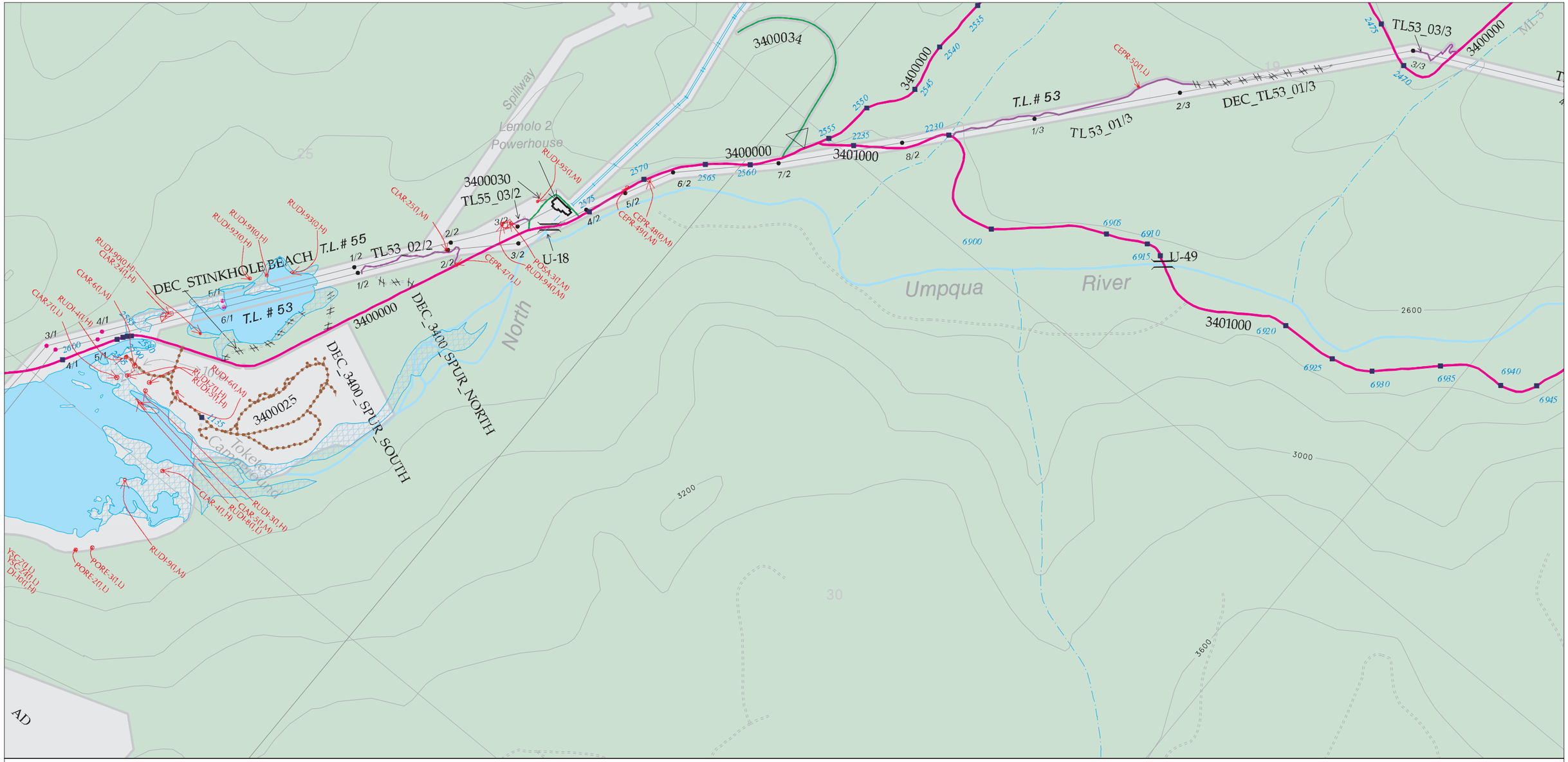

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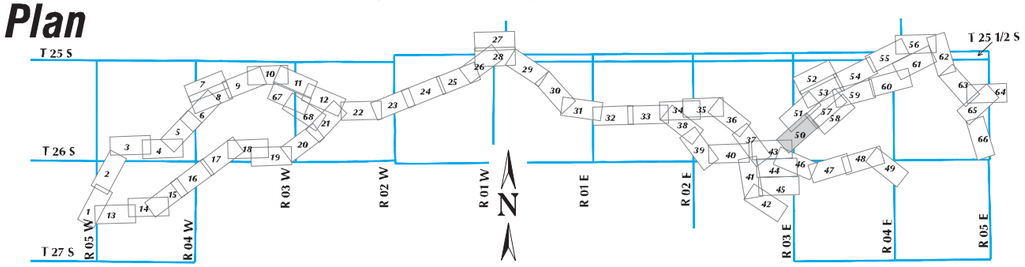

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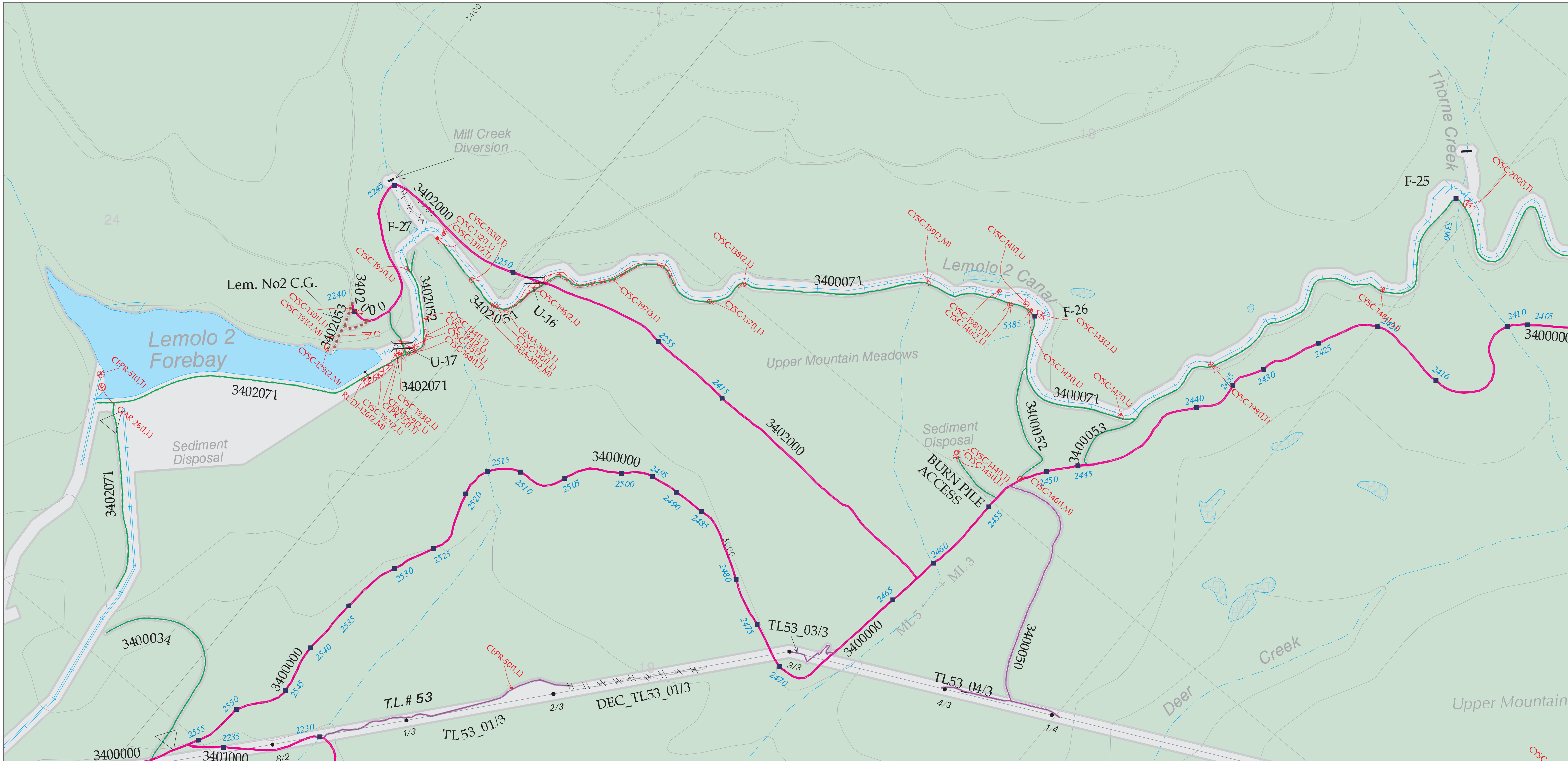

