ANNUAL REPORT for CY2018 and ROLLING 4-YEAR PROJECT ACTIVITIES CALENDAR YEARS 2018 - 2021

Wallowa Falls Hydroelectric Project
FERC No. P-308

AUTHORIZATION

Final Approved: PacifiCorp 6-13-19 (date) _____ (signature)

Approved: USDA Forest Service 6/12/19 (date) _____ (signature)

ATTACHMENTS

Attachment A – Action Items from Annual Coordination Meeting of April 11, 2019
Attachment B – 2018 Annual Operation and Compliance Report
Attachment C – 2019 Site Specific Plan for the Intake Modification Project

*Initial design and planning for the construction of the Project tailrace realignment and dam intake rebuild projects will occur during Year-1 of the new license (2017). Final engineering and permitting for these projects will occur during Year-2 of the new license (2018), and construction will occur during Year-3 (2019). The short construction season at the Project location will result in the tailrace and intake capital improvements near the Project powerhouse and terminus of the Joseph-Wallowa Lake Highway being constructed during 2019. Therefore, construction of the recreation improvements in the vicinity of the powerhouse is planned for 2019 and 2020.

Program/Activities	Action Lead	Prior Year CY 2018	Current Year CY 2019	Out Year #1 CY 2020	Out Year #2 CY 2021	Notes
USDA-FS Specific Condition No. 1 Implementation of the License on National Forest System Lands						
Seek Approval of changes on NFS lands	PacifiCorp	X	X	X		
Site-Specific Plans for habitat and ground disturbing activities	PacifiCorp		X	X		
USDA-FS Specific Condition No. 2 Surrender of License						
In the event licensee plans to surrender the project license, file a restoration plan for NFS lands for approval by the USDA Forest Service.	PacifiCorp	N/A	N/A	N/A	N/A	
USDA-FS Specific Condition No. 3 Indemnification						
No Actions Identified	PacifiCorp	N/A	N/A	N/A	N/A	
USDA-FS Specific Condition No. 4 Reservation of Authority						
No Actions Identified	PacifiCorp	N/A	N/A	N/A	N/A	
USDA-FS Specific Condition No. 5 Resource Coordination						
The Licensee shall hold an Annual Resource Coordination meeting in the month of April for the term of the License. (*The meeting may be held in alternative months if agreed by both parties.*)	PacifiCorp	X	X	X	X	

Program/Activities	Action Lead	Prior Year CY 2018	Current Year CY 2019	Out Year #1 CY 2020	Out Year #2 CY 2021	Notes
USDA-FS Specific Condition No. 6 Noxious Weed Management Plan						
Revise Noxious Weed Management Plan in consultation with USDA-FS.	PacifiCorp	NA	NA			Completed 2017
Implement noxious weed control measures per Forest Plan Specifications. (*Includes annual noxious weed inspection and treatment as needed.*)	PacifiCorp	X	X	X	X	
Survey and treat noxious weeds on NFS lands within the FERC Project Boundary for three (3) consecutive years between June 1 and July 31 following construction or maintenance activities described in the Final License Application.	PacifiCorp			X	X	Through 2022
Ensure that: a) ground cover in treated areas equals or exceeds 80 percent of that in an undisturbed control area with similar vegetation and is adjacent to the Project area and b) species composition in disturbed areas equals or exceeds 75 percent non-weedy species.	PacifiCorp	X	X	X	X	
USDA-FS to provide current list of USDA-FS approved noxious weed treatment chemicals	USDA-FS	X	X	X	X	
The Licensee shall include a status report in its Annual Report, required by Condition No. 5 – Resource Coordination, describing activities related to weed control, assessment of weed areas, and identification of future efforts to control noxious weed spread and colonization within the Project boundary.	PacifiCorp	X	X	X	X	
Licensee to provide GIS shape files of noxious weed survey and treatment areas to USDA-FS.	PacifiCorp	X	X	X	X	

Program/Activities	Action Lead	Prior Year CY 2018	Current Year CY 2019	Out Year #1 CY 2020	Out Year #2 CY 2021	Notes
USDA-FS Specific Condition No. 7 RRMP Section 2.1 Recreation and Aesthetic/Visual Resource *Capital Improvements						
Terminus of the Joseph-Wallowa Lake Highway, Project powerhouse area, and trails to WWNF that are located on PacifiCorp land						
Replace existing Wallowa Lake Trailhead sign and wilderness registration box.	PacifiCorp	Plan	Construct	N/A	N/A	N/A
Replace cable gate near powerhouse with metal pipe gate.	PacifiCorp	Plan	Construct	N/A	N/A	N/A
Install 3-panel interpretive signage in the terminus area (cul-de-sac) of Joseph-Wallowa Lake Highway.	PacifiCorp	Plan	Construct	N/A	N/A	N/A
Replace Project fencing at the terminus of the Joseph-Wallowa Lake Highway to better blend visually with the surrounding environment.	PacifiCorp	N/A	Plan	Construct		
Install safety fencing around the completed tailrace barrier.	PacifiCorp	Plan	Construct	N/A	N/A	N/A
Install low-maintenance landscape improvements at the Project powerhouse and at the edge of the Joseph-Wallowa Lake Highway terminus.	PacifiCorp	N/A	Plan	Construct		
Recoat Project powerhouse exterior (roof and siding) with visually compatible color that is less contrasting than current color.	PacifiCorp	N/A	N/A	N/A	N/A	
Provide 6 new trail directional signs near portion of forebay access road and WWNF connector trails.	PacifiCorp	Plan	Construct	N/A	N/A	
Portion of the Project within the WWNF						
Improve the laydown and storage area on the east side of forebay by removing Project related refuse.	PacifiCorp	Plan	Construct	N/A	N/A	

Program/Activities	Action Lead	Prior Year CY 2018	Current Year CY 2019	Out Year #1 CY 2020	Out Year #2 CY 2021	Notes
Improve drainage along the connector trail between the forebay access road and the East Fork Wallowa River Trail.	PacifiCorp	Plan	Construct	N/A	N/A	
Improve forebay intake structure by installing wood shake siding and roofing. Install safety signs at forebay intake, catwalk and associated facilities at dam.	PacifiCorp	Plan	Construct	N/A	N/A	
Enhance the upper penstock trestle and penstock pipe by coating a uniform dark color.	PacifiCorp	Plan	Construct	N/A	N/A	
Install interpretive sign at the west side of forebay.	PacifiCorp	Plan	Construct	N/A	N/A	
Modify catwalk gate on the east fork dam to allow pedestrian access.	PacifiCorp	Plan	Construct	N/A	N/A	
USDA-FS Specific Condition No. 7 RRMP Section 2.2 Recreation Facility Operation and Maintenance						
Terminus of Joseph-Wallowa Lake Highway, Project powerhouse area, and trails to WWNF that are located on PacifiCorp land						
Maintain Wallowa Lake Trailhead sign and registration box as needed. *(upon mutual agreement with USDA-FS)*	PacifiCorp	Plan	Construct	X	X	
Maintain gate near powerhouse with metal pipe gate.	PacifiCorp	Plan	Construct	X	X	
Maintain 3-panel interpretive signage in the terminus area (cul-de-sac) of Joseph-Wallowa Lake Highway.	PacifiCorp	Plan	Construct	X	X	
Maintain Project fencing at the terminus of the Joseph Wallowa Lake Highway.	PacifiCorp	Plan	Construct	X	X	
Maintain safety fencing around the completed tailrace barrier	PacifiCorp	Plan	Construct	X		

Program/Activities	Action Lead	Prior Year	Current Year	Out Year #1	Out Year #2	Notes
		CY 2018	CY 2019	CY 2020	CY 2021	
Maintain landscape improvements at the Project powerhouse and at the edge of the Joseph-Wallowa Lake Highway terminus.	PacifiCorp	Plan	Construct	X		
Maintain powerhouse exterior with compatible color that is less contrasting than current color.	PacifiCorp	X	X	X		
Maintain 6 new trail directional signs near portion of forebay access road and WWNF connector trails. *(By mutual agreement with USDA-FS)*	PacifiCorp	X	X	X		
Portion of the Project within the WWNF						
Maintain the laydown and storage area on east side of forebay.	PacifiCorp	Plan	Construct	X		
Maintain drainage along the connector trail between the forebay access road and the East Fork Wallowa River Trail. *(By mutual agreement with USDA-FS)*	PacifiCorp	Plan	Construct	X		
Maintain forebay intake structure and wood shake siding and roofing.	PacifiCorp	Plan	Construct	X		
Maintain safety signs at forebay intake, catwalk and associated facilities at dam.	PacifiCorp	Plan	Construct	X		
Maintain the upper penstock trestle and penstock pipe by coating a uniform dark color.	PacifiCorp	Plan	Construct	X		
Maintain interpretive sign at the west side of forebay. *(USDA-FS may fabricate and install signs)*	PacifiCorp	Plan	Construct	X		
Maintain catwalk gate on the East Fork Dam to allow pedestrian access.	PacifiCorp	Plan	Construct	X	X	
USDA-FS Specific Condition No. 7 RRMP Section 2.3: Monitoring, Reporting and Public Information						
Document Recreation Facility Conditions and Report Findings to USDA-FS	PacifiCorp	X	X	X		

Program/Activities	Action Lead	Prior Year CY 2018	Current Year CY 2019	Out Year #1 CY 2020	Out Year #2 CY 2021	Notes
Provide annual data collected from wilderness visitor permits at the Wallowa Lake Trailhead registration box to PacifiCorp	USDA-FS		X	X	X	X
Provide annual visitation data to Pacific Park Campground to USDA-FS	PacifiCorp	X	NA	NA	X	
Provide annual recreation facility O&M cost report to PacifiCorp for East Fork Trails	USDA-FS	NA	X	X	X	
Assemble recreation facility use data, including data provided by USDA-FS for analysis and inclusion in the FERC Form 80 report (report due to FERC April 2021)	PacifiCorp	NA	NA	NA	NA	FERC has dropped the Form 80 requirement
Develop monitoring report to accompany FERC Form 80 submittal (report due to FERC April 2021)	PacifiCorp	NA	NA	NA	NA	Form 80 dropped
Coordinate activities related to public information and I&E elements as described in RRMP Section 2.3.3.	PacifiCorp USDA-FS	X	X	X	X	
USDA-FS Specific Condition No. 7 RRMP Section 3.1: Planning and Coordination Responsibilities						
Implement the RRMP including capital projects and recreation O&M	PacifiCorp	X	X	X	X	
Coordinate the annual recreation and aesthetic/visual resource meeting with stakeholders	PacifiCorp	X	X	X		
Coordinate with other Project-related resource management plans, including the *Wallowa Falls Hydroelectric Project Noxious Weed Management Plan*, *Vegetation Management Plan*, and *Access Road Inspection and Maintenance Plan*.	PacifiCorp	X	X	X	X	
Submit the Form 80 report to the FERC (due to FERC April 2021)	PacifiCorp	NA	NA	NA	NA	FERC has dropped the Form 80 requirement

Program/Activities	Action Lead	Prior Year CY 2018	Current Year CY 2019	Out Year #1 CY 2020	Out Year #2 CY 2021	Notes
Conduct periodic (10-year) reviews and potential updates of the RRMP, and track changes. (First review 2027)	PacifiCorp & USDA-FS					
Survey USDA-FS trail easements through PacifiCorp property to determine and verify easement locations, as well as the locations of existing trails (which may not be the same as the easements) used and maintained by the USDA-FS to access the WWNF, and survey and mark the locations of the property boundary between PacifiCorp and the WWNF lands where the trails cross.	USDA-FS			TBD	TBD	USDA-FS will research easement agreement to identify need
After the survey is complete, develop a management approach regarding connections between the Chief Joseph Mountain (#1803) and West Fork Wallowa River Trail (#1820). It may be appropriate to either realign the trail in the field or revise the easement description to more accurately describe the as-built trail alignment.	USDA-FS			TBD	TBD	USDA-FS will research easement agreement to identify need
Operation and maintenance of existing trails that pass through PacifiCorp Project land on USDA-FS easements, including trails on easements that are currently managed by the WWNF and trail realignments or additions that are identified in the survey and trail management activities described above.	USDA-FS			TBD	TBD	
Construction, as needed, of any new trail(s) that may be identified in the survey and trail management activities described above.	USDA-FS			TBD	TBD	

Program/Activities	Action Lead	Prior Year CY 2018	Current Year CY 2019	Out Year #1 CY 2020	Out Year #2 CY 2021	Notes
Collect and tabulate wilderness permit data from the registration box located at the Wallowa Lake Trailhead that will be constructed as part of the capital improvement program.	USDA-FS	X	X	X	X	
Participate with PacifiCorp, interested tribes, and other participating parties in the planning of I&E elements and signage that will be developed for the Project.	USDA-FS		X	X	X	
Participate in the annual recreation and aesthetic/visual resource meeting.	USDA-FS	X	X	X	X	
USDA-FS Specific Condition No. 7 RRMP Section 3.2: Annual Meeting						
For the first several annual meetings, identify progress made in implementing the capital improvement measures described in RRMP-Exhibit A. Adjust schedule of planned actions for the current and future years as needed.	PacifiCorp & USDA-FS	X	X	X	X	Revisit RRMP Exh A in winter 2020
Determine progress accounting by reviewing, reconciling, and preparing for approval the previous fiscal year's accomplishments, accrued costs, and cost-sharing accounting. Discuss ongoing funding/cost sharing needs.	PacifiCorp & USDA-FS	X	X	X	X	
Review recreation operation and maintenance accomplishments from the previous year and discuss plans and needs for the upcoming recreation season.	PacifiCorp & USDA-FS	X	X	X	X	
Determine policy changes or updates as needed.	PacifiCorp & USDA-FS	X	X			

Program/Activities	Action Lead	Prior Year CY 2018	Current Year CY 2019	Out Year #1 CY 2020	Out Year #2 CY 2021	Notes
USDA-FS Specific Condition No. 7 RRMP Section 3.3: Environmental Compliance, Approvals, and Permitting						
PacifiCorp will fund and/or conduct environmental analysis, compliance, and permitting for recreation resource-related activities, as necessary, as discussed in RRMP section 3.3	PacifiCorp	X	X	X	X	
USDA-FS Specific Condition No. 7 RRMP Section 4.0: 10-Year Review						
The RRMP will be reviewed and potentially revised by PacifiCorp and the USDA-FS at least every 10 years after the Final RRMP is approved by the FERC or as described in RRMP Section 4.0.	PacifiCorp & USDA-FS	X				First review in 2027
USDA-FS Specific Condition No. 8 Cultural Resource Coordination						
Revise and implement a final Protocol for the Unanticipated Discovery of Historic Properties	PacifiCorp	Revision Complete	X	X	X	Completed in 2017
USDA-FS Specific Condition No. 9 – Project Operation, Instream Flows and Gaging						
Operate the Project in run-of-river mode during all times of generation	PacifiCorp	X	X	X	X	
Release 4 cfs from November 1 through April 30; and, 5 cfs May 1 through October 31, or inflow, whichever is less in the Project bypassed reach.	PacifiCorp	X	X	X	X	
Install and maintain an operational compliance monitoring flow gage providing continuous real-time recording of flow in the bypass reach measured in 15 minute intervals and reported as an hourly average during the duration of the License	PacifiCorp	X	X	X	X	Installed 2017
USDA-FS Specific Condition No. 10 – Turbidity Monitoring Plan for Maintenance Forebay Flushing						
Revise the Turbidity Monitoring Plan for Maintenance Forebay Flushing	PacifiCorp	X	NA	NA	NA	Completed 2017

Program/Activities	Action Lead	Prior Year CY 2018	Current Year CY 2019	Out Year #1 CY 2020	Out Year #2 CY 2021	Notes
Provide 10-day prior notice of the planned date of flushing operations to the USDA Forest Service	PacifiCorp	X	X	X	X	
Sediment flushing from the Wallowa Dam forebay may be performed for up to 72 hours at flows of at least 15 cubic feet per second in the East Fork Wallowa River	PacifiCorp	X	X	X	X	
The Licensee shall include in the Annual Report required by Condition No. 5, a Forebay Flushing Report	PacifiCorp	X	X	X	X	
USDA-FS Specific Condition No. Condition No. 11 – Royal Purple Creek Pipeline						
Extend the existing 8-inch PVC Royal Purple Creek diversion pipe outlet approximately 20 feet at its point of discharge into the East Fork Wallowa River above the Project forebay to reduce erosion	PacifiCorp		Plan & Construct			
USDA-FS Specific Condition No. 12 – Vegetation Management Plan						
Conduct Hazard Tree and Vegetation Inspection every other year and take remedial action as appropriate.	PacifiCorp		X		X	
USDA-FS Specific Condition No. 13 – Special Status Sensitive Species						
Conduct Special Status Plant Species surveys for *Botrychium montanum* at locations described in BioResources (2012) for 5 consecutive years	PacifiCorp	X	X	X	X	To be completed in 2022
If these surveys locate *Botrychium montanum* or other Special Status Plant Species on NFS lands, the Licensee shall notify the USDA Forest Service and develop a protection plan	PacifiCorp	X				New location reported in 2018

SUMMARY OF RESULTS FROM THE PREVIOUS RRMP CALENDAR YEAR ACTION PLAN

Capital Improvement Projects Completed Last Year (CY 2018)

- No Capital improvement projects were completed in 2018.

Project Management Activities Completed Last Year (CY 2018)

- Project Management activities completed in 2018 are described in the 2018 Annual Operational Compliance Report that was filed with FERC on December 28, 2018 (Attachment B). Activity highlights include the following:
  - Installation of a temporary fish barrier at Project tailrace in fall of 2018.
  - Completion of bull trout genetics studies in East Fork Wallowa River.
  - Completion of forebay flushing in June 2018.
  - Completion of engineering design and construction permit applications for capital improvements.

Projects Not Completed and Carried Forward to the Current Year (CY 2019)

- Complete installation of a ramp rate control and generation communication system from the powerhouse to the Hydro Control Center in Ariel, WA.

Unanticipated Events in 2018

- None

Planned Activities for 2019

- Conduct forebay flushing in June.
- Install temporary tailrace barrier at Project tailrace in August.
- Begin construction of tailrace realignment, dam intake rebuild, Royal Purple Creek diversion pipe extension and small capital improvement projects. Details are provided in Attachment C, Capital Project Work Plans.

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

None

2019 ANNUAL REPORT and
ROLLING 4-YEAR PROJECT MANAGEMENT ACTIVITIES
CALENDAR YEARS 2018 – 2021

Wallowa Falls Hydroelectric Project
FERC No. P-308

Attachment A

Action Items From the
Annual Coordination Meeting of April 11, 2019

Action Items from Annual Coordination Meeting of April 6, 2018

Item No.	Responsible Party	Action Item	Target Completion Date	Completion (Yes/No/ Partial)	Action taken/Next Steps/Comments
1	PacifiCorp\ Howison	Confirm that PacifiCorp will conduct a survey and treatment of noxious weeds on NFS lands in construction years.	5/31/2018	Yes	A survey and appropriate treatment will be conducted in the construction year as part of the annual inspection required in the Noxious Weed Management Plan.
2	PacifiCorp\ Howison	Confirm that PacifiCorp has a current list of all USDA-FS approved noxious weed treatment chemicals	5/31/2019	Yes	At the April 11, 2019 meeting, USDA-FS confirmed that the list of approved chemicals has not changed from 2018.
3	PacifiCorp\ Howison	Provide GIS-shp files to USDA-FS of annual noxious weed survey and treatment areas.	5/31/2018	Yes	SHP files were provided with final Annual Report. PacifiCorp has added a line item to the 2018 annual report calling for PacifiCorp to provide SHP files of noxious weed survey and treatment areas on an annual basis..
4	PacifiCorp\ Howison	Schedule Meeting with USDA-FS staff to discuss Wallowa Lake Trailhead and 3-panel interpretive sign design and content.	5/31/2018	Yes	Conducted on March 5, 2019, and May 9, 2019.
5	PacifiCorp\ Howison	Schedule Meeting with Joseph Fire Department, Wallowa Lake Fire District to discuss landscape setback requirements around powerhouse.	5/31/2018	Yes	Meeting was held in June 2018 with Paul Karvoski Wallowa Co. Emergency Services Manager. Mr. Karvosky did not support planting of screening vegetation between the St.Hwy. turn-around and the plant fence. This would create additional fire hazard and block emergency vehicle access.
6	USDA-FS	Provide list of USDA-FS approved noxious weed treatment chemicals to PacifiCorp.	6/1/2018	Yes	List was received by PacifiCorp in June 2018.

Item No.	Responsible Party	Action Item	Target Completion Date	Completion (Yes/No/ Partial)	Action taken/Next Steps/Comments
7	USDA-FS	Review recreation operation and maintenance expenses incurred by USDA-FS on the Project access road and notify PacifiCorp if cost share funding is needed.	1/30/2019	Yes	There were no trail maintenance expenses in 2018 that PacifiCorp is responsible for.

Action Items from Annual Coordination Meeting of April 11, 2019

Item No.	Responsible Party	Action Item	Target Completion Date	Completion (Yes/No/ Partial)	Action taken/Next Steps/Comments
1	USDA-FS	Provide 2018 recreation use data of Wallowa Lake Trailhead to PacifiCorp as it becomes available	12/31/2019	No	
2	USDA-FS	Research Easement Agreement for trails to determine if there is any need to revise the legal description of the trail easements to more accurately reflect the trails on the ground.	12/31/2019	No	
3	USDA-FS	Discuss with the Nez Perce Tribe (NPT) their interest in developing an interpretive panel for the forebay interpretive sign.	5/31/2019	Yes	The NPT has expressed interest in an interpretive panel at the forebay. USDA-FS will continue to engage NPT on this issue.
4	PacifiCorp\ Howison	Clarify with SeaReach that the interpretive hardware at the forebay will need to have double panel capability.	5/31/2019	Yes	This issue was discussed during the conference call of 5/9/2019. PacifiCorp will continue to plan for a tribal component of an interpretive panel.
5	PacifiCorp\ Howison	Provide a written description of Royal Purple Creek Diversion Removal methods to USDA-FS.	4/26/2019	Yes	Provided to USDA on 5/6/2019.

Item No.	Responsible Party	Action Item	Target Completion Date	Completion (Yes/No/ Partial)	Action taken/Next Steps/Comments
6	PacifiCorp\ Howison	Provide to USDA-FS draft and final press release information for campground closure and construction project.	4/30/2019	Yes	
7	USDA-FS	Provide comments on 2019 Rolling Action Plan to PacifiCorp.	5/10/2019	Yes	Email was received from Adrian Cusic on May, 15, 2019.
8	USDA-FS	Provide Notice to Proceed letter to PacifiCorp for Forebay intake construction.	5/10/2019	No	

2019 ANNUAL REPORT and ROLLING 4-YEAR PROJECT MANAGEMENT ACTIVITIES CALENDAR YEARS 2018 – 2021

Wallowa Falls Hydroelectric Project
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Attachment B

2018 Annual Operational Compliance Report for the Wallowa Falls Hydroelectric Project

2018 Annual Operational Compliance Report

Wallowa Falls Hydroelectric Project

(FERC No. P-308)

Grande Ronde River Basin

Wallowa County, Oregon

December 2018

Prepared by:
PacifiCorp
825 NE Multnomah Street
Portland, OR 97232

Table of Contents

1.0 Introduction

The Federal Energy Regulatory Commission (Commission) issued a new operating license for the Wallowa Falls Hydroelectric Project (Project) January 5, 2017. The Operation Compliance Monitoring Plan (OCMP) was developed to satisfy Article 408 and Condition 1e) of Appendix A: Oregon Department of Environmental Quality (ODEQ) Water Quality Certification, of the license. The OCMP was approved by the October 11, 2017 Commission Order Modifying and Approving Operational Compliance Monitoring Plan Pursuant to License Article 408. This Annual Report satisfies the reporting requirements of Section 3.1.2 of the OCMP (PacifiCorp 2017a) and license Article 408.

In addition to the report elements provided in Section 3.1.2 of the OCMP, PacifiCorp has elected to include the 2018 Wallowa Falls Bull Trout Redd Monitoring Report required by Article 412 of the license and the 2018 Noxious Weed Control Plan Annual Report required by Section 3.5 of the Noxious Weed Control Plan (PacifiCorp 2017c) in this Report, as Appendices C and D, respectively.

2.0 Project Operations – Water Management

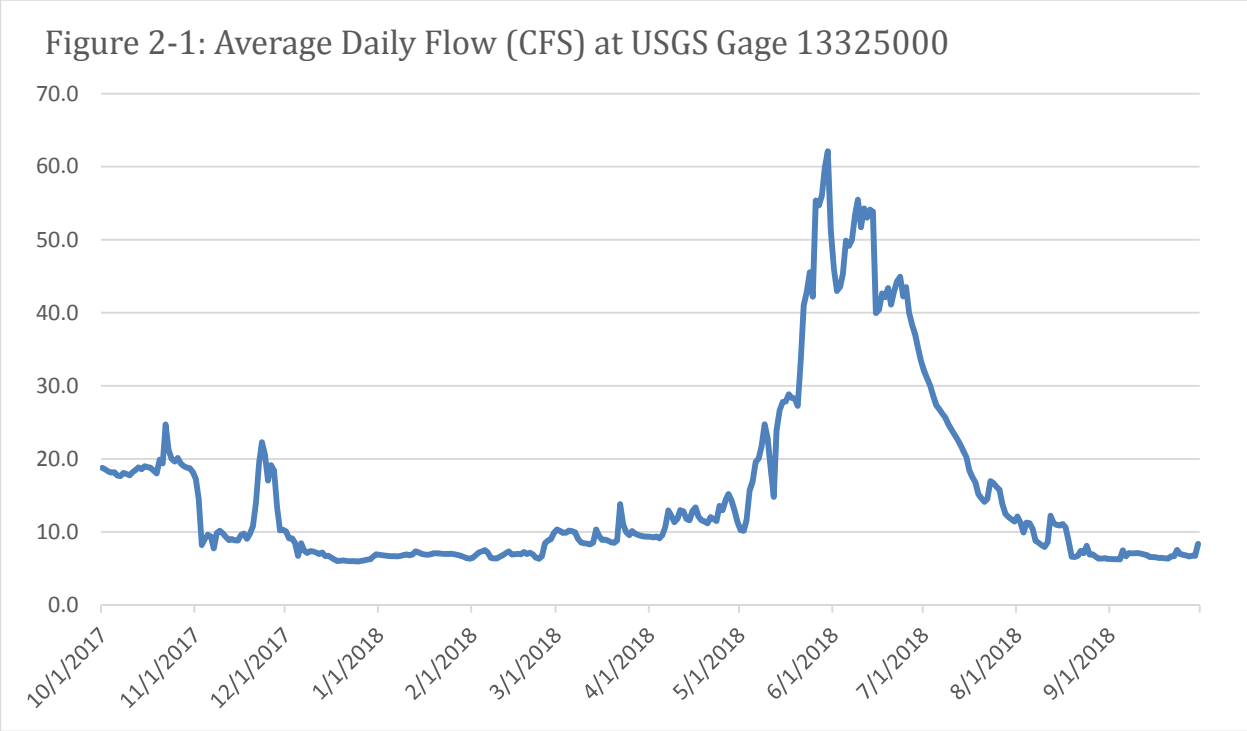
2.1.1 Minimum Flows

Minimum instream flows, as required by license Appendix A, Condition 1(a) and Appendix B, Condition 9(2) will be implemented by PacifiCorp beginning on or before July 5, 2018. As reported, in the 2017 Annual Operational Compliance Report, PacifiCorp contracted the United States Department of the Interior, U.S. Geological Survey (USGS) to install the required stream gage and conduct the required hydrologic surveillance program (USGS Gage 13325000, East Fork Wallowa River) for the Project. The gage was installed in the summer of 2017[1]. As required by license Appendix A, Condition 1(b), the East Fork Wallowa River gage reports a real-time recording of river stage and corresponding flow in cfs measured in 15 minute intervals. Compliance with the license required minimum flow is determined based on a top of the hour average of the previous four 15 minute readings.

From October 1, 2017 through June 14 2018, the Project operated under the previous year-round minimum flow requirement of 0.5 cubic feet per second (cfs). On June 14, 2018, following the annual forebay flushing event, PacifiCorp set the slide gate on lower level outlet drain valve at the dam to provide a continuous flow release of greater than or equal to 5 cfs, as measured at the compliance gage in the bypassed reach of the East Fork Wallowa River. There was greater than 5

[1] The Gage and associated communications system are located on the East Fork of the Wallowa River on a parcel of property owned by PacifiCorp and designated by Wallowa County, Oregon, as tax lot number 03S4500009900.

cfs in the bypassed reach, as measured on all days between June 15, 2018 and September 30, 2018. Figure 2-1 shows the average daily flow during the 2018 water year.



2.1.2 Ramping

In accordance with Article 406 *Ramping Rates* and Condition 1(c) of Appendix A of the Wallowa Falls License PacifiCorp filed the *Wallowa Falls Ramping Study Report and Down-Ramping Plan* with the Commission on April 3, 2018. As discussed in the Study Report, as well as the OCMP, due to the lack of storage capacity, the Project is operated in run-of river mode and generation is subject to seasonal river flows.[2] All increases in generation, will comply with the Standard Operating Procedure (Down-Ramping Plan) for ramping.

[2] Run of river mode of operation refers to a hydroelectric project that has little or no water (energy) storage, is subject to seasonal river flows for generation and is therefore an intermittent energy source. This is in contrast to conventional hydropower which uses reservoirs to regulate water for flood control and dispatchable electrical power.

At a run of river project there is little or no storage, therefore when generation is held at a steady state, changes to river stage in the bypassed reach are entirely the result of natural increases or decreases in inflow to the project. In contrast, at a conventional hydropower project, when generation is held at a steady state, natural increases in inflow can be absorbed (stored) in the project reservoir or natural decreases in inflow can be withdrawn from the project reservoir, allowing the downstream river stage to be maintained in steady state.

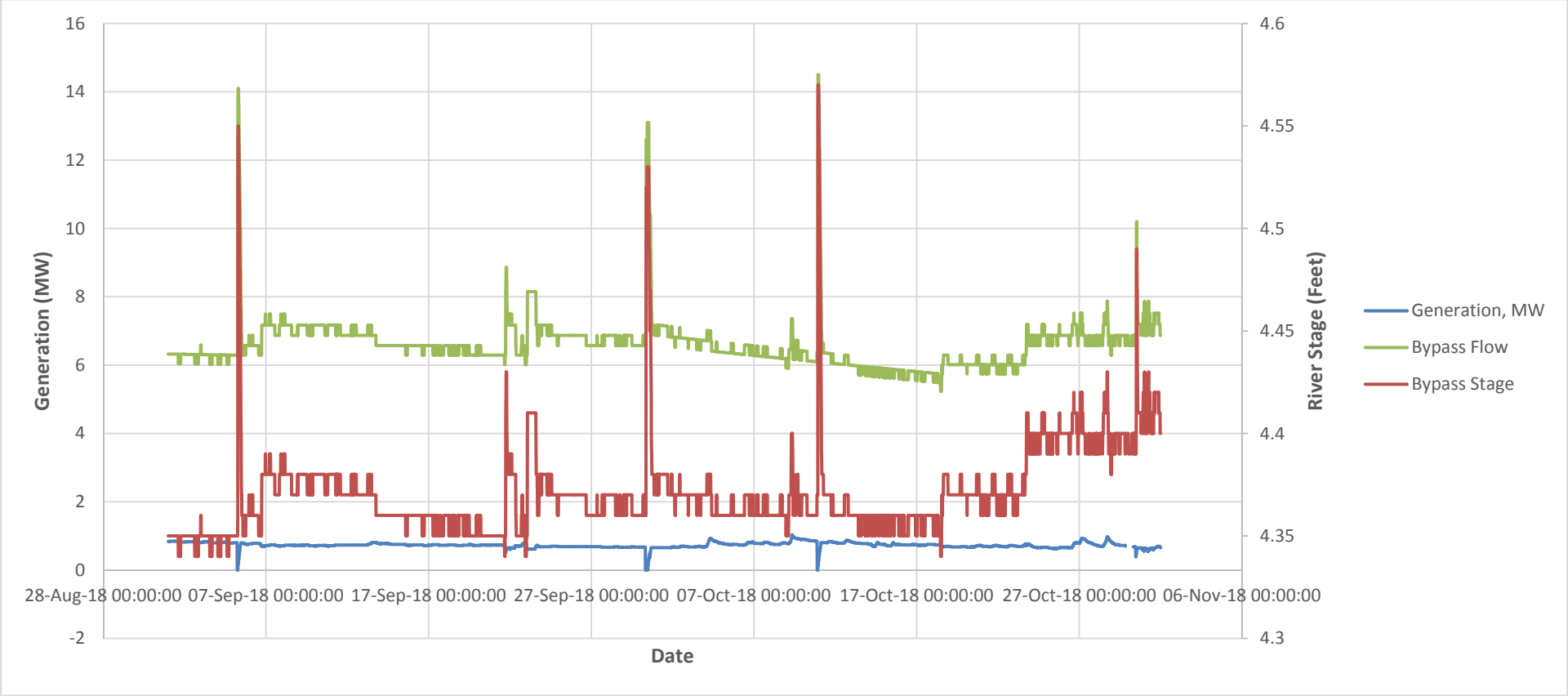
On July 17, 2018, the Programmed Logic Control (PLC) was re-programmed to make all generation increases in steps of 300 kW/h/. The forebay level indication and communications feed from the dam to the powerhouse and the Hydro Control Center, in Ariel, Washington, was also improved in 2018. The PLC receives real-time data from the USGS compliance gage and is programmed to alarm if there is a drop in minimum flows. These improvements in automation and communication have allowed the PLC to control unit generation based on real-time forebay level indication and streamflow in the bypassed reach. This is a much more efficient way to run the generating unit than was historically possible and also has the added benefit of holding a steadier river stage in the bypassed reach of the East Fork Wallowa River. For example, when a rainstorm occurs and forebay indication shows a rise in inflows the PLC can ramp the unit up at 300 kW/hr. to utilize the increased inflows for generation while holding the bypassed reach at a more steady stage. PacifiCorp's water right of 16 cfs is the maximum used for generation. Therefore, any inflow in excess of 16 cfs will always spill over the dam. In 2018, because the unit was operated based on forebay indication, there were some small generation changes during the September 1 through October 31, bull trout spawning period. However, these generation changes actually provided for less stage change in the bypassed reach than if generation had been held completely steady. Generation, river stage and flow data for the period of September 1 through October 31 is shown in Figure 2-2.

In 2018, all generation changes were made in compliance with Standard Operating Procedure (Down-Ramping Plan), that is to say the automated Programmed Logic Control (PLC) of the unit made all generation increases in steps of 300 kW/h or smaller. There was no facility maintenance during this period of September 1 through October 31. However, there were three unplanned unit trips during this period. On September 5 the generating unit tripped offline at 0545 hours Pacific Standard Time (PST) and was brought back online at 0645 hours PST. The prescribed ramp rate of 0.1 ft./hr. (300 kW/hour) was followed as generation was brought back up to approximately 770 kilowatts. Unfortunately this outage was not reported to the Agencies at the time. A second unplanned outage occurred when the generating unit tripped offline on September 30, 2018. The unit was offline for approximately 3.5 hours and generation resumed at 1132 hours PST. The prescribed ramp rate of 0.1 ft./hr. was followed as generation was brought back up to approximately 660 kilowatts. This outage was reported to the Agencies via e-mail on October 1, 2018. The third unplanned outage occurred on Wednesday, October 10, at 2125 hours PST. The project generator was offline for approximately 1 hour and generation resumed at 2221 hours PST. The prescribed ramp rate of 0.1 ft./hr. was followed as generation was brought back up to approximately 800 kilowatts. This outage was reported to the Agencies via e-mail on October 10, 2018.Table 2.0 shows generation increases and corresponding hourly stage change for each of the outage events discussed above.

Table 2.0 Generation versus East Fork Wallowa River Stage at USGS Gage 13325000

Date/Time	Generation (kW)	Hourly Average Stage (Feet)	Hourly Average Ramp (Feet)
September 5, 2018 Unplanned Outage			
09-05-18/0545	-0.0043	4.35	0
09-05-18/0645	0.1473	4.4	0.05
09-05-18/0745	0.3187	4.55	0.147
09-05-18/0845	0.4799	4.53	-0.02
09-05-18/0945	0.6532	4.49	-0.035
09-05-18/1045	0.7645	4.45	-0.043
09-05-18/1145	0.7939	4.40	-0.048
09-05-18/1245	0.7938	4.37	-0.035
09-05-18/1345	0.7910	4.36	-0.005
September 30, 2018 Unplanned Outage			
09-30-18/1100	-0.0039	4.53	0.005
09-30-18/1200	0.1475	4.53	0.005
09-30-18/1300	0.3075	4.53	-0.005
09-30-18/1400	0.4759	4.49	-0.033
09-30-18/1500	0.4561	4.46	-0.033
09-30-18/1600	0.6355	4.45	-0.005
09-30-18/1700	0.6540	4.41	-0.045
09-30-18/1800	0.6551	4.38	-0.028
09-30-18/1900	0.6551	4.38	-0.003
October 10, 2018 Unplanned Outage			
10-10-18/2145	-0.0041	4.37	0.001
10-10-18/2245	0.1456	4.46	0.1
10-10-18/2345	0.3046	4.57	0.1
10-10-18/0045	0.4685	4.54	-0.025
10-10-18/0145	0.6517	4.51	-0.038
10-10-18/0245	0.8006	4.46	-0.045
10-10-18/0345	0.8002	4.41	-0.048
10-10-18/0445	0.7997	4.38	-0.03
10-10-18/0545	0.7996	4.38	-0.003

Figure 2-2 Generation versus East Fork Wallowa River Stage/Flow at USGS Gage 13325000



3.0 Forebay Flushing

PacifiCorp flushed the Project forebay for 72 hours from June 11 through June 14, 2018. Prior to the flush PacifiCorp notified agency stakeholders, via e-mail May 17, 2018, of the planned flushing event. Agency stakeholders were comfortable with the flushing plan and schedule and declined the offer of a pre-flush coordination conference call.

A Forebay Flushing Report was filed with the Commission and the Oregon Department of Environmental Quality August 7, 2018 and is included as Appendix A to this report.

Figure 3.0. Location of Wallowa Falls forebay flush monitoring datasondes in 2018.

4.0 Fish Salvage Events

Article 411 of the license calls for a Fish Salvage Plan to be developed within six months of license issuance, PacifiCorp developed the Fish Salvage Plan (PacifiCorp 2017b) in consultation with the

agencies and filed it with the Commission April 14, 2017. The plan is implemented during all tailrace dewatering events, as well as immediately after installation of the temporary tailrace barrier, until the permanent tailrace barrier, required by license Article 409 and Appendix A, Condition 2(a), is installed and operational. The 2018 Fish Salvage and Temporary Tailrace Barrier Report is included as Appendix B to this report.

5.0 Bull Trout Monitoring and Protection Measures

Article 412 of the license mandates that annually, by March 31, PacifiCorp file a report with the Commission that documents the prior year's bull trout redd monitoring results as required by Appendix C, condition 4(a), of the license, as well as, any bull trout monitoring and protection measures completed during the previous year. At a minimum, the report must include:

1) The results of the fish handling and injury monitoring from removal for in-water construction required by Appendix C, condition 2(g) and (h);
2) The results of the bull trout construction monitoring required by Appendix C, condition 3(a)xi); and
3) The results of the bull trout redd monitoring required by Appendix C, condition 4(a).

In 2018 there were no fish handled for work-site isolation nor was there any upland or in-water construction on the Wallowa Falls Hydroelectric Project, therefore there is nothing to report for topics (1) and (2) above. Per license Article 412 and Appendix C, condition 4(a), the results of bull trout redd monitoring for calendar year 2018 are included as Appendix C to this report.

6.0 Noxious Weed Control

Article 415 and Appendix B, condition 6 of the Commission license requires that PacifiCorp file a noxious weed control plan with the Commission within six (6) months of license issuance, PacifiCorp developed the Noxious Weed Control Plan (NWCP [PacifiCorp 2017c]) in consultation with the agencies and filed it with the Commission June 5, 2017. As provided for in Section 3.5 of the NWCP, the 2018 Noxious Weed Control Plan Annual Report is included as Appendix D to this report.

5.0 References

Federal Energy Regulatory Commission (FERC). 2017. PacifiCorp Wallowa Falls Hydroelectric License (FERC) Project No. 308. Issued January 5, 2017.

PacifiCorp. 2017a. Operational Compliance Monitoring Plan. Wallowa Falls Hydroelectric Project FERC Project No. P-308. Portland, Oregon.

PacifiCorp. 2017b. Noxious Weed Control Plan. Wallowa Falls Hydroelectric Project FERC Project No. P-308. Portland, Oregon.

PacifiCorp. 2017c. Fish Salvage Plan. Wallowa Falls Hydroelectric Project FERC Project No. P-308. Portland, Oregon.

PacifiCorp. 2018. Wallowa Falls Ramping Study Report and Down-Ramping Plan. Wallowa Falls Hydroelectric Project FERC Project No. P-308. Portland, Oregon.

Appendix A

Wallowa Falls Forebay Flushing Report

PACIFICORP

Pacific Power |
Rocky Mountain Power
825 NE Multnomah, Suite 1800
Portland, Oregon 97232

Electronically filed August 7, 2018

Ms. Kimberly D. Bose, Secretary Federal Energy Regulatory Commission 888 First Street, NE Washington, DC 20426	Mr. John Dadoly Oregon Department of Environmental Quality 700 SE Emigrant Ave – Suite 330 Pendleton, OR 97801

Subject: Wallowa Falls Hydroelectric Project (FERC No. P-308)
Forebay Flushing Report, August 2018

Dear Addressee:

The Federal Energy Regulatory Commission (Commission) issued a new operating license for the Wallowa Falls Hydroelectric Project (Project) January 5, 2017. Annual flushing of the Project forebay is permitted under Appendix A, Condition 5 of the license. On August 2, 2017 the Commission issued an Order Modifying and Approving the Turbidity Monitoring Plan for Forebay Flushing under Appendix B, Condition 10 of the Project license. This letter report satisfies the annual reporting requirement for forebay flushing.

PacifiCorp flushed the forebay for 72 hours from June 1~~0~~ through June 1~~2~~, 2018. Prior to the flush, PacifiCorp notified agency stakeholders[1] via e-mail May 17, 2018 of the planned flushing event. Agency stakeholders declined the offer of a pre-flush coordination conference call.

The final Turbidity Monitoring Plan for Forebay Flushing, dated June 2, 2017, requires that natural inflow to the Project be greater than or equal to 15 cubic feet per second (cfs) for flushing to occur. The flow in the lower bypassed reach of East Fork Wallowa River, as measured at the U.S. Geological Survey (USGS) #13325000, at midnight June 10, 2018, was 57.6 cfs. Bypassed reach flows remained greater than 49 cfs for the duration of the 72 hour flushing event.

For forebay flushing the following general sequence of events occurred:

June 10, 2018: Mobilized to site and deployed Hydrolab MS5 mini datasondes in the East Fork Wallowa River upstream of the inlet to the Project forebay and downstream of the Project dam at the USGS gage site. Sondes were in place through June 16, 2018 and recorded top of the hour nephelometric turbidity units (NTU)[2]. Turbidity data is provided at Attachment 1 to the letter report.

June 11, 2018: PacifiCorp's contracted biologist conducted a fish salvage of the Project tailrace per the final Fish Salvage plan date May 2, 2017.

[1] Oregon Department of Environmental Quality, Oregon Department of Fish and Wildlife, U.S. Fish and Wildlife Service and U.S. Forest Service.

[2] For unknown reasons the sonde deployed above the Project forebay to record background turbidity malfunctioned and did not record anything for the duration of the deployment.

June 11, 2018: PacifiCorp personnel mobilized to the Project forebay and closed the penstock intake gate and opened the low level outlet gate to 100 percent to allow all inflow, within pipe capacity, to flow through the dam via the pipe.

June 12, 2018: PacifiCorp personnel inspected the forebay level and found a water surface elevation decrease of approximately three feet with no water spilling over the dam spillway.

June 13, 2018: PacifiCorp personnel inspected the forebay level and found that the water surface elevation had decreased an additional 1.5 feet from the previous day for a total drawdown of approximately 4.5 feet. Inflows were too high to completely drain the forebay using the lower level outlet pipe.

June 14, 2018: PacifiCorp personnel along with contracted biologist closed the lower level outlet drain valve and then adjusted the gate to provide a minimum flow release of 5 cfs.

June 14, 2018: PacifiCorp's contracted biologist walked the entire bypassed reach of the East Fork Wallowa River and visually monitored for stranded, distressed or dead fish. None were observed. The biologist also noted that there were no signs of excessive sediment deposition anywhere in the reach.

June 16, 2018: Hydrolab datasondes were removed from the East Fork Wallowa River upstream and downstream locations.

Due to the inability to completely drawdown the forebay, PacifiCorp operations personnel reported that limited quantities of sediment were moved out of the forebay. However, visual inspection did verify that the area immediately surrounding the intake structure was free of sediment following the flush. Unfortunately, due to an unknown equipment malfunction, there is no recorded background turbidity for the flushing event, but turbidity data from the lower datasonde appears to indicate some high sediment pulses of water did move down the channel from the forebay. Although it is worth noting, with flows in excess of 49 cfs there is also likely natural sediment transport occurring in the East Fork Wallowa River.