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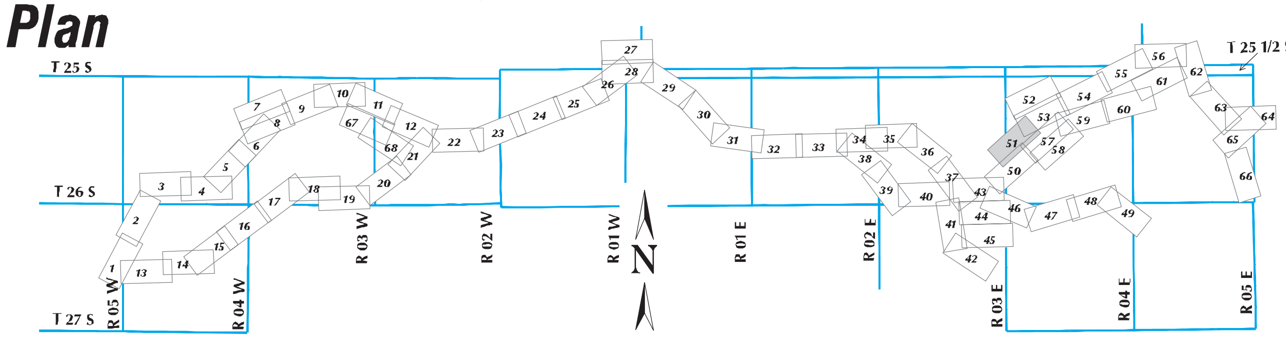

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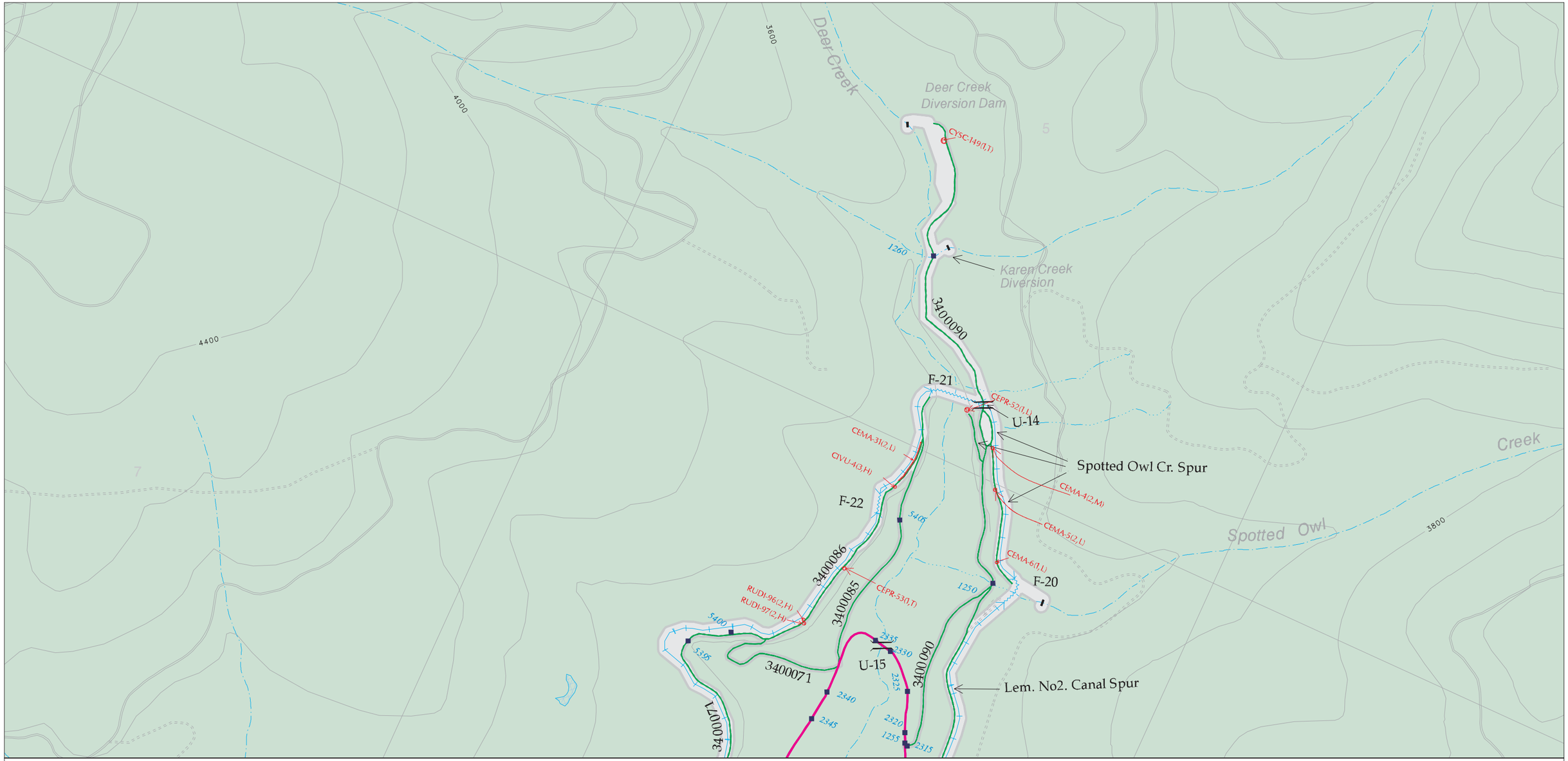