This letter report and its attachments are being filed electronically. If you have any questions please contact Briana Weatherly at 503-813-7039 or Briana.weatherly@pacificorp.com.

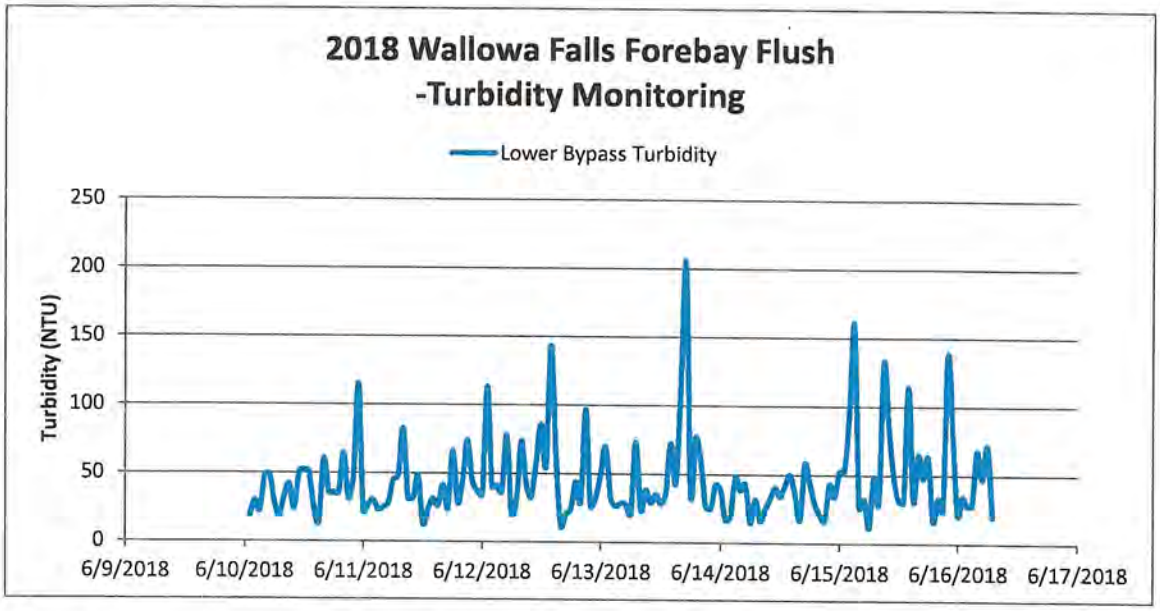
Sincerely,

Mark A. Sturtevant
Managing Director, Renewable Resources

MAS: BW: km

Encl:	Letter – Public
	Attachment 1 – Wallowa Falls 2018 Forebay Flushing Turbidity Data - Public

eFile:	Kimberly D. Bose, Secretary Via eLibrary at www.ferc.gov	**eMail:** John Dadoly, ODEQ DADOLY.John@deq.state.or.us
Cc:	Gretchen Sausen, USFWS	Cc: Adrian Cuzick, USDA- FS
Cc:	Elizabeth A. O. Moats, ODFW	



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Starting Time (HH:MM:SS) : 01:00:00
Stopping Date (M/D/YYYY) : 6/24/2018
Stopping Time (HH:MM:SS) : 23:00:00
Interval (HH:MM:SS) : 01:00:00
Sensor warmup (HH:MM:SS) : 00:02:00
Circltr warmup (HH:MM:SS) : 00:02:00

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6/10/18 5:00 AM	48.5	5:00:00	3.89
6/10/18 6:00 AM	28.6	6:00:00	4.01
6/10/18 7:00 AM	18.5	7:00:00	4.18
6/10/18 8:00 AM	33.1	8:00:00	4.31
6/10/18 9:00 AM	41.5	9:00:00	4.35
6/10/18 10:00 AM	24.1	10:00:00	4.6
6/10/18 11:00 AM	50.9	11:00:00	4.89
6/10/18 12:00 PM	52.2	12:00:00	5.42
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6/11/18 12:00 AM	21.7	0:00:00	4.88
6/11/18 1:00 AM	27.2	1:00:00	4.74
6/11/18 2:00 AM	30.2	2:00:00	4.59
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6/11/18 4:00 AM	25	4:00:00	4.26
6/11/18 5:00 AM	28	5:00:00	4.33
6/11/18 6:00 AM	44.7	6:00:00	4.37
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6/11/18 8:00 PM	43.7	20:00:00	6.43
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6/14/18 11:00 PM	33.9	23:00:00	7.16
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6/15/18 6:00 PM	63	18:00:00	9.57
6/15/18 7:00 PM	16.4	19:00:00	9.01
6/15/18 8:00 PM	33	20:00:00	8.89
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6/16/18 5:00 AM	47.3	5:00:00	6.14
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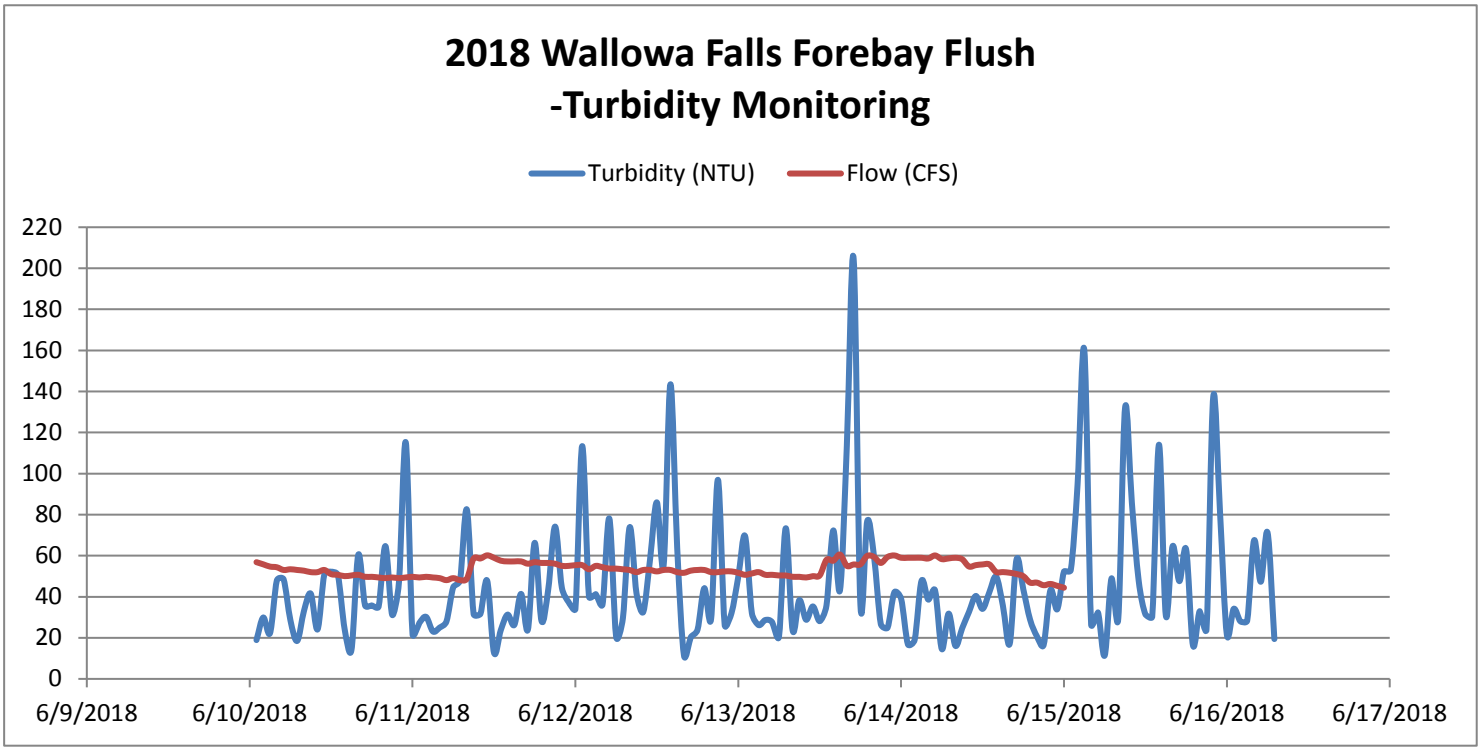

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Stopping Time (HH:MM:SS) : 23:00:00
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Circltr warmup (HH:MM:SS) : 00:02:00

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6/10/18 4:00 AM	47.9	54.375	4:00:00	4.24
6/10/18 5:00 AM	48.5	53.05	5:00:00	3.89
6/10/18 6:00 AM	28.6	53.4	6:00:00	4.01
6/10/18 7:00 AM	18.5	53.05	7:00:00	4.18
6/10/18 8:00 AM	33.1	52.7	8:00:00	4.31
6/10/18 9:00 AM	41.5	52	9:00:00	4.35

Date M/D/YYYY	TurbSC NTU	Flow CFS	Time HH:MM:SS	Temp −C
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6/10/18 12:00 PM	52.2	51.025	12:00:00	5.42
6/10/18 1:00 PM	50.5	50.7	13:00:00	5.98
6/10/18 2:00 PM	24.1	50.05	14:00:00	6.24
6/10/18 3:00 PM	14.1	50.375	15:00:00	6.53
6/10/18 4:00 PM	60.4	50.7	16:00:00	6.5
6/10/18 5:00 PM	35.8	49.725	17:00:00	6.25
6/10/18 6:00 PM	35.8	49.725	18:00:00	6.21
6/10/18 7:00 PM	35.2	49.4	19:00:00	6.08
6/10/18 8:00 PM	64.7	49.075	20:00:00	5.77
6/10/18 9:00 PM	31.2	49.4	21:00:00	5.46
6/10/18 10:00 PM	47.2	49.075	22:00:00	5.11
6/10/18 11:00 PM	115.2	49.4	23:00:00	4.88
6/11/18 12:00 AM	21.7	49.725	0:00:00	4.88
6/11/18 1:00 AM	27.2	49.4	1:00:00	4.74
6/11/18 2:00 AM	30.2	49.725	2:00:00	4.59
6/11/18 3:00 AM	23.1	49.4	3:00:00	4.37
6/11/18 4:00 AM	25	49.075	4:00:00	4.26
6/11/18 5:00 AM	28	48.1	5:00:00	4.33
6/11/18 6:00 AM	44.7	49.075	6:00:00	4.37
6/11/18 7:00 AM	48.1	48.1	7:00:00	4.46
6/11/18 8:00 AM	82.5	48.75	8:00:00	4.5
6/11/18 9:00 AM	31.6	58.65	9:00:00	4.67
6/11/18 10:00 AM	31.6	58.65	10:00:00	5.07
6/11/18 11:00 AM	47.8	60.175	11:00:00	5.53
6/11/18 12:00 PM	12.8	59	12:00:00	6.38
6/11/18 1:00 PM	23.7	57.575	13:00:00	7.01
6/11/18 2:00 PM	31.3	57.225	14:00:00	7.24
6/11/18 3:00 PM	26.3	57.225	15:00:00	7.34
6/11/18 4:00 PM	41.4	57.225	16:00:00	7.53
6/11/18 5:00 PM	24	56.1	17:00:00	7.51
6/11/18 6:00 PM	66.3	56.85	18:00:00	7.6
6/11/18 7:00 PM	28.3	56.475	19:00:00	6.98
6/11/18 8:00 PM	43.7	56.475	20:00:00	6.43
6/11/18 9:00 PM	74.2	56.1	21:00:00	5.9
6/11/18 10:00 PM	44.5	55.05	22:00:00	5.28
6/11/18 11:00 PM	37.4	55.05	23:00:00	4.86
6/12/18 12:00 AM	34.1	55.4	0:00:00	4.5
6/12/18 1:00 AM	113.4	55.425	1:00:00	4.4
6/12/18 2:00 AM	40	53.4	2:00:00	4.27
6/12/18 3:00 AM	41.3	55.05	3:00:00	3.98
6/12/18 4:00 AM	36.3	54.4	4:00:00	3.78
6/12/18 5:00 AM	78.1	53.725	5:00:00	3.63
6/12/18 6:00 AM	20.6	53.725	6:00:00	3.73

Date M/D/YYYY	TurbSC NTU	Flow CFS	Time HH:MM:SS	Temp −C
6/12/18 7:00 AM	29.6	53.375	7:00:00	3.62
6/12/18 8:00 AM	73.9	53.025	8:00:00	3.95
6/12/18 9:00 AM	41.7	52	9:00:00	4.49
6/12/18 10:00 AM	32.6	53.05	10:00:00	5.43
6/12/18 11:00 AM	58.2	53.05	11:00:00	6.3
6/12/18 12:00 PM	86	52.35	12:00:00	7.36
6/12/18 1:00 PM	55.3	53.05	13:00:00	8.26
6/12/18 2:00 PM	143.5	53.05	14:00:00	9.04
6/12/18 3:00 PM	63.8	52	15:00:00	9.56
6/12/18 4:00 PM	11.4	51.675	16:00:00	9.87
6/12/18 5:00 PM	20.3	52.725	17:00:00	9.96
6/12/18 6:00 PM	24	53.05	18:00:00	9.77
6/12/18 7:00 PM	44.2	53.05	19:00:00	9.56
6/12/18 8:00 PM	29.3	52	20:00:00	9.21
6/12/18 9:00 PM	97	52	21:00:00	8.63
6/12/18 10:00 PM	26.2	52.35	22:00:00	8
6/12/18 11:00 PM	32	52.35	23:00:00	7.54
6/13/18 12:00 AM	49.7	51.675	0:00:00	7.33
6/13/18 1:00 AM	69.6	50.7	1:00:00	7.03
6/13/18 2:00 AM	32.1	51.35	2:00:00	6.74
6/13/18 3:00 AM	26.2	52	3:00:00	6.53
6/13/18 4:00 AM	28.7	50.7	4:00:00	6.32
6/13/18 5:00 AM	27.6	50.7	5:00:00	6.18
6/13/18 6:00 AM	20.6	50.375	6:00:00	6.07
6/13/18 7:00 AM	73.4	50.375	7:00:00	6.01
6/13/18 8:00 AM	23.8	49.725	8:00:00	6.44
6/13/18 9:00 AM	38.4	49.725	9:00:00	6.87
6/13/18 10:00 AM	28.8	49.4	10:00:00	7.33
6/13/18 11:00 AM	35.3	50.05	11:00:00	8.09
6/13/18 12:00 PM	28.1	50.375	12:00:00	9.27
6/13/18 1:00 PM	35.8	58	13:00:00	9.97
6/13/18 2:00 PM	72.3	57.575	14:00:00	10.67
6/13/18 3:00 PM	43.4	60.575	15:00:00	11.16
6/13/18 4:00 PM	113.7	55.05	16:00:00	11.3
6/13/18 5:00 PM	204.7	55.75	17:00:00	11.27
6/13/18 6:00 PM	36.1	55.775	18:00:00	10.88
6/13/18 7:00 PM	76.8	59.925	19:00:00	10.55
6/13/18 8:00 PM	59.8	59.4	20:00:00	9.93
6/13/18 9:00 PM	26.8	56.475	21:00:00	9.2
6/13/18 10:00 PM	24.9	59.4	22:00:00	8.69
6/13/18 11:00 PM	42.2	60.125	23:00:00	8.23
6/14/18 12:00 AM	39	59	0:00:00	7.7
6/14/18 1:00 AM	16.8	59	1:00:00	7.42
6/14/18 2:00 AM	19.1	59	2:00:00	6.93
6/14/18 3:00 AM	47.7	59	3:00:00	6.59

Date M/D/YYYY	TurbSC NTU	Flow CFS	Time HH:MM:SS	Temp −C
6/14/18 4:00 AM	38.6	58.65	4:00:00	6.32
6/14/18 5:00 AM	43.1	60.125	5:00:00	6.14
6/14/18 6:00 AM	14.5	58.325	6:00:00	5.89
6/14/18 7:00 AM	31.8	58.675	7:00:00	6.02
6/14/18 8:00 AM	16.1	59	8:00:00	6.04
6/14/18 9:00 AM	24.7	58.275	9:00:00	6.09
6/14/18 10:00 AM	32.6	54.73	10:00:00	6.28
6/14/18 11:00 AM	40.4	55.4	11:00:00	6.67
6/14/18 12:00 PM	34.1	55.75	12:00:00	7.54
6/14/18 1:00 PM	42.2	55.775	13:00:00	8.3
6/14/18 2:00 PM	49.8	52.075	14:00:00	9
6/14/18 3:00 PM	35.6	52.025	15:00:00	9.39
6/14/18 4:00 PM	17.1	51.7	16:00:00	9.5
6/14/18 5:00 PM	58.1	51.075	17:00:00	9.57
6/14/18 6:00 PM	43.7	50.05	18:00:00	9.5
6/14/18 7:00 PM	28.9	46.9	19:00:00	9.28
6/14/18 8:00 PM	20.8	46.9	20:00:00	8.88
6/14/18 9:00 PM	16.5	45.625	21:00:00	8.59
6/14/18 10:00 PM	43.2	46.25	22:00:00	7.87
6/14/18 11:00 PM	33.9	45.325	23:00:00	7.16
6/15/18 12:00 AM	52.3	44.4	0:00:00	6.67
6/15/18 1:00 AM	53		1:00:00	6.22
6/15/18 2:00 AM	94.7		2:00:00	5.85
6/15/18 3:00 AM	159.9		3:00:00	5.6
6/15/18 4:00 AM	26.5	43.5	4:00:00	5.36
6/15/18 5:00 AM	32.4		5:00:00	5.27
6/15/18 6:00 AM	11.4		6:00:00	5.21
6/15/18 7:00 AM	48.9		7:00:00	5.26
6/15/18 8:00 AM	29.4	41.3	8:00:00	5.85
6/15/18 9:00 AM	132		9:00:00	6.77
6/15/18 10:00 AM	85.9		10:00:00	6.95
6/15/18 11:00 AM	48		11:00:00	7.69
6/15/18 12:00 PM	31.4	39.4	12:00:00	8.92
6/15/18 1:00 PM	30.3		13:00:00	9.52
6/15/18 2:00 PM	114.1		14:00:00	9.55
6/15/18 3:00 PM	31.1		15:00:00	9.68
6/15/18 4:00 PM	64.6	38.8	16:00:00	9.66
6/15/18 5:00 PM	47.6		17:00:00	9.74
6/15/18 6:00 PM	63		18:00:00	9.57
6/15/18 7:00 PM	16.4		19:00:00	9.01
6/15/18 8:00 PM	33	38.5	20:00:00	8.89
6/15/18 9:00 PM	24.2		21:00:00	8.18
6/15/18 10:00 PM	137.6		22:00:00	7.64
6/15/18 11:00 PM	80.7		23:00:00	7.4
6/16/18 12:00 AM	21.5	38.3	0:00:00	7.23

Date M/D/YYYY	TurbSC NTU	Flow CFS	Time HH:MM:SS	Temp −C
6/16/18 1:00 AM	34.1		1:00:00	6.87
6/16/18 2:00 AM	28		2:00:00	6.56
6/16/18 3:00 AM	28.4		3:00:00	6.41
6/16/18 4:00 AM	67.4	38.1	4:00:00	6.18
6/16/18 5:00 AM	47.3		5:00:00	6.14
6/16/18 6:00 AM	71.2		6:00:00	6
6/16/18 7:00 AM	19.4	38.2	7:00:00	6.65

Appendix B

Fish Salvage & Temporary Tailrace Barrier Report

Final

Fish Salvage & Temporary Tailrace Barrier Report for the Wallowa Falls Hydroelectric Project Tailrace

(FERC No. P-308)

December 20, 2018

Prepared by:
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PacifiCorp
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Portland, OR 97232

Table of Contents

1.0 INTRODUCTION

The Federal Energy Regulatory Commission (FERC) issued a new operating license for the Wallowa Falls Hydroelectric Project (Project) on January 5, 2017. Elements of the new license address fishery resources within the Project area, specifically as they pertain to the Project tailrace. **Article 411** of the license calls for a *Fish Salvage Plan* to be developed within six months of license issuance, "*the licensee must file for Commission approval a fish salvage plan that describes its proposed procedures for capturing, handling, and relocating any fish trapped in the tailrace channel during planned or unplanned unit outage events that dewater the tailrace channel. The fish salvage plan must be implemented each year following license issuance until the permanent tailrace barrier required by Appendix A condition 2(a) and Article 409 is installed and operating. In addition to the handling procedures specified by Appendix C, condition 2, the plan must include the following provisions: (1) Salvaging of fish from the tailrace channel within two hours of the installation of any temporary fish passage barrier required by Appendix A, condition 2(b); and (2) Salvaging of fish from the tailrace channel prior to complete dewatering of the tailrace channel due to a planned or unplanned outage event*."

Resident and migratory fish species currently inhabit the tailrace channel at varying densities, depending on time of year. Fish species encountered to date consist of rainbow trout (*Oncorhynchus mykiss*), bull trout (*Salvelinus confluentus*), brook trout (*Salvelinus fontinalis*), mountain whitefish (*Prosopium williamsoni*), kokanee (*Oncorhynchus nerka*), and *cottid ssp*. Infrequent unplanned unit trips with subsequent headgate closures, as well as an annually occurring planned plant outage for maintenance and annual installation of a temporary tailrace fish barrier, all cause the Project tailrace to be dewatered for a length of time great enough to drain the entire reach. During plant outages lasting longer than one hour in duration it is necessary to physically remove, or salvage, fish currently residing therein.

This Report and the information contained within fulfill Plan implementation reporting requirements of Article 411 of the FERC license as well as actions necessary to protect and preserve fishery resources within the Project area.

2.0 STUDY AREA

The Project is located on the East Fork Wallowa River approximately 11 miles (17 kilometers) outside of the City of Joseph in Northeastern Oregon. The Project (Figure 1) reservoir/forebay lies over 5,200 feet (1,600 meters) above mean sea level (msl) and is approximately 0.2 surface acres (0.08 ha) in size and averages 5 feet (1.5 m) deep. Because the Project operates as run of river, there is no measurable storage. Though no measurable storage is present in the forebay, habitat in this area is lacustrine, and given the shallow water depth no thermal stratification is present. Substrate in the forebay consists of deposited silt, sand, and other glacial fines.

Water diverted at the forebay travels through the flow line and penstock to the generating turbine in the Project powerhouse. Water exits the turbine and is discharged into an approximately 985-foot (300 m) long tailrace discharge channel that empties into the West Fork Wallowa River. This channel has an average wetted-width of 10 feet (3.1 m) and an average depth of one foot (0.3 m). The habitat type within the tailrace channel is dominated by high gradient riffle with very few pools.

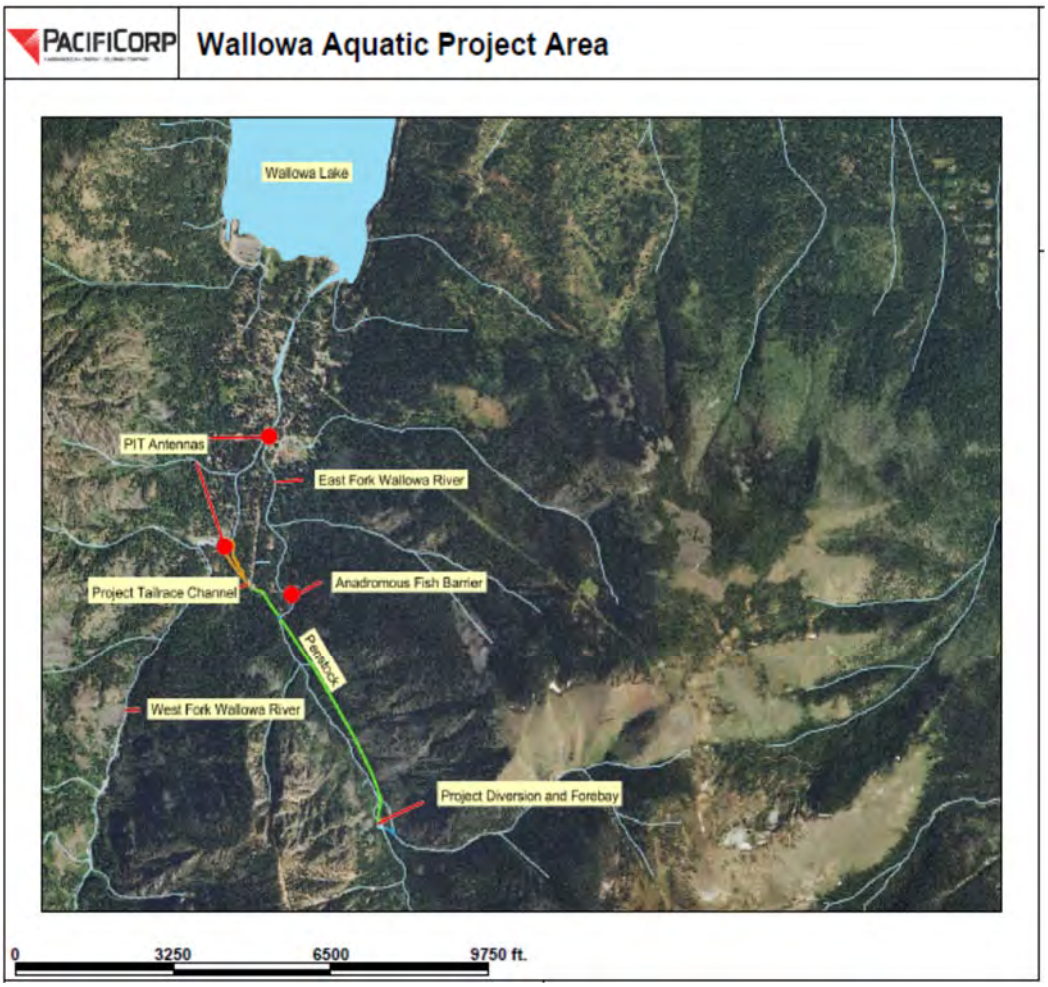

Figure 1 Wallowa Falls Hydroelectric Project.

3.0 METHODS

Onsite observations indicate when the unit trips and the headgate closes it takes approximately 90 minutes for the entire tailrace channel to drain completely of water. Conversely, if the unit trips and the headgate does not close a constant flow of approximately 3 cubic feet per second (cfs) is supplied to the tailrace channel. Thus a fish salvage event is only triggered if the unit trips along with a subsequent headgate closure. Unit trips that do not cause the headgate to close shall trigger no salvage response as the amount of water available within the tailrace channel during this scenario is sufficient for fish survival until the unit is brought back online and full flow once again commences.

Upon notification of a unit trip with corresponding headgate closure, regardless of time of day, a local on-call qualified biologist was immediately notified by an operator at Merwin Hydro Control and commenced with physically rescuing stranded fish from the tailrace channel. The local qualified biologist lives in close proximity to the Project so as to be on-site and walking the tailrace channel within 60 minutes of the unplanned unit trip. A Smith-Root LR-24 (or similar model) backpack electrofisher or long-handled dip net was utilized to capture stranded fish. If a backpack electrofisher was utilized, it was set to Direct Current (DC) and applied at the lowest voltage setting possible to still allow capture of stranded fish species. All electrofishing activities followed protocols as set forth in the National Marine Fisheries Service Backpack Electrofishing Guidelines (NMFS 2000). To remain compliant with stipulations contained within the USFWS issued Biological Opinion (BiOp) for the Wallowa Falls Hydroelectric Facility, PacifiCorp ensured that fish capture and removal operations were conducted by a qualified biologist, and that all staff participating in the operation had the necessary knowledge, skills, and abilities to ensure safe handling of fish. All planned unit outages with headgate closure occured early in the morning to ensure the lowest possible water temperatures for safe fish handling.

In 2018, any and all salvage activities began in the fenced area immediately downstream of the turbine discharge and proceeded in a downstream manner until all areas of the tailrace were thoroughly fished. All captured fish were held in five gallon buckets or small coolers with aerators until liberation into the West Fork Wallowa River downstream of the Project tailrace confluence. Fish capture and removal operations took all appropriate steps to minimize the amount and duration of handling. The operations maintained captured fish in water to the maximum extent possible during seining/netting, handling, and transfer for release, to prevent and minimize stress.

Prior to liberation, all captured fish were quantified and measured to their caudal fork. Due to the presence and possible capture of Endangered Species Act listed bull trout in the Project area, recording of information following contact with said species complied with stipulations contained within the USFWS issued BiOp for this Project which states, “PacifiCorp shall document all bull trout encountered during work site isolation by submitting a fish handling and injury-occurrence report to the Service. The report shall include: 1) the name and address of the supervisory fish biologist; 2) methods used to isolate the work area and minimize disturbances to bull trout; 3) stream conditions before and following placement and removal of temporary barriers; 4) the means of fish removal; 5) approximate the number of fish removed by species and age class, the number of bull trout removed; 6) condition of all bull trout released; and 7) any incidence of observed injury or mortality to bull trout. Specifically, for all bull trout

captured, we ask that the fisheries biologist in charge of handling record the date and time, capture location, capture method used, length and weight of the specimen, condition (if abnormal), search for and record identification numbers from any tags that may be present, and provide the collector's name." This Report and information contained therein shall qualify also as the "fish handling and injury-occurrence report" as stipulated within the USFWS issued BiOp for the Project.

Also in 2018, a resistance type weir was constructed to serve as a temporary fish exclusionary device at the outlet of the tailrace channel and it's confluence with the West Fork Wallowa River. The resistance weir utilized 25.4 millimeter (mm) diameter polyvinyl chloride (PVC) set to a length of 2.4 meters (m) and spaced apart 6.35 mm by mechanically constructed stringers, the weir was stream-spanning (Figure 2). As extra precaution, a barrier net was also laid across the entire bottom of the upstream side of the weir. The openings of this barrier net were also 6.35 mm and the net was held in place by large sandbags placed end to end along the stream bottom and spanning the entire stream-width.

Figure 2. Photo of Wallowa Falls tailrace barrier in operation. Photo taken on August 2, 2018.

4.0 RESULTS

Fish Salvage

The Wallowa Falls Tailrace Channel was salvaged for aquatic species on four separate occasions in 2018. The first salvage occurred on May 25 and was due to a unit trip and subsequent headgate drop. No fish were initially observed or captured during salvage activities, but a visual inspection of the dried tailrace channel the next day encountered one dessicated rainbow trout mortality. The second salvage activity occurred on June 11 from planned dewatering due to maintenance of the generating unit. Two rainbow trout were captured and liberated downstream to the West Fork Wallowa River. The third salvage occurred on July 16 after the temporary tailrace barrier was installed per Article 411 (1) of the operating license which stipulates that a fish salvage will be performed within two hours of a fish exclusionary device being installed within the channel. During this salvage four rainbow trout, two bull trout, and one *Salvelinus* hybrid were captured and liberated downstream to the West Fork Wallowa River. All *Salvelinus* captures were additionally sampled for genetic material to be analyzed at a later date.

In all, seven rainbow trout, two bull trout, and one *S.* hybrid ranging in fork lengths from 124 mm to 200 mm were captured within the tailrace channel. Of these ten captures, all live fish were liberated to the West Fork Wallowa River (Table 1). All fish were captured by a Smith-Root model LR-24 backpack electrofisher set to straight direct current in order to minimize stress from initial capture and all protocols as set forth in the NOAA Electrofishing Guidelines Manual were followed.

Table 1

Date	Species	Fork Length (mm)	Location	Comments
5/25/18	RB	124	Tailrace	Salvage due to unplanned unit trip. MORT.
6/11/18	RB	125	Tailrace	Salvage due to unit maintenance
6/11/18	RB	150	Tailrace	Salvage due to unit maintenance
7/16/18	Bull	119	Tailrace	Salvage after temp tailrace barrier construction
7/16/18	Bull	132	Tailrace	Salvage after temp tailrace barrier construction
7/16/18	hybrid	134	Tailrace	Salvage after temp tailrace barrier construction
7/16/18	RB	200	Tailrace	Salvage after temp tailrace barrier construction
7/16/18	RB	170	Tailrace	Salvage after temp tailrace barrier construction
7/16/18	RB	192	Tailrace	Salvage after temp tailrace barrier construction
7/16/18	RB	168	Tailrace	Salvage after temp tailrace barrier construction
11/1/18	n/a	n/a	Tailrace	Salvage due to unit maintenance. No fish captured or observed.

Temporary Fish Barrier

Per Article 410 of the operating license, a temporary fish barrier was installed at the outlet of the Wallowa Falls Tailrace Channel on July 16, 2018. This tailrace fish barrier was visually inspected twice per week until taken out on November 15, 2018. At no time during weekly inspections was the barrier visually assessed to be ineffective in precluding fish from entering the tailrace (Appendix A). Maintenance on the generating unit on November 1 granted the

opportunity to test the effectiveness of the tailrace barrier as the tailrace channel was drained dry prior to maintenance activities. No fish were captured or observed during fish salvage activities as the tailrace was dewatering and no fish mortalities were observed after the channel was completely dewatered.

5.0 CITATIONS

National Marine Fisheries Service. 2000. National Marine Fisheries Service Backpack Electrofishing Guidelines.

United States Fish and Wildlife Service. 2016. Biological Opinion for the Wallowa Falls Hydroelectric Project.

APPENDIX A

TAILRACE BARRIER WEEKLY INSPECTION NOTES

Date	Observer	Comments
7/16/2018	J. Doyle	Weir completed and installed
7/20/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
7/23/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
7/26/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
7/30/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
8/2/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well. .
8/6/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
8/9/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
8/13/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
8/17/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
8/20/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
8/23/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
8/27/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
8/30/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
9/2/2018	J. Doyle	Weir in place, mechanically cleaned with push broom and working well.
9/6/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
9/10/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well. .
9/13/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
9/17/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
9/20/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.

Date	Observer	Comments
9/23/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
9/28/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/2/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/6/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/10/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/12/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/15/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/18/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/23/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/28/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
10/30/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
11/2/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
11/6/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
11/10/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
11/12/2018	Bioresources staff	Weir in place, mechanically cleaned with push broom and working well.
11/15/2018	Bioresources staff	Weir disassembled and taken out of tailrace channel.

Appendix C

Bull Trout Redd Monitoring Report

Final

Bull Trout Redd Monitoring Report for the Wallowa Falls Hydroelectric Project

East Fork Wallowa River barrier to upstream fish migration, photo courtesy of Kendrick Moholt

(FERC No. P-308)

December 20, 2018

Prepared by:

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PacifiCorp

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Table of Contents

1.0 INTRODUCTION

The United States Fish and Wildlife Service (USFWS) issued a new Biological Opinion (BiOp) for the Wallowa Falls Hydroelectric Project (Project) on October 14, 2016. Monitoring elements within the new BiOp specifically pertaining to Endangered Species Act (ESA) listed bull trout (*Salvelinus confluentus)* were triggered when the Federal Energy Regulatory Commission (FERC) issued a new operating license for the Project on January 7, 2017.

The USFWS listed five reasonable and prudent measures (RPM) to be undertaken in order to minimize incidental take of bull trout by Project operations. Elements within this Plan pertain specifically to RPM 4 which seeks to "*minimize the risk of adverse effects to bull trout from emergency shut-down and ramping"*. Section 8.4 4(a) of the BiOp adds specific language and actions to be taken in order to achieve RPM 4.

Bull trout currently inhabit the East Fork Wallowa River (Study Area) at varying densities, depending on time of year. Past redd surveys of the Study Area have revealed bull trout actively constructing redds, while no bull trout redds have ever been observed within the neighboring West Fork.

This Report and the information contained therein fulfills reporting requirements per Section 8.4 4(a) of the USFWS issued BiOp as well as results pertinent to implementation of actions necessary to assess abundance and spatial distribution of bull trout redds within the East Fork Wallowa River.

2.0 STUDY AREA

The bypassed portion of the East Fork Wallowa River within and near the Project area is approximately 2,800 meters (m) long from the Project diversion dam to its confluence with the Wallowa River (Figure 1). Gradient in this reach is high, with the upper 1,600 m averaging 19 percent and the lower 1,200 m averaging 8.5 percent. Channel morphology within most of the upper reach is dominated mainly by steep bedrock, vertical waterfalls, and cascades over boulders; though the upper reaches are steep, the lower 800 m to the confluence with the Wallowa River has a shallower gradient, consisting of numerous riffles and pools. Over the course of its length, the bypassed East Fork Wallowa River drops approximately 365 m from the dam to the confluence with the Wallowa River. The upper and lower portions are divided by a 3.7 m vertical falls (Report cover photo), an impassible upstream migration fish barrier.

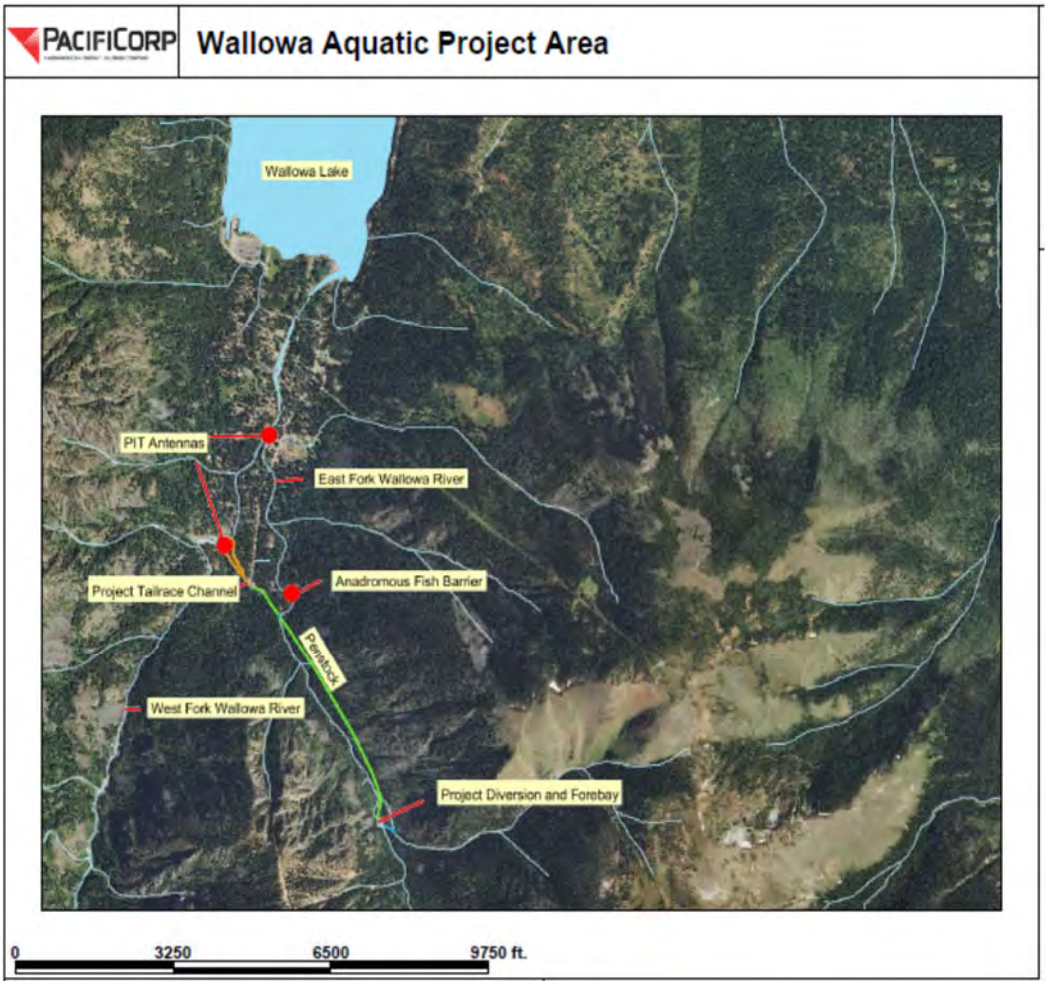

Figure 1. Wallowa Falls Hydroelectric Project.

3.0 METHODS

Section 8.4 4(a) of the BiOp states the following terms and conditions are necessary for the implementation of RPM 4, "*Conduct bull trout redd monitoring in the East Fork Wallowa River (from the upstream falls to the confluence with the Wallowa River) on an annual basis for 10 years to monitor take. FERC/PacifiCorp shall meet with the Service at the end of the 10 year period to determine whether additional years of redd monitoring are necessary GPS and map redds and photo document redds during survey. Measure the size of a redd and its location. Document bull trout observed (<6 inches in length, < 12 inches in length, <14 inches in length, and > 14 inches in length, while conducting redd count and document if bull trout occupy the redd). Note if brook trout are spawning with bull trout. Document flows during annual redd counts and during a shutdown and ramping. Conduct this redd monitoring in mid-September and October. If an emergency shutdown and ramping occurs during the spawning season, the East Fork Wallowa River spawning area will be field visited for any new redds built near the water's edge that could be dewatered due to shut down and ramping. Notify the Service of both positive and negative findings"*.

Bull trout redd surveys of the lower portion of the East Fork Wallowa River began September 1, 2018 and continued weekly through October 30, 2018 for a total of nine redd surveys. During each survey the entire lower portion of the East Fork Wallowa River was walked by an experienced qualified biologist, from the confluence with the West Fork Wallowa River upstream 800 m to the migratory fish barrier. In order to standardize inherent observer error, the same experienced surveyor was utilized for all nine surveys in 2018. All encountered bull trout redds were demarcated by handheld GPS, flagged for visual reference within the stream, and photographs were taken of each redd. During subsequent surveys, previously identified redds were revisited and assessed for visibility. Flagging was either marked Still Visible along with the survey date if redd could still be visually identified, or the flagging taken down if the redd was no longer visible. Time taken for redd to no longer remain visible within the stream was recorded in order to assess redd life. Though the Planning document called for only four redd surveys during the spawning period, this being the second year of study and redd life still being characterized, nine surveys were performed in order to gain an accurate understanding of visual redd persistence within this watershed. Observed redd life will be utilized to adjust frequency of surveys moving forward.

All fish observed in the vicinity of identified redds were recorded to species if possible, as well as estimated for fork length.

4.0 RESULTS

Four bull trout redds were identified and marked by GPS during the nine redd surveys performed of the East Fork Wallowa River in 2018 (Figure 2). All four bull trout redds were large and indicative of being constructed by large migratory-sized fish (Table 1). One new bull trout redd was observed during each of the first four surveys (Sept. 1 – Sept. 24), no new redds were observed during the final five surveys (Oct. 2 – Oct. 30). All four observed redds had bull trout either on and actively constructing or in very close proximity to. Three of the four redds had a

pair (Figure 3), one male/one female, associated with the redd; while the fourth identified redd only had a single fish in close proximity (Table 1).

Table 1. East Fork Wallowa River bull trout redd data.

Date	Survey Location	Redd	Redd Dimension	Live bull trout				Survey Conditions
				<6 in.	<12 in.	<14 in.	>14 in.	
9/1/2018	EF Wallowa mouth to barrier	1	50 in. long 27 in. wide	0	0	0	3	Clear sky, Good H2O vis
9/8/2018	EF Wallowa mouth to barrier	2	72 in. long 39 in. wide	0	0	0	3	Clear sky Good H2O vis
9/16/2018	EF Wallowa mouth to barrier	3	42 in. long 20 in. wide	0	1	0	1	Clear sky Good H2O vis
9/24/2018	EF Wallowa mouth to barrier	4	79 in. long 37 in. wide	0	0	0	1	Clear sky Good H2O vis
10/2/2018	EF Wallowa mouth to barrier	0	n/a	0	0	0	0	Clear sky Good H2O vis
10/9/2018	EF Wallowa mouth to barrier	0	n/a	0	0	0	0	Light rain Good H2O vis
10/16/2018	EF Wallowa mouth to barrier	0	n/a	0	0	0	0	Clear sky Good H2O vis
10/25/2018	EF Wallowa mouth to barrier	0	n/a	0	0	0	0	Clear sky Good H2O vis
10/30/2018	EF Wallowa mouth to barrier	0	n/a	0	0	0	0	Overcast Good H2O vis

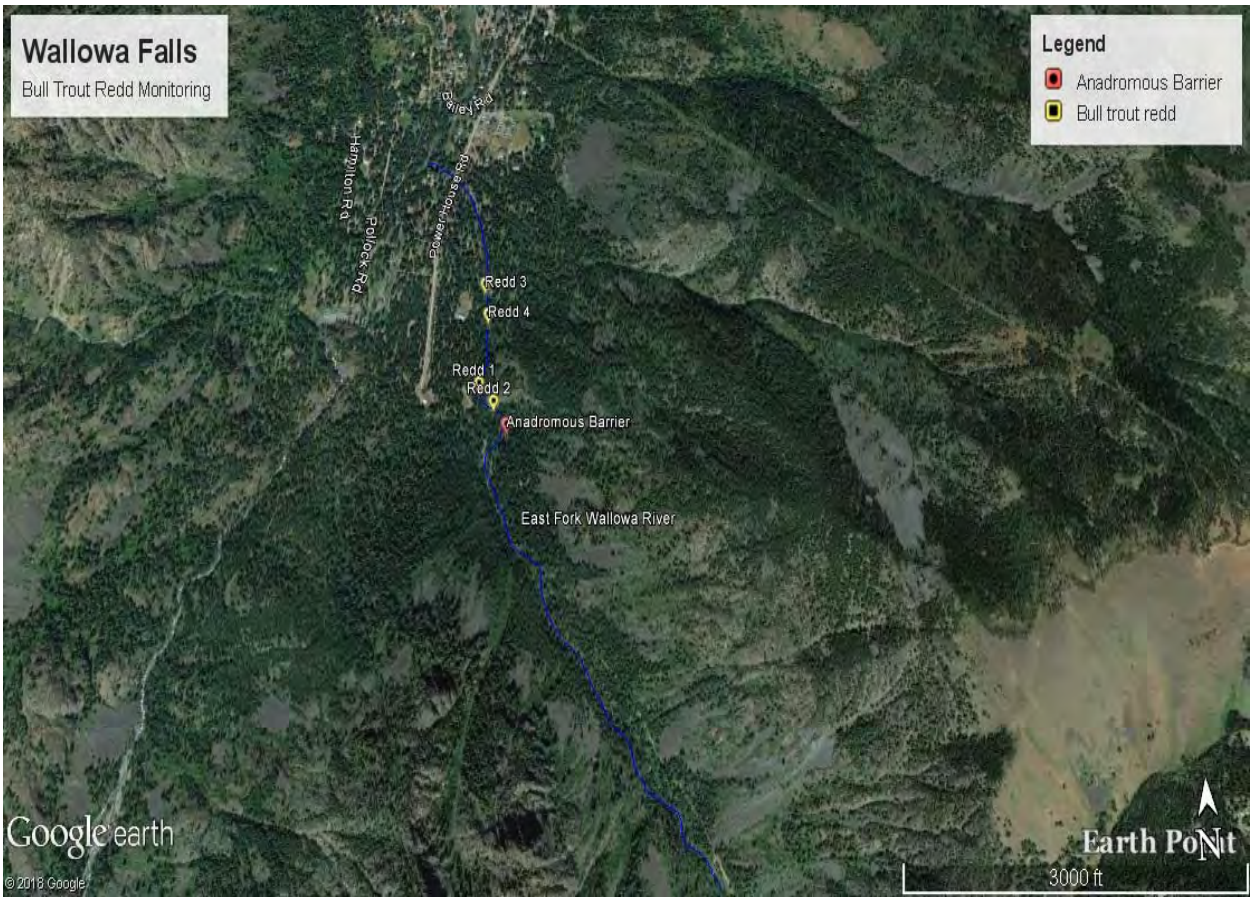

Figure 2. GPS marked locations (yellow dots, n=4) of bull trout redds within the East Fork Wallowa River

All four bull trout redds were in the upper portion of available habitat below the barrier, with the uppermost redd ~ 40 meters below the impassible falls. Redd 1 visually persisted for 45 days, redd 2 for 47 days, redd 3 for 39 days, and redd 4 for 22 days. No observed fish during any survey was identified as a brook trout (*Salvelinus fontinalis*). Flows during the survey period remained stable as measured at the United States Geological Service gage station, and never deviated below prescribed minimum flows for this portion of the year.

Three unit trips occurred during the bull trout spawning period in 2018. All three unit trips were less than four hours in duration before the unit was brought back on-line and ramped back up following prescribed ramping protocols. PacifiCorp made the real-time decision, based on professional judgment, that no emergency redd survey need be performed prior to the unit being brought back on-line when any outage is less than 24 hours in duration. PacifiCorp believes that 24 hours or less is not enough time for bull trout to pair up, stage on an area within the stream, construct a redd, and spawn successfully. Therefore, no emergency redd surveys of the bypassed portion of the East Fork Wallowa River due to a Wallowa Falls generator unit trip was observed during the August 1 – October 31 bull trout spawn timeframe.

In 2019 it is anticipated bull trout redd surveys will occur at the same rate, timeframe and duration as that observed in 2018.

Figure 3. Bull trout paired over the top of redd #3.

5.0 CITATIONS

Oregon Department of Environmental Quality. 2016. 401 Water Quality Certification for the Wallowa Falls Hydroelectric Project.

United States Fish and Wildlife Service. 2016. Biological Opinion for the Wallowa Falls Hydroelectric Project.

Appendix D

Noxious Weed Control Plan Annual Report

2018 Noxious Weed Control Plan Annual Report

Wallowa Falls Hydroelectric Project

FERC Project No. 308

Prepared by:

PACIFICORP

December 2018

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APPENDICES

1.0 Introduction

The Wallowa Falls Hydroelectric Project (FERC Project No. 308) received a new operating license from the Federal Energy Regulatory Commission (Commission) on January 5, 2017 (FERC 2017). Article 415 of the FERC license required PacifiCorp to file a noxious weed control plan (NWCP) with FERC within 6 month from the date of the license issuance (July 5, 2017):

> Article 415. *Noxious Weed Control Plan*. The revised Noxious Weed Control Plan required by Appendix B, condition 6, must be developed after consultation with the Oregon Department of Fish and Wildlife and U.S. Fish and Wildlife Service. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.
>
> The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

The United States Department of Agriculture (USDA), Forest Service Final Section 4(e) Conditions were filed on February 16, 2016 and included as Appendix B in FERC license (FERC 2017). The following conditions apply to the NWCP (PacifiCorp 2017):

> Condition No. 6 – *Noxious Weed Management Plan* The Licensee shall, within six months following License issuance, revise the Noxious Weed Management Plan (NWMP), Appendix K, Volume III of the FLA [Final License Application] (February 2015), in consultation with the USDA Forest Service. The NWMP shall include measures A through D below and must meet USDA Forest Service standards, guidelines, methods, and monitoring protocols for actions undertaken on National Forest Service (NFS) lands. The NWMP shall be filed with the Commission for approval. After Commission approval, the Licensee shall immediately implement the NWMP.

A. The Licensee shall implement applicable noxious weed control measures found in invasive plant management direction for the Pacific Northwest Region and/or the Wallowa-Whitman National Forest Land and Resource Management Plan, as amended for the period of the License. Future changes or modifications to the management direction will require the Licensee to coordinate with the USDA Forest Service at the Annual Resource Coordination Meeting required in Condition 5 to ensure the Licensee's implementation activities comply with those changes or modifications.

B. The Licensee shall survey and treat noxious weeds on NFS lands within the FERC Project Boundary for three (3) consecutive years between June 1 and July 31 following construction or maintenance activities described in the FLA. If for three consecutive years, no noxious weeds are detected during the annual surveys, then survey intervals shall shift to a biennial schedule until a noxious weed infestation is detected. Control methods that will effectively control all Class A and other target weeds shall be implemented the same year as detection as allowed by U.S. Forest Service Pacific Northwest Region Invasive Plant Program, Preventing and Managing Invasive Plants (April 2005) and Record of Decision (ROD) (October 2005).

C. The exact timing between June 1 and July 31 are recommended to implement control methods for optimal effectiveness in association with the guidelines provided by U.S. Forest Service Pacific Northwest Region Invasive Plant Program, Preventing and Managing Invasive Plants (April 2005) and Record of Decision (ROD) (October 2005). Manual control methods shall include measures including but not limited to reseeding, mulching and supplemental irrigation to ensure establishment of non-noxious vegetation in treated areas.

D. The Licensee shall ensure that: a) ground cover in treated areas equals or exceeds 80 percent of that in an undisturbed control area with similar vegetation and is adjacent to the Project area and b) species composition in disturbed areas equals or exceeds 75 percent non-weedy species. If the standards above are not feasible or achievable, the Licensee shall consult and coordinate with the USDA Forest Service to develop suitable alternatives.

E. The Licensee shall include a status report in its Annual Report, required by Condition No. 5 – Resource Coordination, describing activities related to weed control, assessment of weed areas, and identification of future efforts to control noxious weed spread and colonization within the Project boundary.

PacifiCorp submitted the Noxious Weed Control Plan (NWCP) to the Commission on June 1, 2017 pursuant to Article 415 and the Forest Service Final Section 4E Conditions included as Appendix B of the FERC license. A FERC order approving NWCP was issued by the Commission on July 25, 2017. PacifiCorp implement the NWCP in 2017 prior to receiving the Commission approval to insure that noxious weed monitoring and control methods were completed during the growing season and would optimize effectiveness.

This report complies with the FERC License Appendix B USDA, Forest Service Final Section 4(e) Condition No. 5- Resource Coordination requiring PacifiCorp to provide an Annual Report to Wallowa Whitman National Forest (WWNF) on the status of the NWCP activities for that year (FERC 2017). The status report should be completed by December 1 each year to allow for at least a 30-day review prior to the Annual Resource Coordination meeting. The status report will only apply to the Project Boundary as described in Section 2.0 and shown in Appendix A:

- The current year Invasive Plant Inventory Forms
- A description of the control methods, operation and maintenance, and success of the control methods conducted that year and the accompanying treatment forms [Herbicide Application (2510), Insect Release (2550), and/or Mechanical/Physical Treatment (2530)
- Future anticipated soil disturbing activities, noxious weed prevention methods to be conducted, and identification of future efforts to control noxious weed spread and colonization for the following year within the Project Boundary
- Future expected efforts and a schedule for monitoring
- Compliance with the current Wallowa Whitman National Forest, State and Local regulations for weed management activities
- Results of revegetation success for all ground disturbance activities

2.0 Project location

The Wallowa Falls Hydroelectric Project is located on the east fork of the Wallowa River near the town of Joseph, Oregon in Wallowa County. The project powerhouse discharges into the West Fork of the Wallowa River upstream of Wallowa Lake (Figure 1).

The Project Boundary is an estimated 26 acres and encloses project operations, such as Royal Purple Creek Diversion Dam, the pipeline and open channel conveying water from the Royal Purple Creek Diversion Dam to the East Fork Dam and impoundment, penstock, powerhouse, transmission line, and non-project substation (FERC 2017). Portions of the access road, tailrace, and Pacific Park Campground are also included within the Project Boundary (FERC 2017). Approximately half lands within the Project Boundary are owned by PacifiCorp and the other half are on WWNF lands. Appendix A shows the Project Boundary and the associated features.

Areas within the Project Boundary may be more susceptible to noxious weeds due to exposed soils and/or are adjacent to frequent human activity. Therefore the Project Boundary is differentiated into three noxious weed priority areas to prioritize monitoring, prevention, and control methods accordingly. Noxious weed priority areas are defined as follows and are shown on Appendix A.

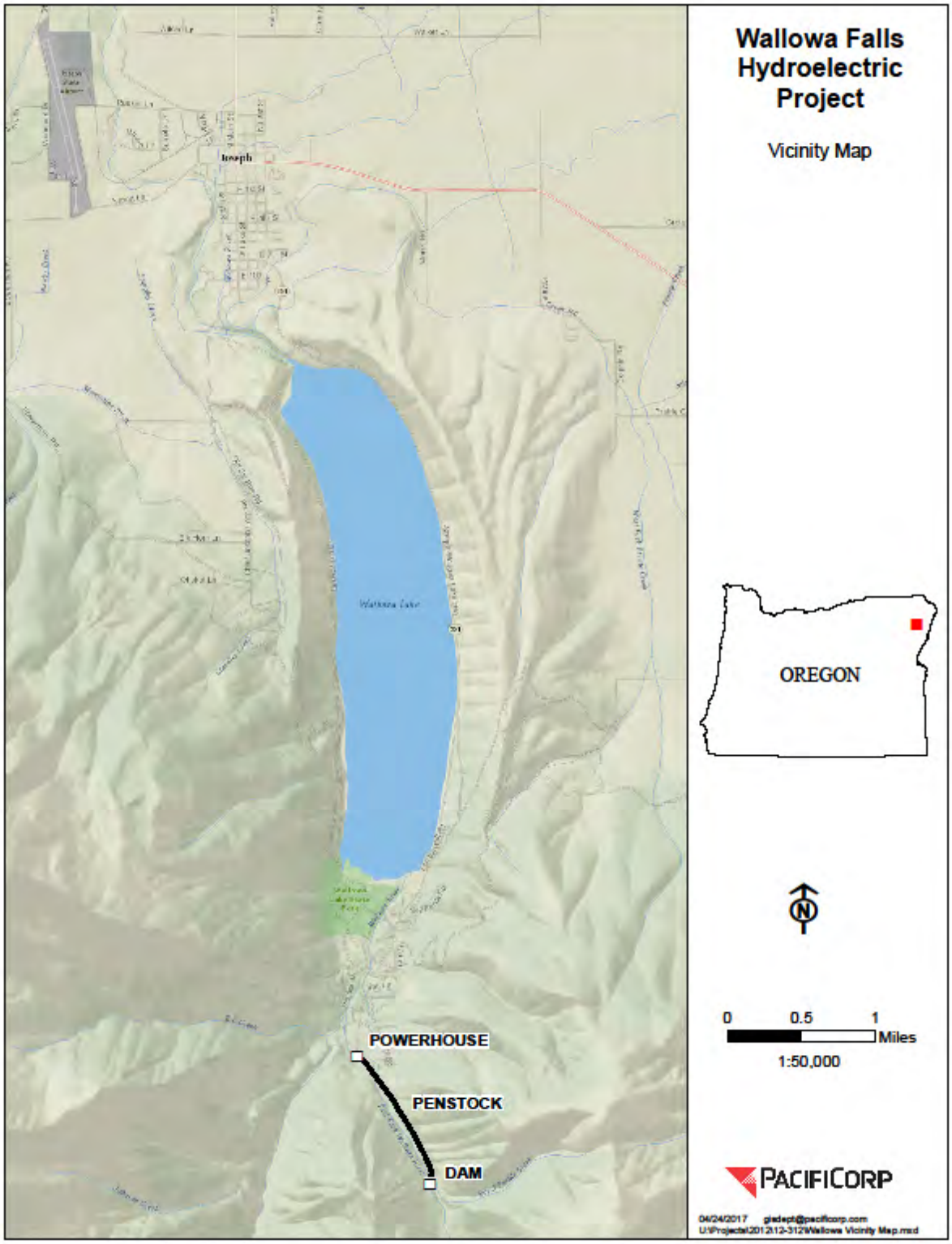
High Priority: areas with frequent or continued soil disturbance, frequent or constant exposure to weed seed vectors, or is known to have existing noxious weeds. These areas include the campground, forebay area, and portions of the WWNF trail within the Project Boundary.

Medium Priority: areas with prior or frequent soil disturbance, but has low exposure to weed seed vectors. Examples of this would include the access road and penstock.

Low Priority: areas that have intact soils and a low exposure to weed seed vectors. Examples of this would include talus slopes and forested areas away from high use areas.

These areas may be modified as needed to adjust for changes in the Project Boundary or in public use of an area (e.g. new trails etc.). No changes were required to the Project Boundary or the noxious weed priority areas in 2018.

Figure 1: Wallowa Falls Hydroelectric Project Vicinity Map



3.0 Regulation and Compliance

A comprehensive review of current and applicable WWNF, State and local regulations was completed in June 2018. The laws are as follows and PacifiCorp complied with these regulations and guidelines for all noxious weed monitoring and management in 2018:

3.1 USFS and WWNF regulations guidelines

The following USFS documents were used as guidelines and reference for all noxious weed monitoring and control methods implemented in 2018:

- Land and Resource Management Plan Wallowa-Whitman National Forest, as amended (USFS 1990).
- Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants Final Environmental Impact Statement (USFS 2005a).
- Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants Record of Decision. (USFS 2005b).
- Wallowa-Whitman National Forest Invasive Plants Treatment Project Final Environmental Impact Statement. (USFS 2010a).
- Wallowa-Whitman National Forest Invasive Plant Treatment Project Record of Decision. (USFS March 2010b).

3.2 Oregon Revised Statues

The following Oregon Revised Statues (ORS) are chapter 569 Weed Control that provide state and county authority to manage noxious weeds and are applicable to NWCP:

2015 ORS 569.175 applicable definitions:

(1) "Noxious weed" means a terrestrial, aquatic or marine plant designated by the State Weed Board under ORS 569.615 as among those representing the greatest public menace and as a top priority for action by weed control programs.

(2) "Person" means a person as defined in ORS 174.100 (Definitions), the federal government or any of its agencies, the State of Oregon or any of its agencies, or any city, county, district or municipal corporation of this state

2015 ORS 569.185 State Department of Agriculture authority:

(13) Request any person owning or controlling land within this state to control, prevent the spread of or, when feasible, eradicate noxious weeds, and to supervise such activities.

2015 ORS 569.350 Necessity of eradication of weeds:

Noxious weeds have become so thoroughly established and are spreading so rapidly on state, county and federally owned lands, as well as on property in individual ownership and in transition to county ownership through tax delinquency, that they hereby are declared a

menace to the public welfare. While it is recognized that complete eradication may not be practicable, it hereby is established that steps leading to eradication and control are necessary and that responsibility rests not only on the individual landowner and operator but also on the county, state and federal government, and that the county, state and federal government should cooperate with individual owners in the control and eradication of noxious weed pests.

3.3 Noxious Weed Monitoring List

State of Oregon and Wallowa County maintain a list of target Noxious Weeds that are separated into the following three categories for prioritizing management (Oregon Department of Agriculture 2018):

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

Recommended action: Infestations are subject to eradication or intensive control when and where found. A weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent.

B listed Weed: A weed of economic importance which is regionally abundant, but which may have limited distribution in some counties.

Recommended action: Limited to intensive control at the state, county or regional level as determined on a site specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method.

T Designated Weed: A designated group of weed species that are selected and will be the focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority. T designated noxious weeds are determined by the Oregon State Weed Board and directs Oregon Department of Agriculture to develop and implement a statewide management plan. T designated noxious weeds are species selected from either the A or B list.

The following table is a list of species included in the 2018 NWCP monitoring:

Table 1: 2018 Oregon State and Wallowa County Listed Noxious Weeds

Common Name [2,3]	Scientific Name[1,2]	Oregon State Category[2]	Wallowa County Category[3]
Absinthe Wormwood*	*Artemisia absinthium*		B
African Rue	*Peganum harmala*	A (T)	
Annual Bugloss*	*Anchusa officialis*		B
Armenian blackberry (Himalayan blackberry) *	*Rubus armeniacus*	B	B
Atlantic Ivy	*Hedera hibernica*	B	
Bachelor Button*	*Centaurea cyanus*		B
Barbed goatgrass	*Aegilops triuncialis*	A (T)	
Biddy-biddy	*Acaena novae-zelandiae*	B	
Bohemian Knotweed	*Polygonum behemicum*		A
Buffalobur	*Solunum rostratum*	B	
Bull thistle**	*Cirsium vulgare*	B	
Bur Buttercup*	*Ceratocephala testiculata*		B
Butterfly bush	*Buddleja davidii*	B	
Camelthorn	*Alhagi pseudalhag*	A	
Canada thistle**	*Cirsium arvense*	B	B
Cape Ivy	*Delairea odorata*	A (T)	
Chicory*	*Cichorium intybus*		B
Coltsfoot	*Tussilago farfara*	A	
Common Burdock**	*Arctium minus*		B
Common Bugloss*	*Anchusa officinalis*	B(T)	A (T)
Common cordgrass	*Spartina anglica*	A(T)	
Common crupina*	*Crupina vulgaris*	B	B
Common frogbit	*Hydrocharis morsus-range*	A	
Common reed	*Phragmites australis*	B	
Common Tansy	*Tanacetum vulgare*		A
Common Teasel	*Dipsacus fullonum*		B
Creeping yellowcress	*Rorippa sylvestris*	B	
Cut-leaved Teasel	*Dipsacus laciniatus*	B	
Dalmatian Toadflax*	*Linaria dalmatica*	B(T)	B
Delta arrowhead	*Sagittaria platyphyla*	A	
Dense flowered cord grass	*Spartina densilfora*	A (T)	
Diffuse Knapweed*	*Centaurea diffusa*	B	B
Dodder*	*Cuscuta spp.*	B	
Dyer's Woad*	*Isatis tinctoria*	B	T
English Ivy	*Hedera helix*	B	
Eurasian watermilfoil	*Myriophyllum spicatum*	B	

Table 1: 2018 Listed Oregon and Wallowa County Listed Noxious Weeds (continued)

Common Name [2,3]	Scientific Name[1,2]	Oregon State Category[2]	Wallowa County Category[3]
European water chestnut	*Trapa natans*	A	
False Brome	*Brachypodium sylvaticaum*	B	
Field Bindweed*	*Convolvulus arvensis*	B (T)	B
Floating Primrose Willow	*Ludwigia peploides*	B	
Flowering Rush	*Butomus umbellatus*	A (T)	
French Broom	*Genista monspessulana*	B	
Garden yellow loosestrife	*Lysimachia vulgaris*	A (T)	
Garlic Mustard	*Alliaria petiolata*	B (T)	A (T)
Giant hogweed	*Heracleum mantegazzianum*	A (T)	
Giant Knotweed	*Polygonum sachalinense*	B	A
Goatsrue	*Galega officinalis*	A (T)	
Gorse	*Ulex europaeus*	B (T)	
Hairy whitetop *	*Lepidium pubescens*	B	A
Halogeton	*Halogeton glomeratus*	B	
Herb Robert	*Geranium robertianum*	B	
Himalayan knotweed	*Polygonum polystachum*	B	
Hoary Alyssum (False Hoary Alyssum) *	*Berteroa incana*	A (T)	A (T)
Hoary cress whitetop*	*Lepidium draba*	B	A (T)
Houndstongue**	*Cynoglossum officinale*	B	B
Hydrilla	*Hydrilla verticillata*	A	
Iberian starthistle	*Centaurea iberica*	A (T)	A
Indigo bush	*Amorpha fruticosa*	B	
Italian Thistle	*Carduss pycnocephalus*	B	A (T)
Japanese dodder	*Cuscuta japonica*	A	
Japanese knotweed*	*Polygonum cuspidatum*	B	(T)
Johnsongrass	*Sorghum halepense*	B	
Jointed goatgrass*	*Aegilops cylindriva*	B	B (T)
Jubata grass	*Cortaderia jubata*	B	
King devil hawkweed	*Pilosella piloselloides*	A	
Kochia*	*Kocia scoparia*	B	B
Kudzu	*Pueraria lobata*	A(T)	
Large-flower Primrose Willow	*Ludwigia grandiflora*	B (T)	
Leafy Spurge*	*Euphorbia esula*	B(T)	A (T)
Lens podded whitetop*	*Cardaria chalapensis*	B	
Lesser celandine	*Ranunculus ficaria*	B	
Long-Spine sandbur	*Cenchrus longispinus*		B
Matgrass	*Nardus stricta*	A (T)	
Meadow Hawkweed*	*Hieracium pratense*	B (T)	B (T)

Table 1: 2018 Listed Oregon and Wallowa County Listed Noxious Weeds (continued)

Common Name [2,3]	Scientific Name[1,2]	Oregon State Category[2]	Wallowa County Category[3]
Mouse-ear hawkweed	*Pilosella pilosella*	A (T)	
Meadow Knapweed**	*Centaurea pratensis*	B	A (T)
Mediterranean Sage	*Salvia aethiopis*	B	A (T)
Medusahead Rye*	*Taeniatherum canput-medusae*	B	B (T)
Milk thistle	*Silybum marianum*	B	
Orange Hawkweed*	*Pilosella aurantiacum*	A (T)	A (T)
Oregano	*Origanum vulgare*		A (T)
Ovate goatgrass	*Aegilops ovata*	A	
Oxeye Daisy**	*Leucanthemum vulgare*		B
Parrot's feather	*Myriophyllum aquaticum*	B	
Paterson's curse	*Echium plantagineum*	A (T)	
Perennial peavine	*Lathyrus latifolius*	B	
Perennial Pepperweed*	*Lepdium latifolium*	B(T)	A(T)
Pheasanteye (Blooddrop) *	*Adonis aestivalis*	B	
Plumeless Thistle*	*Carduus acanthoides*	A (T)	A
Poison Hemlock*	*Conium maculatum*	B	B
Policeman's Helmet	*Impatiens glandulifera*	B	
Portuguese broom	*Cytisus striatus*	B(T)	
Punturevine*	*Tribulus terrestris*	B	A
Purple Loosestrife*	*Lythrum salicaria*	B	A
Purple nutsedge	*Cyperus rotundus*	A	
Purple Star Thistle	*Centaurea calcitrapa*	A (T)	T
Ragweed	*Ambrosia artemisifolia*	B	
Ravenna grass	*Saccharum ravennae*	A (T)	A
Reed Canarygrass (Ribbon grass)	*Phalaris arundinaceae*	B (T)	B
Rose campion	*Lychnis coronaria*		A
Rush Skeletonweed*	*Chondrilla juncea*	B(T)	B (T)
Russian Knapweed*	*Acroptilon repens*	B	A (T)
Saltcedar*	*Tamarix ramoissima*	B (T)	
Salt meadow cordgrass	*Spartina patens*	A (T)	
Scotch Broom*	*Cytisus scoparius*	B	A(T)
Scotch Thistle*	*Onopordium acanthium*	B	B (T)
Shiny leaf geranium	*Geranium lucidum*	B	
Silverleaf nightshade	*Solanum elaeagnifolium*	A	
Slender flowered thistle	*Carduss tenuiflorus*	B	
Small broomrape	*Orobranche minor*	B	
Smooth Cordgrass	*Spartina alterniflora*	A	
Smooth distaff thistle	*Carthamus baeticus*	A	

Table 1: 2018 Listed Oregon and Wallowa County Listed Noxious Weeds (continued)

Common Name [2,3]	Scientific Name[1,2]	Oregon State Category[2]	Wallowa County Category[3]
South American waterweed	*Egeria densa*	B	
Spanish broom	*Sparitium junceun*	B	
Spanish heath	*Erica lusitanica*	B	
Spikeweed	*Hemizonia pungens*	B	
Spiny cocklebur*	*Xanthium spinosum*	B	
Spotted Cats ear	*Hyphochaeris glabra*		T
Spotted Knapweed**	*Centaurea stoebe*	B(T)	A (T)
Spurge laurel	*Daphne Laureola*	B	
Squarrose knapweed	*Centaurea virgata*	A (T)	
St. Johnswort**	*Hypericum perforatum*	B	
Sulfur Cinquefoil*	*Potentilla recta*	B	B (T)
Swainsonpea	*Sphaerophysa salsula*	B	
Sweetbriar Rose*	*Rosa rubiginosa*		B
Syrian bean-caper	*Zygophyllum fabago*	A	
Tall Buttercup*	*Ranunculus acris*		B
Tansy Ragwort*	*Senecio jacobaea*	B (T)	A (T)
Tuarian thistle	*Onopordum tauricum*	A(T)	
Tree of Heaven*	*Ailanthus altissima*	B	
Velvetleaf	*Abultilon theophrasti*	B	
Ventenata (North Africa grass) *	*Ventenata dubia*		B
Water soldier	*Stratiotes aloides*	A	
Waterprimrose	*Ludwigia hexapetala*	B (T)	
Welted Thistle*	*Carduus crispis*	A (T)	A (T)
West Indian sponge Plant	*Limnobium laevigatum*	A	
White bryonia (white bryony)	*Byronia alba*	A	A
White Campion	*Siline latifolia*		B
Wooly distaff thistle	*Carthamus lanatus*	A (T)	
Yellow archangel	*Lamiastrum galeobdolon*	B	
Yellow flag iris*	*Iris psuedocorus*	B	A (T)
Yellow floating heart	*Nymphoides peltata*	A (T)	
Yellow hawkweed*	*Pilosella floribundum*	A (T)	
Yellow nutsedge	*Cyperus esculentus*	B	
Yellow starthistle*	*Centuarea solstialis*	B	A
Yellow toadflax*	*Linaria vulgaris*	B	B
Yellowtuft	*Alyssum coriscan*	A(T)	

***Noxious weeds are known to exist within Wallowa County [1, 2]**

**Noxious weeds are known to exist within the Project Boundary (Bio-Resources 2018)

[1] Natural Resources Conservation Service 2018

[2] Oregon Department of Agriculture 2018 [3] Wallowa County 2018

4.0 2018 Monitoring and Management

The following is description of noxious weed monitoring, control and other management strategies that occurred in 2018 within the Project Boundary.

4.1 Prevention

Activities that disturb soils through the removal of native vegetation result in exposed ground that promotes the establishment of noxious weeds. Therefore noxious weeds will be controlled prior to conducting any soil disturbing activity and the area will be revegetated to prevent noxious weed establishment. No ground disturbing activities occurred within the Project Boundary in 2018.

4.2 Noxious Weed Monitoring

PacifiCorp contracted with local contractor, Kendrick Moholt (Bio-Resources, Inc.) to implement the NWCP monitoring and oversee control methods. The noxious weed monitoring surveys were completed by Kendrick on July 8, 2018 and included all high and medium priority noxious weed areas. A record of the each noxious weed infestation has been documented on Invasive Plant Inventory Forms are provided in Appendix B. The table below provides a list of the noxious weeds location and status.

Table 2: Noxious Weeds Located in 2018 within the Project Boundary.

Common Name	Scientific Name	Oregon State Category	Wallowa County Category	Location
Canada thistle	*Cirsium arvense*	B	B	Campground/trail
Bull thistle	*Cirsium vulgare*	B	None	Campground/trail
Houndstongue	*Cynoglossum officinale*	B	B	Trail
Common Burdock	*Arctium minus*	None	B	Campground/trail
Spotted knapweed	*Centaurea maculosa*	B (T)	A (T)	Campground/road
Oxeye daisy	*Leucanthemum vulgar*, formerly *Chrysanthemum leucanthemum*		B	Campground/trail
Meadow hawkweed	*Hieracium caespitosum*	B(T)	B (T)	Trail
St. Johnswort	*Hypericum perforatum*	B		Trail

4.3 Control Methods

Kendrick Moholt supervised the spray operation to control noxious weeds within the Project Boundary on July 9. 2018. Treatment consisted of spraying with Milestone® herbicide, mixed with a surfactant and a marking dye. The Herbicide Application Form 2510 is provided in Appendix B.

The campground and surrounding areas had Canada thistle, bull thistle, houndstongue, and burdock treated with spot application using backpack sprayers to minimize the application to individual plants.

An area near the entrance to the campground and the east side of the county road (near the trail head and horse trails) was thoroughly sprayed with backpack sprayers and All-terrain vehicle mounted sprayer to control larger infestations of spotted knapweed. The spotted knapweed will likely need to be treated again in 2019 to be completely effective.

Along the access road and trail there are three locations, including the area near the dam, were sprayed to control meadow hawkweed. Due to the potential presence of rare plants, special care was taken to avoid impacting rare plants. The two hawkweed populations identified during the relicensing studies do not appear to be spreading and appears to be decreasing in size. A third population consisting of two plants was located near the trailhead in 2017 and it appears to have been controlled. Additional treatments in 2019 will be necessary to eradicate hawkweed at the other locations. Other target noxious weed treated along access road and trail include bull thistle, Canada thistle and St. Johnswort.

4.4 Revegetation Success

All areas of prior ground disturbance within Project Boundary will be evaluated during the annual noxious weed monitoring to determine if the following criteria have been met:

a) ground cover in treated areas equals or exceeds 80 percent of that in an undisturbed control area with similar vegetation and is adjacent to the area of ground disturbance and

b) species composition in disturbed areas equals or exceeds 75 percent non-weedy species.

These areas will be monitored until the above criteria is met for 3 consecutive years. If the criteria cannot be met and is not feasible or achievable, then PacifiCorp will consult and coordinate with the US Forest Service at the Annual Resource Coordination Meeting. Currently there are no areas ground disturbance areas that require revegetation and/or revegetation success monitoring.

5.0 2019 Monitoring and Management

In 2019, the construction of the tailrace reroute and royal purple pipe extension will be begin in late summer and is scheduled to be completed in 2020. The royal purple pipe extension is currently within a high priority portion of the current Noxious Weed Monitoring Area. A portion of the tailrace reroute will extend beyond the current Noxious Weed Monitoring Area, but will be included in the 2019 noxious weed survey as a high priority area. Appendix C provides map of the proposed construction limits for both projects. Any noxious weed identified within the area will be treated prior to construction. In addition to these areas, the 2019 noxious weed monitoring will include all high and medium priority areas within the Project Boundary (Appendix A) and noxious weed control will occur as needed. The hawkweed infestations and spotted knapweed infestation near the trailhead and along the trail will likely need additional herbicide treatment in 2019.

6.0 References

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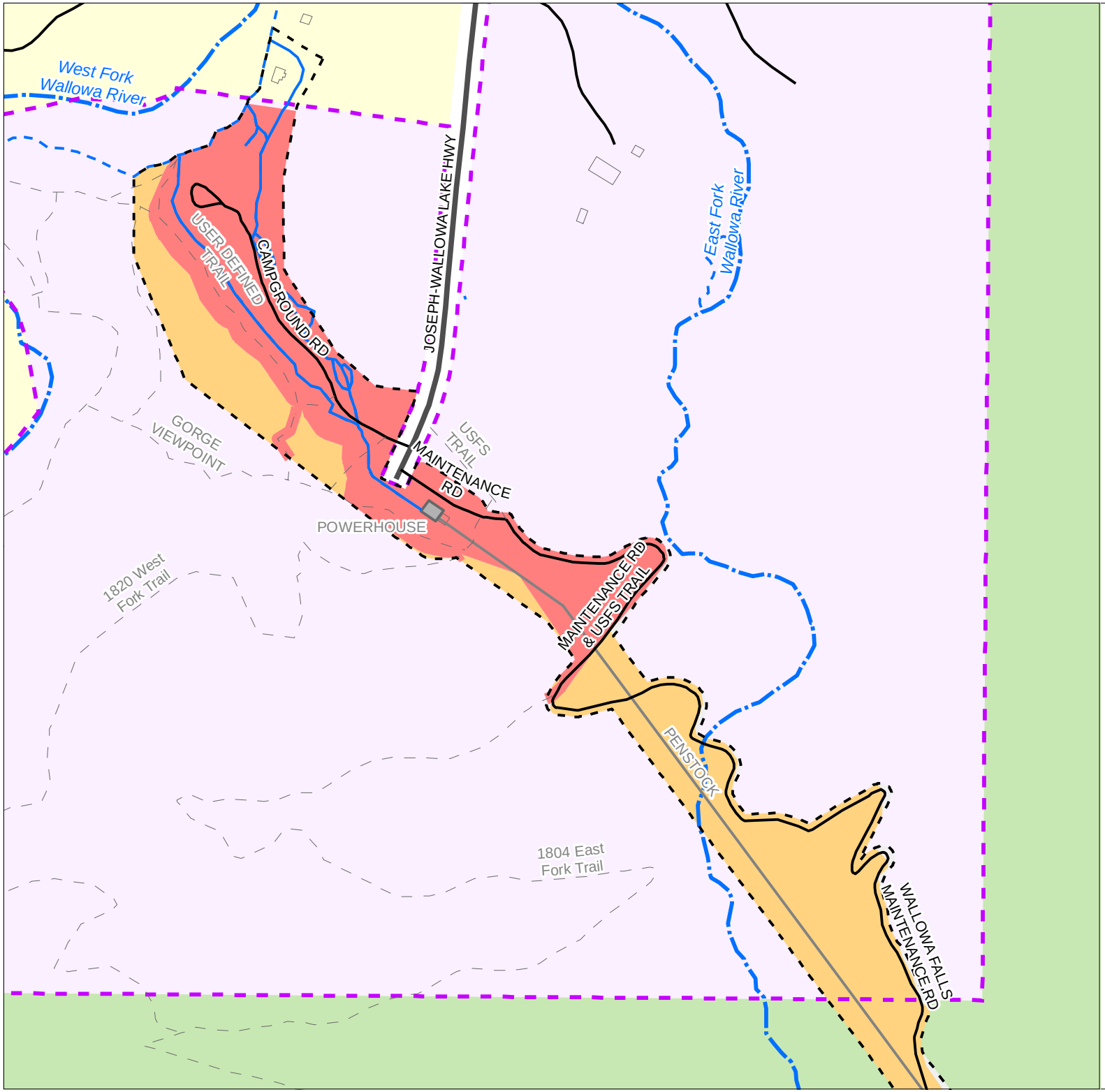
Appendix A

Noxious Weed Monitoring Area



Wallowa Falls Hydroelectric Project

Noxious Weed Monitoring Area

Legend

- Trail
- Road
- Highway
- Facility
- Penstock
- FERC Boundary

Priority Noxious Weed Areas

- High
- Medium
- Low

Land Ownership

- PacifiCorp
- USFS
- Private

1:3,600

0 250 500 Feet

PACIFICORP

04/20/2017 gisdept@pacificorp.com
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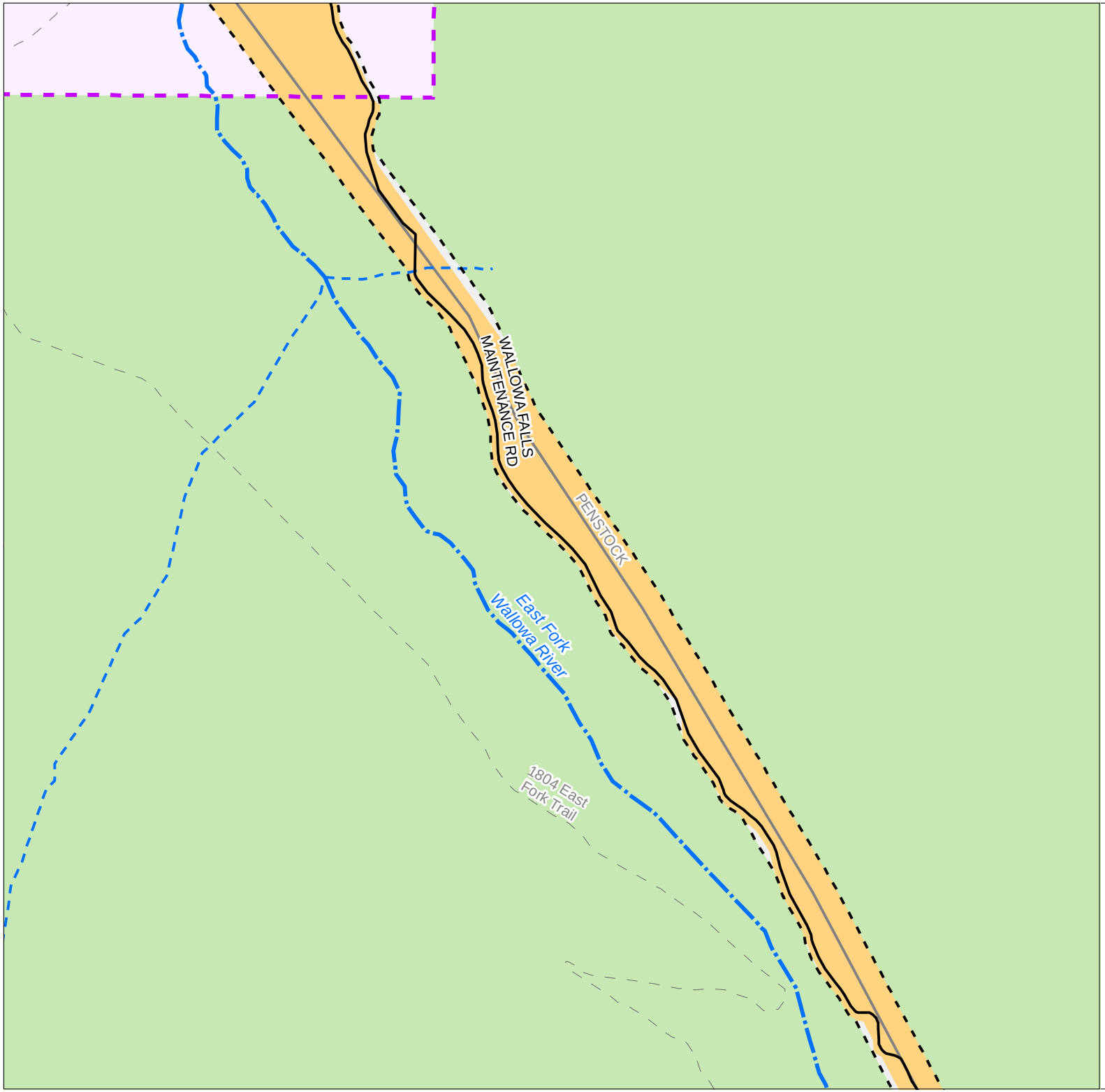

Wallowa Falls Hydroelectric Project

Noxious Weed Monitoring Area

Legend

- Trail
- Road
- Highway
- Facility
- Penstock
- FERC Boundary

Priority Noxious Weed Areas

- High
- Medium
- Low

Land Ownership

- PacifiCorp
- USFS
- Private

1:3,600

0 250 500 Feet

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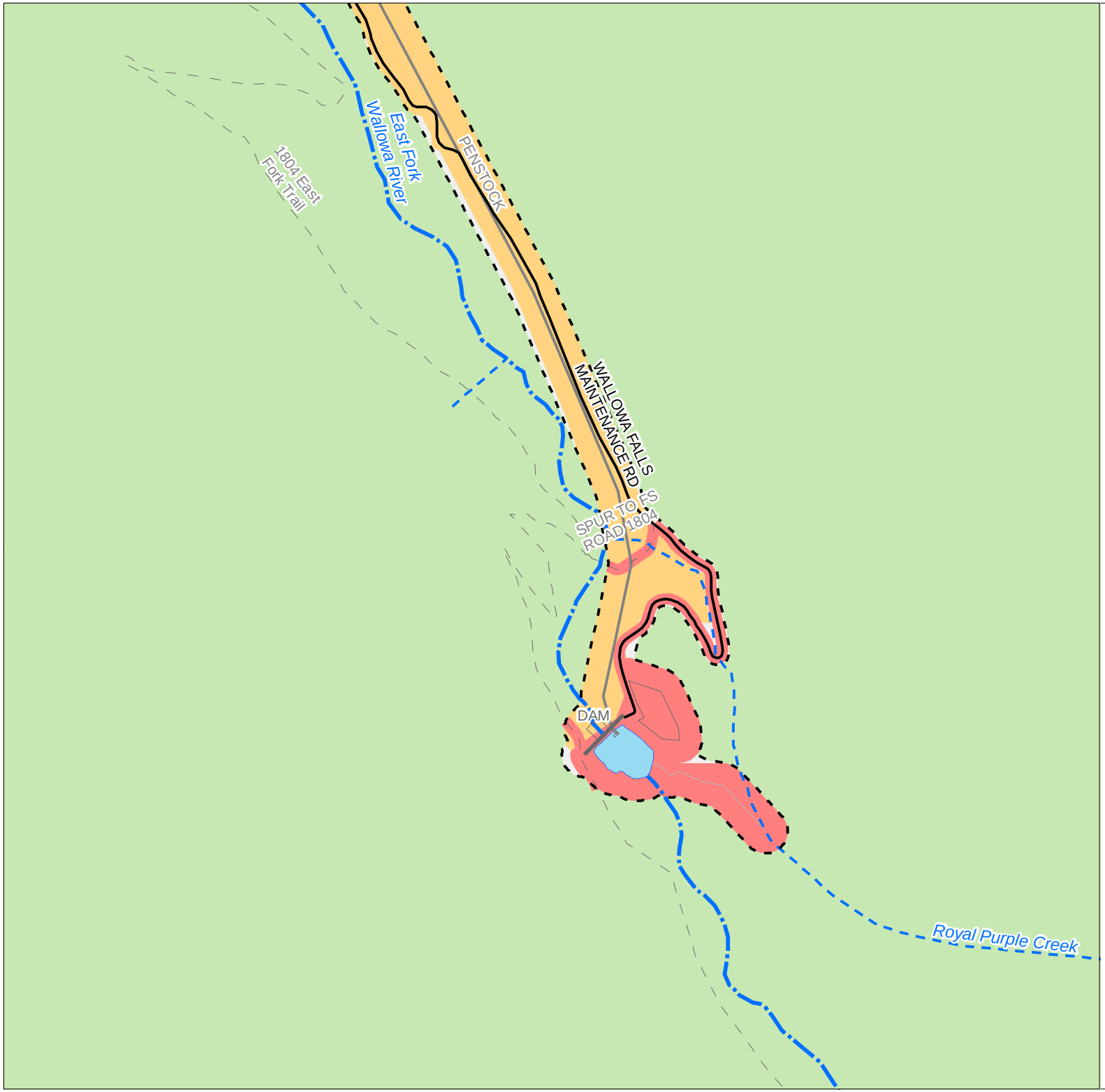

Wallowa Falls Hydroelectric Project

Noxious Weed Monitoring Area

Legend

- Trail
- Road
- Highway
- Facility
- Penstock
- FERC Boundary

Priority Noxious Weed Areas

- High
- Medium
- Low

Land Ownership

- PacifiCorp
- USFS
- Private

1:3,600

N

0 250 500 Feet

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04/20/2017 gisdept@pacificorp.com
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Appendix B
Invasive Plant Inventory Form and Herbicide Application (2510) Forms