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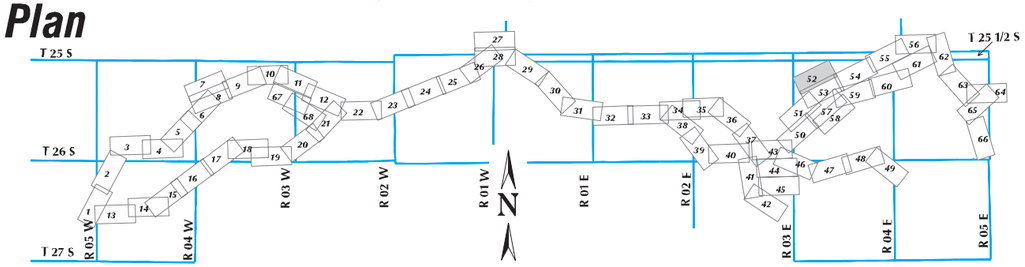

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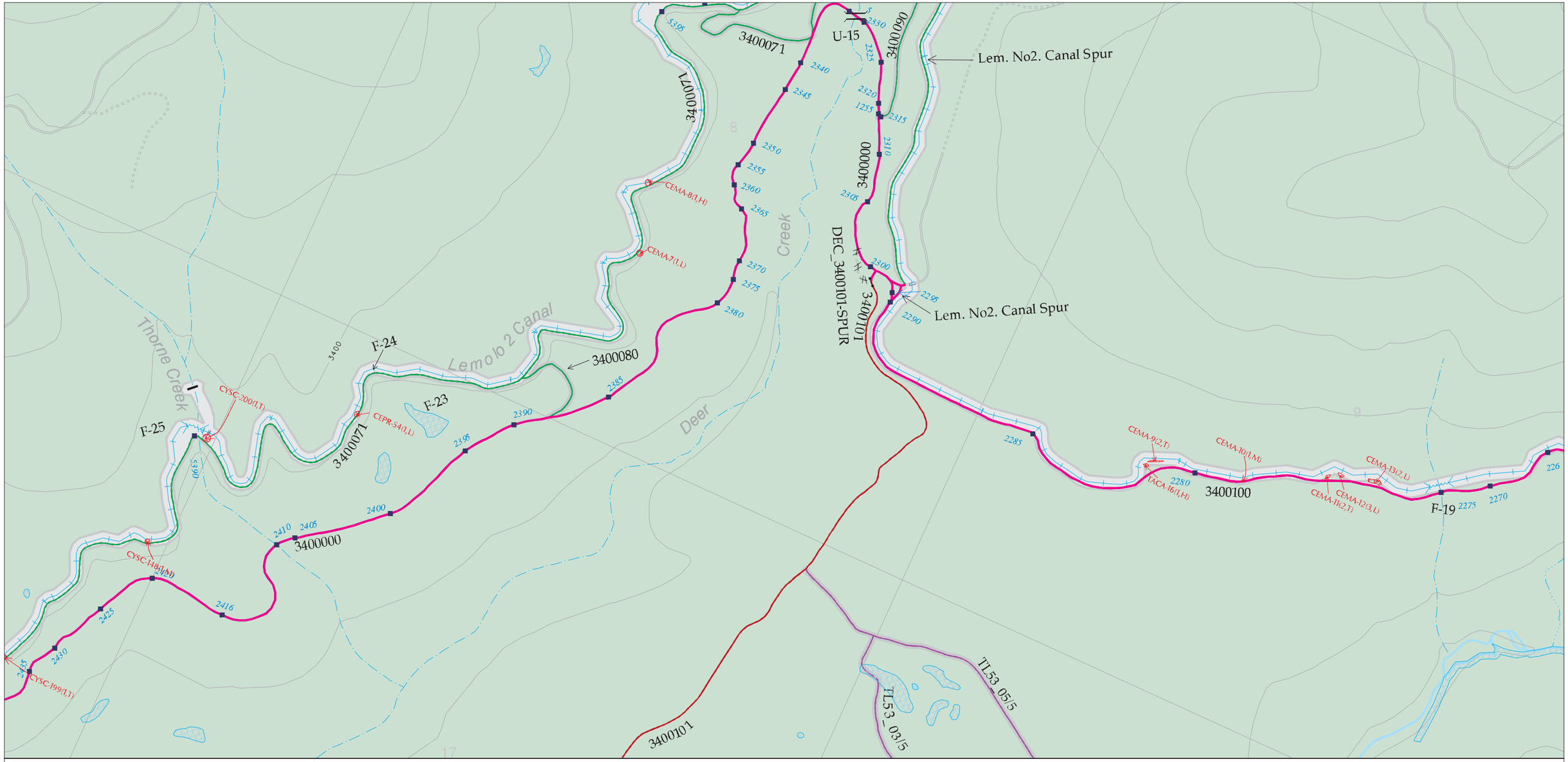

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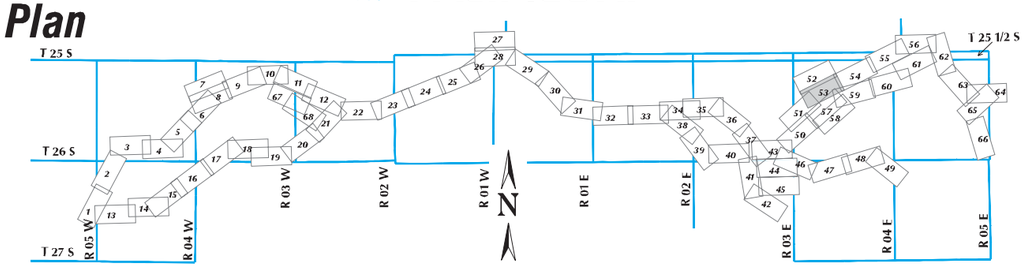