Invasive Plant Inventory Form

General Site Information

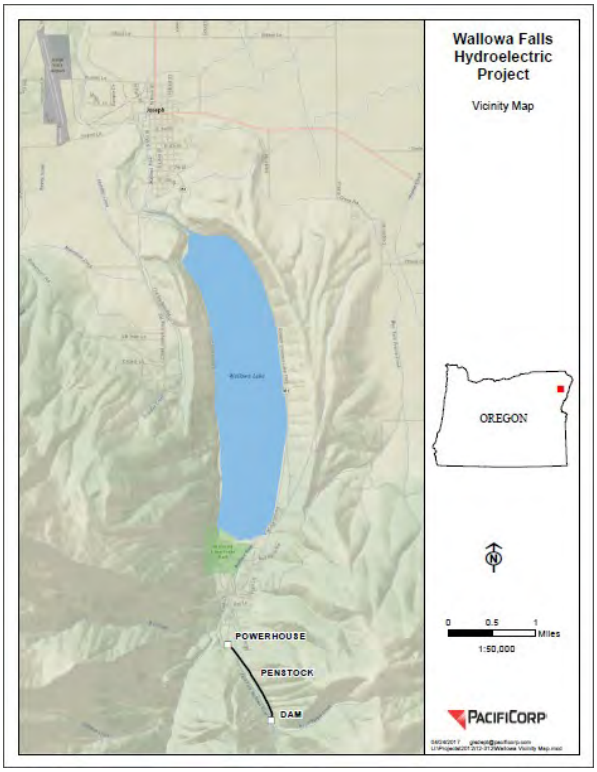
Site Name: Wallowa Falls Hydroelectric Project			**Date:** 8 July 2018
Photo Point (GPS):			Ownership/District:USFS, WWNF, Eagle Cap and PacifiCorp
Photo Name:			**Examiner:** Kendrick Moholt, Bio-Resources, Inc.
Botanist Initial: Wildlife Biologist:	**Elevation:** 4700'-5800'	**GPS Coordinates:** 0483259 E 5012652N to 0484159E 5011062N	**Datum:** UTM (NAD 27) Zone 11
EDRR: Y N	**GPS File Name:**	Other Observations:	
Access: Road **Trail** X **River** **Other** campground			
Township: 3S **Range:** 45E **Section:** 33 NW¼ of NW¼, SW¼ of NW¼, NW¼ of SW¼, SE¼ of SW¼			
Township: 3S **Range:** 45E **Section:** 29 SW ¼			
Township: 3S **Range:** 45E **Section:** 32 NE¼ of NE¼			

Site Data Information

Target Species Code: CIVU	**Common Name:** Bull Thistle	
Scientific Name: *Cirsium vulgare*		**Phenology: R** **B** **FL** X **S**
Distribution: CLumped **L**inear **SE** Scattered even **SP** Scattered Patchy X **C**ontinuous		
Total Acres: 26	**Percent Infested:** <1%	**Infested Acres:** ~0.15
% Cover or Count (weeds): ~50		Understory Cover % (all):40-90%
Potential to Spread: High Med x Low		**Distance to Water:** >30m
Water Type: Perennial **Ephemeral**		**System: Lake** **River** **Spring** **Stream**
Soil Types: sandy loam		Slope % aspect: 2-20%, Aspect variable
Other Species on Site:		

Comments

Map of Site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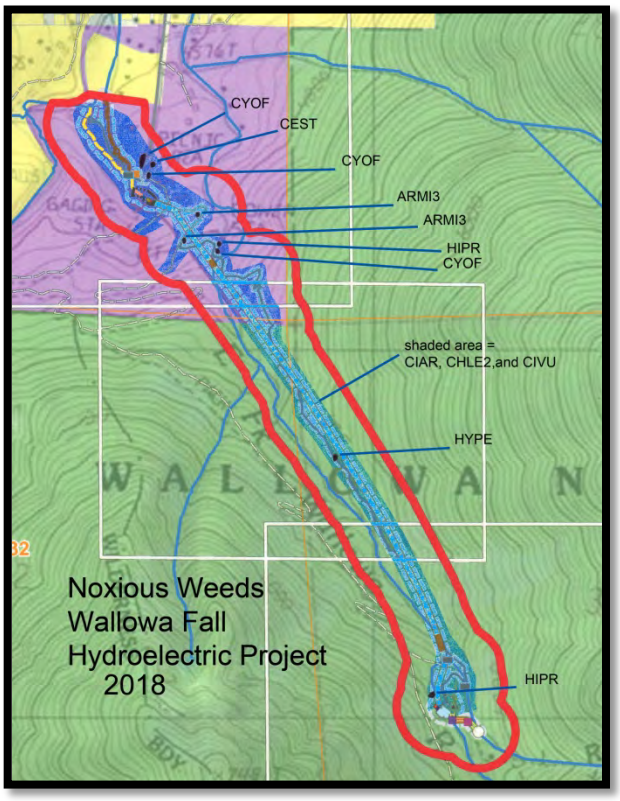
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Noxious Weeds
Wallowa Fall
Hydroelectric Project
2018

Invasive Plant Inventory Form

General Site Information

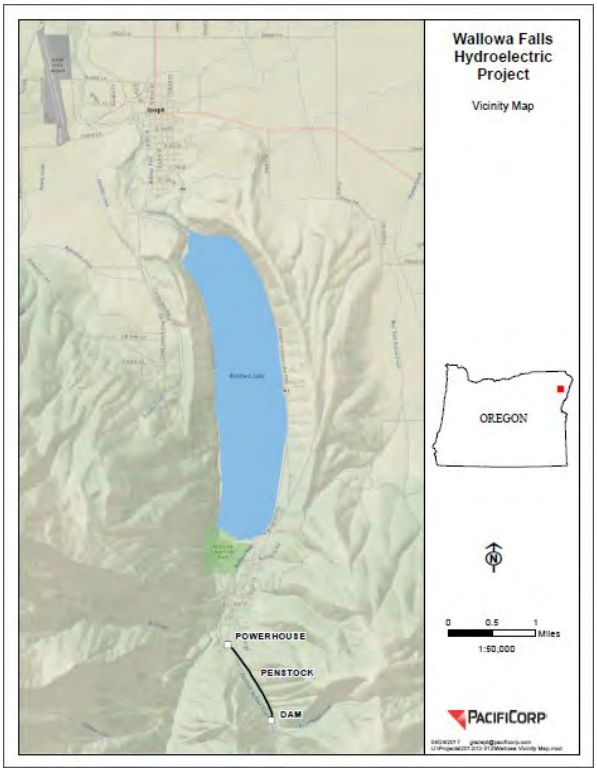
Site Name: Wallowa Falls Hydroelectric Project			**Date:** 8 July 2018
Photo Point (GPS):			Ownership/District:USFS, WWNF, Eagle Cap and PacifiCorp
Photo Name:			**Examiner:** Kendrick Moholt, Bio-Resources, Inc.
Botanist Initial: Wildlife Biologist:	**Elevation:** 4700'-5800'	**GPS Coordinates:** 0483259 E 5012652N to 0484159E 5011062N	**Datum:** UTM (NAD 27) Zone 11
EDRR: __Y__N	**GPS File Name:**	Other Observations:	
Access: Road__ Trail X **River_ Other** campground			
Township: 3S**Range:** 45E **Section:** 33 NW¼ of NW¼, SW¼ of NW¼, NW¼ of SW¼, SE¼ of SW¼			
Township: 3S**Range:** 45E **Section:** 29 SW ¼			
Township: 3S**Range:** 45E **Section:** 32 NE¼ of NE¼			

Site Data Information

Target Species Code: CIAV	**Common Name:** Canada Thistle	
Scientific Name: *Cirsium arvense*		**Phenology: R__ B__ FL** X **S**
Distribution: CLumped____**L**inear_____**SE** Scattered even_____ **SP** Scattered Patchy X_ **C**ontinuous_____		
Total Acres: 26	**Percent Infested:** <1%	**Infested Acres:** ~0.3
% Cover or Count (weeds): ~1000		Understory Cover % (all):40-90%
Potential to Spread: High__ Med x_Low____		**Distance to Water:** >30m
Water Type: Perennial_ Ephemeral____		**System: Lake__ River__ Spring_ Stream**
Soil Types: sandy loam		Slope % aspect: 2-20%, Aspect variable
Other Species on Site:		

Comments

Map of Site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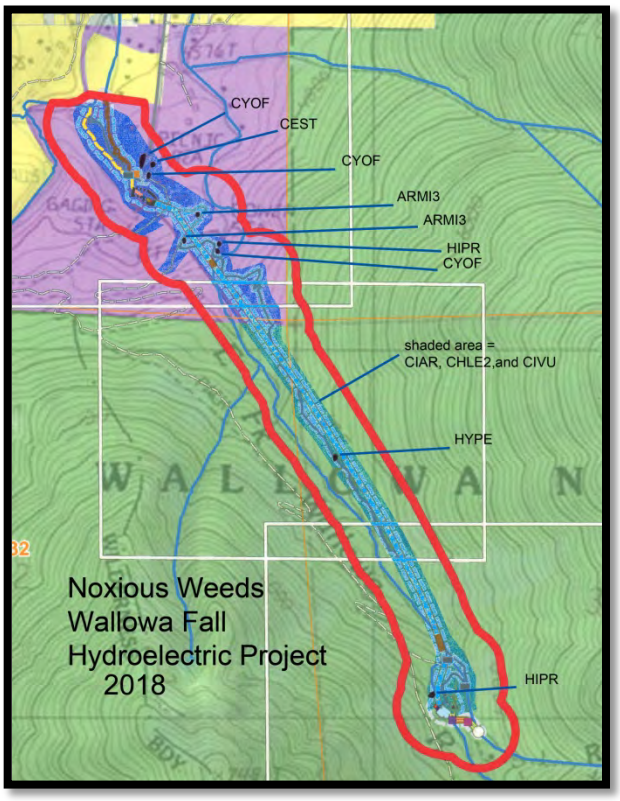
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Noxious Weeds
Wallowa Fall
Hydroelectric Project
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Invasive Plant Inventory Form

General Site Information

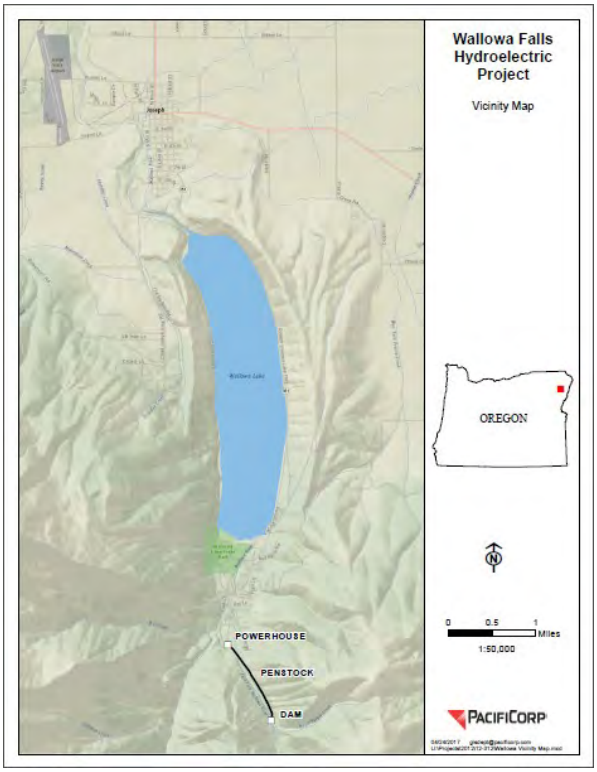
Site Name: Wallowa Falls Hydroelectric Project			**Date:** 8 July 2018
Photo Point (GPS):			Ownership: PacifiCorp
Photo Name:			**Examiner:** Kendrick Moholt, Bio-Resources, Inc.
Botanist Initial: Wildlife Biologist:	**Elevation:** 4700'-5000'	**GPS Coordinates:** 0483488E 5012298N and 0483529E 5012336N	**Datum:** UTM (NAD 27) Zone 11
EDRR: __Y __N	**GPS File Name:**	Other Observations:	
Access: Road__ Trail X **River_ Other** Campground			
Township: 3S **Range:** 45E **Section:** 29 **¼ sec:** SE of ¼ sec: SE			

Site Data Information

Target Species Code: ARMI3	**Common Name:** Common Burdock	
Scientific Name: *Arctium minus*	**Phenology: R__ B__ FL** X **S**	
Distribution: CLumped____**L**inear_____**SES**cattered even_____ **SP**Scattered Patchy X_ **C**ontinuous_____		
Total Acres: 26	**Percent Infested:** <1%	**Infested Acres:** ~0.1
% Cover or Count (weeds): ~5	Understory Cover % (all):60-90%	
Potential to Spread: High__ Med x_Low_____	**Distance to Water:** >30m	
Water Type: Perennial_ Ephemeral____	**System: Lake__ River__ Spring_ Stream**	
Soil Types: sandy loam	Slope % aspect: 2-10%, Aspect variable	
Other Species on Site:		

Comments

Map of Site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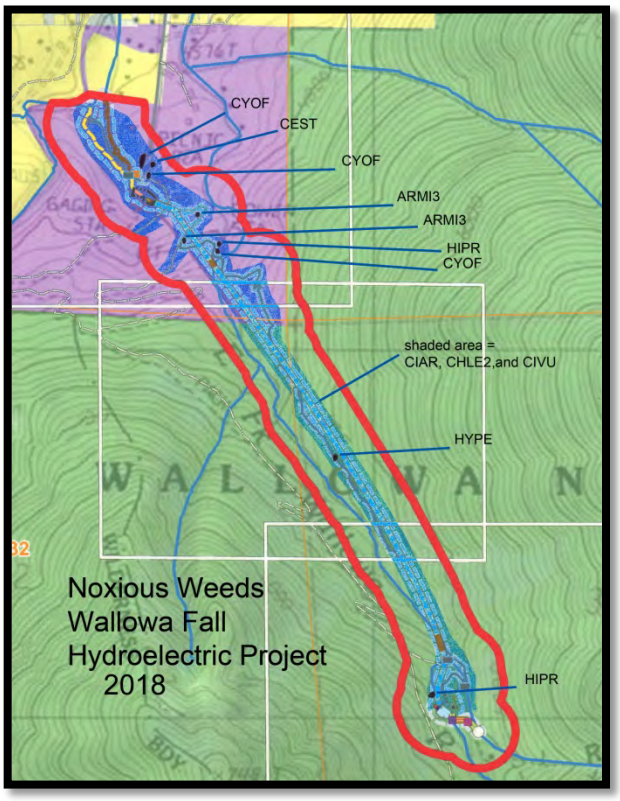
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Invasive Plant Inventory Form

General Site Information

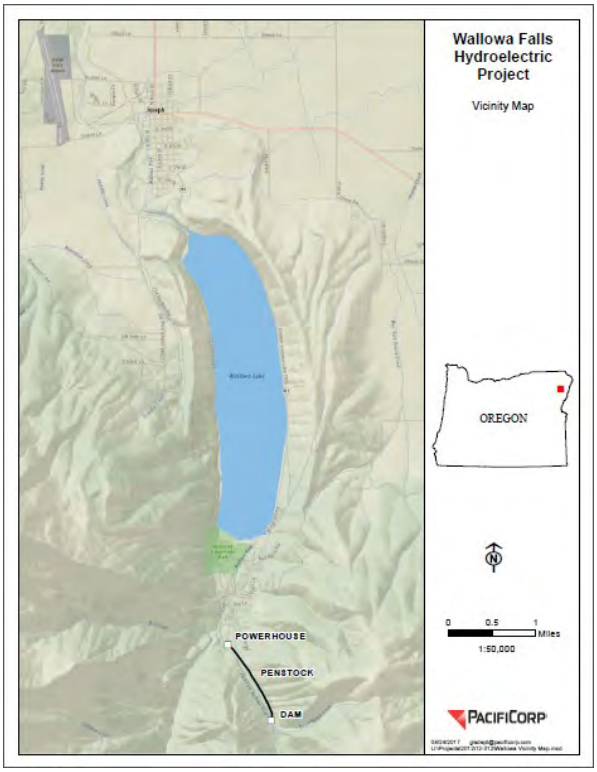
Site Name: Wallowa Falls Hydroelectric Project			**Date:** 8 July 2018
Photo Point (GPS):			Ownership: PacifiCorp
Photo Name:			**Examiner:** Kendrick Moholt, Bio-Resources, Inc.
Botanist Initial: Wildlife Biologist:	**Elevation:** 4700'-5000'	**GPS Coordinates:** 0483297 5012651N and 0483577E 5012260N	**Datum:** UTM (NAD 27) Zone 11
EDRR: __Y __N	**GPS File Name:**	Other Observations:	
Access: Road__ Trail X **River_ Other_____#**			
Township: 3S**Range:** 45E **Section:** 29 **¼ sec**: NW of ¼ sec: SE			
Township: 3S**Range:** 45E **Section:** 29 **¼ sec**: SE of ¼ sec: SE			

Site Data Information

Target Species Code: CYOF	**Common Name:** Houndstongue	
Scientific Name: *Cynoglossum officinale*		**Phenology: R__ B__ FL** X **S**
Distribution: CLumped____**L**inear_____**SES**cattered even_____ **SP**Scattered Patchy X_ **C**ontinuous_____		
Total Acres: 26	**Percent Infested:** <1%	**Infested Acres:** ~0.15
% Cover or Count (weeds): ~60		Understory Cover % (all):40-90%
Potential to Spread: High x Med__Low____		**Distance to Water:** >30m
Water Type: Perennial_ Ephemeral____		**System: Lake__ River__ Spring_ Stream**
Soil Types: sandy loam		Slope % aspect: 2-10%, Aspect variable
Other Species on Site:		

Comments

Map of Site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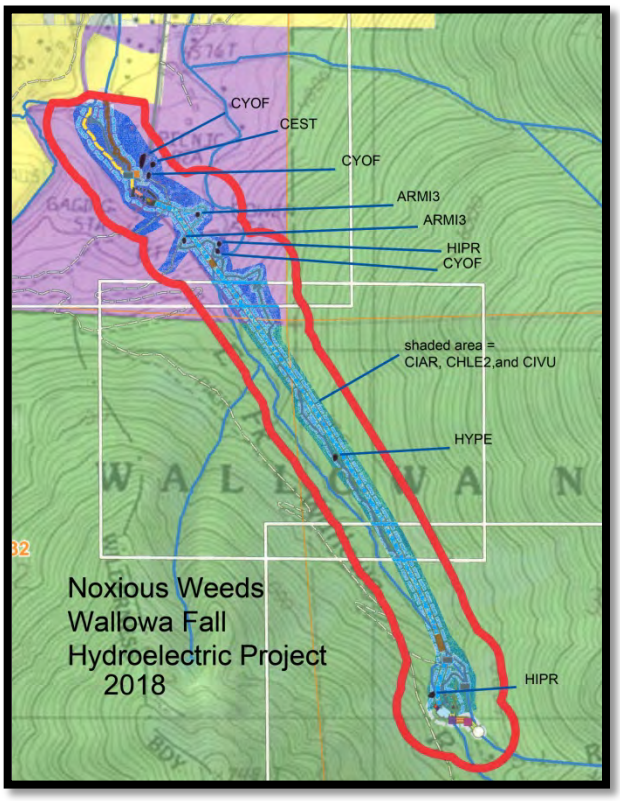
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Invasive Plant Inventory Form

General Site Information

Site Name: Wallowa Falls Hydroelectric Project			**Date:** 8 July 2018
Photo Point (GPS):			Ownership/District: USFS, WWNF, Eagle Cap and PacifiCorp
Photo Name:			**Examiner:** Kendrick Moholt, Bio-Resources, Inc.
Botanist Initial: Wildlife Biologist:	**Elevation:** 4700'-5800'	**GPS Coordinates:** 0484195E 5011062N (USFS) 0484223E 5011018N (Pacif)	**Datum:** UTM (NAD 27) Zone 11
EDRR: __Y __N	**GPS File Name:**	Other Observations:	
Access: Road__ Trail X **River_ Other_____#**			
Township: 3S**Range:** 45E **Section:** 33 **¼ sec:** SE (USFS)			
Township: 3S**Range:** 45E **Section:** 29 **¼ sec:** SE of **¼ sec:** SE (PacifiCorp)			

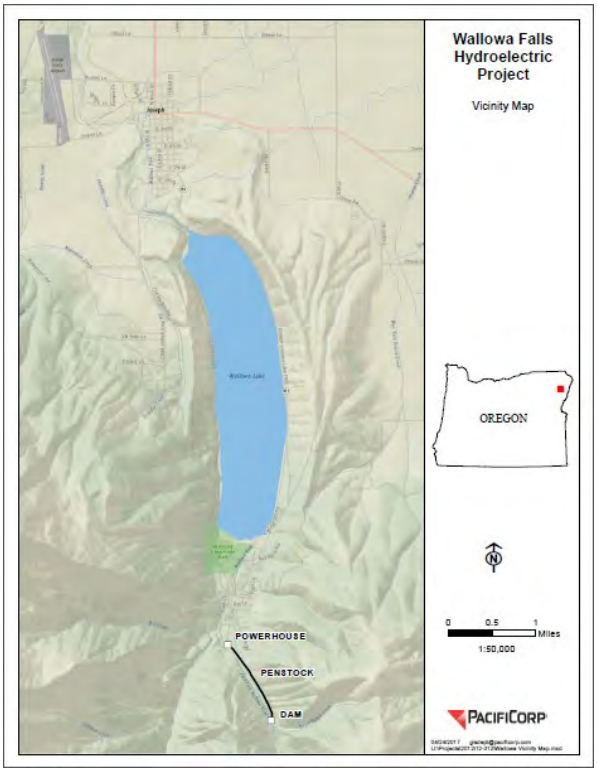
Site Data Information

Target Species Code: HIPR	**Common Name:** meadow hawkweed	
Scientific Name: *Hieracium caespitosum* (**Synonym: Hieracium pratense)**		**Phenology: R__ B__ FL** X **S**
Distribution: CLumped____**L**inear_____**SE**Scattered even_____ **SP**Scattered Patchy X_ **C**ontinuous_____		
Total Acres: 26	**Percent Infested:** <1%	**Infested Acres:** ~0.15
% Cover or Count (weeds): <1% (~60 plants)		Understory Cover % (all):40-90%
Potential to Spread: High x Med__Low____		**Distance to Water:** >30m
Water Type: Perennial_ Ephemeral____		**System: Lake__ River__ Spring_ Stream**
Soil Types: sandy loam to sandy lithosol		Slope % aspect: 2-20%, Aspect variable
Other Species on Site:		

Comments

The hawkweed treated here is not in the same location formerly recorded with the infestation ID numbers MH3555 and MH3560. Plants have not been relocated at these older infestation sites.

Map of Site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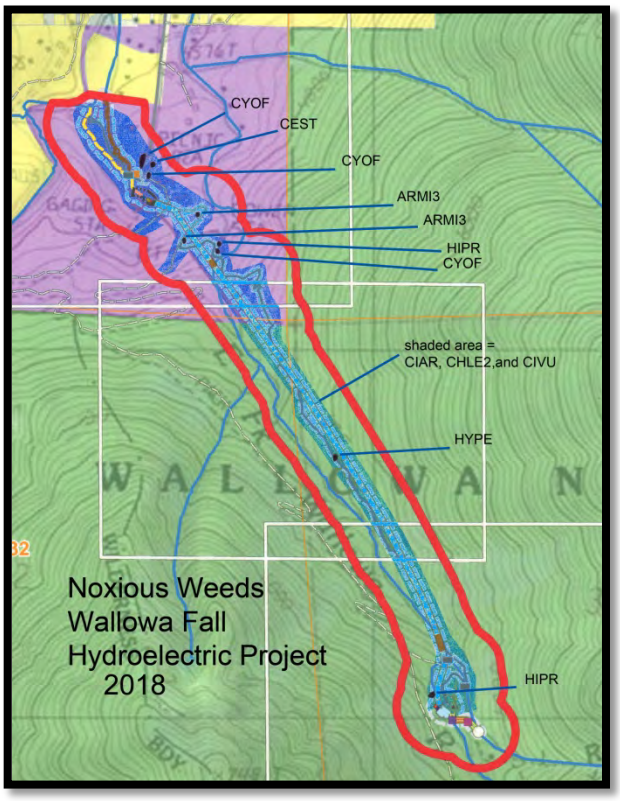
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Invasive Plant Inventory Form

General Site Information

Site Name: Wallowa Falls Hydroelectric Project			**Date:** 8 July 2018
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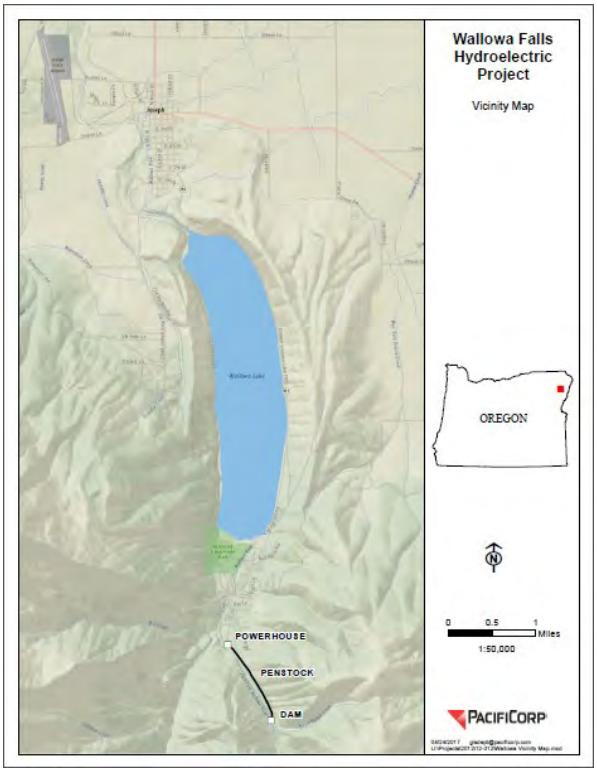
Photo Name:			**Examiner:** Kendrick Moholt, Bio-Resources, Inc.
Botanist Initial: Wildlife Biologist:	**Elevation:** 4700'-5800'	**GPS Coordinates:** 0483259 E 5012652N to 0484159E 5011062N	**Datum:** UTM (NAD 27) Zone 11
EDRR:__Y__N	**GPS File Name:**	Other Observations:	
Access: Road__ Trail X **River_ Other** campground			
Township: 3S**Range:** 45E **Section:** 33 NW¼ of NW¼, SW¼ of NW¼, NW¼ of SW¼, SE¼ of SW¼			
Township: 3S**Range:** 45E **Section:** 29 SW ¼			
Township: 3S**Range:** 45E **Section:** 32 NE¼ of NE¼			

Site Data Information

Target Species Code: CHLE2	**Common Name:** Oxeye Daisy	
Scientific Name: *Leucanthemum vulgare* (Synonym- *Chrysanthemum leucanthemum*)		**Phenology: R__ B__ FL** X **S**
Distribution: CLumped____**L**inear_____**SE** Scattered even_____ **SP** Scattered Patchy X **C**ontinuous_____		
Total Acres: 26	**Percent Infested:** <1%	**Infested Acres:** ~0.3
% Cover or Count (weeds): ~1000		Understory Cover % (all):40-90%
Potential to Spread: High__ Med x Low____		**Distance to Water:** >30m
Water Type: Perennial_ Ephemeral____		**System: Lake__ River__ Spring_ Stream**
Soil Types: sandy loam		Slope % aspect: 2-20%, Aspect variable
Other Species on Site:		

Comments

Map of Site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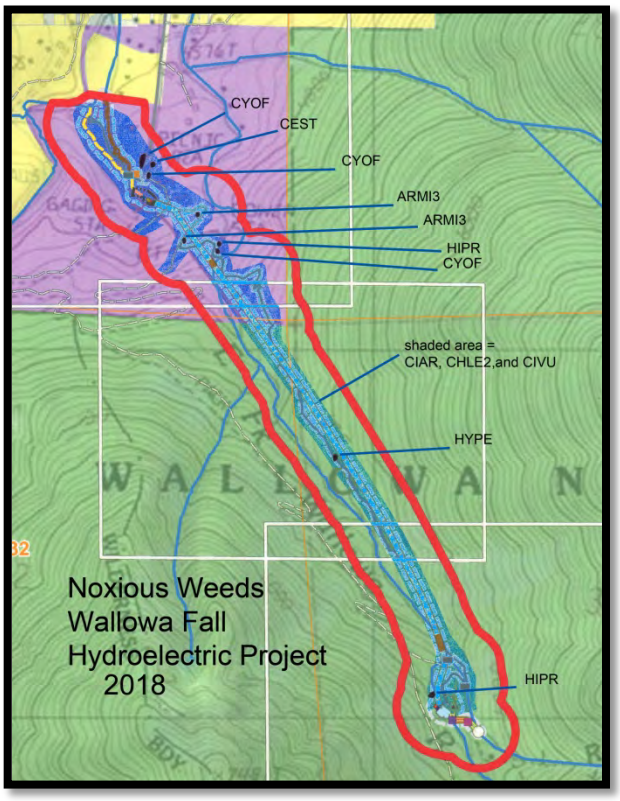
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CIAR, CHLE2,and CIVU
HYPE
HIPR
Noxious Weeds
Wallowa Fall
Hydroelectric Project
2018

Invasive Plant Inventory Form

General Site Information

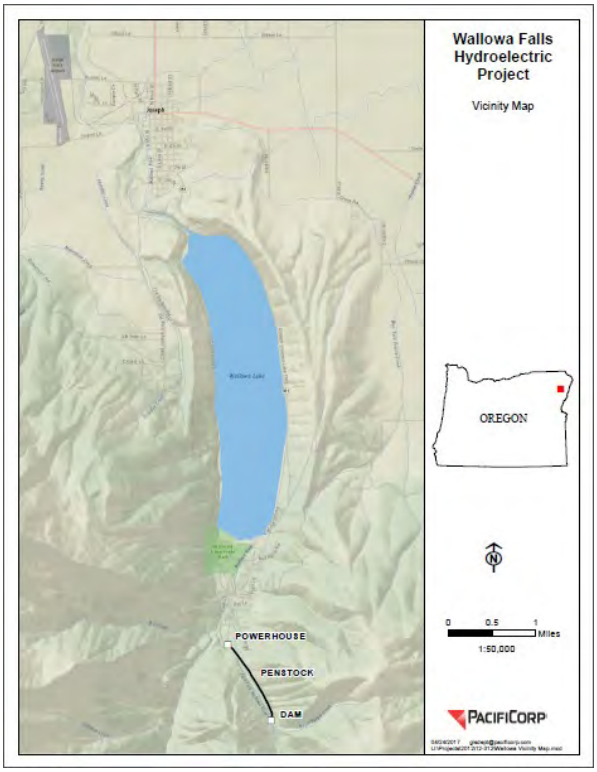
Site Name: Wallowa Falls Hydroelectric Project		**Date:** 8 July 2018	
Photo Point (GPS):		Ownership: PacifiCorp	
Photo Name:		**Examiner:** Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial: Wildlife Biologist:	**Elevation:** 4700'-5000'	**GPS Coordinates:** 0483409E 5012480N	**Datum:** UTM (NAD 27) Zone 11
EDRR: Y N	**GPS File Name:**	Other Observations:	
Access: Road X **Trail** **River** **Other** Campground			
Township: 3S **Range:** 45E **Section:** 29 **¼ sec:** NW of **¼ sec:** SE			

Site Data Information

Target Species Code: CEST	**Common Name:** Spotted Knapweed	
Scientific Name: *Centaurea stoebe* Synonym (*Centaurea maculosa*)		**Phenology: R B FL** X **S**
Distribution: CLumped **L**inear **SES**cattered even **SP**Scattered Patchy X **C**ontinuous		
Total Acres: 26	**Percent Infested:** <1%	**Infested Acres:** ~0.25
% Cover or Count (weeds): dozens		Understory Cover % (all):40-90%
Potential to Spread: High x Med Low		**Distance to Water:** >30m
Water Type: Perennial Ephemeral		**System: Lake River Spring Stream**
Soil Types: sandy loam		Slope % aspect: 2-10%, Aspect variable
Other Species on Site:		

Comments

Map of Site


Wallowa Falls
Hydroelectric
Project
Vicinity Map
OREGON
POWERHOUSE
PENSTOCK
DAM
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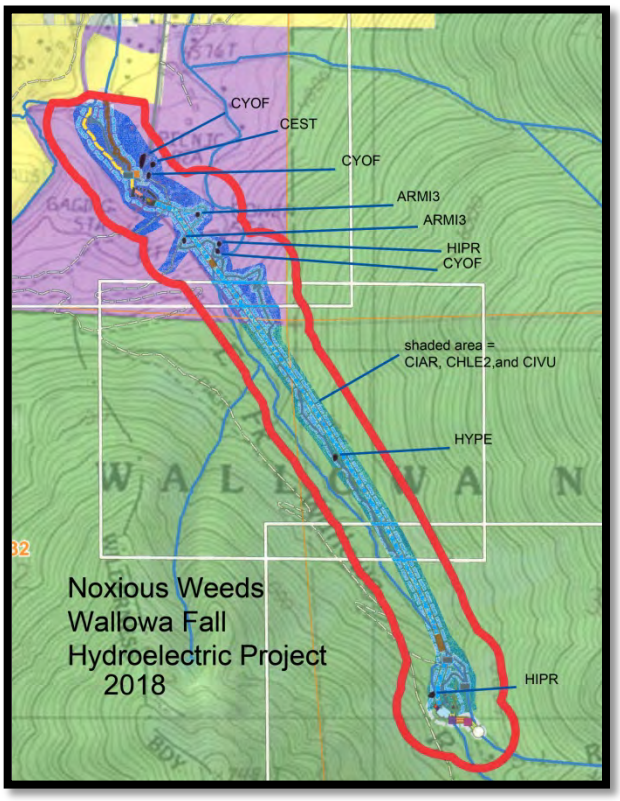
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shaded area =
CIAR, CHLE2,and CIVU
HYPE
HIPR
Noxious Weeds
Wallowa Fall
Hydroelectric Project
2018

Invasive Plant Inventory Form

General Site Information

Site Name: Wallowa Falls Hydroelectric Project		**Date:** 8 July 2018	
Photo Point (GPS):		Ownership/District:USFS, WWNF, Eagle Cap	
Photo Name:		**Examiner:** Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial: Wildlife Biologist:	**Elevation:** 5500'	**GPS Coordinates:** 0484018E 5011521N	**Datum:** UTM (NAD 27) Zone 11
EDRR: Y N	**GPS File Name:**	Other Observations:	
Access: Road Trail X **River Other #**			
Township: 3S **Range:** 45E **Section:** 33 **¼ sec:** NW			

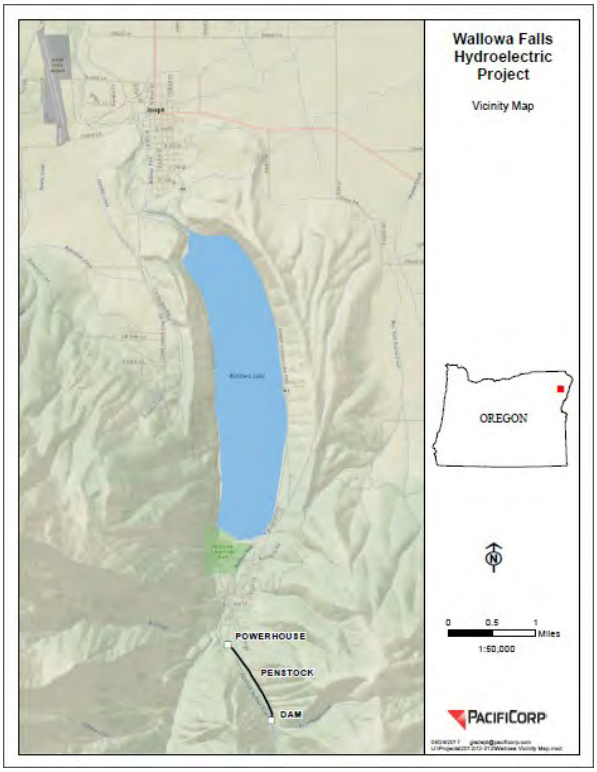
Site Data Information

Target Species Code: HIPE	**Common Name:** St. John's Wort	
Scientific Name: *Hypericum perforatum*		**Phenology: R B FL** X **S**
Distribution: CLumped **L**inear **SES**cattered even **SP**Scattered Patchy X **C**ontinuous		
Total Acres: 26	**Percent Infested:** <1%	**Infested Acres:** ~0.1
% Cover or Count (weeds): ~50		Understory Cover % (all): 90%
Potential to Spread: High Med Low X		**Distance to Water:** >30m
Water Type: Perennial Ephemeral		**System: Lake River Spring Stream**
Soil Types: sandy loam		Slope % aspect: 2%, 230°
Other Species on Site:		

Comments

Approximately 1 mile from trailhead on Wallowa Falls Maintenance Road (NE of the FS1804 trail switchback on the Sec. 32/33 border).

Map of Site


Wallowa Falls
Hydroelectric
Project
Vicinity Map
OREGON
POWERHOUSE
PENSTOCK
DAM
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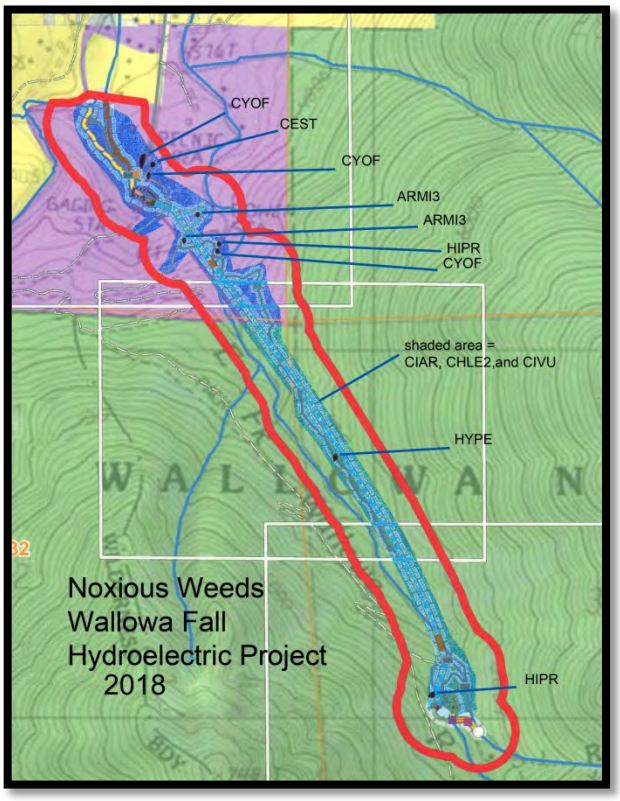
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shaded area =
CIAR, CHLE2,and CIVU
HYPE
HIPR
Noxious Weeds
Wallowa Fall
Hydroelectric Project
2018

Herbicide Application (2510) Data Form

General Treatment Data

Treatment Area Name	Owner	FACTS ID #	Subunit	Project
Wallowa Falls Hydroelectric Project	USFS & PacifiCorp	_____	__	Wallowa Falls Hydroelectric Project
Equipment	**Fund Code**	Comments		
4-Wheeler spray rig, backpack spray rig	NA			

Infestation/Target Species

INFESTATION_ID	Species Name	% Infested	Infested Area Treat	Phenology
TBD	Meadow Hawkweed *Hieracium caespitosum*	<1%	0.10 ac USFS (spot app) 0.05ac PacifiCorp (spot app)	Flowering
TBD	Bull Thistle *Cirsium vulgare*	<1%	0.10 ac USFS (spot app) 0.05ac PacifiCorp (spot app)	Flowering
TBD	Canada Thistle *Cirsium arvense*	<1%	0.25ac USFS (spot app) 0.05ac PacifiCorp (spot app)	Flowering
TBD	Common Burdock *Arctium minus*	<1%	0.10ac PacifiCorp (spot app)	Flowering
TBD	Hounds' Tongue *Cynoglossum officinale*	<1%	0.15ac PacifiCorp (spot app)	Flowering
TBD	Oxeye Daisy *Leucanthemum vulgare*	<1%	0.25ac USFS (spot app) 0.05ac PacifiCorp (spot app)	Flowering
TBD	Spotted Knapweed *Centaurea stoebe*	<1%	0.25ac PacifiCorp (spot app)	Flowering
TBD	St. John's Wort *Hypericum perforatum*	<1%	0.10ac USFS (spot app)	Flowering

DailyLog

Application Site	Licensed Applicator Name and License #	Applicators (other)
Wallowa Falls Hydroelectric Project campground, trail and fore bay area	Veezy Contracting #AG-L 1009406 CPA	___

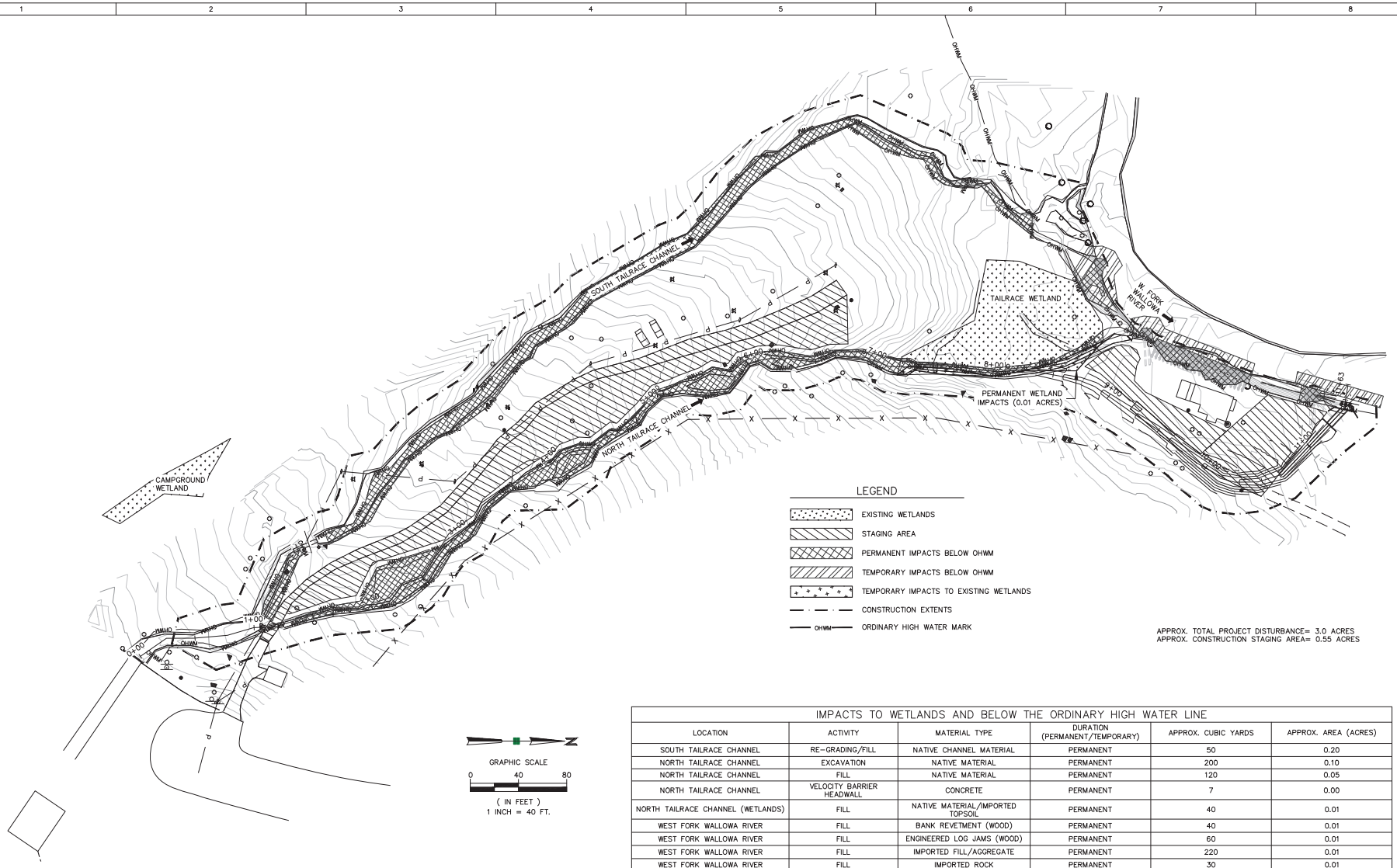
Application Date	Application Area (Acres)	Time Start	Time Stop	Temp (F)	Wind Speed (MPH)	Wind Direction	Cloud Cover	RH%	Water Distance
09 July 2018	1.5	0800	1600	60-70°F	1-5	NW	clear	30	>30m

Calibrated Volume	UOM	Volume Applied	UOM	Mix (oz/gal)	Dilutent
16	Gal/Acre	24	Gal	0.44	Water

Herb Product Name	EPA Reg #	Product Rate	UOM	Additives	Rate	UOM
Milestone	62719-519	7	Oz/Ac	INSIST 90	12	Oz/Ac

Remarks: Bio-Resources, Inc contract botanist, Kendrick Moholt, on site during application.

Appendix C
Tailrace reroute and Royal Purple
Pipe extension construction limits



IMPACTS TO WETLANDS AND BELOW THE ORDINARY HIGH WATER LINE

LOCATION	ACTIVITY	MATERIAL TYPE	DURATION (PERMANENT/TEMPORARY)	APPROX. CUBIC YARDS	APPROX. AREA (ACRES)
SOUTH TAILRACE CHANNEL	RE-GRADING/FILL	NATIVE CHANNEL MATERIAL	PERMANENT	50	0.20
NORTH TAILRACE CHANNEL	EXCAVATION	NATIVE MATERIAL	PERMANENT	200	0.10
NORTH TAILRACE CHANNEL	FILL	NATIVE MATERIAL	PERMANENT	120	0.05
NORTH TAILRACE CHANNEL	VELOCITY BARRIER HEADWALL	CONCRETE	PERMANENT	7	0.00
NORTH TAILRACE CHANNEL (WETLANDS)	FILL	NATIVE MATERIAL/IMPORTED TOPSOIL	PERMANENT	40	0.01
WEST FORK WALLOWA RIVER	FILL	BANK REVETMENT (WOOD)	PERMANENT	40	0.01
WEST FORK WALLOWA RIVER	FILL	ENGINEERED LOG JAMS (WOOD)	PERMANENT	60	0.01
WEST FORK WALLOWA RIVER	FILL	IMPORTED FILL/AGGREGATE	PERMANENT	220	0.01
WEST FORK WALLOWA RIVER	FILL	IMPORTED ROCK	PERMANENT	30	0.01
WEST FORK WALLOWA RIVER	DEWATERING	COFFERDAM (GRAVEL/SAND)	TEMPORARY	100	0.10

Quadrant Consulting, Inc.

River Structures CONSULTING, LLC

SAP#
PL#
DATE SEPTEMBER 18, 2018
ENG NK DES
DR AE CH
APPROVAL

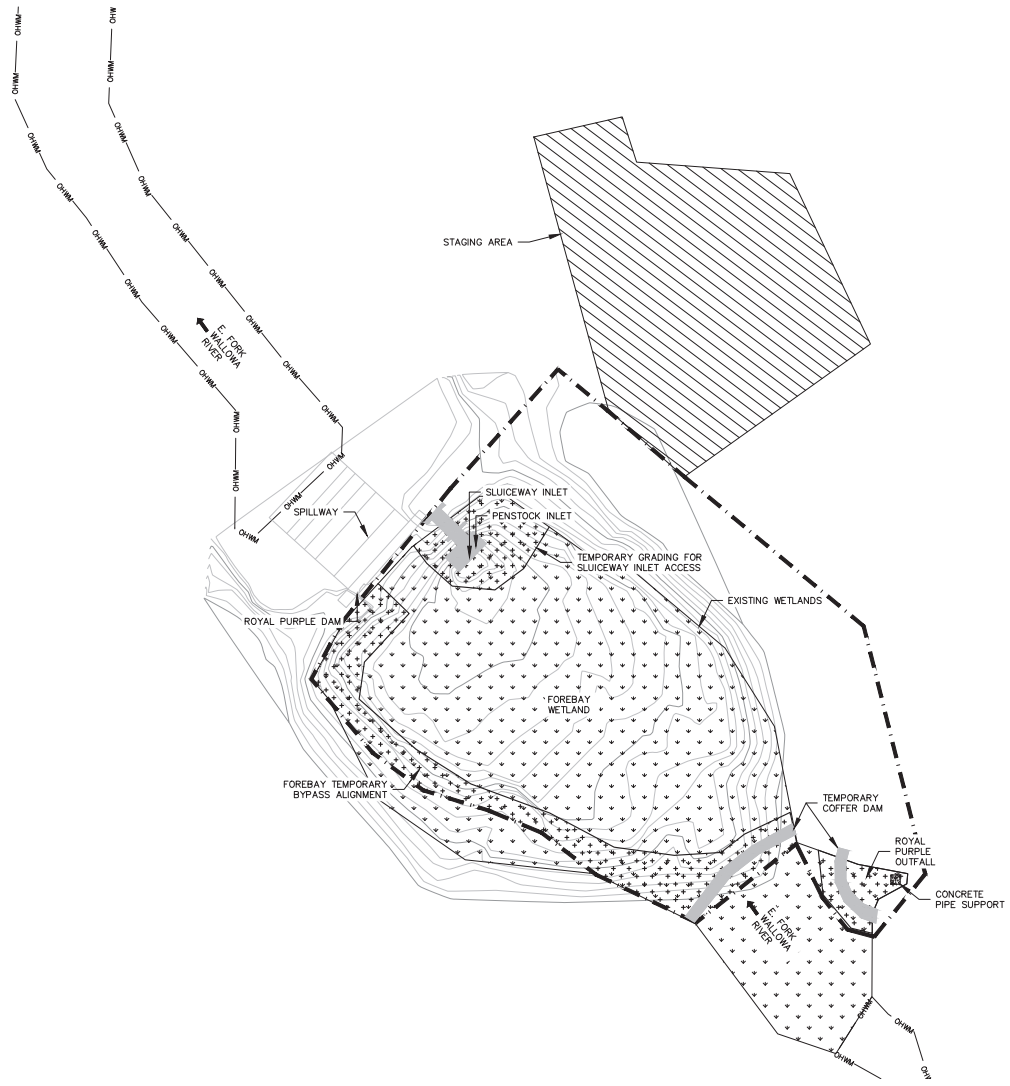
WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS ENVIRONMENTAL IMPACTS TAILRACE

PACIFICORP
HYDRO

SCALE: 1"=40' | SHEET 1 | E1 | REV. B

No.	DATE	REVISION	BY	CHK	APP
A	2/26/18	50% DESIGN REVIEW	AE	NK	
B	4/02/18	90% DESIGN REVIEW	AE	NK	

DRAWING No.	REFERENCE DRAWINGS



N

GRAPHIC SCALE

0 20 40

(IN FEET)
1 INCH = 20 FT.

LEGEND

- EXISTING WETLANDS
- STAGING AREA
- TEMPORARY IMPACTS TO EXISTING WETLANDS
- OHWM — ORDINARY HIGH WATER MARK
- CONSTRUCTION EXTENTS

IMPACTS TO WETLANDS AND BELOW THE ORDINARY HIGH WATER LINE

LOCATION	ACTIVITY	MATERIAL TYPE	DURATION	CUBIC YARDS	AREA (ACRES)
FOREBAY WETLAND	TEMPORARY COFFERDAMS	NATIVE AGGREGATE FILL	TEMPORARY	30	0.01
FOREBAY WETLAND	EXCAVATION	NATIVE MATERIAL	TEMPORARY	150	0.03
FOREBAY WETLAND	FILL	CONCRETE	PERMANENT	1	0.00

Quadrant Consulting Inc.

River Structures CONSULTING, LLC

SAP#	
PL#	
DATE	SEPTEMBER 18, 2018
ENG	NK
DES	
DR	AE
CH	
APPROVAL	

WALLOWA FALLS HYDROELECTRIC
INTAKE & TAILRACE MODIFICATIONS
ENVIRONMENTAL IMPACTS
FOREBAY

PACIFICORP — HYDRO

SCALE: 1"=40' | SHEET 1 | E2 | REV. B

No.	DATE	REVISION	BY	CHK	APP
A	2/26/18	50% DESIGN REVIEW	AE	NK	
B	4/02/18	90% DESIGN REVIEW	AE	NK	

REFERENCE DRAWINGS | DRAWING No. | REFERENCE DRAWINGS | DRAWING No.

Appendix E

Agency Comments

AGENCY	COMMENT	UTILITY RESPONSE
U.S. Fish and Wildlife Service	Page 5 – Top of page, provide exact date of reprogramming the Programmed Logic Control (PLC)	Date has been provided.
U.S. Fish and Wildlife Service	Page 5 – Thank you for contacting us on 2 of the 3 outages. Why was the first not reported to us, and has this issue been resolved for future years reporting?	Failure to report the outage was a PacifiCorp oversight. Internal staff notification protocols have been implemented to reduce the likelihood of this occurring again.
U.S. Fish and Wildlife Service	Appendix A – Forebay flushing report – This year's flushing cleaned out just a limited amount of sediment. What are you plans for 2019, and future years, to be more successful in flushing the forebay sediment, while minimizing impacts to bull trout?	Due to the existing facilities and restriction on timing and duration of forebay flushing, limited quantities of sediment can be flushed from the forebay on an annual basis. PacifiCorp hopes that planned modifications to the intake structure will make flushing in future years more effective. Effects to bull trout will be minimized by flushing during the high flow month of June and limiting flushing events to 72 hours.
U.S. Fish and Wildlife Service	Turbidity Data – As the Service commented in 2017, we recommend that the report includes a map with the locations of the turbidity monitoring both above and below the forebay flushing. In addition, it would be helpful to have some photos of stream turbidity prior to flush, during high turbidity readings, and post flush showing low readings, to better interpret the numerical data at both the upstream forebay and downstream turbidity monitoring locations.	A map has been added to Section 3.0 of the report. Representative photos will be included in the 2019 Forebay Flushing Report.

U.S. Fish and Wildlife Service	Turbidity – Malfunction of the upper datasonde. The Service recalls this upstream turbidity monitoring site had issue in the past? It is important to locate this datasonde in a location that will not malfunction. We recommend putting two datasondes in the upper locations that are protected to ensure it is working. Without upper reference reach turbidity graph it is difficult to interpret what is above natural.	Agreed, given the remoteness of this area and volatile nature of the upper East Fork Wallowa River, turbidity readings at the upper site have been problematic. Care will be taken during 2019 monitoring to ensure as accurate as possible data is collected and presented.
U.S. Fish and Wildlife Service	Redd Monitoring Report – Great job on this redd monitoring effort! It is exciting to learn that fluvial/adfluvial bull trout are spawning in the East Fork Wallowa River.	Comment noted
U.S. Fish and Wildlife Service	There are a few things missing from the term and condition for redd monitoring. Please insure that our terms and conditions are implemented and reported.	Comment noted
U.S. Fish and Wildlife Service	Redd Monitoring Report – Table 1 – Thank you for providing a summary table of the data as request in 2017. In the 2018 report, PacifiCorp states that the bull trout were large fluvial size. However, the table indicates several smaller size fish. Do the <and > need to be edited?	Table revised
U.S. Fish and Wildlife Service	Redd Monitoring Report – In the biological opinion (BO), to be consistent with ongoing redd monitoring in NE Oregon, the Service requested fish size categories, <6 inches, <12 inches, <14 inches, and >14 inches. Instead PacifiCorp displays the fish data in two metric categories. We recommend PacifiCorp make the change or explain your reason for not following the BO terms and conditions.	Table revised

U.S. Fish and Wildlife Service	Redd Monitoring and BO – Size of redds – PacifiCorp generalizes fluvial size. Where is the redd size data?	Information added to Report
U.S. Fish and Wildlife Service	Redd Monitoring and BO – Were there any brook trout present when conducting pawning surveys, especially spawning bull trout? Please include; this was part of BO terms and conditions.	Information added to Report
U.S. Fish and Wildlife Service	Redd Monitoring and BO – what were the flows during redd surveys? Please add a brief summary.	Information added to Report
U.S. Fish and Wildlife Service	Redd Monitoring and BO Photo documentation of redds – Did this occur? If so please include. If not, please state reason.	Due to the dense riparian cover at all redd locations, no photo showing redd clearly enough to distinguish was possible.
U.S. Fish and Wildlife Service	Redd Monitoring Report – Data displayed in Figure 1 and page 7 – The Service recommend PacifiCorp number and date the bull trout redds on the GIS map. This will clarify for the reader where and when these bull trout redds were first documented. For example, redd number 1 (is this the first documented redd (9/1/18) and if so, where is it located on the map)?	Information added to Report
U.S. Fish and Wildlife Service	Redd Monitoring Report – Part of one of our terms and conditions in the consultation for the Wallowa Falls Hydropower license with FERC (FWS reference 01EOFW00-2016-F-0048), states – "If an emergency shutdown and ramping occurs during the spawning season, the East Fork Wallowa River spawning area will be field visited for any new redds built near the water's edge that could be dewatered due to shut down and ramping. Notify the Service of both positive and negative findings." Did this occur? If so, we recommend you include in this report.	No outage of long enough duration occurred in 2018 with which to trigger emergency redd survey prior to unit being brought back online. Information pertaining to the three very short unit outages that did occur during the prescribed bull trout spawn timeframe is included within the Report.

U.S. Fish and Wildlife Service	Future redd monitoring – As the Service commented in 2017, we recommend you give an indication of approximate start and end dates and number of repeat surveys planned for next year.	Information added to the Report
U.S. Fish and Wildlife Service	The Service requests communication between PacifiCorp and the Service, ODFW, DEQ and Forest Service, and other agencies, as to the details of planned construction activities in 2019. We received notification of a permit application with DSL and would like to know your plans for construction work in 2019.	PacifiCorp received the Service's June 7, 2018 dated comments on the 90% construction plans for the FERC license mandated Wallowa Falls Intake and Tailrace Modification projects. Comments were considered and addressed in the final construction plans for the projects. PacifiCorp is currently addressing comments from the Oregon Department of State Lands (DSL) on the Joint Permit Application (JPA) for the projects and intends to have a final JPA submitted to permitting agencies in first weeks of 2019. PacifiCorp will post the Joint Permit Application (JPA) and all associated appendices, sans design drawings (they contain Critical Energy Infrastructure Information), on the PacifiCorp Wallowa Falls website for your reference.

U.S. Fish and Wildlife Service	The Service has been notified that PacifiCorp is asking for an instream work variance for riming of instream work. PacifiCorp needs to coordinate with the Service on this request. In the consultation for the Wallowa Falls Hydropower license with FERC (FWS reference 01EOFW00-2016-F-0048), one of our terms and conditions was that, "All work within the East Fork and West Fork Wallowa Rivers will be conducted during instream work window for July 15 – August 15. Any adjustment in the in-water work period will first be approved by, and coordinated with the Service and ODFW.	PacifiCorp, or any permit applicant, is required to submit a formal In-Water Work Period Variance Request to DSL and the U.S. Army Corps of Engineers (USACE) Project Managers. Permitting agencies coordinate all approvals through ODFW, USFWS and NMFS, as appropriate, based on species and habitat present in the work area. PacifiCorp intends to request an extension to the in-water work window for the sole purpose of allowing adequate time to place the concrete for the FERC required permanent tailrace barrier.
Oregon Department of Environmental Quality	Figure 2-2 is difficult to read and interpret. It needs to be enlarged and properly labeled so it is clear that ramping rate limits were met during the re-start of the project.	Table 2.0 has been added to the report to show that the Standard Operating Procedure (Down-Ramping Plan) was followed during project re-starts.
Oregon Department of Environmental Quality	A map showing location of turbidity monitoring location should be added to Appendix A (Forebay Flushing Report).	A map has been added to Appendix A
Oregon Department of Environmental Quality	Actions should be taken to assure the function of all turbidity datasondes during flushing events. Backup monitoring equipment may be needed.	Agreed, given the remoteness of this area and volatile nature of the upper East Fork Wallowa River, turbidity readings at the upper site have been problematic. Care will be taken during 2019 monitoring to ensure as accurate as possible data is collected and presented.

Oregon Department of Environmental Quality	A plan for flushing effectiveness appears necessary, hopefully the modifications to the forebay dam outlet will improve performance.	Due to the existing facilities and restriction on timing and duration of forebay flushing, limited quantities of sediment can flushed from the forebay on an annual basis. PacifiCorp hopes that planned modifications to the intake structure will make flushing in future years more effective.
Oregon Department of Environmental Quality	Updates to agencies on planning and implementation of construction activities are needed during the construction phase. The updates should include the status of permits such as those required for in-water work and storm water control.	The Intake and Tailrace Modification Projects are scheduled for construction in 2019. The 90% Design Plans for these projects were submitted to the Agencies for review and comment in April 2018. An initial Joint Permit Application (JPA) has been submitted to the Oregon Department of State Land and U.S. Army Corps of Engineers. PacifiCorp is currently addressing comments on the JPA from DSL and intends to have a final revised JPA filed in the first weeks of 2019. PacifiCorp will not proceed with any work prior to receiving all legally required permits and approvals. PacifiCorp will post the Joint Permit Application (JPA) and all associated appendices, sans design drawings (they contain Critical Energy Infrastructure Information), on the PacifiCorp Wallowa Falls website for your reference.

Oregon Department of Fish and Wildlife	Section 2.1.2 Ramping PacifiCorp reports three (3) unplanned outages that resulted in implementation of the Down-Ramping Plan. All three unplanned outages occurred during the Bull Trout spawning period, during which four (4) redds were observed in the East Fork Wallowa River. Was any consideration given to the redds when the turbine was brought back online?	No outage of long enough duration occurred in 2018 with which to trigger emergency redd survey prior to unit being brought back online. Information pertaining to the three very short unit outages that did occur during the prescribed bull trout spawn timeframe is included within the Report
Oregon Department of Fish and Wildlife	Figure 2-2 shows generation, flow and stage in the East Fork from August 28, 2018, to November 6, 2018, however no axis labels are provided. Please provide axis labels. In addition, please provide detailed graphs of each unit trip event at a scale that allows for the rate of stage change (feet per hour) while the unit was brought back on-line to be acertained.	Axis labels have been added. Table 2.0 has been added to the report to show that the Standard Operating Procedure (Down-Ramping Plan) was followed during project re-starts.
Oregon Department of Fish and Wildlife	Section 3.0 Forebay Flushing The report indicates the forebay was flushed from June 10 through June 12, 2018. However, in Appendix A, Forebay Flushing Report, the sequence of events on page 2 indicates that the actual forebay flushing was initiated on June 11, 2018, when the low level outlet gate was opened to 100 percent and continued through June 14, 2018, when the lower level outlet drain valve was lowered. Please clarify or verify the dates that the forebay flushing occurred.	The dates have been corrected in the Report.

Oregon Department of Fish and Wildlife	Appendix A, Forebay Flushing Report, indicates some problems that occurred during the forebay flushing, particularly the failure of the turbidity meter above the Project Forebay and the failure to completely drawdown the forebay which resulted in limited quantities of sediment movement out of the forebay. These operational problems should be discussed in the OCMP Report, including PacifiCorp's assessment on whether they are likely to be repeated and how PacifiCorp will avoid such problems in the future to ensure compliance with license requirements.	Comment noted.
Oregon Department of Fish and Wildlife	Appendix A: Forebay Flushing Report The second paragraph on page 1 indicates that the forebay was flushed from June 10 through June 12, 2018. However, based on the sequence of events on page 2, it appears that the actual forebay flushing was initiated on June 11, 2018, when the low level outlet gate was opened to 100 percent and continued through June 14, 2018, (when the lower level outlet drain valve was lowered). Please clarify the dates that the forebay flushing occurred.	The dates have been corrected in the Forebay Flushing Report in Appendix A.

Oregon Department of Fish and Wildlife	The report indicates that the turbidity meter that was deployed above the forebay to record background turbidity malfunctioned and no data is available to for comparison with the downstream turbidity measurements. The report should identify the problem that precluded turbidity measurements and indicate whether this problem is expected to persist in future years and how PacifiCorp will avoid this problem occurring again. If problems with measurement and reporting of license requirements continue, PacifiCorp should develop alternative measures that ensure that license requirements are addressed.	Given the remoteness of this area and volatile nature of the upper East Fork Wallowa River, turbidity readings at the upper site have been problematic. Care will be taken during 2019 monitoring to ensure as accurate as possible data is collected and presented.
Oregon Department of Fish and Wildlife	The report states that PacifiCorp was unable to completely drawdown the forebay and sediment mobilization was limited. In the past, such circumstances have resulted in high accumulation of sediment and extreme difficulties conducting the forebay flush in the following year (e.g. 2016 and 2017). This issue should be discussed in the OCMP Report, including PacifiCorp's assessment on whether these are likely to be repeated and how PacifiCorp will avoid such problems in the future to ensure compliance with license requirements.	Due to the existing facilities and restriction on timing and duration of forebay flushing, limited quantities of sediment can flushed from the forebay on an annual basis. PacifiCorp hopes that planned modifications to the intake structure will make flushing in future years more effective.

Oregon Department of Fish and Wildlife	To allow for interpretation of the turbidity data, please include flow data, so turbidity variation due to stream flow unrelated to forebay flushing (such as precipitation) can be ascertained.	An additional graph and data table, which include top of the hour average flow data, have been added to the Forebay Flushing Report in Appendix A. Where there are blanks in hourly flow data the USGS did not provide a reading.
Oregon Department of Fish and Wildlife	<u>Appendix B: Fish Salvage and Temporary Tailrace Barrier Report</u> On page 6, Figure 2, please add a figure title including a date the photo was taken.	Edit made to Report
Oregon Department of Fish and Wildlife	<u>Appendix C: Bull Trout Redd Monitoring Report</u> The report indicates that nine Bull Trout redd surveys were performed from early September through the end of October. ODFW appreciates the extra effort of PacifiCorp to provide additional data which will increase the understanding of Bull Trout in the East Fork Bypassed Reach.	Comment noted
Oregon Department of Fish and Wildlife	On page 7, Figure 2, please provide a map with a flat perspective that indicates the path of the East Fork and West Fork with blue lines. In addition to the locations of the bull trout redds, please also indicate the location of the migratory fish passage barrier (i.e. East Fork falls).	Map revised within Report
Oregon Department of Fish and Wildlife	On page 8, Figure 3, please add a figure title, including the date the photo was taken and the approximate location or redd number.	Information added to Report

Oregon Department of Fish and Wildlife	By inclusion of the US Fish and Wildlife Service (USFWS) Biological Opinion Terms and Conditions, the FERC License requires specific data to be collected during the Bull Trout redd monitoring (Condition 4a). The information required by USFWS should be included in the Bull Trout Redd Monitoring report.	Information added to Report

Oregon Department of Fish and Wildlife	The Department appreciates the opportunity to comment on the OCMP Report. In addition, the Department has become aware that PacifiCorp has developed construction plans for rerouting the tailrace and the new permanent tailrace barrier. The Department has also become aware that PacifiCorp may wish to conduct construction work below the high-water mark outside of the established in-water work window of July 15 to August 15. We strongly recommend that PacifiCorp should contact ODFW and USFWS to discuss their request for a variance from the in-water work period to ensure an understanding by all parties of the proposed work and its purpose, and the potential impacts to aquatic resources. The Department looks forward to this discussion, to reviewing the construction plans and to continuing work with PacifiCorp on the implementation of the Wallowa Falls Hydroelectric Project License.	PacifiCorp received ODFW's June 6, 2018 dated comments on the 90% construction plans for the FERC license mandated Wallowa Falls Intake and Tailrace Modification projects. Comments were considered and addressed in the final construction plans for the projects. PacifiCorp is currently addressing comments from the Oregon Department of State Lands (DSL) on the Joint Permit Application (JPA) for the projects and intends to have a final JPA submitted to permitting agencies in the first weeks of 2019. PacifiCorp, or any permit applicant, is required to submit a formal In-Water Work Period Variance Request to DSL and the U.S. Army Corps of Engineers (USACE) Project Managers. Permitting agencies coordinate all approvals through ODFW, USFWS and NMFS, as appropriate, based on species and habitat present in the work area. PacifiCorp intends to request an extension to the in-water work window for the sole purpose of allowing adequate time to place the concrete for the FERC required permanent tailrace barrier.

2019 ANNUAL REPORT and ROLLING 4-YEAR PROJECT MANAGEMENT ACTIVITIES CALENDAR YEARS 2018 – 2021

Wallowa Falls Hydroelectric Project
FERC No. P-308

Attachment C

Site-Specific Plan
Intake Modification Project
on the
USDA-FS, Wallowa-Whitman National Forest

United States Forest Service Site-Specific Plan

Wallowa Falls Hydroelectric Project, FERC No. 308

Intake Modification Project

Wallowa County, Oregon

October 2018

Prepared for:

PacifiCorp

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1.0 INTRODUCTION

PacifiCorp owns and operates the Wallowa Falls Hydroelectric Project under a license (FERC 2017) issued by the Federal Energy Regulatory Commission (FERC) in 2017. The project is located in the Wallowa River watershed upstream of Wallowa Lake, near Joseph, Oregon (Figure 1). Under the new FERC license, PacifiCorp is required to undertake multiple construction projects and ground disturbing actions located on National Forest lands administered by the United States Forest Service (USFS) including (1) extending the Royal Purple Creek Diversion pipeline where it discharges into the forebay, created by the East Fork Dam, to reduce erosion; 2) modifying the intake structure on East Fork Dam to enable the release of higher minimum flows and replacing up to five cubic yards of rock on the downstream face of the dam to cover exposed portions of the rebar reinforcing mat; 3) installing six directional trail signs along the project access road; 4) installing an interpretive sign with information about the hydropower project at the west side of the project forebay; and 5) improving drainage on the connector trail between the access road and East For Wallowa River Trail . Construction of these measures are conditions of the license and are considered necessary to minimize and/or avoid (i.e., mitigate) project effects on aquatic species resources and recreational opportunities over the term of the license. These measures were mandated by the FERC, United States Fish and Wildlife Service (USFWS), Oregon Department of Environmental Quality (ODEQ), and Oregon Department of Fish and Wildlife (ODFW), and the USFS through the FERC relicensing process.

Through their section 4(e) Federal Power Act authority, the USFS conditioned the FERC license with a requirement that a site-Specific Plan be prepared for habitat and ground-disturbing activities required by the FERC license on National Forest System lands. The FERC license stipulates that Site-specific plans shall include:

1. A map depicting the location of the proposed activity, the total acres impacted, and GPS coordinates.

2. A description of the USDA Forest Service land management area designation for the location of the proposed activity, the source where the description was obtained, and applicable standards and guidelines.

3. Where required by regulatory procedures, a description of alternative locations, implementation designs and mitigation measures considered including erosion control and effectiveness monitoring designed to meet applicable standards and guidelines.

4. Draft biological evaluations or assessments including survey data as required by regulations applicable to habitat or ground-disturbing activities on NFS lands in existence at the time the plan is prepared. An environmental analysis of the proposed action consistent with the USDA Forest Service policy and regulations for implementation of the National Environmental Policy Act in existence at the time the plan is prepared for a Commission licensed project on NFS lands. Environmental analysis completed by the Commission or

others may be relied upon as appropriate on a project specific basis as agreed to by USDA Forest Service. The Licensee shall contact FERC and the USDA Forest Service on any proposed actions that may require environmental analysis. The Licensee shall consult with the USDA Forest Service on any proposed actions that may trigger additional environmental analysis not already covered by FERC NEPA documents.

5. A Spill Prevention and Control and Hazardous Materials Plan for hazardous materials storage, spill prevention and cleanup on NFS lands, as needed, will be provided to USDA Forest Service for review and approval before work commences.

The purpose of this plan is to provide Site-Specific Plan elements stipulated in the FERC license.

2.0 AREA OF IMPACT

The project area is located approximately 11 miles south of the City of Joseph, Wallowa County, Oregon (Figure 1) at the East Fork diversion forebay area (Figure 2). The coordinates of the intake structure replacement are Lat. 45.254274°, Lon. -117.202489°. The coordinates of the Royal Purple diversion pipe discharge extension are Lat. 45.253972°, Lon. -117.201992°. Of note is that all aerial photos in this plan were shot with an unmanned aircraft system (UAS) or from the ground level during the June 2018 wetland delineation field work unless otherwise cited.

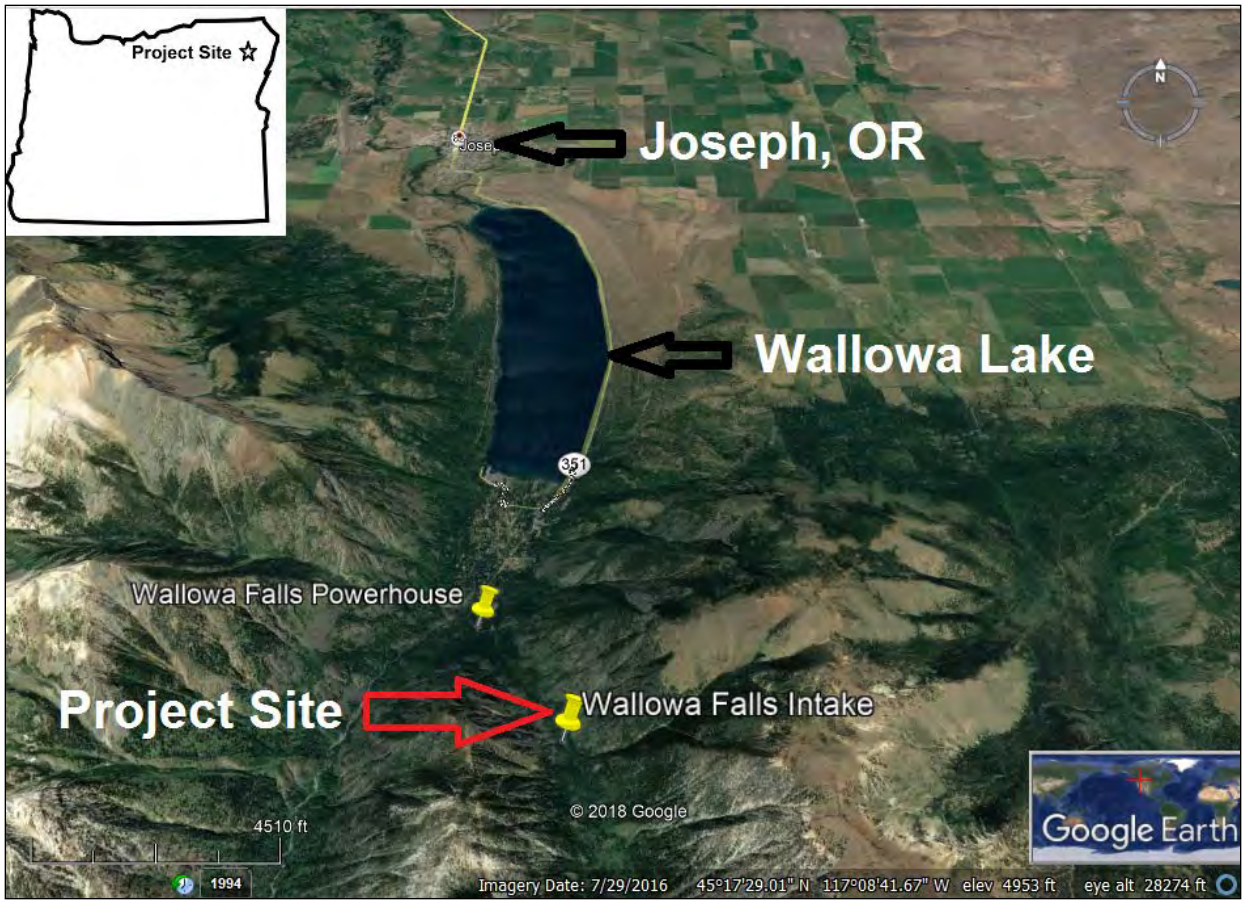


Figure 1. Location map.

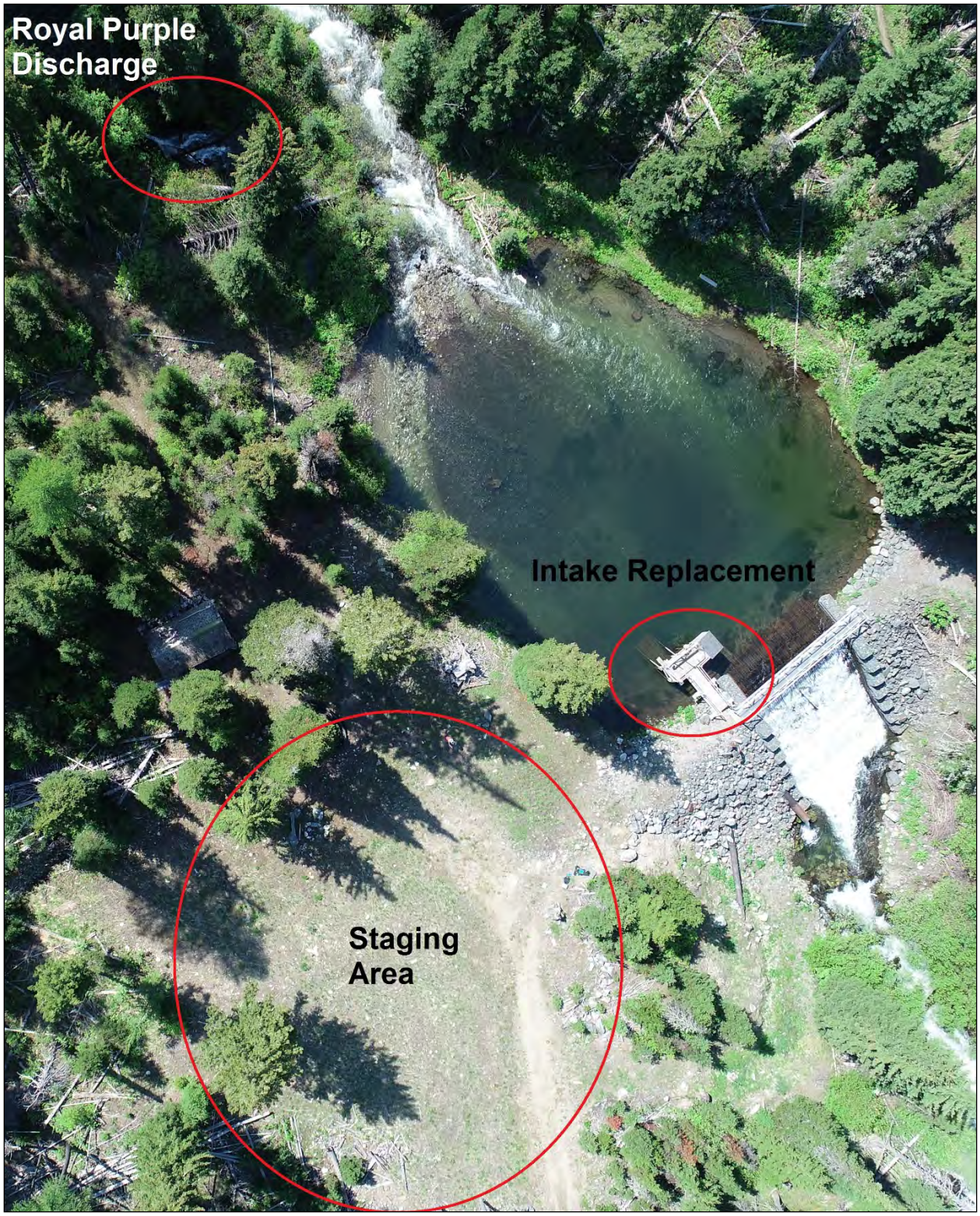


Figure 2. Aerial photo of the East Fork diversion forebay work area (UAS, June 2018).

2.1 ROYAL PURPLE DIVERSION DISCHARGE PIPE EXTENSION IMPACT AREA

Very limited impacts to wetland and non-wetland waters will occur as result of extending the royal purple diversion discharge pipeline. About 1.0 cubic yards of fill (concrete support block) covering nine square feet will be placed to support the base of the new pipe extension. About 1.0 cubic yards of native boulders from on-site will be placed covering about 16 square feet to form a splash pad at the pipe discharge point.

2.2 EAST FORK DIVERSION INTAKE MODIFICATION IMPACT AREA

The foundation footprint (existing concrete intake structure) will not change. The elevated platform area will increase through the addition of a new lower platform, which will cantilever off the new structure and will be about 100 square feet, resulting in a total over-water platform area of about 200 square feet. The forebay pond (0.2 acres) will be temporarily impacted by dewatering, which is necessary to conduct the in-water work. About 0.04 acres of the forebay pond will be affected by temporary grading to access the intake with machinery and to re-route the East Fork around the work zone. The staging area (0.25 acres) will be temporarily impacted by storing materials and machinery during the construction period.

2.3 RECREATIONAL SIGNAGE AND TRAIL DRAINAGE IMPROVEMENTS

Six trail directional signs will be installed along the project access road and/or in the general project area. Sign design and placement will be completed in consultation with the USFS. Signs will be hand driven posts and are not expected to require any concrete foundations. One interpretive sign will be installed on the west side of the project forebay. The sign will require installation of small concrete footings (likely 2’ x 2’ x 18” or something similar). Any needed trail drainage improvements will be designed and installed in consultation with the USFS. The project access road will also be re-graded as part of the construction projects.

3.0 USFS LAND MANAGEMENT AREA DESIGNATION, STANDARDS, AND GUIDELINES

The USFS land management area designation for the project area location is Riparian Management Area (RMA). Fish are known to be present in the East Fork Wallowa River in the vicinity of the project site, which are believe to be derived from downstream migrants from headwater lakes, which were stocked with hatchery rainbow and brook trout (FERC 2016). For fish bearing streams, the RMA encompasses a 300-foot slope on either side of the stream or the 100-year floodplain, whichever is greater (USFS 2018). The entire project area (staging and work zone) for the primary construction activities of the Royal Purple discharge pipe extension, intake modification and interpretive sign installation, are all within 300 feet of the edge of the forebay/East Fork of the Wallowa River. The Wallowa

Falls Hydroelectric Project facilities are allowed on the National Forest Land System though special use authorization. The applicable general standards and guidelines and guidelines specific to special uses (including hydropower) for RMAs are listed below (source: Wallowa-Whitman Forest Land Management Plan, USFS 2018).

3.1 GENERAL RIPARIAN MANAGEMENT STANDARDS AND GUIDELINES

Standard RMA-1S. Riparian management areas include portions of watersheds where aquatic and riparian-dependent resources receive primary management emphasis. When riparian management area desired conditions are functioning properly, projects shall protect or maintain those conditions. When riparian management area desired conditions are not yet achieved or riparian management areas have impaired function or are functioning-at-risk and to the degree that project activities would contribute to those conditions, projects or permitted activities shall restore or not retard attainment of desired conditions. Short-term adverse effects from project activities may occur when they support long-term recovery of riparian management area desired conditions.

Standard RMA-2S. Herbicides, insecticides, pesticides and other toxicants, and other chemicals shall be applied only to maintain, protect, or enhance aquatic and riparian resources or to restore native plant communities in a manner that does not harm aquatic or riparian resources.

Standard RMA-3S. Trees felled for safety shall be retained onsite unless in excess of what is needed to achieve aquatic and riparian desired conditions. If the desired quantity and size distribution of large wood has been met on site, the wood can be transported to other aquatic and riparian restoration projects.

Guideline RMA-4G. Water drafting sites should be located and managed to minimize adverse effects on stream channel stability, sedimentation, and instream flows needed to maintain riparian resources, channel conditions, and fish habitat. To prevent the spread of invasive species, water should not be discharged into other waterbodies.

Standard RMA-5S. Pumps shall be screened at drafting sites to prevent entrainment of fish and shall have one-way valves to prevent back-flow into streams.

Guideline RMA-6G. Fish habitat and water quality should be protected when withdrawing water for administrative purposes.

Standard RMA-7S. Refueling shall occur with appropriate containment equipment and a spill response plan in place. Wherever possible, storage of petroleum products and refueling will occur outside of riparian management areas. The use of containment devices, absorbent pads, and a developed spill plan will help reduce the risk of fuel and petroleum products from getting into streams and other waterways if an accident were to occur. If refueling or storage of petroleum products is necessary within riparian management areas, these operations will be conducted no closer than 100 feet from waterways.

3.2 LANDS AND SPECIAL USES, INCLUDING HYDROPOWER IN RIPARIAN MANAGEMENT AREAS STANDARDS AND GUIDELINES

Standard LH-1S. Authorizations for all new and existing special uses, including, but not limited to water diversion or transmission facilities (for example, pipelines and ditches), energy transmission lines, roads, hydroelectric, and other surface water development proposals, shall result in the reestablishment, restoration, or mitigation of habitat conditions and ecological processes identified as being essential for the maintenance or improvement of habitat conditions for fish, water and other riparian dependent species and resources. These processes include in-stream flow regimes, physical and biological connectivity, water quality, and integrity and complexity of riparian and aquatic habitat.

Standard LH-2S. New support facilities shall be located outside of riparian management areas. Support facilities include any facilities or improvements (for example, workshops, housing, switchyards, staging areas, and transmission lines) not directly integral to the production of hydroelectric power or necessary for the implementation of prescribed protection, mitigation or enhancement measures.

Guideline LH-3G. If existing support facilities are located within the riparian management areas, they should be operated and maintained to restore or enhance aquatic and riparian dependent resources. At time of permit re-issuance, consider removing support facilities, where practical.

Guideline LH-4G. Land exchanges should avoid the disposition of occupied habitat of threatened, endangered, candidate, proposed, or sensitive species.

4.0 PROJECT DESIGN AND IMPLEMENTATION

4.1 ROYAL PURPLE DIVERSION DISCHARGE PIPE EXTENSION

4.1.1 Design

Water is diverted at the project's 2-foot-high, 9-foot-long concrete Royal Purple Creek Diversion Dam on Royal Purple Creek into a 240-foot-long, 8-inch-diameter partially-buried pipeline. The pipeline empties into a 20-foot-long open channel that discharges to the East Fork Wallowa River just upstream of the project's East Fork Dam and impoundment (figures 2 and 3). The FERC license requires that PacifiCorp extend the Royal Purple Creek Diversion pipeline by an additional 20 feet so it discharges directly to the East Fork Wallow River, thereby minimizing erosion along the existing open channel between the pipeline terminus and the East Fork (see design sheet 7).

Figure 3. Aerial photo of Royal Purple diversion discharge (UAS, June 2018).

4.1.2 Implementation

Timing

The in-water work period specified for the Wallowa River is July 15 through August 15 (ODFW 2008), and the Royal Purple diversion pipe extension work will be conducted during this period in 2019.

Means and Methods, and Mitigation Measures

The Royal Purple diversion will be shutoff during the pipeline extension. A straw bale barrier will be installed to separate the work area from the East Fork Wallowa River (see design drawing sheet 4). The extension pipe will be installed by hand and/or small machinery. A small concrete support will be installed at the base of the new pipe for support. Native boulders and downed on-site logs will be stacked around the support for camouflage. A splash pad using native boulders at the pipeline discharge site will be used to construct a splash pad at the end of the pipe. Downed logs and on-site boulders can be seen in Figure 3. Work will be conducted with hand tools and/or small excavation equipment and limited grubbing/ vegetation pruning is expected to conduct the work. As temporary effects to riparian vegetation is expected to be minimal, re-vegetation within the small work zone is not proposed.

Effectiveness Monitoring

Due to the very small area of disturbance, effectiveness monitoring will include taking post construction photos of the work area. Photos will also be taken the following summer after construction to document whether the pipeline extension is providing the intended reduction in erosion. Following this monitoring period, the monitoring results, with photos, will be included in the 2020 Annual Report and Rolling 3 Year Project Management Activities for Calendar Years 2019 – 2021 submitted to the USFS.

Consistency with USFS Standards and Guidelines

The consistency of the Royal Purple diversion discharge pipe extension with the USFS land management area designation standards and guidelines (listed in section 3.0) is summarized below.

Standard RMA-1S. The short term effects of installing the Royal Purple discharge pipe extension are very small. The pipeline extension is necessary to minimize erosion and is itself a mitigation measure prescribed by the USFS. Therefore, the proposed project supports long-term management area desired conditions.

Standard RMA-2S. The use of herbicides, insecticides, pesticides and other toxicants, and other chemicals are not proposed to complete the work.

Standard RMA-3S. The removal of trees is not proposed to complete the work.

Guideline RMA-4G. The pipeline extension is necessary to minimize erosion and is itself a mitigation measure prescribed by the USFS. The proposed project was prescribed by the

USFS to minimize adverse effects on stream channel stability and sedimentation caused by erosion at the current pipeline discharge point.

Standard RMA-5S. Dewatering is not proposed to complete this project.

Guideline RMA-6G. This guideline does not apply to the Royal Purple discharge pipe extension.

Standard RMA-7S. During construction, refueling and spill response standards will be met and are included in the Spill Prevention and Control, and Hazardous Materials Plan (see section 6).

Standard LH-1S. The pipeline extension is necessary to minimize erosion and is itself a mitigation measure prescribed by the USFS. Therefore, the proposed project supports long-term management area desired conditions.

Standard LH-2S. This standard does not apply to the Royal Purple discharge pipe extension.

Guideline LH-3G. This guideline does not apply to the Royal Purple discharge pipe extension.

Guideline LH-4G. This guideline does not apply to the Royal Purple discharge pipe extension.

4.2 EAST FORK DIVERSION INTAKE MODIFICATION

4.2.1 Design

The East Fork Dam is an 18-foot-high, 125-foot-long, buttressed rock-filled timber crib dam with an integrated 30-foot-wide spillway that creates a 0.2-acre impoundment on the East Fork. A low-level intake box fitted with a steel trash rack and headgate located on the left embankment of the dam conveys flows into a 5,688-foot-long, mostly buried steel penstock that connects with the powerhouse. A lower level outlet pipe with a steel trash rack and slide gate is located adjacent to the intake. The slide gate connects to a 2-foot-diameter steel pipe (low level outlet pipe) passing through the dam, and is used to flush sediment from the forebay on an annual basis and provide instream flow releases to the 1.7-mile long bypassed reach of the East Fork.

The existing intake structure will be partially demolished and modified, and replaced with a new structure covering a similar foot print (Figure 2; see design sheets 5, 6, 10, 11, 12). The existing wood structure will be demolished and rebuilt with a steel structure. The existing concrete structure will be retained and repaired (minor scour repairs, new anchors for the steel structure), but will not be removed or replaced. Some of the mechanical systems (intake gates) will be replaced. The new intake structure will have a lower deck that will provide better access to the sluice trash rack and penstock intake that will increase the overall footprint of the structure, but the lower deck will be elevated over the water and supported via cantilever from the rebuilt structure and existing concrete structure.

As part of intake modification project, up to five cubic yards of rock will be replaced where it has eroded off of the dam and exposed the rebar reinforcing mat on the downstream face of the dam (Figure 5).

4.2.2 Implementation

Timing

The in-water work period specified for the Wallowa River is July 15 through August 15 (ODFW 2008), and the work within the ordinary high water line of the forebay will be conducted during this period in 2019. Once the platform is constructed, work on top of the platform and above the ordinary high water line elevation, may occur outside this period if needed.