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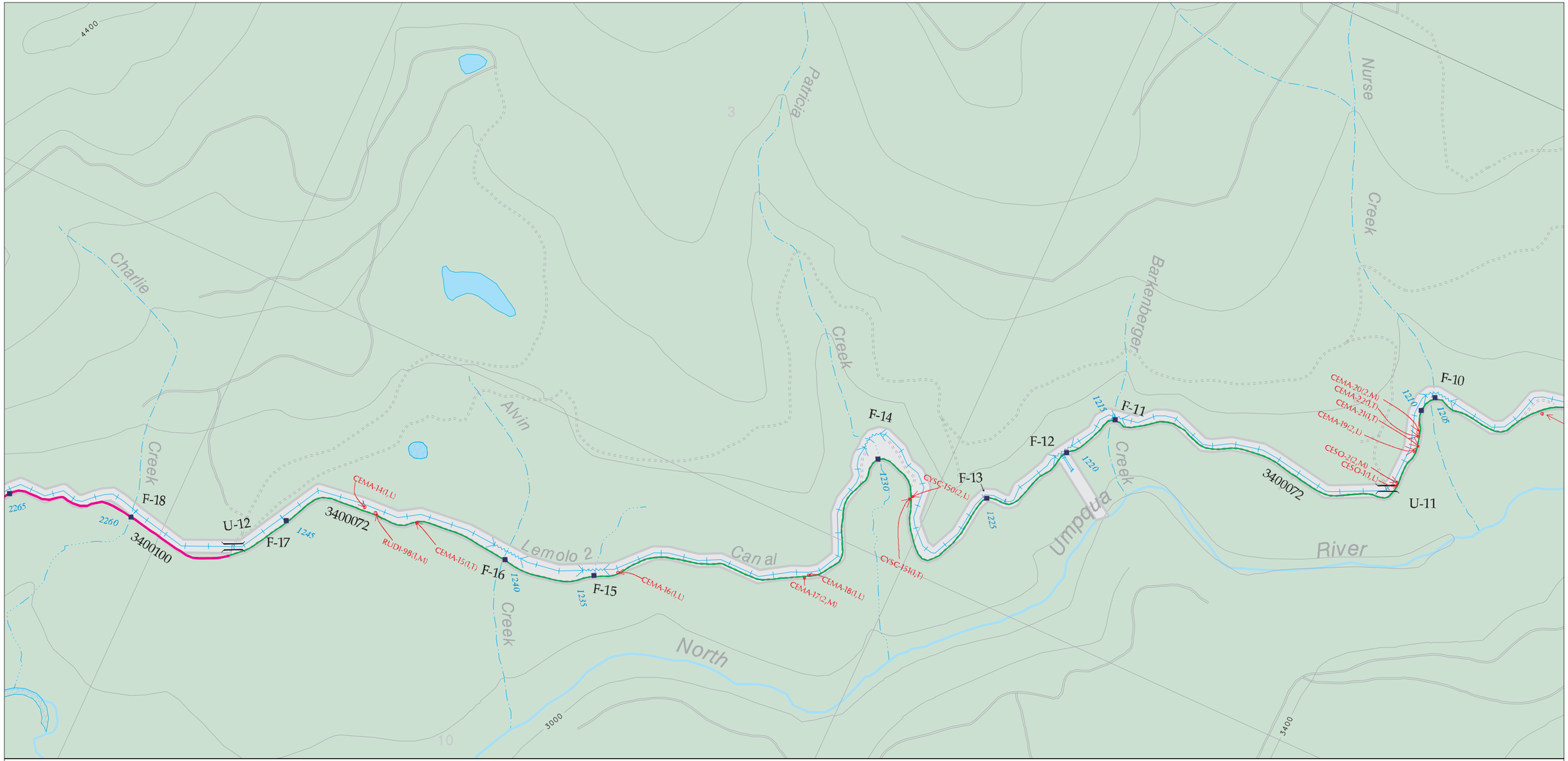

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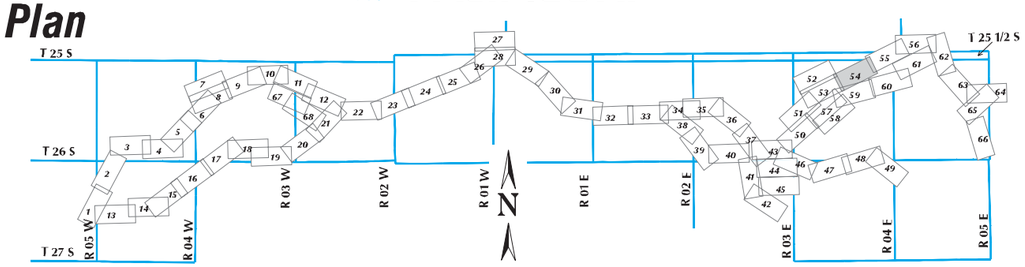

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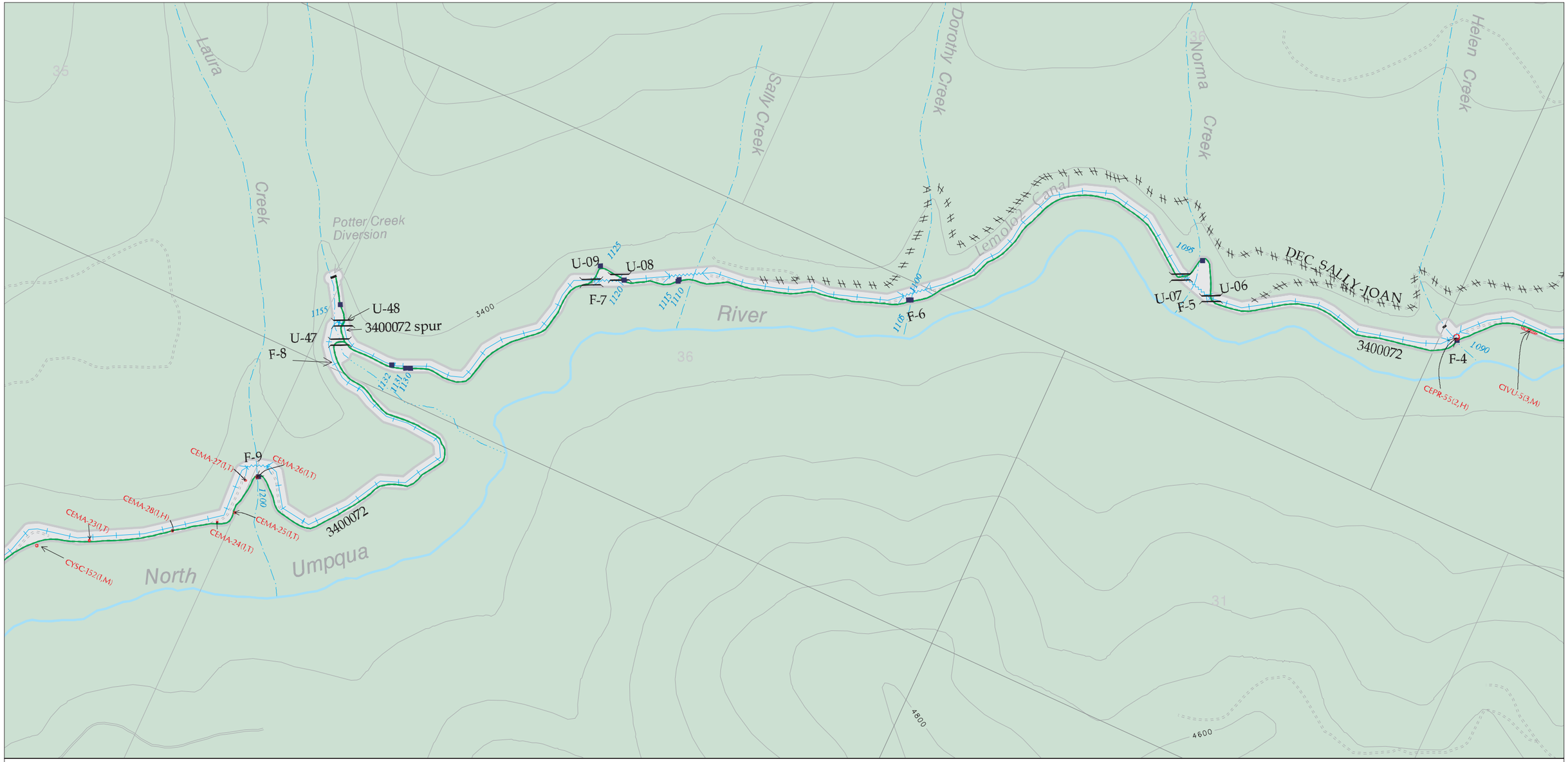