Means and Methods, and Mitigation Measures

The large sparsely vegetated area to the north of the forebay will be used for staging. A cofferdam will be constructed to divert the East Fork Wallowa River into an HDPE pipe to dewater the forebay/work zone (see drawing sheet 4). In addition, silt fence will be placed around the perimeter of the in-water work zone (see drawing sheet 4). The wood intake structure will be demolished and all demolished materials will be hauled off and disposed of at an approved facility. Rock will be placed on the dam abutments to cover the exposed rebar mat. No rock will be placed below the ordinary high water line of the river. If approved by the USFS, rock will be sourced from the exposed talus slope approximately 200 yards from the dam site along the access road. It is expected that the work would be completed using small excavators and small vehicles that can navigate the existing narrow 4x4 road that leads to the East Fork Dam site, which is only wide enough for a side-by-side type off-road vehicle.

The staging area is located in an upland area and is currently sparsely vegetated with herbaceous grasses (Figure 4). After the work is complete, the staging area will be re-seeded with a native seed mix. The in-water work zone in the forebay is not vegetated under existing conditions; and therefore, re-vegetation below the ordinary high water line after construction is not proposed.

Figure 4. Staging area adjacent to the East Fork diversion.

Figure 5. Exposed rebar on dam where rock has sloughed and needs replacement.

Effectiveness Monitoring

Due to the relatively small area of disturbance, effectiveness monitoring will include taking post construction photos of the work area. Photos will also be taken the following summer after construction to document whether the re-seeding of the staging area is providing at least the same vegetative coverage as pre-project conditions. Following this monitoring period, the monitoring results, with photos, will be included in the 2020 Annual Report and Rolling 3 Year Project Management Activities for Calendar Years 2019 – 2021 submitted to the USFS.

Consistency with USFS Standards and Guidelines

The consistency of the East Fork diversion intake modification with the USFS land management area designation standards and guidelines (listed in section 3.0) is summarized below.

Standard RMA-1S. The short term effects of the East Fork diversion intake modification will enable the release of higher minimum flows to bypass reach, which will increase fish habitat availability and support long-term recovery of riparian management area desired conditions.

Standard RMA-2S. The use of herbicides, insecticides, pesticides and other toxicants, and other chemicals are not proposed to complete the work.

Standard RMA-3S. The removal of trees is not proposed to complete the work.

Guideline RMA-4G. The new diversion structure will occupy the same footprint of the existing diversion and is necessary to enable the release of higher minimum flows to bypass reach, which will increase fish habitat availability and support long-term recovery of riparian management area desired conditions.

Standard RMA-5S. Dewatering pumps, if used to complete the construction, will be screened and include back-flow valves.

Guideline RMA-6G. The East Fork diversion intake modification will enable the release of higher minimum flows to bypass reach, which will increase fish habitat availability over the long term.

Standard RMA-7S. During construction, refueling and spill response standards will be met and are included in the Spill Prevention and Control, and Hazardous Materials Plan (see section 6).

Standard LH-1S. The East Fork diversion intake modification is necessary to enable release of higher minimum flows to the bypass reach, which will increase fish habitat availability over the long term, and is itself a mitigation measure prescribed by the FERC license.

Standard LH-2S. This standard does not apply to the East Fork diversion intake modification.

Guideline LH-3G. This guideline does not apply to the East Fork diversion intake modification.

Guideline LH-4G. This guideline does not apply to the East Fork diversion intake modification.

4.3 RECREATIONAL SIGNAGE AND TRAIL DRAINAGE IMPROVEMENTS

4.3.1 Design

Up to six directional trail signs will placed on the project access road and in the general project area to better demark existing trails in the project area. An interpretive sign with information about the hydroelectric project will be placed on the west side of the project forebay. All signs will be designed in consultation with USFS staff, but Figure 6 provides an example of what the interpretive sign at the forebay may look like. Drainage improvements on the connector trail between the project access road and the East Fork Wallowa River Trail will be designed in consultation with the USFS.

4.3.2 Implementation

Means and Methods, and Mitigation Measures

Signs will be pre-fabricated offsite and installed with hand tools and if necessary, small quantities of hand-poured concrete for post footings. Any trail drainage improvements have not yet been designed.

Figure 6. Example interpretive sign design.

Effectiveness Monitoring

Due to the small area of disturbance, effectiveness monitoring will include taking post installation photos of signs and any trail drainage improvements. Photos will also be taken the following summer of trail drainage improvements only to document whether they are performing satisfactorily. Following this monitoring period, the monitoring results, with

photos, will be included in the 2020 Annual Report and Rolling 3 Year Project Management Activities for Calendar Years 2019 – 2021 submitted to the USFS.

Consistency with USFS Standards and Guidelines

The consistency of installation of recreational signage and trail drainage modifications with the USFS land management area designation standards and guidelines (listed in section 3.0) is summarized below.

Standard RMA-1S. Recreational trail signs will not be installed in riparian areas. Drainage improvements to trails will protect riparian and aquatic habitats from being impacted by erosion or sediment transport from trail drainage.

Standard RMA-2S. The use of herbicides, insecticides, pesticides and other toxicants, and other chemicals are not proposed to complete the work.

Standard RMA-3S. The removal of trees is not proposed to complete the work.

Guideline RMA-4G. This guideline does not apply to the Recreational Signage and Trail Drainage Improvement installations.

Standard RMA-5S. This guideline does not apply to the Recreational Signage and Trail Drainage Improvement installations.

Guideline RMA-6G. This guideline does not apply to the Recreational Signage and Trail Drainage Improvement installations.

Standard RMA-7S. This standard does not apply to the Recreational Signage and Trail Drainage Improvement installations.

Standard LH-1S. This standard does not apply to the Recreational Signage and Trail Drainage Improvement installations.

Standard LH-2S. This standard does not apply to the Recreational Signage and Trail Drainage Improvement installations.

Guideline LH-3G. This guideline does not apply to the Recreational Signage and Trail Drainage Improvement installations.

Guideline LH-4G. This guideline does not apply to the Recreational Signage and Trail Drainage Improvement installations.

5.0 BIOLOGICAL ASSESSMENT AND ENVIRONMENTAL ANALYSIS

The proposed actions to extend the Royal Purple discharge pipeline, replace the intake structure and install signage and improve trail drainage were evaluated by the FERC's Environmental Assessment (FERC 2016) and the USFWS's Biological Opinion (USFWS 2016). The proposed projects and environmental conditions have remained the same at the site since these analysis were completed in 2016, and the biological and environmental analyses remain accurate. Therefore, additional analysis is not warranted.

6.0 SPILL PREVENTION AND CONTROL AND HAZARDOUS MATERIALS PLAN

A Spill Prevention and Control, and Hazardous Materials Plan for hazardous materials storage, spill prevention and cleanup is provided in Appendix B. The plan was prepared following the U.S. Environmental Protection Agencies template for construction stormwater management to meet national pollution discharge elimination system requirements (section 5 of the template related to pollution prevention). The plan also incorporates the USFS standard RMA-7S (see section 3.1).

7.0 REFERENCES

FERC (Federal Energy Regulatory Commission). 2016. Final environmental assessment for hydropower license, Wallowa Falls Hydroelectric Project, FERC Project No. 308-007, Oregon, dated May 2016. Federal Energy Regulatory Commission, Office of Energy Projects, Division of Hydropower Licensing, Washington D.C.

FERC (Federal Energy Regulatory Commission). 2017. Order issuing subsequent license to PacifiCorp for the Wallowa Falls Hydroelectric Project (Project No. 308-007) issued January 5, 2017.

ODEQ (Oregon Department of Environmental Quality). 2013. Construction stormwater best management practices manual, 1200-C NPDES General Permit, dated March, 2013. Water Quality Division, Surface Water Section, Portland Oregon.

ODFW (Oregon Department of Fish and Wildlife). 2008. Oregon guidelines for timing of in-water work to protect fish and wildlife resources – June, 2008. On the web: https://www.dfw.state.or.us/lands/inwater/Oregon_Guidelines_for_Timing_of_%20InWater_Work2008.pdf

USFS (United States Forest Service). 2018. Wallowa-Whitman National Forest Land Management Plan. Pacific Northwest Region. On the web: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd584609.pdf

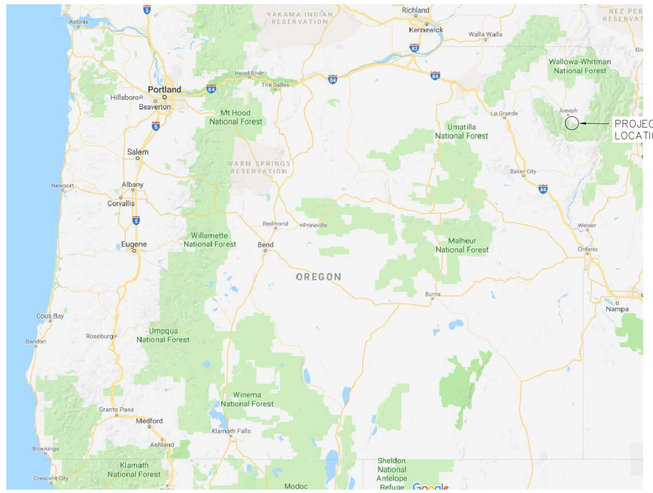
USFWS (United States Fish and Wildlife Service). 2016. Biological opinion for the Wallowa Falls Hydroelectric Project (P-308-007), Grande Ronde subbasin, Wallowa County, Oregon. U.S Fish and Wildlife Service, La Grande Oregon.

Appendix A

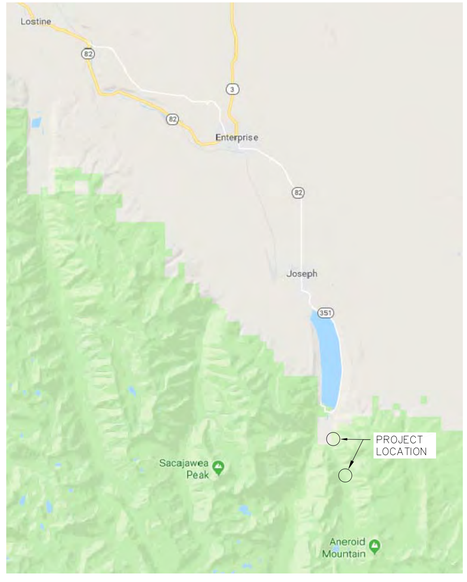
Design Drawings

PACIFICORP

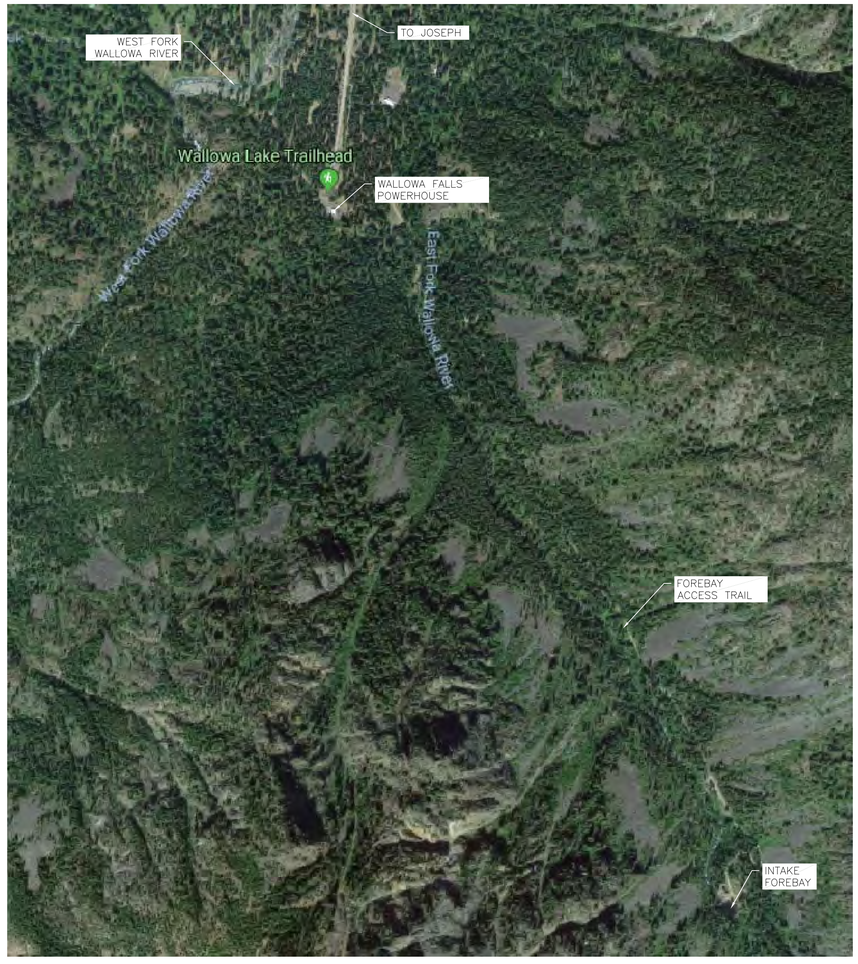
WALLOWA FALLS HYDROELECTRIC PROJECT
INTAKE & TAILRACE MODIFICATIONS
ISSUED FOR CONSTRUCTION



VICINITY MAP
NTS



AREA MAP
NTS



PROJECT SITE PLAN
NTS

SHEET INDEX

REGISTERED PROFESSIONAL ENGINEER
80853 PE
2/6/19
OREGON
MAR. 11, 2008
CHRISTOPHER C. BOYD

Quadrant Consulting, Inc.

River Structures CONSULTING
PO BOX 1643 | BOISE, ID 83701 | (208) 918-0627

SAP#	
PL#	
DATE	FEBRUARY 2019
ENG CCB	DES WJZ
DR WJZ	CH CCB
APPROVAL	

WALLOWA FALLS HYDROELECTRIC
INTAKE & TAILRACE MODIFICATIONS
COVER SHEET & SHEET INDEX

PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 1 | G-01 | REV. B

No.	DATE	REVISION	BY	CHK	APP
0	10/19/18	ISSUED FOR CONSTRUCTION	WJZ	CCB	
1	2/6/19	PERMIT REVISIONS	WJZ	CCB	

REFERENCE DRAWINGS | DRAWING No. | REFERENCE DRAWINGS | DRAWING No.

GENERAL NOTES:

1. THESE ABBREVIATIONS APPLY TO THE ENTIRE SET OF CONTRACT DRAWINGS.
2. LISTING OF ABBREVIATIONS DOES NOT IMPLY ALL ABBREVIATIONS ARE USED IN THE CONTRACT DRAWINGS.
3. ABBREVIATIONS SHOWN ON THIS SHEET INCLUDE VARIATIONS OF THE WORD. FOR EXAMPLE, "MOD" MAY MEAN MODIFY OR MODIFICATION; "INC" MAY MEAN INCLUDED OR INCLUDING; "REINF" MAY MEAN EITHER REINFORCE OR REINFORCING.
4. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.
5. SCALES FOR ALL DRAWINGS ARE BASED ON 22"x 34" PRINTED DRAWINGS

CIVIL GENERAL NOTES:

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION OR GROUND DISTURBANCE.
2. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES TO REMAIN.
3. THE CONTRACTOR SHALL CONTACT THE UTILITY AGENCIES FOR FIELD LOCATION OF UTILITIES, AT LEAST 72 HOURS PRIOR TO START OF CONSTRUCTION OR ANY GROUND DISTURBANCE.
4. PRIOR TO ANY CONNECTION TO AN EXISTING UTILITY, THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY AGENCIES.
5. CONTRACTOR SHALL RESTORE ALL SURVEY MONUMENTS THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION.
6. SENSITIVE PLANT SPECIES ARE LOCATED IN THE VICINITY OF THE INTAKE AND ROYAL PURPLE CREEK DIVERSION. COORDINATE ACCESS AND WORK RESTRICTIONS WITH THE COMPANY.

PARTIAL SUBMITTAL SCHEDULE
31 23 19 DEWATERING PLAN
05 50 00 PLATFORM SHOP DRAWINGS
05 50 00 PLATFORM GRATING SHOP DRAWINGS
05 50 00 TAILRACE MISC METALS SHOP DRAWINGS
03 30 00 CONCRETE MIX DESIGN
03 50 00 REINFORCING SHOP DRAWINGS
03 60 00 GROUT
31 22 19 SEED MIX
32 60 00 TREE ACQUISITION SITE(S)
35 20 18 SLIDE GATE SHOP DRAWINGS
35 25 06 KNIFE GATE VALVES

NOT ALL REQUIRED SUBMITTALS ARE LISTED. CONTRACTOR SHALL REVIEW ALL OF THE CONTRACT DOCUMENTS, INCLUDING THE PLANS AND SPECIFICATIONS, AND SUBMIT ALL REQUIRED DOCUMENTS AND SUBMITTALS

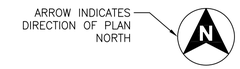
EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL SUBMIT AN EROSION AND SEDIMENT CONTROL PLAN FOR WORK DURING CONSTRUCTION, PRIOR TO THE START OF CONSTRUCTION, THAT MEETS ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.
   A. ALL SLOPES SHALL BE PROTECTED FROM EROSION DURING ROUGH GRADING OPERATIONS AND THEREAFTER, UNTIL INSTALLATION OF FINAL GROUNDCOVER.
   B. ALL SLOPE PROTECTION SWALES SHALL BE CONSTRUCTED AT THE SAME TIME AS BANKS ARE GRADED.
   C. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES CONTAINED WITHIN THE CONTRACT SPECIFICATIONS. THE CONTRACTOR SHALL ALSO PROVIDE ANY ADDITIONAL EROSION CONTROL MEASURES (HYDROSEEDING, MULCHING OF STRAW, SAND DIVERSION DITCHES, ETC.) DICTATED BY FIELD CONDITIONS TO PREVENT EROSION OR THE INTRODUCTION OF DIRT, MUD, OR DEBRIS TO EXISTING PUBLIC OR PRIVATE ROADWAY OR ONTO ADJACENT PROPERTIES DURING ANY PHASE OF CONSTRUCTION OPERATIONS. SPECIAL ATTENTION SHALL BE GIVEN TO ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES NOTED ABOVE.
2. CONTRACTOR SHALL INSTALL SILT FENCE AS INDICATED AND IN ANY ADDITIONAL LOCATIONS WHERE MATERIAL COULD LEAVE THE CONSTRUCTION SITE, AT CONTRACTORS EXPENSE.
3. THE CONTRACTOR IS RESPONSIBLE FOR INSPECTING AND MAINTAINING ALL EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT THE DURATION OF THE PROJECT.
4. CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL FACILITIES, FENCING, AND STAGING AREA MATERIALS WHEN CONSTRUCTION IS COMPLETE. NO CONSTRUCTION DEBRIS, DEMOLITION MATERIALS, OR EXCESS EQUIPMENT SHALL BE LEFT ON SITE.
5. CONTRACTOR SHALL REGRADE AND VEGETATE DISTURBED SLOPES TO NEAR EXISTING CONDITION AS APPROVED BY THE OWNER'S REPRESENTATIVE. ALL FINISHED CONSTRUCTED SLOPES SHALL HAVE BIO-DEGRADABLE FIBER WATTLES INSTALLED AT THE TOE OF THE FINISHED SLOPE.
6. CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PREVENT:
   A. TRACKING OF MUD AND DIRT ONTO ROADS. ROAD SWEEPING IS REQUIRED IF TRACKING OCCURS.
   B. ACCUMULATION OF CONSTRUCTION WASTE AND LITTER ON SITE.
   C. NO GRADING OR CONSTRUCTION ACTIVITIES SHALL OCCUR OUTSIDE OF THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS FOR THE PROJECT.
7. STOCKPILED EXCAVATION MATERIALS SHALL BE PROTECTED FROM WATER AND WIND EROSION BY COVERING WITH PLASTIC SHEETING.
8. THE SILT FENCE AND/OR WATTLES SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES.
9. THE CONTRACTOR SHALL PROVIDE DUST ABATEMENT OVER ALL DISTURBED AREAS BY WATER SPRAY.
10. MINIMIZE DISTURBANCES TO EXISTING VEGETATION – UTILIZE AS NATURAL BUFFER STRIPS.
11. CONTRACTOR SHALL HAVE ONSITE AT ALL TIMES SPILL PREVENTION AND CONTROL MEASURES.
12. CONTRACTOR SHALL CONFORM TO THE SECTION 404 PERMIT AND ANY ADDITIONAL PROJECT PERMITS AND REGULATIONS.
13. ALL HAY AND STRAW SHALL BE CERTIFIED WEED FREE AND SHALL BE APPROVED BY THE COMPANY.

A/E	AIR CONDITIONING
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
ALUM	ALUMINUM
ANC	ANCHOR
AP	ACCESS PANEL
APRX	APPROXIMATE
BOT	BOTTOM
BP	BASE PLATE
BW	BOTH WAYS
C TO C	CENTER TO CENTER
C	CHANNEL SHAPE
CF	CUBIC FEET (FOOT)
CHFR	CHAMFER
CIP	CAST-IN-PLACE
CIRC	CIRCULAR
CJ	CONSTRUCTION JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLJ	CONTROL JOINT
CLR	CLEAR
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
COOR	COORDINATE
CP	CONTROL POINT
CTR	CENTER
CY	CUBIC YARD
DEMO	DEMOLITION
DIA	DIAMETER
DIM	DIMENSION
DWL	DOWEL
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
ELJ	ENGINEERED LOG JAMB
EMBD	EMBEDDED
ENCL	ENCLOSURE
ENGR	ENGINEER
EOP	EDGE OF PAVEMENT
EQ	EQUAL
ES	EACH SIDE
EW	EACH WAY
EWEF	EACH WAY, EACH FACE
EWTB	EACH WAY, TOP AND BOTTOM
EXST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FBO	FURNISHED BY OWNER
FG	FINISHED GRADE
FIN	FINISH
FNC	FENCE
FND	FOUNDATION
FOC	FACE OF CONCRETE, FACE OF CURB
FT	FEET, FOOT
GA	GAGE (METAL THICKNESS)
GALV	GALVANIZED
GRD	GRADE
GRTG	GRATING
GVL	GRAVEL
HORIZ	HORIZONTAL
HPC	HORIZONTAL POINT OF CURVATURE
HPT	HORIZONTAL POINT OF TANGENCY
HSS	HOLLOW STRUCTURAL SHAPE
HWL	HIGH WATER LEVEL
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH
INCL	INCLUDE
INV	INVERT
KSI	KIPS PER SQUARE INCH

LATL	LATERAL
LB	LAG BOLT, POUND
LDG	LANDING
LF	LINEAR FOOT
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LNG	LONGITUDINAL
LOC	LOCATION
LT	LEFT
MB	MACHINE BOLT
MBR	MEMBER
MIN	MINIMUM
MISC	MISCELLANEOUS
MOD	MODULAR, MODIFY
N	NORTH
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OG	ORIGINAL GROUND
PAR	PARALLEL, PARAPET
PC	POINT OF CURVET
PCF	POUNDS PER CUBIC FOOT
PI	POINT OF INTERSECTION
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PRC	POINT OF REVERSE CURVATURE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT, POINT OF TANGENCY
PVMT	PAVEMENT
QTY	QUANTITY
R&R	REMOVE AND REPLACE
R	RADIUS
REINF	REINFORCING
REM	REMOVE
RET	RETAINING
RL	REQUIRED LAP
S	SOUTH, STRUCTURAL (DWG DISCIPLINE)
SECT	SECTION
SF	SQUARE FOOT
SIM	SIMILAR
SL	SLOPE
SLTD	SLOTTED
SP	SPACING
SPEC	SPECIFICATION
SPT	SET POINT
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
STR	STRUCTURAL
SWPP	STORM WATER POLLUTION PREVENTION PLAN
SY	SQUARE YARD
SYM	SYMMETRICAL
T&B	TOP AND BOTTOM
TAN	TANGENT
TBM	TEMPORARY BENCHMARK
THK	THICK
TOB	TOP OF BOLT, TOP OF BANK, TOP OF BEAM
TOC	TOP OF CURB, TOP OF CONCRETE
TOF	TOP OF FOOTING
TOG	TOP OF GRATING
TOS	TOP OF SLAB, TOP OF STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UTIL	UTILITY
VC	VERTICAL CURVE
VERT	VERTICAL
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W/	WITH
W/O	WITHOUT
W	WIDE FLANGE BEAM
WD	WIDTH
WT	WEIGHT
WWF	WELDED WIRE FABRIC

SHEET SYMBOLS



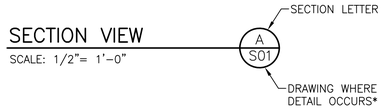
PLAN

SCALE: 1/2"= 1'-0"

SECTION IDENTIFICATION

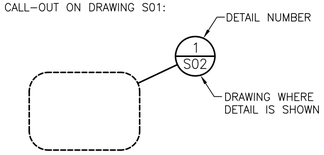
(1) SECTION CUT ON DRAWING S01:

(2) ON DRAWING S02 THIS SECTION IS IDENTIFIED AS:

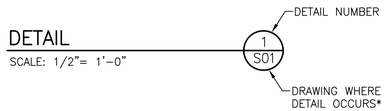


DETAIL IDENTIFICATION

(1) DETAIL CALL-OUT ON DRAWING S01:



(2) ON DRAWING S02 THIS SECTION IS IDENTIFIED AS:



*NOTE: IF PLAN AND SECTION (OR DETAIL CALL-OUT AND DETAIL) ARE SHOWN ON SAME DRAWING. DRAWING NUMBER IS REPLACED BY A LINE.

REGISTERED PROFESSIONAL ENGINEER 80853 PE 2/6/19 OREGON MAR. 11, 2008 CHRISTOPHER C. BOYD

River Structures CONSULTING
PO BOX 1643 | BOISE, ID 83701 | (208) 918-0627

SAP#			
PL#			
DATE	FEBRUARY 2019		
ENG	CCB	DES	
DR	WJZ	CH	
APPROVAL			

WALLOWA FALLS HYDROELECTRIC
INTAKE & TAILRACE MODIFICATIONS
STANDARD NOTES AND SYMBOLS

PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

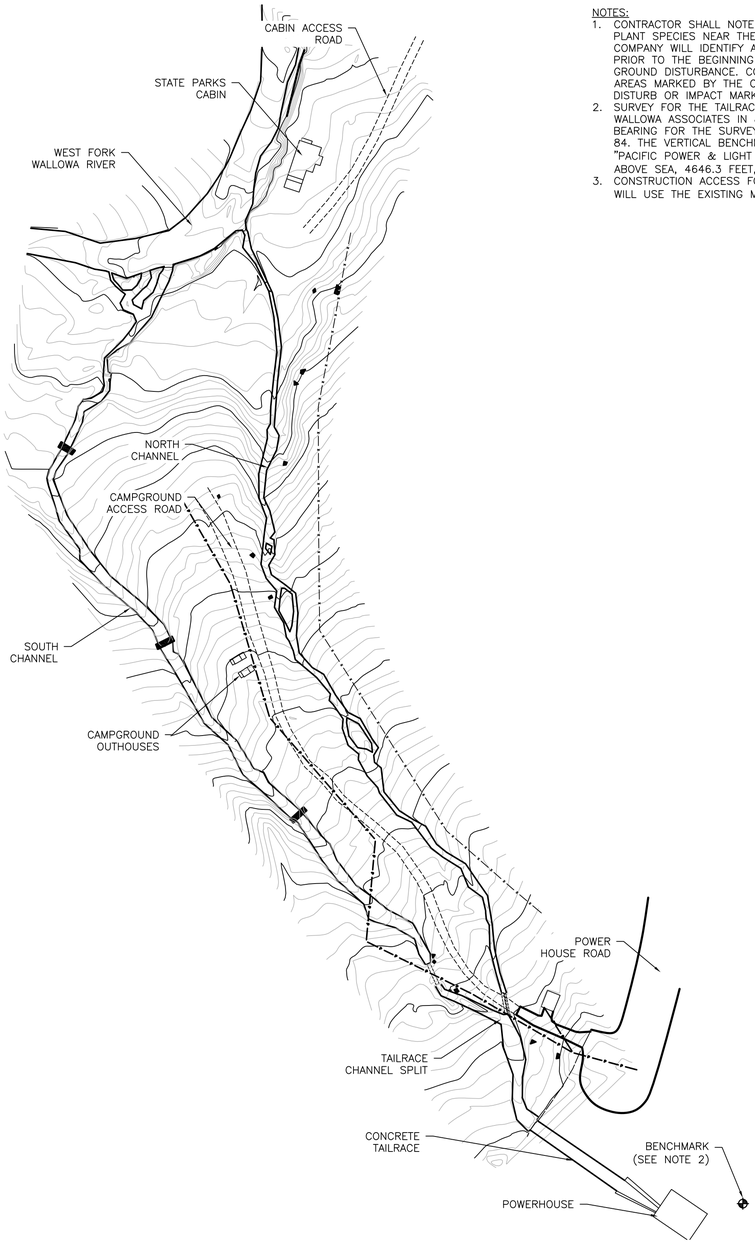
SCALE: AS NOTED	SHEET 2	G-02	REV. B

No.	DATE	REVISION	BY	CHK APP
0	10/19/18	ISSUED FOR CONSTRUCTION	WJZ	CCB
1	2/6/19	PERMIT REVISIONS	WJZ	CCB

REFERENCE DRAWINGS | DRAWING No. | REFERENCE DRAWINGS | DRAWING No.

FILE LOCATION: C:\Users\User\River Structures Consulting\Chris Boyd - c_Projects\PacifiCorp\Wallowa Falls\CAD\xxxxxx.G02 SAVED BY:{USER} 2/5/2019 4:39 PM PLOTTED BY:{USER} 2/5/2019 4:52 PM

INTAKE PLAN
SCALE: NTS



TAILRACE PLAN
SCALE: 1" = 70'-0"

NOTES:
1. CONTRACTOR SHALL NOTE THAT THERE ARE SENSITIVE PLANT SPECIES NEAR THE STAGING AREA. THE COMPANY WILL IDENTIFY AND MARK THESE LOCATIONS PRIOR TO THE BEGINNING OF CONSTRUCTION OR GROUND DISTURBANCE. CONTRACTOR SHALL FENCE AREAS MARKED BY THE COMPANY AND SHALL NOT DISTURB OR IMPACT MARKED AREAS.
2. SURVEY FOR THE TAILRACE AREA WAS COMPLETED BY WALLOWA ASSOCIATES IN JANUARY 2018. BASIS OF BEARING FOR THE SURVEY AT THE TAILRACE IS WGS 84. THE VERTICAL BENCHMARK USED IS MARKED "PACIFIC POWER & LIGHT COMPANT, 1929, ELEVATION, ABOVE SEA, 4646.3 FEET, BENCH MARK."
3. CONSTRUCTION ACCESS FOR INTAKE MODIFICATION WILL USE THE EXISTING MAINTENANCE PATH/TRAIL.

REGISTERED PROFESSIONAL ENGINEER
80853 PE
2/6/19
OREGON
MAR. 11, 2008
CHRISTOPHER C. BOYD

River Structures CONSULTING
PO BOX 1643 | BOISE, ID 83701 | (208) 918-0627

SAP#	
PL#	
DATE	FEBRUARY 2019
ENG CCB	DES WJZ
DR WJZ	CH CCB
APPROVAL	

WALLOWA FALLS HYDROELECTRIC
INTAKE & TAILRACE MODIFICATIONS
EXISTING SITE PLANS

PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 3 | G-03 | REV. B

No.	DATE	REVISION	BY	CHK	APP
0	10/19/18	ISSUED FOR CONSTRUCTION	WJZ	CCB	
1	1/3/19	PERMITTING REVISIONS	WJZ	CCB	
2	2/6/19	PERMIT REVISIONS	WJZ	CCB	

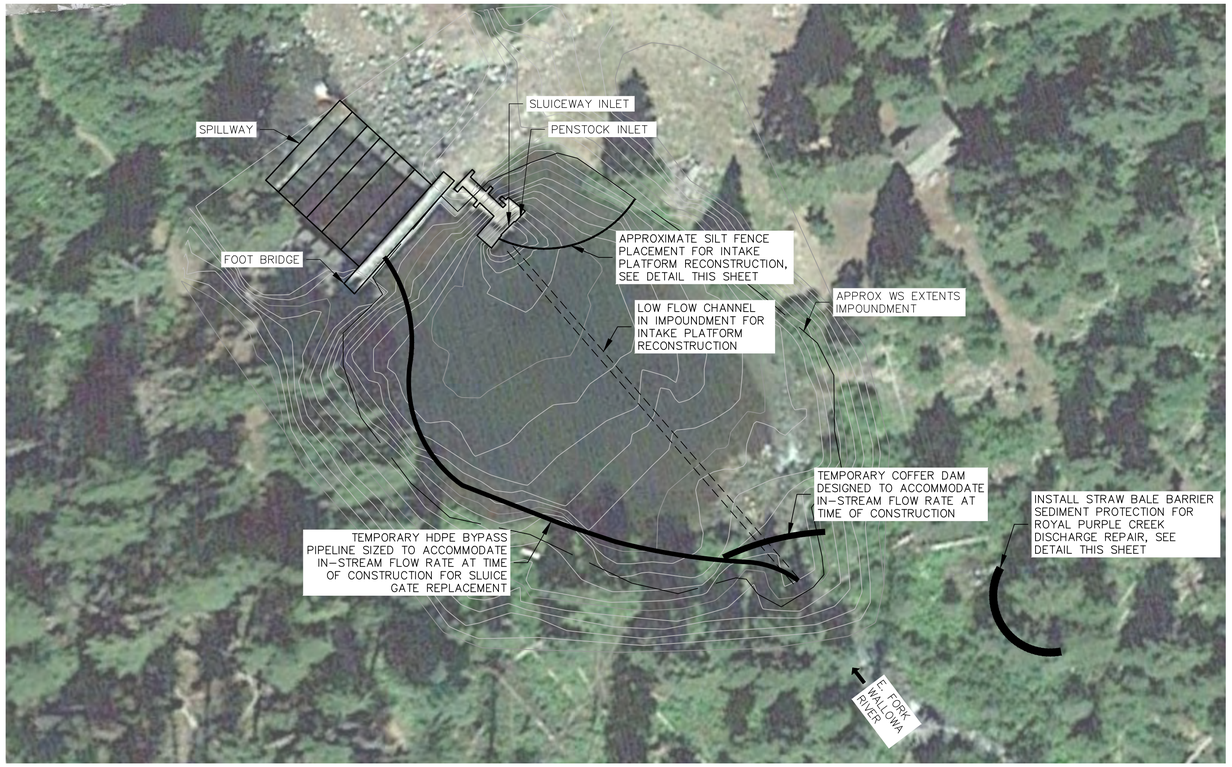
REFERENCE DRAWINGS | DRAWING No. | REFERENCE DRAWINGS | DRAWING No.

ENVIRONMENTAL, EROSION, SEDIMENT CONTROL, AND WATER MANAGEMENT NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING ALL TEMPORARY EROSION CONTROL MEASURES. THE EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND PERFORMANCE OF THE TEMPORARY EROSION CONTROL MEASURES THROUGHOUT THE DURATION OF THE PROJECT.
2. THE CONTRACTOR SHALL UTILIZE THIS PLAN AS A TEMPLATE PROVIDING FOR THE MINIMUM ACCEPTABLE ENVIRONMENTAL, EROSION, SEDIMENT CONTROL AND WATER MANAGEMENT PRACTICES REQUIRED FOR THIS PROJECT. CONTRACTOR MAY UTILIZE AND IMPLEMENT THIS PLAN OR DEVELOP AN ALTERNATIVE PLAN THAT BETTER INTERFACES WITH CONTRACTOR'S PROPOSED CONSTRUCTION MEANS AND METHODS AND/OR WORK SCHEDULE. CONTRACTOR'S FINAL SELECTION OF A PLAN SHALL BE APPROVED BY THE COMPANY PRIOR TO IMPLEMENTATION.
3. CONSTRUCTION ACTIVITIES SHALL BE UNDERTAKEN TO AVOID AND MINIMIZE ADVERSE IMPACTS TO WATERS OF THE UNITED STATES TO THE MAXIMUM EXTENT PRACTICAL THROUGH THE USE OF PRACTICAL ALTERNATIVES. ALTERNATIVES THAT SHALL BE CONSIDERED INCLUDE THOSE THAT MINIMIZE THE EXTENT OF IN-WATER WORK AND EQUIPMENT CROSSINGS OF WETTED CHANNELS.
4. AT NO TIME SHALL SEDIMENT-LADEN WATER BE DISCHARGED OR PUMPED DIRECTLY INTO THE ADJACENT RIVERS, STREAMS, OR WETLANDS. WATER SHALL BE DISCHARGED IN ACCORDANCE WITH REQUIREMENTS SET FORTH IN THE WALLOWA FALLS LICENSE APPLICATION (FEBRUARY 10, 2015) SECTION 2.2.3.1. STATING IN PART "WORK AREAS BEHIND TEMPORARY COFFERDAMS OR ISOLATED WORK AREAS BELOW THE ORDINARY HIGH WATER MARK (OHWM) WILL BE DEWATERED WITH PUMPS. ALL PUMPED WATER WILL BE DISCHARGED TO UNSATURATED UPLAND VEGETATED AREAS FOR INFILTRATION. INFILTRATION AREAS WILL BE MONITORED DAILY BY A QUALIFIED CONSTRUCTION INSPECTOR TO ENSURE THAT ALL DISCHARGED WATER IS INFILTRATING AND THERE IS NO EROSION, SURFACE OR SUBSURFACE RUNOFF OCCURRING. IF AN AREA BECOMES SATURATED AN ALTERNATIVE DISCHARGE AREA WILL BE LOCATED".
5. IF HIGH WATER LEVEL CONDITIONS THAT CAUSE SILTATION OR EROSION ARE ENCOUNTERED DURING CONSTRUCTION, WORK SHALL STOP UNTIL THE WATER LEVEL SUBSIDES.
6. CONTRACTOR SHALL LIMIT MACHINERY MOVEMENT TO CONSTRUCTION AREAS DEFINED ON SITE PLAN OR IDENTIFIED AS ACCEPTABLE BY THE COMPANY.
7. ALL EXTERNAL GREASE AND OIL SHALL BE PRESSURE-WASHED OFF EQUIPMENT PRIOR TO TRANSPORT TO THE SITE.
8. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT NO PETROLEUM PRODUCTS, HYDRAULIC FLUID, SEDIMENTS, SEDIMENT-LADEN WATER, CHEMICALS, OR ANY OTHER TOXIC OR DELETERIOUS MATERIALS ARE ALLOWED TO ENTER OR LEACH INTO ADJACENT RIVERS, STREAMS, OR WETLANDS.
9. THE CONTRACTOR SHALL HAVE AN EMERGENCY SPILL KIT ONSITE AT ALL TIMES.
10. NO TREES OR WETLAND VEGETATION SHALL BE REMOVED UNLESS THEY ARE SHOWN AND NOTED TO BE REMOVED ON THE PLANS OR AS DIRECTLY SPECIFIED ON-SITE BY THE COMPANY. NO GRADING SHALL TAKE PLACE WITHIN THE DRIP LINE OF TREES NOT TO BE REMOVED UNLESS OTHERWISE APPROVED.
11. FOLLOWING CONSTRUCTION, EQUIPMENT AND EXCESS SUPPLIES SHALL BE REMOVED AND THE WORK AREA SHALL BE CLEANED OF CONSTRUCTION DEBRIS AND/OR DELETERIOUS MATERIAL.
12. EVERY REASONABLE EFFORT SHALL BE MADE TO CONDUCT THE ACTIVITIES SHOWN IN THESE PLANS IN A MANNER THAT MINIMIZES THE ADVERSE IMPACT ON WATER QUALITY, FISH AND WILDLIFE, AND THE NATURAL ENVIRONMENT.
13. ALL WORK SHALL BE IN COMPLIANCE WITH PERMIT CONDITIONS ISSUED BY VARIOUS REGULATORY AGENCIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE COPIES OF ALL PERMITS ON THE JOB SITE AND UNDERSTAND AND COMPLY WITH ALL PERMIT CONDITIONS.
14. ALL ACTIVITIES THAT INVOLVE WORK ADJACENT TO OR WITHIN THE WETTED CHANNEL SHALL, AT ALL TIMES, REMAIN CONSISTENT WITH ALL APPLICABLE WATER QUALITY STANDARDS, EFFLUENT LIMITATION AND STANDARDS OF PERFORMANCE, PROHIBITIONS, PRETREATMENT STANDARDS, AND MANAGEMENT PRACTICES ESTABLISHED PURSUANT TO THE CLEAN WATER ACT OR PURSUANT TO APPLICABLE STATE AND LOCAL LAW.
15. IF AT ANY TIME, AS A RESULT OF PROJECT ACTIVITIES, FISH ARE OBSERVED IN DISTRESS, A FISH KILL OCCURS, OR WATER QUALITY PROBLEMS DEVELOP (INCLUDING EQUIPMENT LEAKS OR SPILLS), OPERATIONS SHALL CEASE AND THE COMPANY SHALL BE NOTIFIED IMMEDIATELY.
16. CONSTRUCTION STAGING AND REFUELING AREAS SHALL BE A MINIMUM OF 150 FT AWAY FROM SURFACE WATERS. COORDINATE APPROPRIATE STAGING AREAS WITH THE COMPANY.
17. ALL TEMPORARY EROSION AND SEDIMENT CONTROL, AND WATER MANAGEMENT MATERIALS SHALL BE DISPOSED OFF-SITE FOLLOWING COMPLETION OF PERMANENT SITE STABILIZATION.

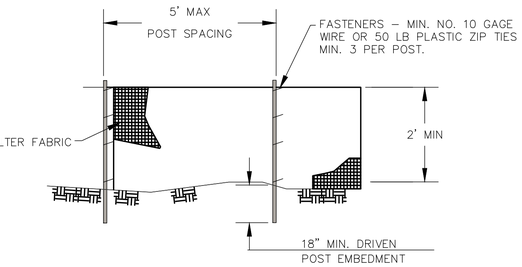
IMPOUNDMENT DEWATERING

1. SLUICE GATE REPLACEMENT – INSTALL TEMPORARY COFFER DAM AND PIPELINE TO ROUTE WATER AROUND IMPOUNDMENT AND WORK SITE. SITE GRADING IS ANTICIPATED TO ALLOW FOR PIPELINE PLACEMENT. ALL GRADING SHALL OCCUR WITHIN OHWM EXTENTS OF IMPOUNDMENT. SEDIMENT IS NOT PERMITTED TO BE REMOVED FROM THE IMPOUNDMENT AND PLACED ABOVE THE OHWM. EXCAVATED SEDIMENT MAY BE FLUSHED FROM THE FOREBAY IMPOUNDMENT AREA ONLY AS AUTHORIZED IN THE WALLOWA FALLS LICENSE APPLICATION (FEBRUARY 10, 2015).
2. INTAKE PLATFORM – SLUICE GATE CAN BE USED FOR LOW FLOW DEWATERING FOR INTAKE PLATFORM RECONSTRUCTION. ISOLATE FLOWING WATER FROM ACTIVE WORK SITE WITH APPROPRIATE SILT FENCE PLACEMENT.



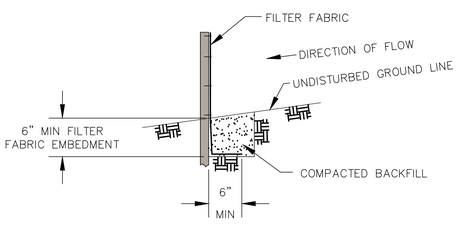
N

GRAPHIC SCALE
0 20 40
(IN FEET)
1 INCH = 20 FT.

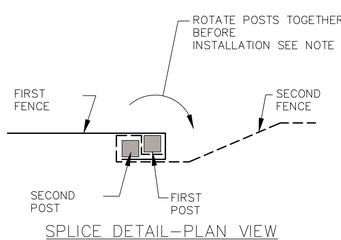


ELEVATION

NOTES:
1. TEMPORARY SILT FENCE SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED. FENCE SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REMOVED IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.
2. INSTALLATION OF THE SILT FENCE SHALL BE IN ACCORDANCE WITH ASTM D 6462, THE MANUFACTURER'S RECOMMENDATIONS AND THE DETAILS SHOWN ON THIS SHEET. POST SPACING SHOWN IS MAXIMUM FOR UNSUPPORTED INSTALLATION WITH ELONGATION <50% (ASTM D 4632). FOR SILT FENCE MATERIAL WITH ELONGATION >50% AND SUPPORTED SILT FENCES, THE MAXIMUM POST SPACING IS 4 FEET.
3. FENCE POSTS SHALL BE EITHER WOOD WITH A MINIMUM CROSS-SECTIONAL AREA OF 1.5" X 1.5" OR A STANDARD STEEL POST.
4. WHEN SPLICES ARE NECESSARY, MAKE SPLICE AT POST ACCORDING TO SPLICE DETAIL. PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE. ROTATE BOTH POSTS TOGETHER AT LEAST 180 DEGREES TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL. CUT THE FABRIC NEAR THE BOTTOM OF THE POSTS TO ACCOMMODATE THE 6 INCH FLAP. THEN DRIVE BOTH POSTS AND BURY THE FLAP. COMPACT BACKFILL WELL.