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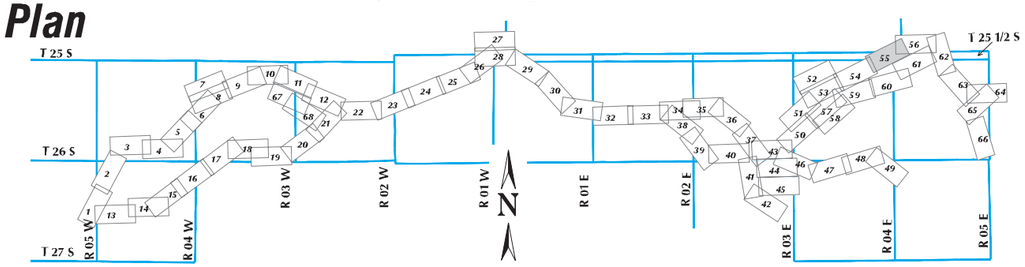

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3401702
2610680
2610686
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HYPE-3(4,H)
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CIVU-6(3,H)
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CIVU-7(3,H)
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CIVU-5(3,M)
CEPR-55(2,H)
CYSC-201(3,L)
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2025
2030
2035
2040
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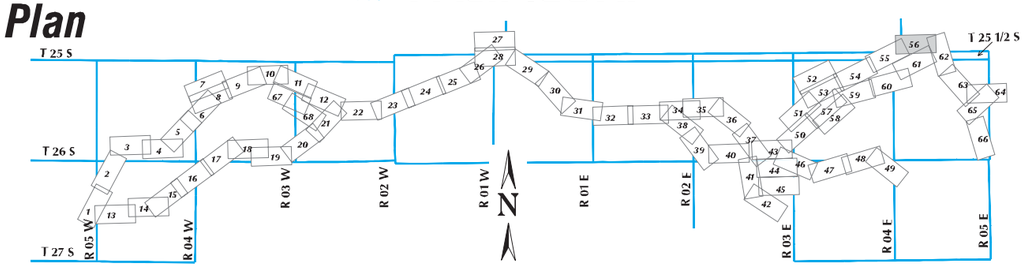
PACIFICORP



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3400101
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CEPR-57(2.L)
TL53_03/5
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CEPR-58(2.L)
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5/5
6/5
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6945
6960
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3401000
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6990
6995
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7015
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T 27 S
T 25 1/2 S
R 05 W
R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
R 04 E
R 05 E
N

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T.L.# 53

3401701

3401701

3401650

3401701

3401700

3401601

3401000

CEPR-59(T,L)

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7060 7065 7070 7075 7080 7085 7090

North Umpqua River

Prairie

10 11 15

3200

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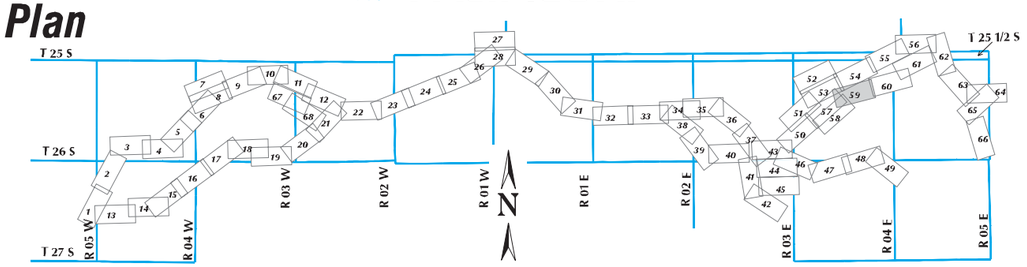
Scale 1:9,000

PACIFICORP



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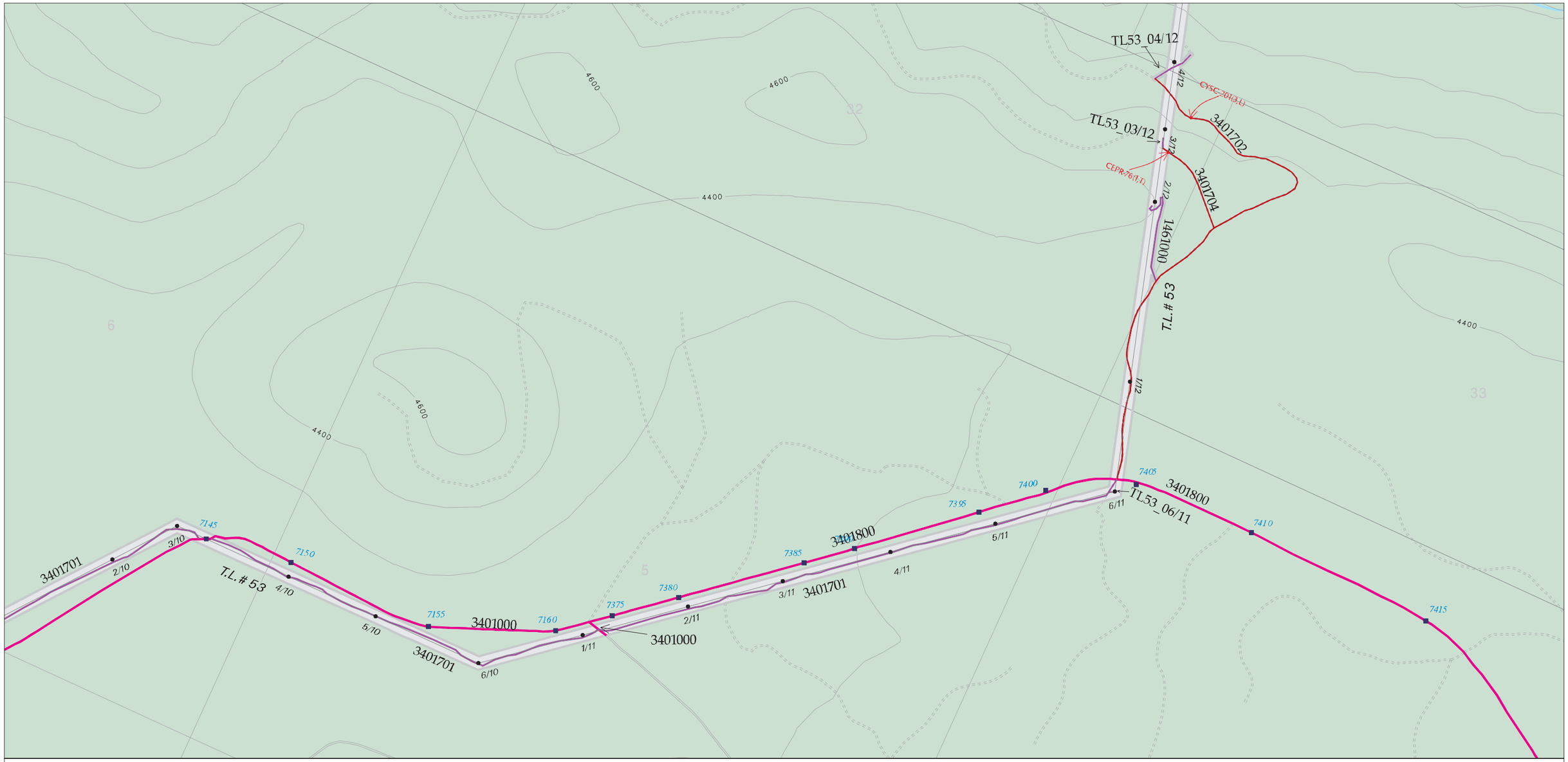