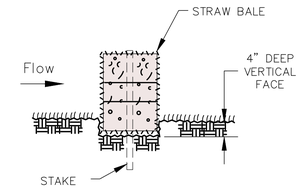


FABRIC ANCHOR DETAIL



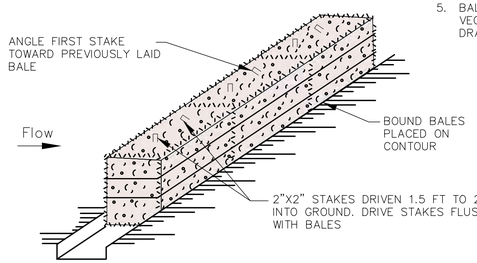
SPLICE DETAIL–PLAN VIEW

SILT FENCE SEDIMENT CONTROL
NTS



BEDDING DETAIL

NOTES:
1. BALES SHALL BE PLACED AT THE TOP OF SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4", AND PLACED SO THAT BINDINGS ARE HORIZONTAL.
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY TWO WOOD STAKES DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
4. INSPECTION SHALL BE WEEKLY DURING DRY WEATHER AND DAILY DURING WET WEATHER. REPAIR SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED FOLLOWING ESTABLISHMENT OF PERMANENT VEGETATION SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.



ANCHORING DETAIL

STRAW BALE BARRIER SEDIMENT CONTROL
NTS

REGISTERED PROFESSIONAL ENGINEER
76905PE
OREGON
JULY 12, 2006
NICHOLAS A. KRAUS
2-6-19
EXPIRATION DATE: 6-30-19

Quadrant Consulting, Inc.

River Structures CONSULTING, LLC

SAP#	
PL#	
DATE	FEBRUARY 2019
ENG	NK DES
DR	AE CH
APPROVAL	

WALLOWA FALLS HYDROELECTRIC
INTAKE & TAILRACE MODIFICATIONS
INTAKE ESC PLAN

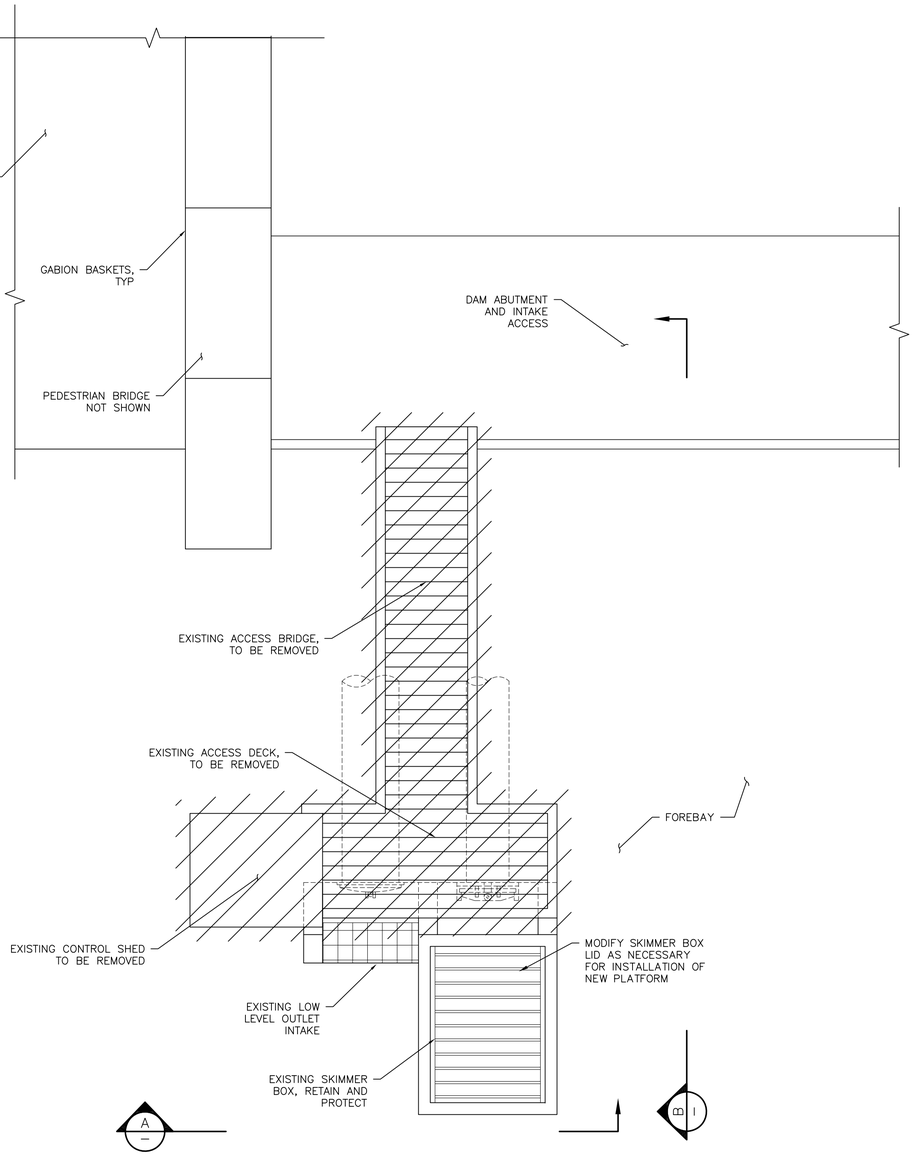
PACIFICORP — A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 4 | ESC-01 | REV. B

No.	DATE	REVISION	BY	CHK	APP
0	10/19/18	ISSUED FOR CONSTRUCTION	AE	NK	
1	1/3/19	PERMITTING REVISIONS	AE	NK	
2	2/6/19	PERMITTING REVISIONS	AE	NK	

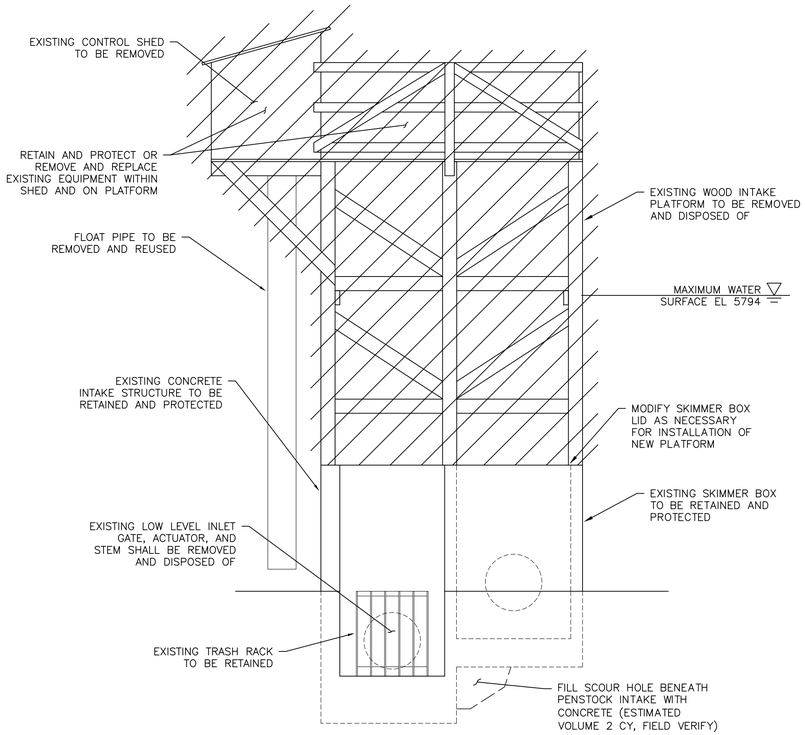
REFERENCE DRAWINGS | DRAWING No. | REFERENCE DRAWINGS | DRAWING No.

FILE LOCATION: E:\Austin_Projects\Projects\703-07 Wallowa Falls\DWG\Wallowa_Lower_Design12-28 SAVED BY:(AUSTI) 2/5/2019 2:38 PM PLOTTED BY:(AUSTIN EDWARDS) 2/5/2019 2:38 PM



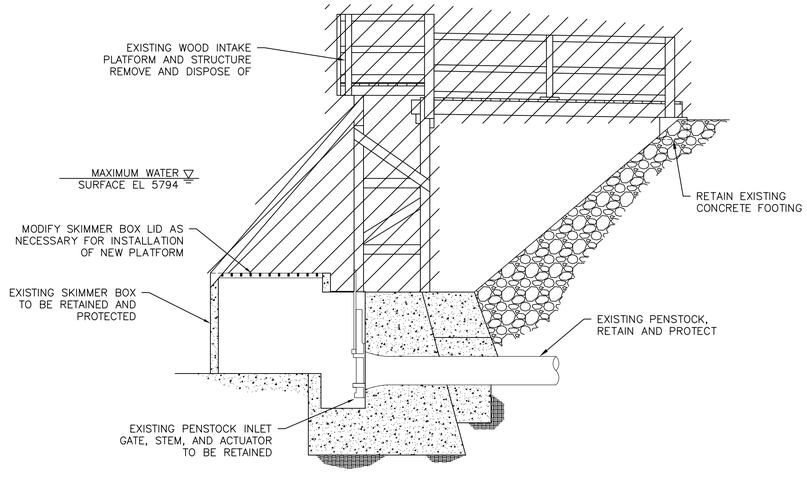
INTAKE PLATFORM DEMOLITION PLAN

SCALE: 3/8" = 1'-0"



SECTION

SCALE: 3/8" = 1'-0"



SECTION

SCALE: 1/4" = 1'-0"

DEMOLITION NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING WOOD INTAKE STRUCTURE, PLATFORM, CONTROL ENCLOSURE, AND BRIDGE.
2. ALL DEMOLISHED MATERIALS SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE AT AN APPROVED OFFSITE FACILITY.
3. CONTRACTOR SHALL RETAIN AND PROTECT OR REMOVE AND REPLACE ALL FEATURES, UTILITIES, AND EQUIPMENT NOT DESIGNATED FOR REMOVAL. ALL CONTROLS AND EQUIPMENT SHALL BE OPERATIONAL AFTER CONSTRUCTION IS COMPLETE.
4. THE CONTRACTOR SHALL CAREFULLY COORDINATE THE WORK IN AREAS WHERE EXISTING FACILITIES ARE INTERCONNECTED WITH NEW FACILITIES AND WHERE EXISTING FACILITIES REMAIN OPERATIONAL. THE WORK AS INDICATED IS NOT ALL INCLUSIVE, AND THE CONTRACTOR SHALL BE RESPONSIBLE TO PERFORM THE RECONSTRUCTION INDICATED PLUS THAT WHICH CAN BE REASONABLY INFERRED FROM THE CONTRACT DOCUMENTS AS NECESSARY TO COMPLETE THE PROJECT. THE SPECIFICATIONS AND DRAWINGS IDENTIFY THE MAJOR FACILITIES THAT SHALL BE DEMOLISHED AND RECONSTRUCTED, BUT AUXILIARY UTILITIES ARE NOT NECESSARILY SHOWN.
5. THE CONTRACTOR SHALL NOTE THAT THE DRAWINGS USED TO INDICATE DEMOLITION AND RECONSTRUCTION ARE BASED ON RECORD DRAWINGS OF THE EXISTING FACILITIES. THESE RECORD DRAWINGS HAVE BEEN REPRODUCED TO SHOW EXISTING CONDITIONS AND TO CLARIFY THE SCOPE OF WORK AS MUCH AS POSSIBLE. PRIOR TO BIDDING, THE CONTRACTOR SHALL CONDUCT A COMPREHENSIVE INVESTIGATION OF THE SITE TO VERIFY THE CORRECTNESS AND EXACTNESS OF THE DRAWINGS, THE SCOPE OF WORK, AND THE EXTENT OF AUXILIARY UTILITIES.
6. WHILE DEMOLITION AND RECONSTRUCTION ARE BEING PERFORMED, THE CONTRACTOR SHALL PROVIDE ADEQUATE ACCESS FOR THE CONTINUED OPERATION AND MAINTENANCE OF EQUIPMENT AND TREATMENT PROCESSES. THE CONTRACTOR SHALL ERECT AND MAINTAIN FENCES, WARNING SIGNS, BARRICADES, AND OTHER DEVICES AROUND THE RECONSTRUCTION AS REQUIRED FOR THE PROTECTION OF THE CONTRACTOR'S EMPLOYEES AND THE COMPANY'S PERSONNEL. THE CONTRACTOR SHALL REMOVE SUCH PROTECTION WHEN RECONSTRUCTION ACTIVITIES ARE COMPLETE, OR AS WORK PROGRESSES, OR WHEN DIRECTED BY THE COMPANY.
7. EXISTING PAVEMENT, STRUCTURES, EQUIPMENT, AND RELATED APPURTENANCES SUCH AS ANCHORS, SUPPORTS, AND HARDWARE INDICATED OR REQUIRED TO BE DEMOLISHED AS PART OF THE WORK SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE INDICATED. REMOVED ITEMS SHALL BE DISPOSED OF OFFSITE BY THE CONTRACTOR.
8. ITEMS OF EXISTING EQUIPMENT AND APPURTENANCES INDICATED TO BE SALVAGED SHALL BE PROTECTED IN PLACE OR REMOVED WITHOUT ANY DEGRADATION IN CONDITION FROM THAT PRIOR TO REMOVAL. SALVAGED ITEMS SHALL BE STOCKPILED AND PROTECTED ON THE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROPERLY SAFEGUARD THE SALVAGED ITEMS AGAINST DAMAGE AND LOSS DURING REMOVAL AND HANDLING.
9. EXISTING CIVIL, LANDSCAPING, AND STRUCTURAL WORK DISTURBED OR DAMAGED BY RECONSTRUCTION ACTIVITIES SHALL BE REPAIRED AND REHABILITATED AS INDICATED. DAMAGED ITEMS SHALL BE REPAIRED OR REPLACED WITH NEW ITEMS TO RESTORE ITEMS OR SURFACES TO A CONDITION EQUAL TO AND MATCHING THAT EXISTING PRIOR TO DAMAGE.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE OFFSITE DISPOSAL OF DEBRIS RESULTING FROM RECONSTRUCTION IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL CODES AND REQUIREMENTS.
11. THE CONTRACTOR SHALL VERIFY THAT ANY UTILITIES CONNECTED TO STRUCTURES, EQUIPMENT, AND FACILITIES TO BE REMOVED, RELOCATED, SALVAGED, REPLACED, OR ABANDONED ARE RENDERED INOPERABLE, REPLACED WITH NEW UTILITIES, OR ADEQUATELY BYPASSED WITH TEMPORARY UTILITIES BEFORE PROCEEDING WITH DEMOLITION AND RECONSTRUCTION.
12. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID DAMAGE TO ADJACENT FACILITIES AND TO LIMIT THE WORK ACTIVITIES TO THE EXTENT INDICATED. IF RECONSTRUCTION BEYOND THE SCOPE INDICATED IS REQUIRED, THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE COMPANY PRIOR TO COMMENCING.
13. PERSONS AND VEHICLES SHALL BE AFFORDED SAFE PASSAGES AROUND AREAS OF DEMOLITION.
14. STRUCTURAL ELEMENTS SHALL NOT BE OVERLOADED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING, BRACING, OR ADDING NEW SUPPORTS AS MAY BE REQUIRED FOR ADEQUATE STRUCTURAL SUPPORT AS A RESULT OF WORK PERFORMED UNDER THIS SECTION. THE CONTRACTOR SHALL REMOVE TEMPORARY PROTECTION WHEN THE WORK IS COMPLETE OR WHEN SO AUTHORIZED BY THE COMPANY.
15. DEMOLITION AND REMOVAL OF DEBRIS SHALL MINIMIZE INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES WHICH SHALL NOT BE CLOSED OR OBSTRUCTED WITHOUT PERMISSION FROM THE COMPANY.
16. SITE DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM RECONSTRUCTION OPERATIONS SHALL BE LEGALLY REMOVED AND DISPOSED OF.
17. WATER SPRINKLING, TEMPORARY ENCLOSURES, CHUTES, AND OTHER SUITABLE METHODS SHALL BE USED TO LIMIT DUST AND DIRT RISING AND SCATTERING IN THE AREA. THE CONTRACTOR SHALL COMPLY WITH GOVERNMENT REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.

HATCH INDICATED FEATURES TO BE REMOVED/DEMOLISHED

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2/6/19
OREGON MAR. 11, 2008
CHRISTOPHER C. BOYD

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SAP#			
PL#			
DATE	FEBRUARY 2019 2018		
ENG	CCB	DES	WJZ
DR	WJZ	CH	CCB
APPROVAL			

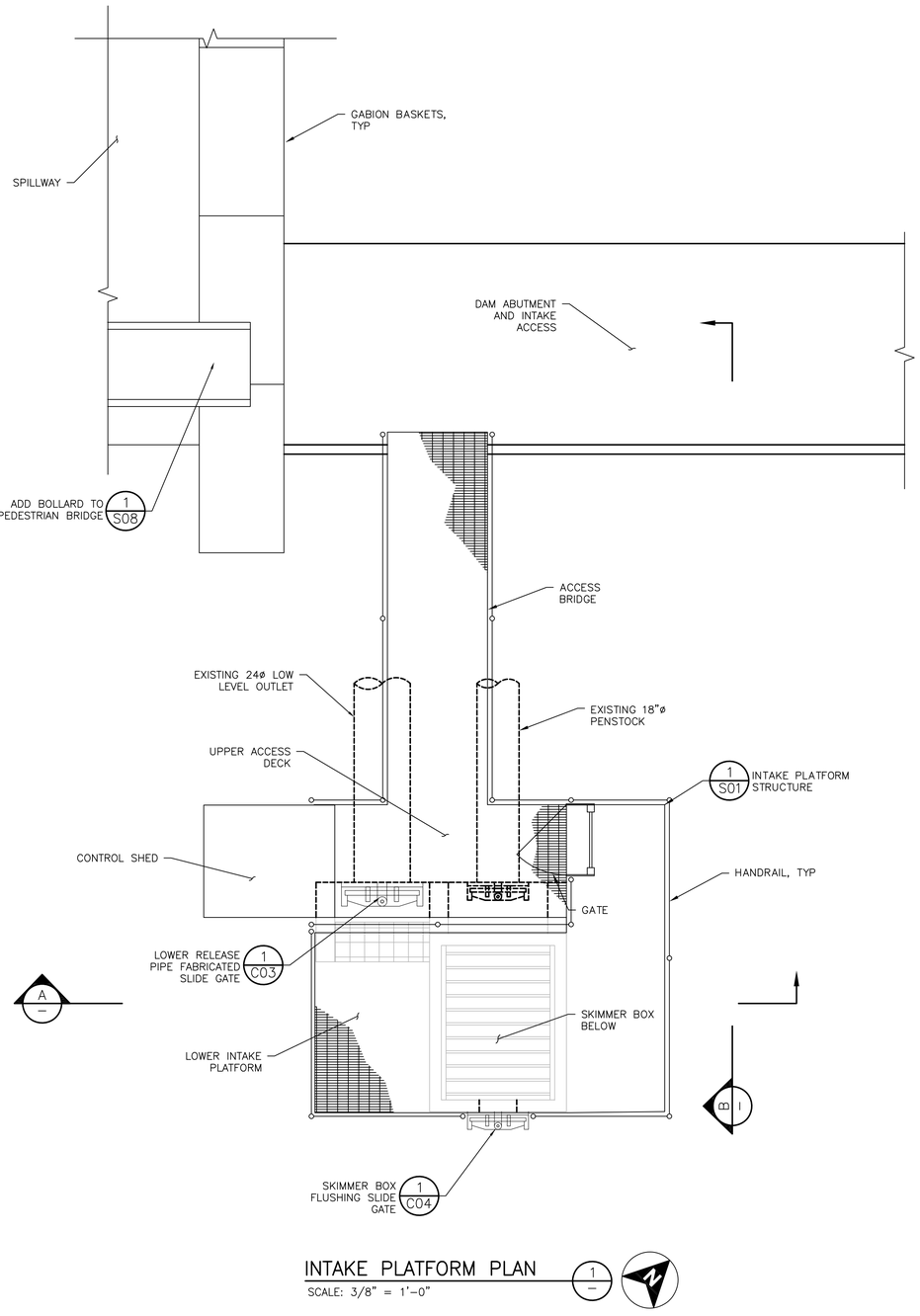
WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS
INTAKE DEMOLITION PLAN AND SECTIONS

PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 5 | D-01 | REV. B

No.	DATE	REVISION	BY	CHK	APP
0	10/19/18	ISSUED FOR CONSTRUCTION	WJZ	CCB	
1	2/6/19	PERMIT REVISIONS	WJZ	CCB	

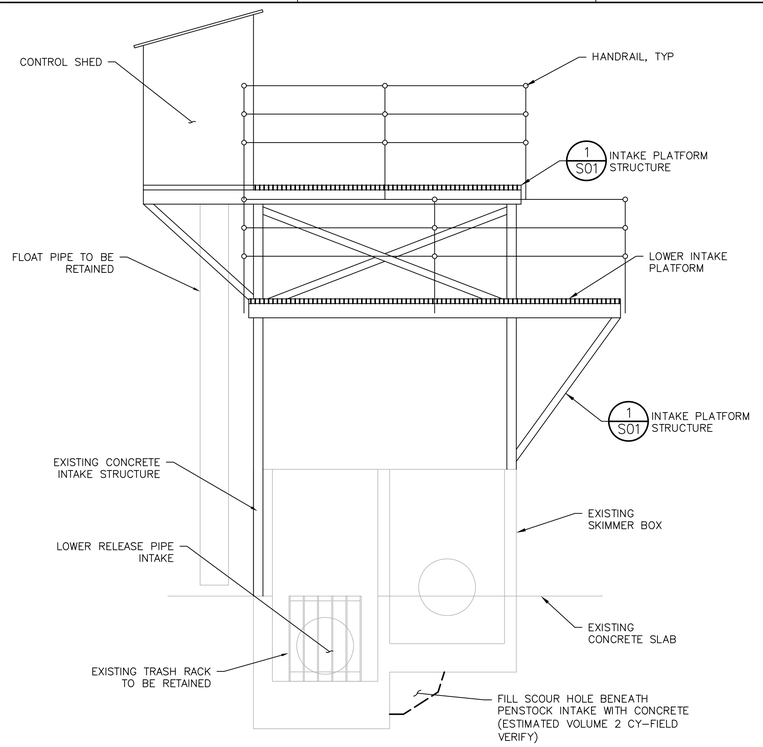
REFERENCE DRAWINGS | DRAWING No. | REFERENCE DRAWINGS | DRAWING No.



INTAKE PLATFORM PLAN

SCALE: 3/8" = 1'-0"

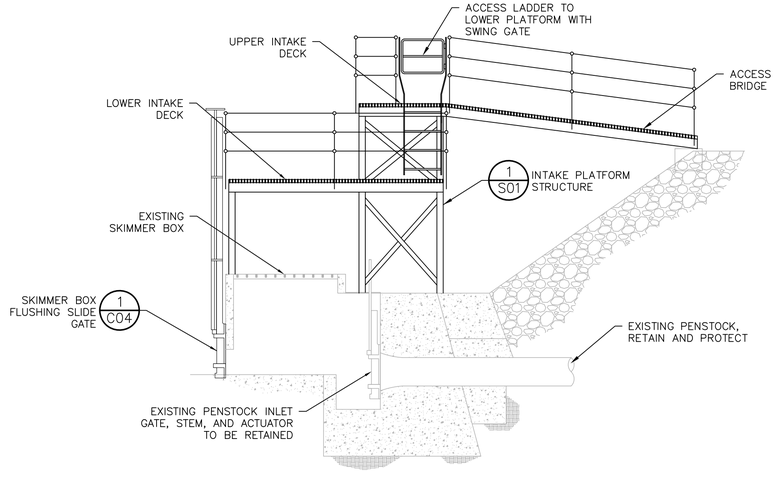
1



SECTION

SCALE: 3/8" = 1'-0"

A



SECTION

SCALE: 1/4" = 1'-0"

B

NOTES:
1. FOR DETAILS ON THE INTAKE PLATFORM STRUCTURE, SEE DRAWING S-01.
2. FOR DETAILS ON THE LOW LEVEL OUTLET INTAKE GATE, SEE DRAWING C03.
3. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STRUCTURES, DIMENSIONS, AND CONDITIONS PRIOR TO FABRICATION OR PURCHASE OF NEW STRUCTURES AND EQUIPMENT. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CHANGE OF CONDITIONS.
4. CONTRACTOR SHALL DEWATER INTAKE STRUCTURE AREA FOR INSTALLATION OF NEW PLATFORM AND SLIDE GATE.

REGISTERED PROFESSIONAL ENGINEER
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MAR. 11, 2006
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DR	WJZ / CH
APPROVAL	

WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS
INTAKE
PLAN AND SECTIONS

PACIFICORP — A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 6 | C-01 | REV. B

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DRAWING No.

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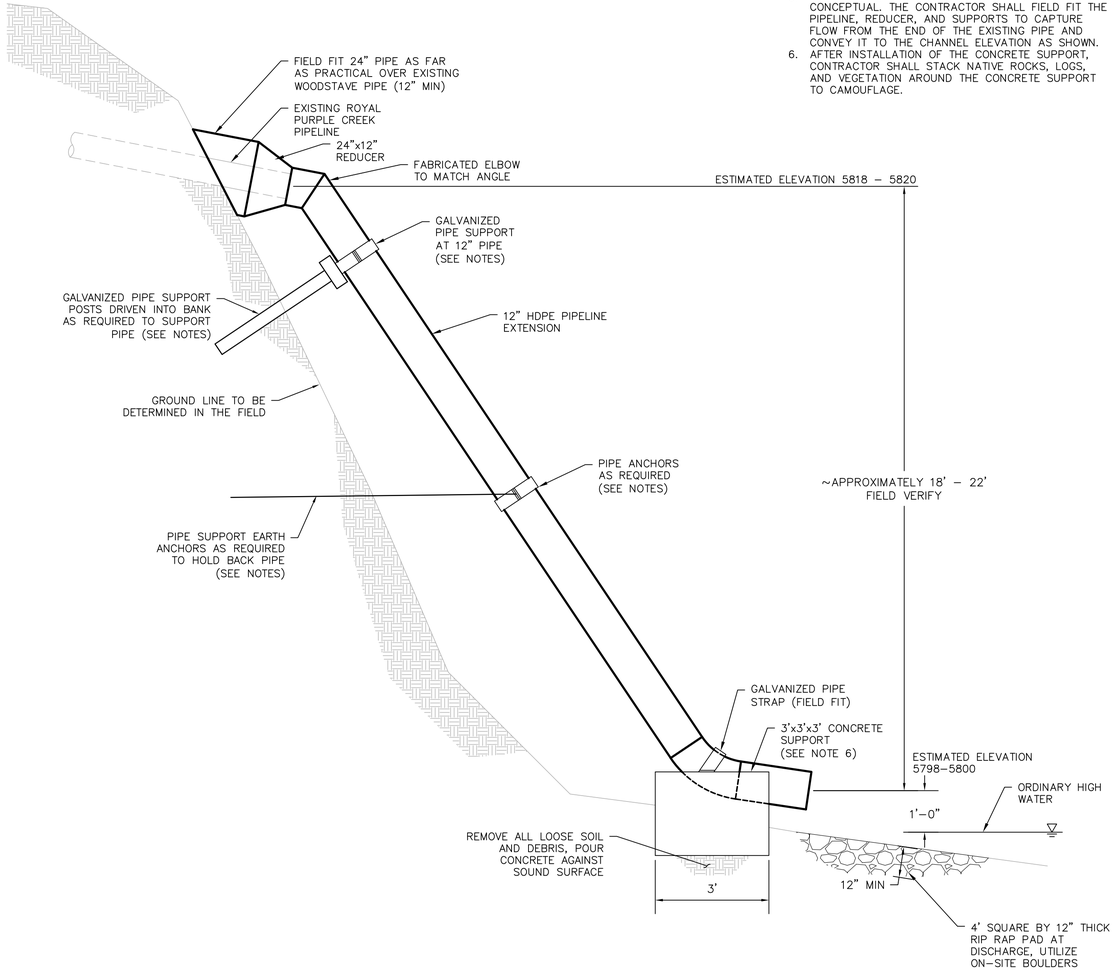
FOREBAY AREA PLAN (1)
SCALE: NTS

NOTES:
1. EXISTING BANK IS STEEP AND INCLUDES BOULDERS, COBBLES, SAND AND GRAVEL. CONTRACTOR SHALL INVESTIGATE THE EXISTING SLOPE, DEVELOP A PLAN FOR INSTALLING AND ANCHORING THE PIPE, AND COORDINATE THE INSTALLATION WITH THE COMPANY AND THE ENGINEER.
2. EARTH ANCHORS SHALL BE FIELD LOCATED INTO ADJACENT EARTH AFTER DETERMINING PIPELINE LOCATION.
3. ORDINARY HIGH WATER MARK AND PIPELINE LOCATION SHALL BE DETERMINED BY THE COMPANY IN THE FIELD.
4. EXTEND 24" PIPE & REDUCER AS FAR AS POSSIBLE OVER EXISTING PIPE TO CATCH AS MUCH FLOW AS PRACTICAL.
5. THE PIPELINE AND SUPPORTS SHOWN ARE CONCEPTUAL. THE CONTRACTOR SHALL FIELD FIT THE PIPELINE, REDUCER, AND SUPPORTS TO CAPTURE FLOW FROM THE END OF THE EXISTING PIPE AND CONVEY IT TO THE CHANNEL ELEVATION AS SHOWN.
6. AFTER INSTALLATION OF THE CONCRETE SUPPORT, CONTRACTOR SHALL STACK NATIVE ROCKS, LOGS, AND VEGETATION AROUND THE CONCRETE SUPPORT TO CAMOUFLAGE.



ROYAL PURPLE CREEK PIPELINE CONCEPT LAYOUT (A)
SCALE: 3/8" = 1'–0"

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APPROVAL	

WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS ROYAL PURPLE PIPELINE EXTENSION PLAN AND ELEVATION

PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 7 | C–02 | REV. B

No.	DATE	REVISION	BY	CHK	APP
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1	2/6/19	PERMIT REVISIONS	WJZ	CCB	

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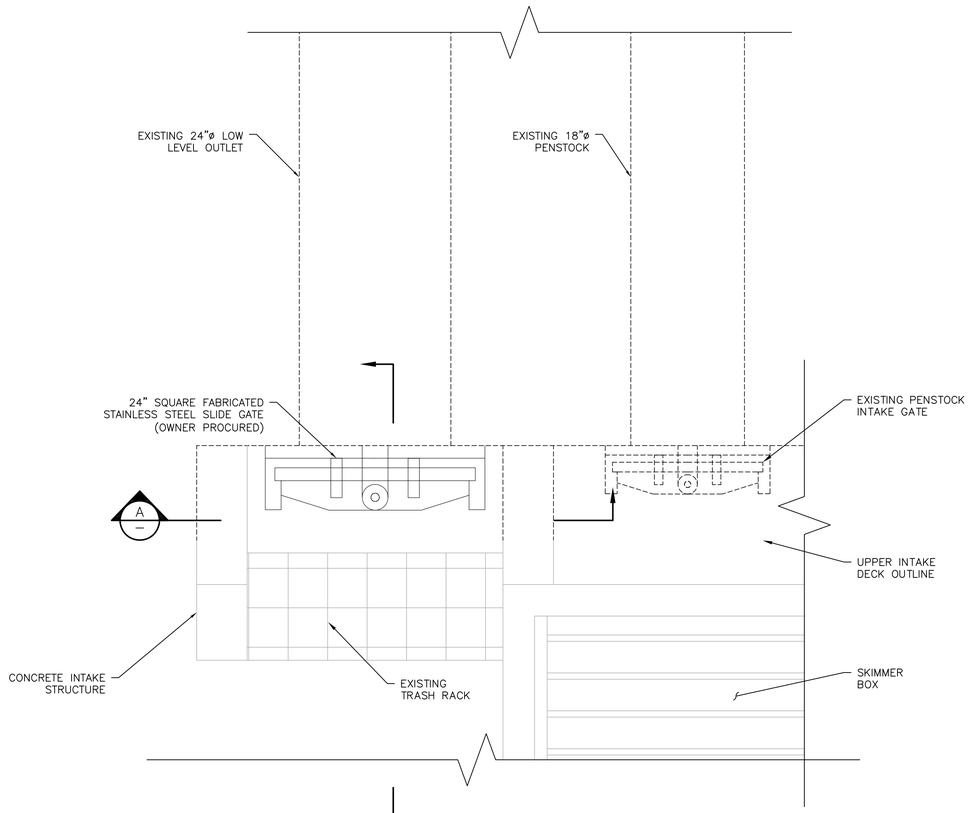
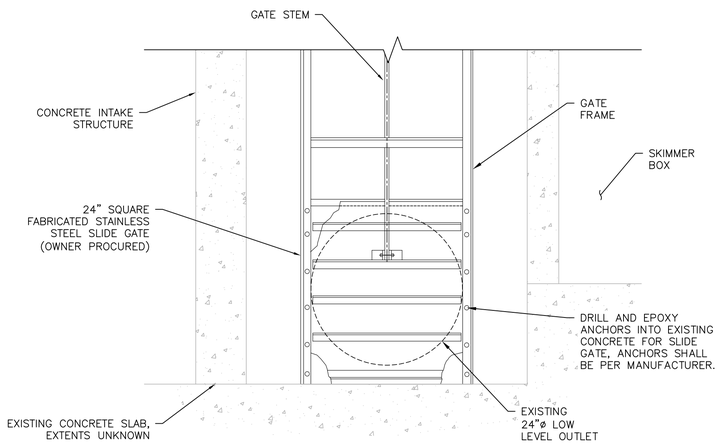


LOWER RELEASE PIPE PLAN — 1/C-01

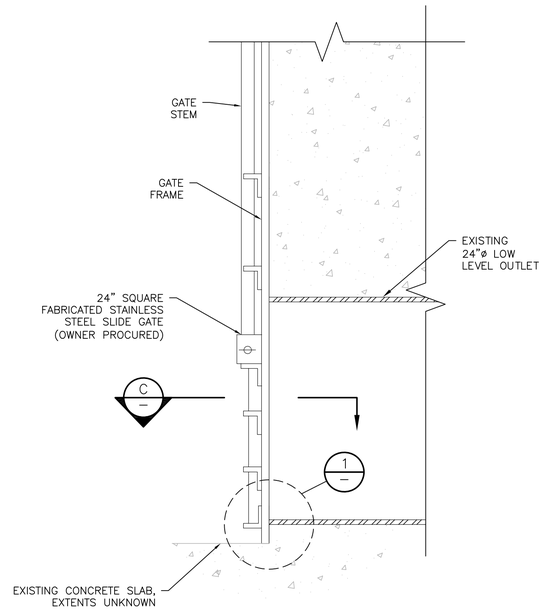
SCALE: 1" = 1'-0"



SECTION — A/—

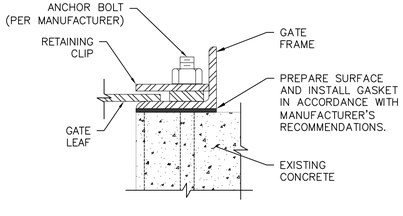
SCALE: 1" = 1'-0"

NOTES:
1. 24-INCH FABRICATE STAINLESS STEEL GATE IS OWNER PROCURED AND CONTRACTOR INSTALLED.
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STRUCTURES, DIMENSIONS, AND CONDITIONS PRIOR TO FABRICATION OR PURCHASE OF NEW STRUCTURES AND EQUIPMENT. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CHANGE OF CONDITIONS.
3. SLIDE GATE SHALL OPERATE IN A THROTTLING POSITION REGULARLY DURING OPERATION. SELECTED VENDOR SHALL DESIGN GATE TO ACCOMMODATE THESE CONDITIONS.
4. FINAL SEAL ARRANGEMENTS AND MOUNTING DETAILS SHALL BE PROVIDED PER THE GATE MANUFACTURER. INSTALL THE GATE AND ACTUATOR IN ACCORDANCE WITH ALL MANUFACTURER RECOMMENDATIONS.
5. SEE STRUCTURAL DRAWINGS S-01 THROUGH S-03 AND SPECIFICATIONS FOR INTEGRATION OF THE GATE FRAME WITH HANDRAIL AND PLATFORMS.



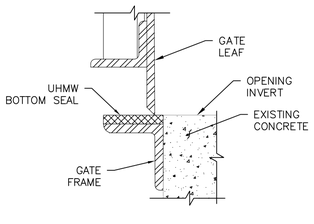
SECTION — B/—

SCALE: 1 1/2" = 1'-0"



SECTION — C/—

SCALE: NTS



DETAIL — 1/—

SCALE: NTS

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DR	WJZ	CH	CCB
APPROVAL			

WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS LOWER RELEASE PIPE MODIFICATIONS SECTIONS AND DETAILS

PACIFICORP — A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 8 | C-03 | REV. B

No.	DATE	REVISION	BY	CHK	APP
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1	2/6/19	PERMIT REVISIONS	WJZ	CCB	

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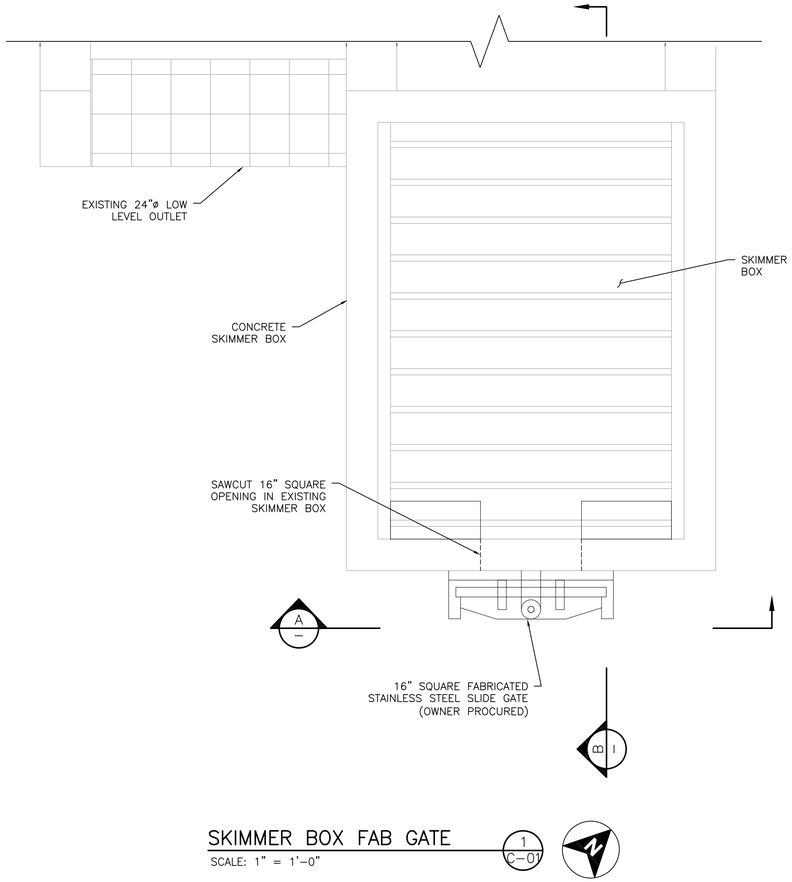
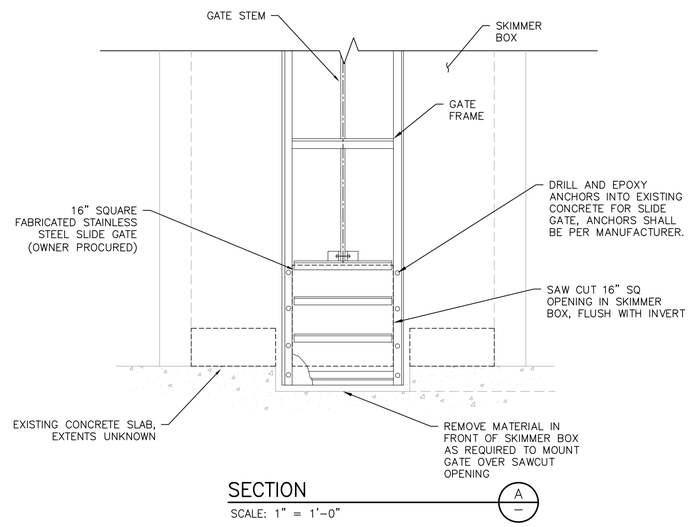
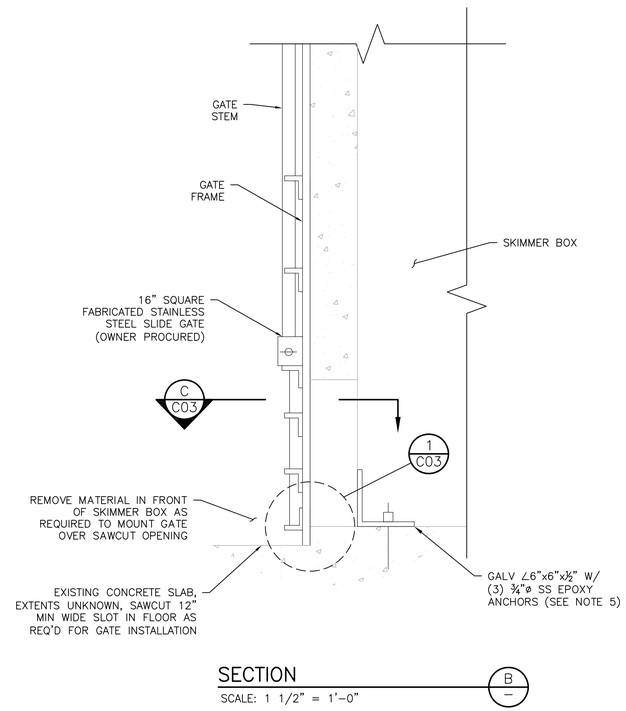


SKIMMER BOX FAB GATE
SCALE: 1" = 1'–0"
1 / C–01



SECTION
SCALE: 1" = 1'–0"
A / –



SECTION
SCALE: 1 1/2" = 1'–0"
B / –

NOTES:
1. SLIDE GATE IS OWNER PROCURED AND CONTRACTOR INSTALLED.
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STRUCTURES, DIMENSIONS, AND CONDITIONS PRIOR TO FABRICATION OR PURCHASE OF NEW STRUCTURES AND EQUIPMENT. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CHANGE OF CONDITIONS.
3. FINAL SEAL ARRANGEMENTS AND MOUNTING DETAILS SHALL BE PROVIDED PER THE GATE MANUFACTURER. INSTALL THE GATE AND ACTUATOR IN ACCORDANCE WITH ALL MANUFACTURER RECOMMENDATIONS.
4. SEE STRUCTURAL DRAWINGS S–01 THROUGH S–03 AND SPECIFICATIONS FOR INTEGRATION OF THE GATE FRAME WITH HANDRAIL AND PLATFORMS.
5. INSTALL ANGLE TIGHT AGAINST BACK OF WALL ON BOTH SIDES OF OPENING. INSTALL DRY BACK GROUT BETWEEN ANGLE AND WALL IF REQUIRED FOR A TIGHT FIT.
6. BURN BACK ANY CUT REINFORCING A MINIMUM OF 2" AND PLUG WITH GROUT.

REGISTERED PROFESSIONAL ENGINEER
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SAP#	
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DATE	FEBRUARY 2019
ENG CCB	DES WJZ
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APPROVAL	

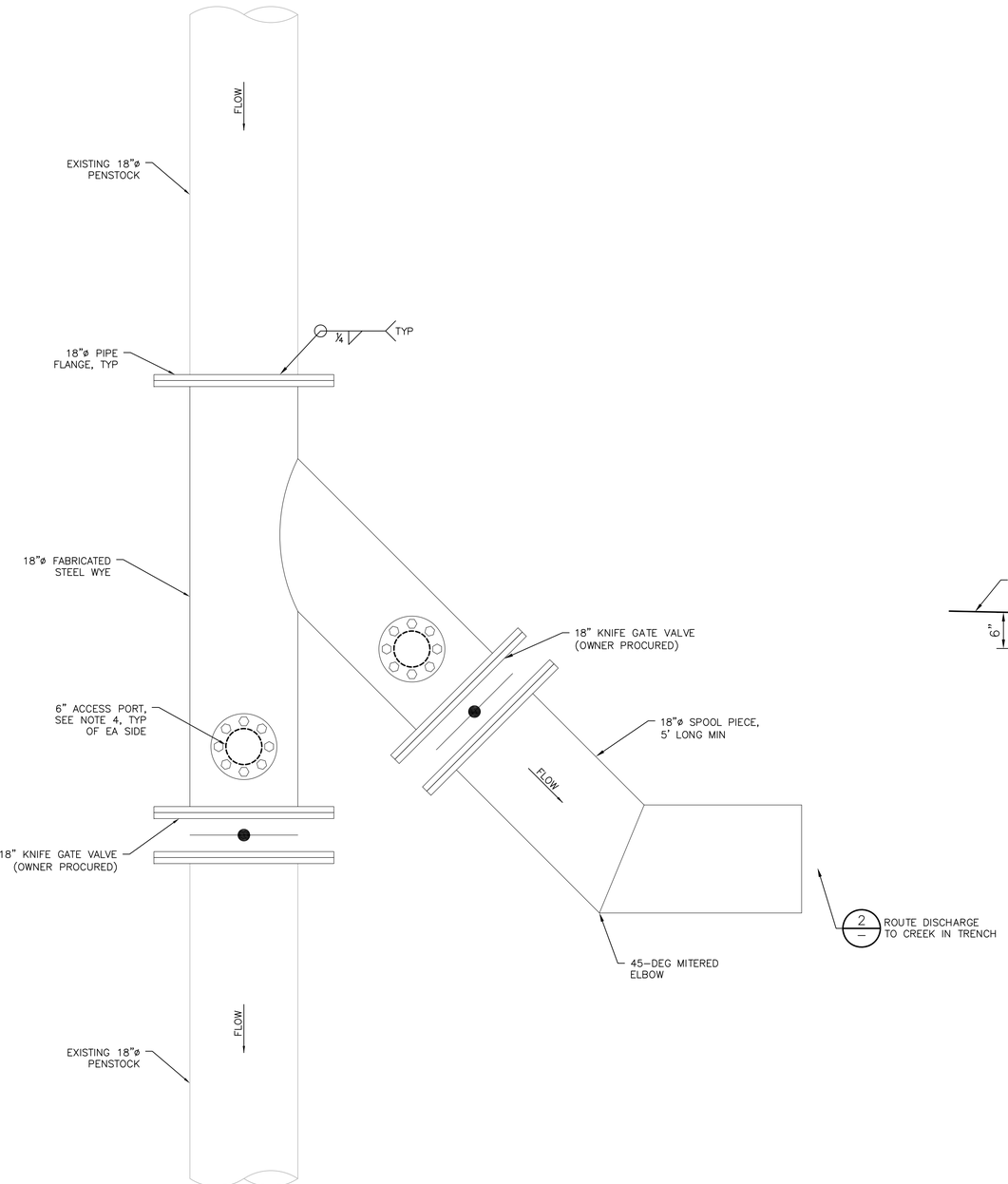
WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS SKIMMER BOX GATE SECTIONS AND DETAILS

PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 9 | C–04 | REV. B

No.	DATE	REVISION	BY	CHK	APP
0	10/19/18	ISSUED FOR CONSTRUCTION	WJZ	CCB	
1	2/6/19	PERMIT REVISIONS	WJZ	CCB	

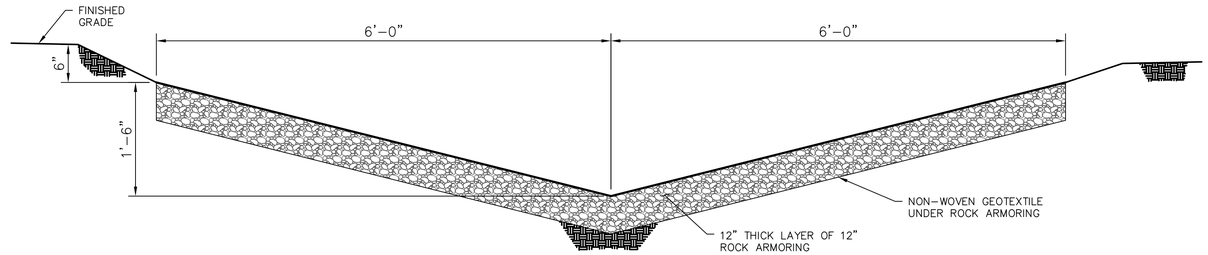
REFERENCE DRAWINGS | DRAWING No. | REFERENCE DRAWINGS | DRAWING No.