Legend

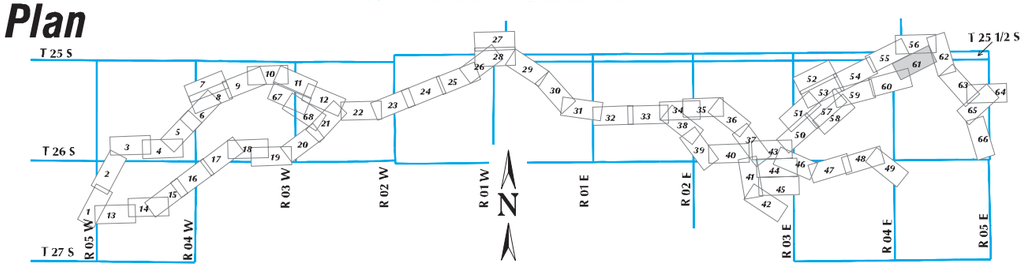
- Noxious Weeds
- Wetlands
- PacifiCorp Maintained Hydro Roads
- PacifiCorp Maintained T-line Roads
- PacifiCorp Maintained Recreation Roads
- Jointly Maintained Hydro Roads
- Joint Access T-line Roads
- Private Roads
- Roads To Be Decommissioned
- Susan Creek Trail
- Gate
- Barrier
- Signed Closure
- Accessible Pole
- Inaccessible Pole
- Traffic Counter
- Culvert
- Bridge
- Proposed FERC Project Boundary
- USDI-BLM
- USDA-FS
- USDA-FS (Wilderness)
- Private Ownership

North Umpqua Hydroelectic Project
Vegetation Management Plan
Exhibit G, Detailed
April 2004

0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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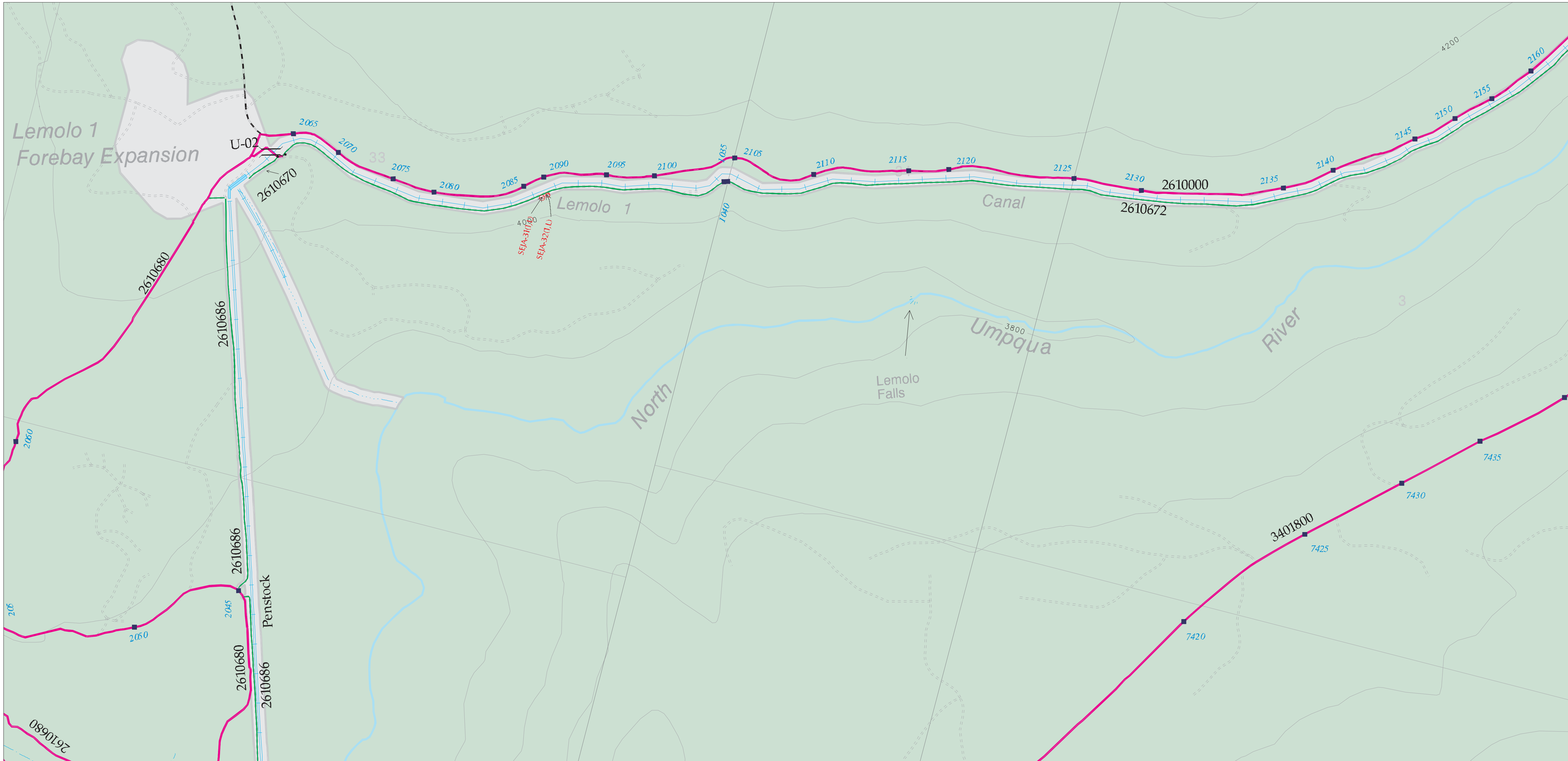

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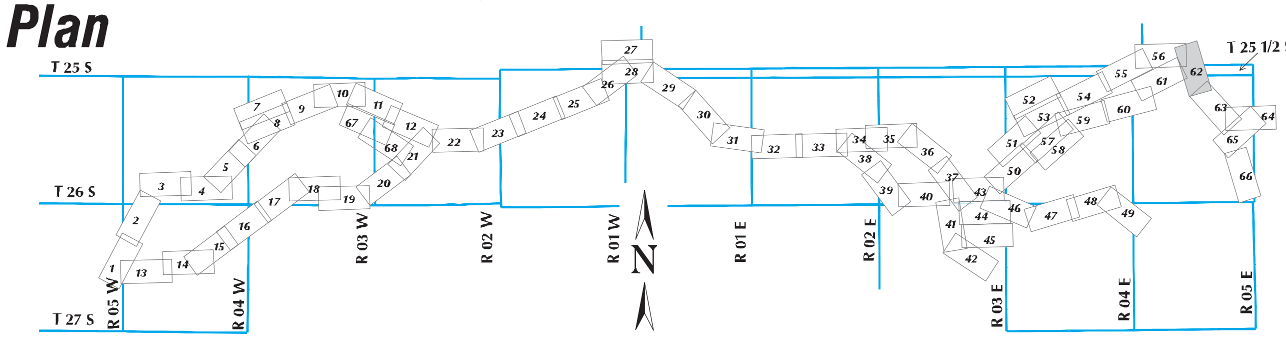
Legend

Noxious Weeds	Accessible Pole
Wetlands	Inaccessible Pole
PacifiCorp Maintained Hydro Roads	Traffic Counter
PacifiCorp Maintained T-line Roads	Culvert
PacifiCorp Maintained Recreation Roads	Bridge
Jointly Maintained Hydro Roads	Proposed FERC Project Boundary
Joint Access T-line Roads	USDI-BLM
Private Roads	USDA-FS
Roads To Be Decommissioned	USDA-FS (Wilderness)
Susan Creek Trail	Private Ownership
Gate	
Barrier	
Signed Closure	

0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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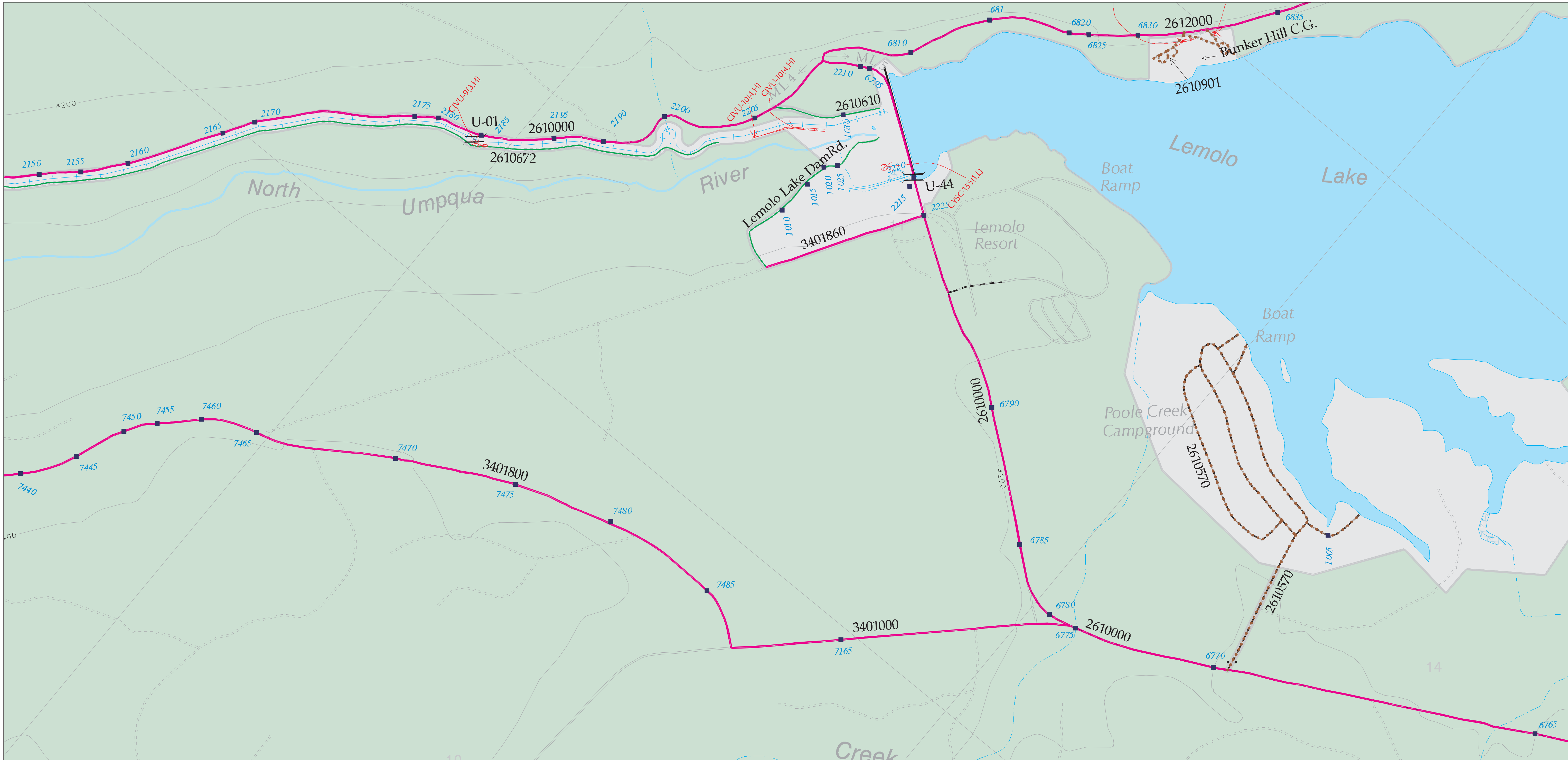

Legend

- Noxious Weeds
- Wetlands
- PacifiCorp Maintained Hydro Roads
- PacifiCorp Maintained T-line Roads
- PacifiCorp Maintained Recreation Roads
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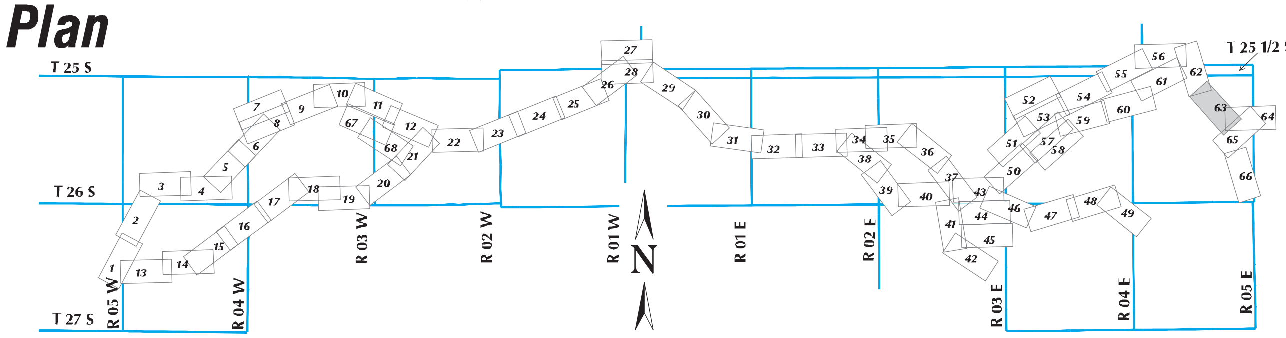
0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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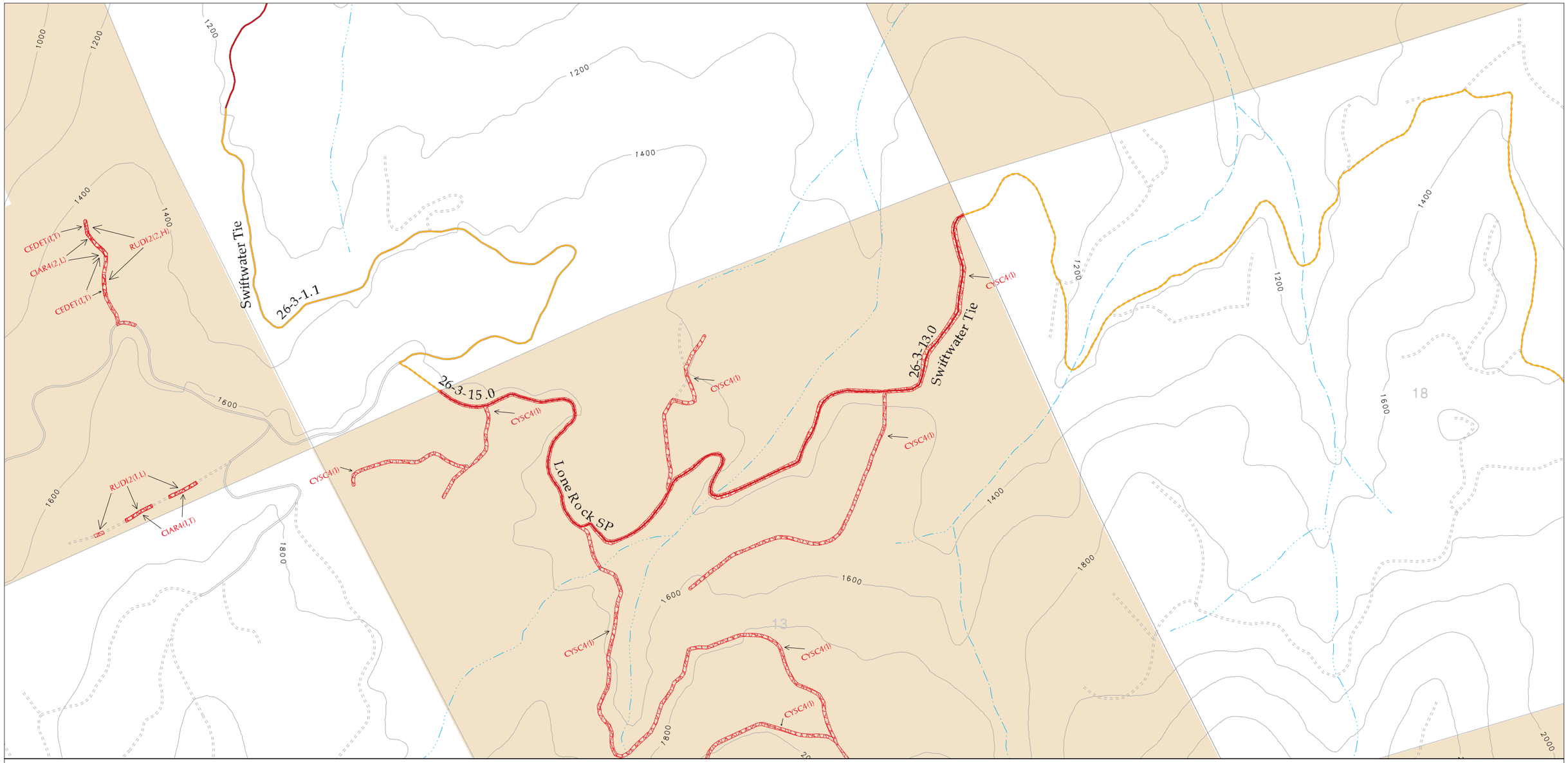

Legend

- Noxious Weeds
- Wetlands
- PacifiCorp Maintained Hydro Roads
- PacifiCorp Maintained T-line Roads
- PacifiCorp Maintained Recreation Roads
- Jointly Maintained Hydro Roads
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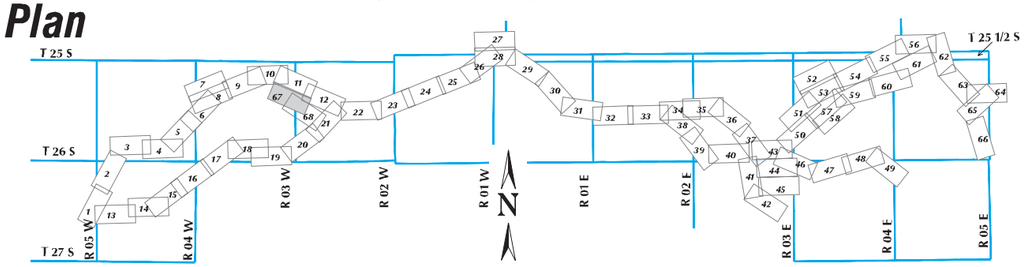
0 1000 2000 Feet

Scale 1:9,000

PACIFICORP



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26-3-13.0
Swiftwater Tie
CYSC4(1)
CYSC4(1)
CYSC4(1)
CYSC4(1)
CYSC4(1)
CYSC4(4,M)
CYSC4(4,M)
CYSC4(4,M)
CYSC4(4,M)
CYSC4(4,M)
26-6-21.0
Bob Butte
Bob Butte
18
19
1200
1400
1600
1800
2000
2200
2400
2600
3000

Legend

- Noxious Weeds
- Wetlands
- PacifiCorp Maintained Hydro Roads
- PacifiCorp Maintained T-line Roads
- PacifiCorp Maintained Recreation Roads
- Jointly Maintained Hydro Roads
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0 1000 2000 Feet

Scale 1:9,000

PACIFICORP

T 25 S
T 26 S
T 27 S
T 25 1/2 S
R 05 W
R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
R 04 E
R 05 E
N

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