PENSTOCK KNIFE GATE VALVES

SCALE: 1" = 1'–0"

1 / C–05



TRENCH TO RIVER

SCALE: NTS

2 / –

NOTES:

1. KNIFE GATE VALVES ARE OWNER PROCURED AND TO BE INSTALLED BY THE CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR ALL BOLT PACKS.
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STRUCTURES, DIMENSIONS, AND CONDITIONS PRIOR TO FABRICATION OR PURCHASE EQUIPMENT. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CHANGE OF CONDITIONS.
3. STEEL PIPE SHALL BE PER AWWA C200 WITH AWWA C207 FLANGES. FITTINGS SHALL BE PER AWWA C208. PIPE SHALL BE EPOXY LINE AND COATED PER AWWA C210. BOLT PACKS FOR FLANGES SHALL BE TYPE 304 STAINLESS STEEL.
4. ACCESS PORTS SHALL BE 3" PIPE SPOOL WELDED TO TOP OF 18" PIPE WITH 6" ASME B16.5 FLANGE. PROVIDED WITH A BLIND FLANGE AND HARDWARE.
5. CONTRACTOR SHALL FIELD LOCATE THE BEST LOCATION TO PLACE THE NEW PORTION OF STEEL PIPELINE FOR THE FLUSHING VALVES. COORDINATE WITH THE COMPANY REPRESENTATIVE.
6. LENGTH OF EXISTING PENSTOCK REMOVAL SHALL BE FINALIZED BASED ON SHOP DRAWINGS FOR THE FABRICATE WYE FITTING AND FLANGES.
7. DISCHARGE PIPELINE ON FLUSHING SIDE OF WYE SHALL BE AM MINIMUM OF 5–FEET LONG OR REACH THE EXISTING CREEK AT THE SELECTED LOCATION.
8. AFTER CUTTING OF EXISTING PENSTOCK, CONDITION OF THE PIPE SHALL BE EVALUATED TO DETERMINE WELD SUITABILITY. IF THE PENSTOCK CONDITION IS POOR, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.
9. AT THE CONTRACTOR'S OPTION, A FIT–UP SPOOL MAY BE ADDED TO THE REPLACEMENT SECTION. SUBMIT LAYOUT AND SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING MATERIALS.
10. CONTRACTOR SHALL FIELD ROUTE WYE DISCHARGE TO CREEK USING TRENCH SECTION SHOWN. CONTRACTOR SHALL PLAN ON APPROXIMATELY 15–FT OF TRENCH LENGTH.

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DATE	FEBRUARY 2019
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APPROVAL	

WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS PENSTOCK KNIFE GATE VALVES PLANS AND DETAILS

PACIFICORP — A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 10 | C–05 | REV. B

No.	DATE	REVISION	BY	CHK	APP
0	10/19/18	ISSUED FOR CONSTRUCTION	WJZ	CCB	
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GENERAL STRUCTURAL NOTES:

THE FOLLOWING NOTES ARE GENERAL AND APPLY TO THE ENTIRE PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE (UNO)

1) GENERAL:

A. IBC = 2015 INTERNATIONAL BUILDING CODE
B. CONSTRUCTION DOCUMENTS:
   1. THE CONTRACTOR SHALL REVIEW THE APPROVED CONTRACT DOCUMENTS AND NOTIFY THE COMPANY OF ANY ERRORS OR DISCREPANCIES PRIOR TO THE START OF CONSTRUCTION.
   2. THE CONTRACTOR SHALL FURNISH AND INSTALL EVERYTHING REQUIRED TO PROVIDE A COMPLETE STRUCTURE AS SHOWN HEREIN. IF THERE IS AN OMISSION ON THE PLANS, SUCH OMISSION SHALL NOT BE CONSTRUED TO MEAN THAT THE CONTRACTOR IS NOT REQUIRED TO FURNISH OR PROVIDE EVERYTHING THAT IS NECESSARY TO COMPLETE THE PROJECT TO THE MINIMUM REQUIREMENTS OF THE IBC AND ALL OTHER SPECIFICATIONS, CODES AND STANDARDS NOTED ON THE APPROVED CONTRACT DOCUMENTS.
   3. THE CONTRACT DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, BRACING AND/OR SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. CONTRACTOR AT HIS/HER OWN EXPENSE SHALL ENGAGE PROPERLY QUALIFIED PERSONS TO DESIGN BRACING, SHORING, ETC. OBSERVATION VISITS TO THE SITE BY THE ENGINEER SHALL NOT INCLUDE OBSERVATION OF THE ABOVE NOTED ITEMS.
   4. UNDER NO CIRCUMSTANCES CAN STRUCTURAL COMPONENTS BE SUBSTITUTED, OMITTED, OR ALTERED FROM THE APPROVED SET OF CONSTRUCTION DOCUMENTS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
C. DIMENSIONS AND NOTATIONS:
   1. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS. DO NOT SCALE DRAWINGS.
   2. ABBREVIATIONS USED ON THE APPROVED CONTRACT DOCUMENTS SHALL BE CONSIDERED TYPICAL ABBREVIATIONS FOR THE INDUSTRY. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY THE COMPANY IMMEDIATELY OF ANY ABBREVIATIONS THAT ARE UNKNOWN TO THE CONTRACTOR.
D. SHOP DRAWINGS:
   1. SHOP DRAWINGS, AS REQUIRED PER THE CONTRACT DOCUMENTS, SHALL BE SUBMITTED TO THE COMPANY IN A TIMELY FASHION PRIOR TO FABRICATION TO ALLOW FOR PROPER REVIEW.
   2. SHOP DRAWING ITEMS SHALL NOT BE INSTALLED UNTIL THE SHOP DRAWINGS HAVE BEEN APPROVED BY THE COMPANY.
   3. DURING SHOP DRAWING REVIEW, DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER AND MUST BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL REVIEW AND STAMP SHOP DRAWINGS PRIOR TO REVIEW BY ENGINEER.
E. TYPICAL NOTES AND DETAILS:
   1. SPECIFIC NOTES AND DETAILS SHALL TAKE PRECEDENCE OVER STANDARD TYPICAL NOTES AND DETAILS.
   2. STANDARD TYPICAL NOTES AND DETAILS ARE TO BE USED WHEN REFERRED TO OR WHEN NO OTHER MORE RESTRICTIVE OR DIFFERENT DETAILS ARE SHOWN ON THE DRAWINGS.
   3. WORK NOT PARTICULARLY SHOWN OR SPECIFIED SHALL BE THE SAME AS SIMILAR PARTS THAT ARE SHOWN OR SPECIFIED.
F. CODE REQUIREMENTS:
   1. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING CODES:
      - IBC
      - ACI 350
      - ANSI/AISC 360
      - AWS D1.5
      - AWWA C560
      - ANY OTHER REGULATING AGENCIES WHICH MAY HAVE AUTHORITY OVER ANY PORTION OF THE WORK.
   2. SPECIFICATIONS, CODES AND STANDARDS NOTED SHALL BE OF THE LATEST APPROVED ISSUE, INCLUDING SUPPLEMENTS, UNLESS NOTED OTHERWISE.

2) STRUCTURAL AND MISCELLANEOUS STEEL:

A. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE LATEST EDITION OF THE AISC SPECIFICATIONS.
B. WELDS: PROVIDE 70ksi LOW HYRDOGEN ELECTRODE OR PROCESS IN ACCORDANCE WITH AWS D1.5.
C. EPOXY BOLT OR EXPANSION BOLT SUBSTITUTIONS FOR EMBEDDED BOLTS IS PROHIBITED WITHOUT WRITTEN CONSENT FROM THE ENGINEER.
D. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE, EXCEPT AS MODIFIED IN THESE NOTES AND THE PROJECT SPECIFICATIONS.
E. SPLICING OF STEEL MEMBERS, UNLESS SHOWN ON THE DRAWINGS, IS PROHIBITED WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
F. ALL STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED AFTER FABRICATION UNLESS NOTED OTHERWISE.

3) CONCRETE AND GROUT:

A. ALL CONCRETE WORK SHALL CONFORM TO THE LATEST EDITION OF ACI 350, EXCEPT AS MODIFIED BY THE FOLLOWING SUPPLEMENTAL REQUIREMENTS:
B. REINFORCEMENT FOR CONCRETE:
   1. ALL REINFORCING SHALL BE SUPPORTED IN FORMS SPACED WITH NECESSARY ACCESSORIES AND SHALL BE SECURELY WIRED TOGETHER IN ACCORDANCE WITH THE LATEST EDITION OF THE CRSI "MANUAL OF STANDARD PRACTICE"
      a) DEFORMED BARS – ASTM A615, GRADE 60
C. MINIMUM CONCRETE COVER OVER REINFORCEMENT = 3" IF CAST AGAINST EARTH. 2" FOR ALL OTHER CONCRETE.
D. FORMWORK: DESIGN, ERECT, SUPPORT, BRACE AND MAINTAIN FORMWORK TO SUPPORT VERTICAL, LATERAL, STATIC AND DYNAMIC LOADS THAT MIGHT BE APPLIED UNTIL STRUCTURE CAN SUPPORT SUCH LOADS.
E. ALL REINFORCING STEEL AND EMBEDDED ITEMS SHALL BE INSPECTED AND APPROVED BY THE COMPANY PRIOR TO PLACING GROUT OR CONCRETE.
F. ADHESIVE ANCHORS SHALL BE HILTI HIT–RE 500 V3 AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

4) WOOD

A. SPLICING OF WOOD MEMBERS, UNLESS SHOWN ON THE DRAWINGS, IS PROHIBITED WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
B. ALL WOOD CONNECTORS SHALL BE SIMPSON STRONG–TIE® OR APPROVED EQUAL AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
C. NAILING SHALL BE IN ACCORDANCE WITH THE IBC, UNLESS NOTED OTHERWISE.
D. ALL WOOD IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED OR REDWOOD.
E. NAILS SHALL BE COMMON WIRE NAILS (EXCEPT 16d NAILS MAY BE BOX WIRE NAILS).
F. ROOF SHEATHING SHALL BE 40/20 APA PANEL SPAN RATING, WITH PLY CLIPS, UNLESS NOTED OTHERWISE.

5) PROJECT NOTES

A. EXISTING FACILITIES MAY CONTAIN MINOR VARIATIONS IN DIMENSIONS AND ELEVATIONS FROM THOSE SHOWN IN THE PLANS. CONTRACTOR SHALL FIELD MODIFY WORK AS REQUIRED TO FIT THE EXISTING STRUCTURE AT NO ADDITIONAL COST TO THE COMPANY. MODIFICATIONS TO STRUCTURAL MEMBERS SHALL BE SUBMITTED AND APPROVED BY THE ENGINEER.
B. 4–INCH FLAT STRIP WATERSTOP SHALL BE INSTALLED ON ALL CONSTRUCTION JOINTS ON NEW HYDRAULIC STRUCTURES.

DESIGN CRITERIA

DESIGN LOADS	
ROOF LOADS	
DEAD LOAD	10 PSF
LIVE	25 PSF
FLAT ROOF SNOW LOAD	126 PSF
SLOPED ROOF SNOW LOAD	126 PSF
FLOOR LOADS	
DEAD LOAD	10 PSF
LIVE LOAD	100 PSF
GROUND SNOW LOAD	150 PSF
WIND LOAD	
BASIC WIND SPEED	V ULT = 115 MPH (3–SECOND GUST)
EXPOSURE	B
SEISMIC DESIGN CRITERIA	
IMPORTANCE FACTOR, I	1.0
SEISMIC RESPONSE COEFFICIENTS	
SDS	0.418
SD1	0.21
SEISMIC RISK CATEGORY	II
SITE CLASS	D
SEISMIC DESIGN CATEGORY	D
SEISMIC FORCE RESISTING SYSTEM: LIGHT FRAME (WOOD) WALLS WITH STRUCTURAL PANEL SHEATHING	
RESPONSE MOD COEF, R	6–1/2
DESIGN BASE SHEAR	0.095W
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE	

CONCRETE	
STRUCTURAL CONCRETE	
CEMENT TYPE (ASTM)	II OR I/II
MAX COARSE AGGREGATE SIZE	1"
COMPRESSIVE STRENGTH (fc')	4000 PSI
MAX SLUMP	4"
AIR CONTENT	6.5% +/– 1.5%

STRUCTURAL AND MISCELLANEOUS METALS	
WIDE FLANGE SHAPES	ASTM A992
SHAPES, PLATES, BARS	ASTM A36
HSS	ASTM A500, GRADE B
PIPE, PIPE COLUMNS, BOLLARDS	ASTM A53, TYPE E OR S, GRADE B STANDARD WEIGHT UNO
ALUMINUM BOLLARDS	6061 T–6
BOLTS	
STEEL TO STEEL CONNECTIONS	ASTM A325
STEEL TO CONCRETE CONNECTIONS	ASTM A307
STEEL TO CMU CONNECTIONS	ASTM A307

WOOD	
WOOD FRAMING	
POSTS, BUILT–UP COLUMNS	NO 2 DOUG–FIR/LARCH OR BETTER
BEAMS, HEADERS AND JOISTS	NO 1 DOUG–FIR/LARCH OR BETTER
TOP AND BOTTOM PLATES	NO 2 DOUG–FIR/LARCH OR BETTER
STUD FRAMING	NO 2 DOUG–FIR/LARCH OR BETTER
BLOCKING AND BRIDGING	NO 3 DOUG–FIR/LARCH OR BETTER
TRUSS CHORDS	NO 2 DOUG–FIR/LARCH OR BETTER
TRUSS WEBS	NO 2 DOUG–FIR/LARCH OR BETTER

SPECIAL INSPECTION REQUIREMENTS

SPECIAL INSPECTION TABLE

SPECIAL INSPECTION ITEM	CONTINUOUS INSPECTION	PERIODIC INSPECTION	NOTES
1. STRUCTURAL AND LIGHT GAGE STEEL CONSTRUCTION			
A. STEEL FABRICATED IN AN APPROVED FABRICATION SHOP			FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS
B. VERIFY STRUCTURAL STEEL CONFORMS TO AISC AND THE CONSTRUCTION DOCUMENTS		X	
C. HIGH STRENGTH BOLTING			
1) VERIFY IDENTIFICATION MARKINGS AND THE MANUFACTURERS CERTIFICATE OF COMPLIANCE		X	
2) VERIFICATION OF BOLT TENSION		X	
3) VERIFICATION OF BOLT TENSION WHEN "TURN OF THE NUT" OR "CALIBRATED WRENCH" INSTALLATION METHODS ARE USED	X		
D. WELDING			
1) VERIFY IDENTIFICATION MARKINGS AND THE MANUFACTURERS CERTIFICATE OF COMPLIANCE		X	
2) SINGLE PASS FILLET WELDS 5/16" AND LESS		X	
3) WELDING OF STAIRS AND RAILINGS		X	
4) ALL OTHER WELDS	X		
E. VERIFICATION OF STRUCTURAL STEEL FRAME JOINT DETAILS INCLUDING MEMBER LOCATION, APPLICATION OF JOINT DETAILS AND DETAILS SUCH AS BRACING AND STIFFENING		X	
2. CONCRETE CONSTRUCTION			
A. ISOLATED SPREAD FOOTINGS			SPECIAL INSPECTION IS NOT REQUIRED
B. CONCRETE SLABS AND SIDEWALKS DIRECTLY SUPPORTED ON THE GROUND			SPECIAL INSPECTION IS NOT REQUIRED
C. INSPECTION OF FORMWORK FOR SHAPE, SIZE AND LOCATION OF CONCRETE MEMBERS		X	
D. VERIFICATION OF STEEL MATERIAL, SIZE AND LOCATION		X	
E. VERIFICATION OF BOLTS STUDS OR ANCHORS EMBEDDED IN CONCRETE FOR LOCATION, SIZE AND CONFIGURATION	X		SPECIAL INSPECTION IS NOT REQUIRED WHERE BOLTS HAVE BEEN DESIGNED WITH HALF STRESSED
F. VERIFY THE USE OF THE REQUIRED MIX DESIGN		X	
G. SAMPLING OF FRESH CONCRETE FOR COMPRESSIVE STRENGTH, AIR CONTENT, SLUMP, AND TEMPERATURE	X		
H. INSPECTION FOR THE MAINTENANCE OF CURING TEMPERATURE AND TECHNIQUES		X	
I. INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE		X	SPECIAL INSPECTION IS NOT REQUIRED WHERE ANCHORS HAVE BEEN DESIGNED WITH HALF STRESSES

REGISTERED PROFESSIONAL ENGINEER
80853 PE
2/6/19
OREGON
MAR. 11, 2008
CHRISTOPHER C. BOYD

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PO BOX 1643 | BOISE, ID 83701 | (208) 918–0627

SAP#
PL#
DATE FEBRUARY 2019
ENG CCB | DES CCB
DR WJZ | CH CCB
APPROVAL

WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS GENERAL STRUCTURAL NOTES AND DESIGN CRITERIA

PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 11 | GS–01 | REV. B

No.	DATE	REVISION	BY	CHK	APP
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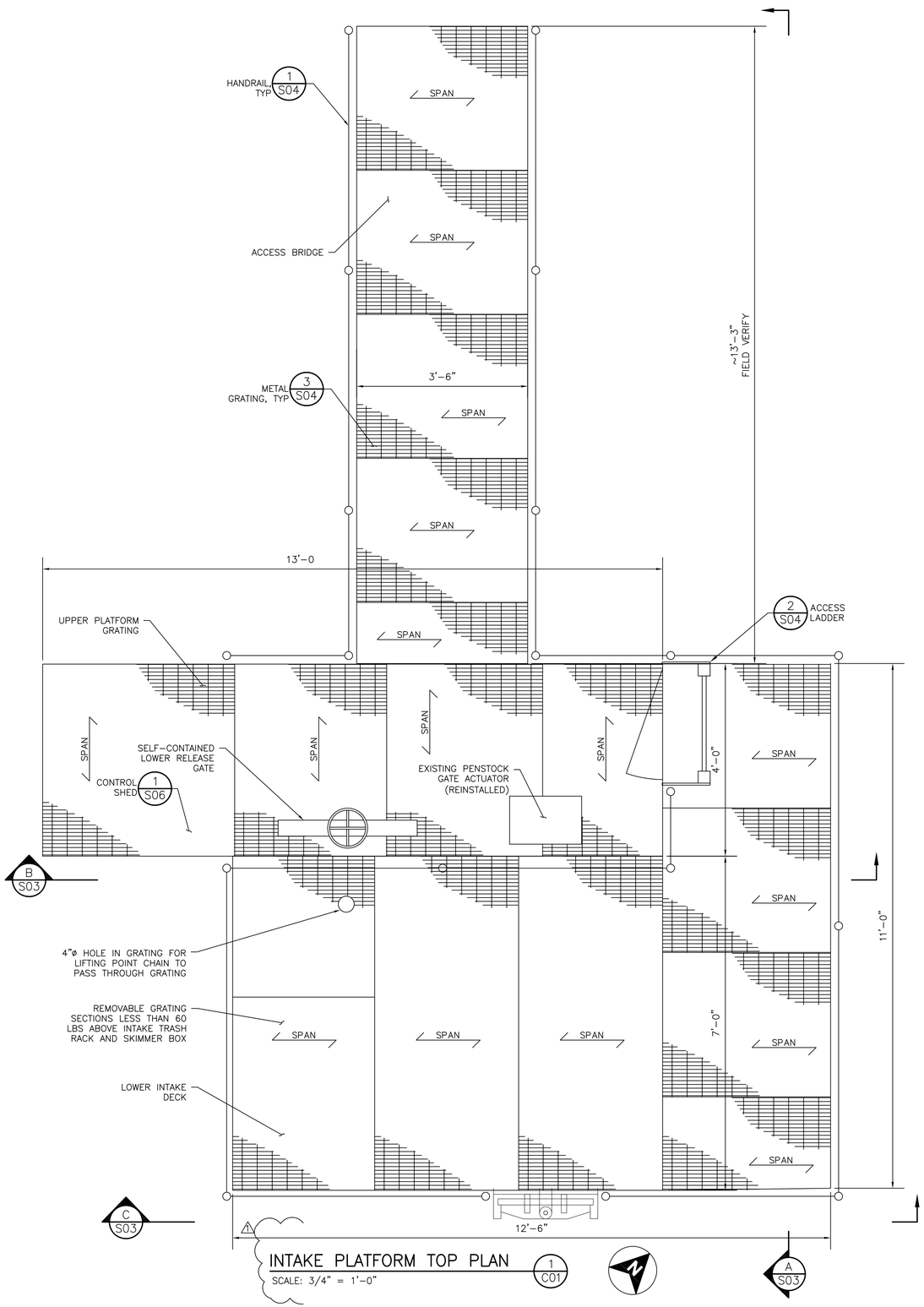
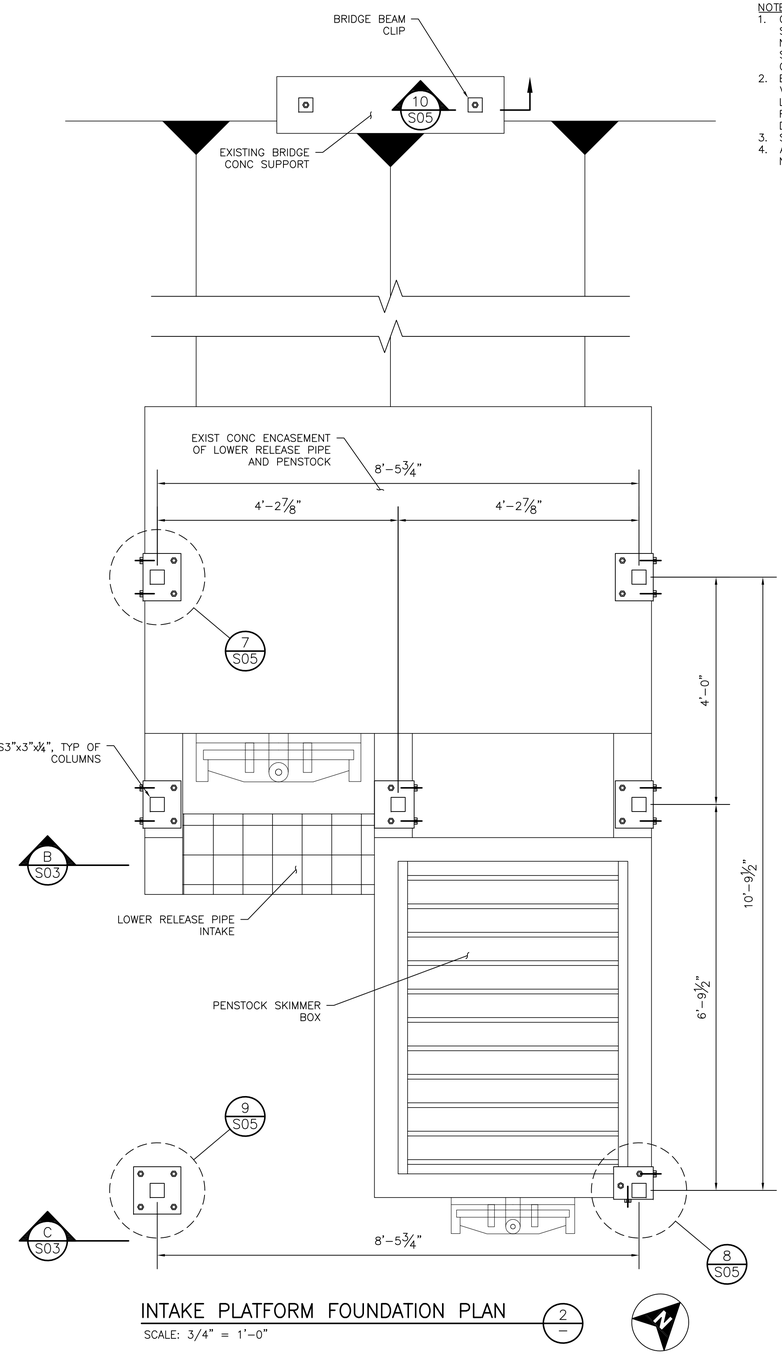


INTAKE PLATFORM TOP PLAN 1 C01
SCALE: 3/4" = 1'-0"



INTAKE PLATFORM FOUNDATION PLAN 2 —
SCALE: 3/4" = 1'-0"

NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STRUCTURES, DIMENSIONS, AND CONDITIONS FOR NEW STRUCTURES AND EQUIPMENT. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CHANGE OF CONDITIONS.
2. EXISTING CONCRETE INTAKE OUTLINE SHALL BE VERIFIED TO ENSURE BASE PLATE COORDINATION. LOCATIONS OF THE BASE PLATES AND COLUMNS REQUIRED FIELD VERIFICATION PRIOR TO SHOP DRAWING PRODUCTION.
3. SEE SHEET GS-01 FOR ADDITIONAL NOTES.
4. ALL GRATING SHALL BE GALVANIZED STEEL UNLESS NOTE OTHERWISE.

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WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS INTAKE PLATFORM PLANS

PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 12 | S-01 | REV. B

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A		
B		
C		

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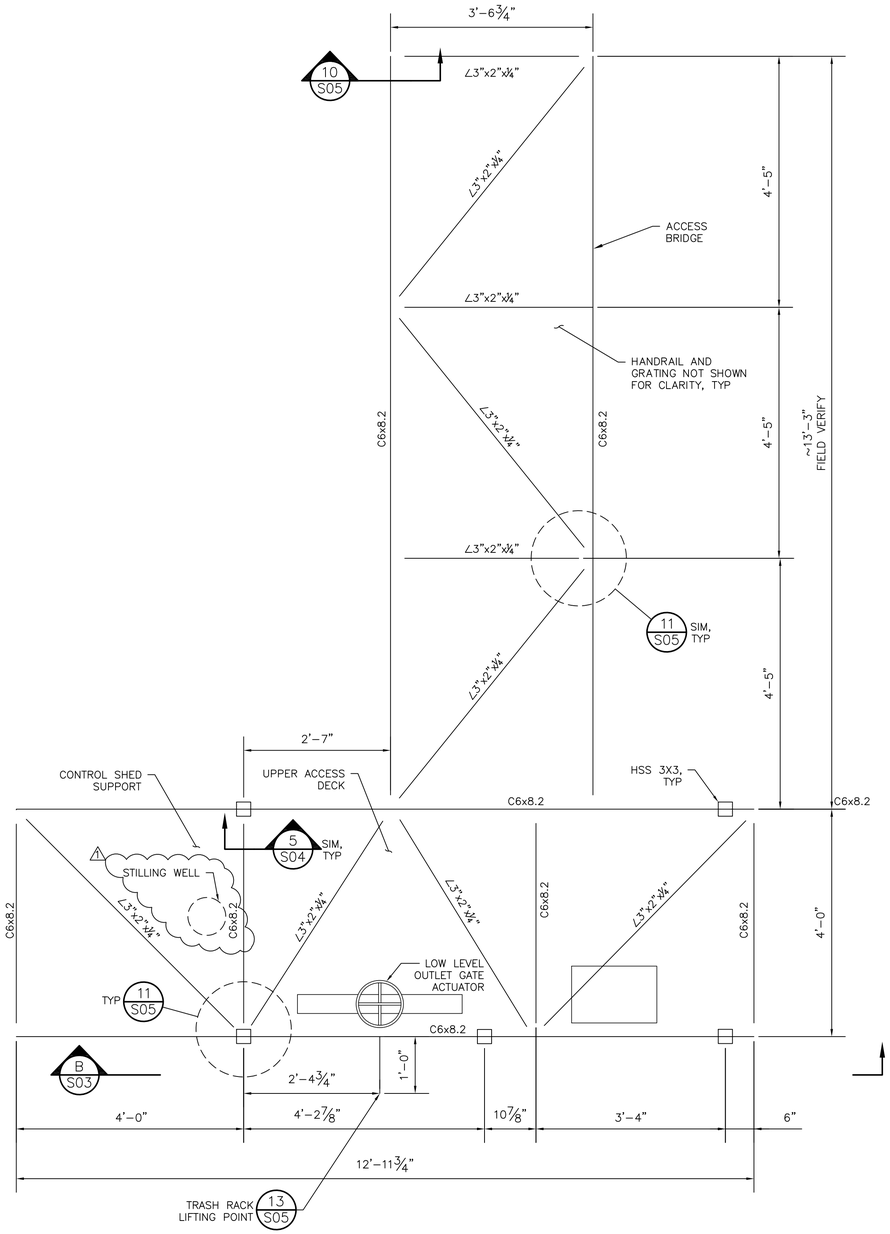
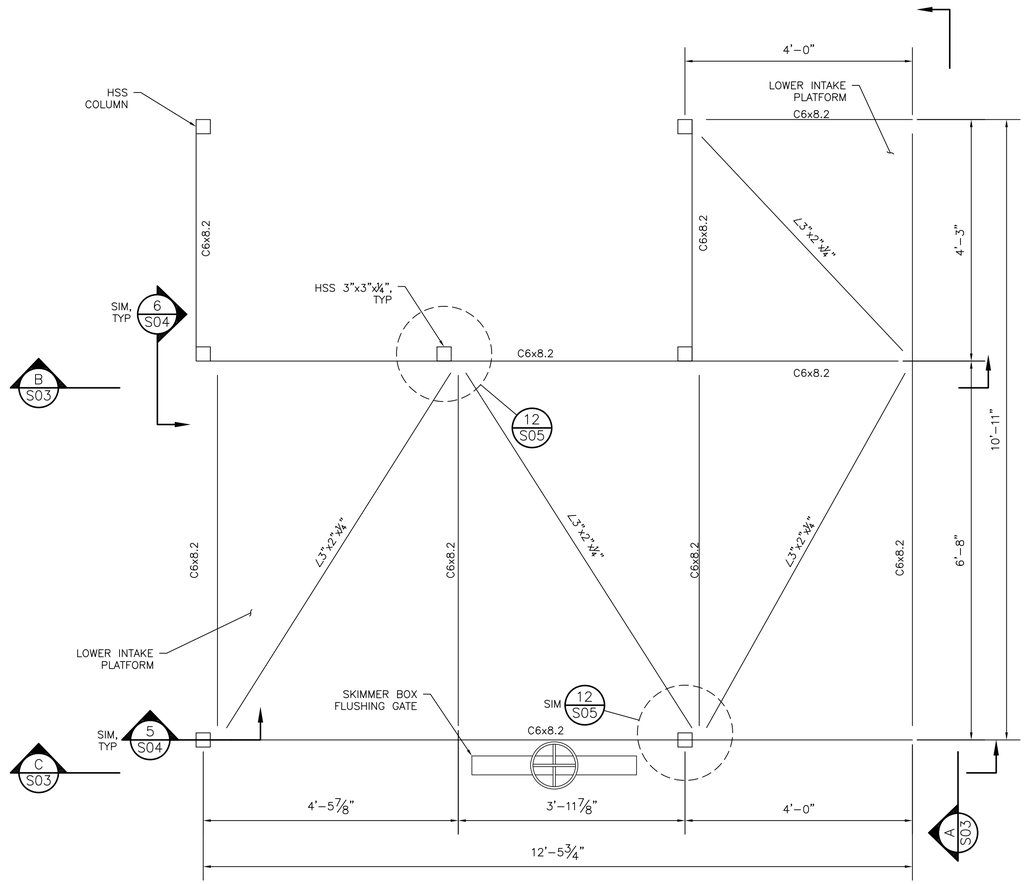


1 UPPER PLATFORM FRAMING PLAN (3 / —)
SCALE: 3/4" = 1'-0"



1 LOWER PLATFORM FRAMING PLAN (4 / —)
SCALE: 3/4" = 1'-0"

NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STRUCTURES, DIMENSIONS, AND CONDITIONS FOR NEW STRUCTURES AND EQUIPMENT. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CHANGE OF CONDITIONS.
2. EXISTING CONCRETE INTAKE OUTLINE SHALL BE VERIFIED TO ENSURE BASE PLATE COORDINATION. LOCATIONS OF THE BASE PLATES AND COLUMNS REQUIRED FIELD VERIFICATION PRIOR TO SHOP DRAWING PRODUCTION.
3. SEE SHEET GS-01 FOR ADDITIONAL NOTES.

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WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS
INTAKE PLATFORM FRAMING PLANS

PACIFICORP — A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 13 | S-02 | REV. B

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2	2/6/19	PERMIT REVISIONS	WJZ	CCB	

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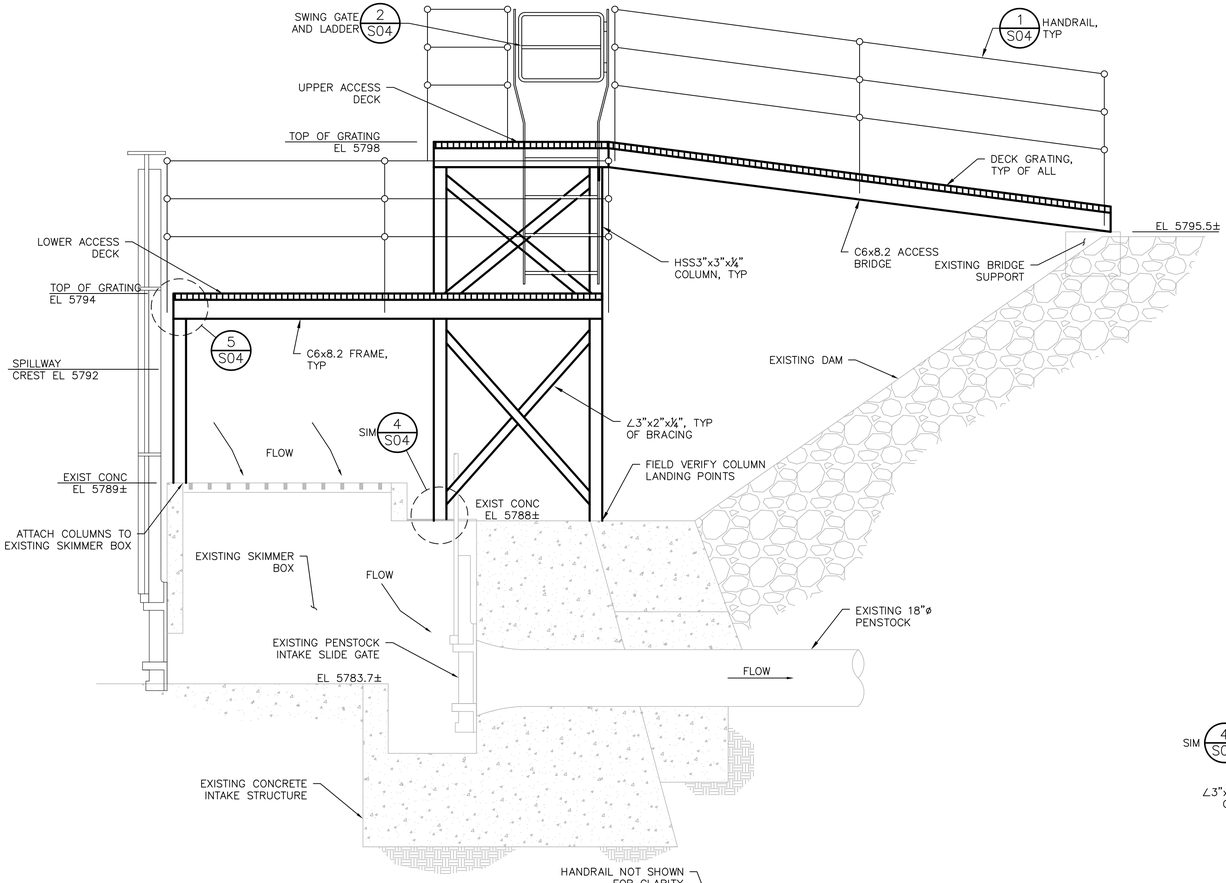
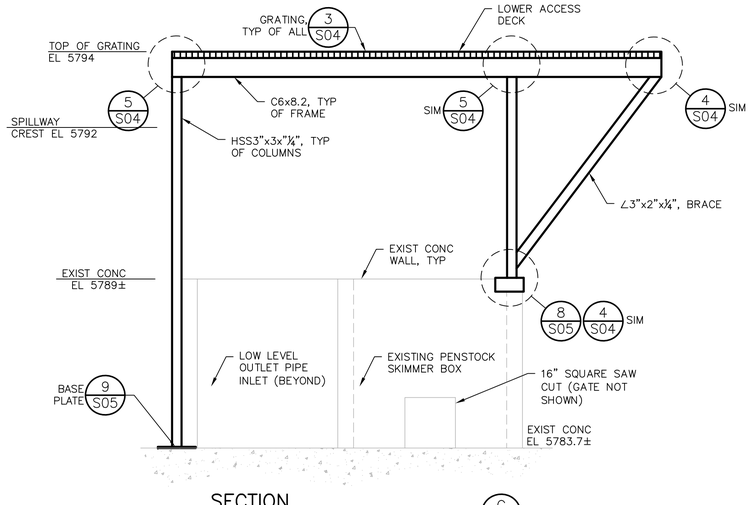
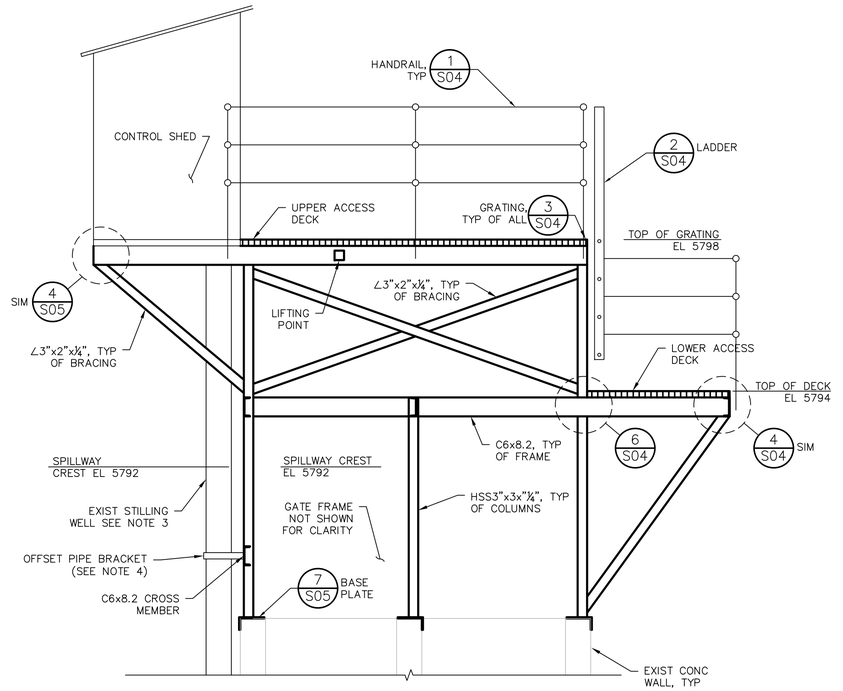


SECTION
SCALE: 1/2" = 1'-0"
A S01



SECTION
SCALE: 1/2" = 1'-0"
C S01

NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STRUCTURES, DIMENSIONS, AND CONDITIONS FOR NEW STRUCTURES AND EQUIPMENT. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CHANGE OF CONDITIONS.
2. EXISTING CONCRETE INTAKE OUTLINE SHALL BE VERIFIED TO ENSURE BASE PLATE COORDINATION. LOCATIONS OF THE BASE PLATES AND COLUMNS REQUIRED FIELD VERIFICATION PRIOR TO SHOP DRAWING PRODUCTION.
3. REMOVE AND REINSTALL THE EXISTING STILLING WELL.
4. OFFSET PIPE BRACKET SHALL BE STAINLESS STEEL COOPER B-LINE B3148 OR APPROVED EQUAL. MOUNTED TO C6 CHANNEL.
5. SEE SHEET GS-01 FOR ADDITIONAL NOTES.



SECTION
SCALE: 1/2" = 1'-0"
B S01

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WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS INTAKE PLATFORM SECTIONS

PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 14 | S-03 | REV. A

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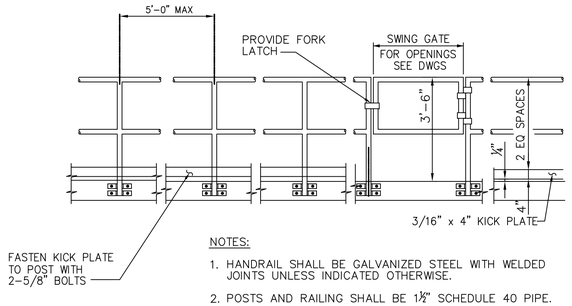


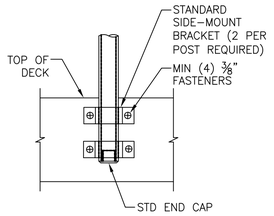
NOTES:

1. HANDRAIL SHALL BE GALVANIZED STEEL WITH WELDED JOINTS UNLESS INDICATED OTHERWISE.
2. POSTS AND RAILING SHALL BE 1½" SCHEDULE 40 PIPE.
3. ALL RAILINGS TO HAVE A 4" KICK CURB UNLESS NOTED OTHERWISE
4. FOAM FILL DRAINS IN HAND RAILS AFTER WELDING TO DETER NESTING OF INSECTS.
5. SWING GATE SHALL SWING INTO TOP PLATFORM.

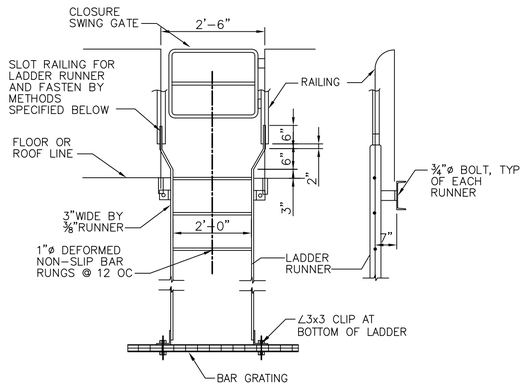
HANDRAIL

SCALE: NTS

1 / S01



MOUNTING BRACKET



CONNECTIONS:

STEEL TO STEEL WELDED CONNECTION, GRIND SMOOTH

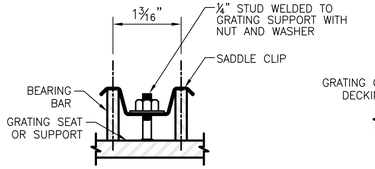
ACCESS LADDER

SCALE: NTS

2 / S01

NOTES:

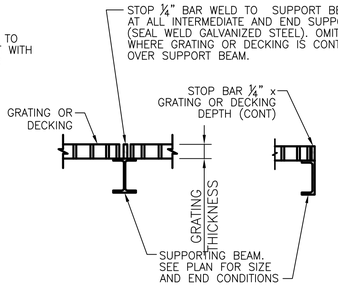
1. DETAIL 4 SHALL BE USED FOR ALL COLUMN, BEAM, AND ANGLE CONNECTIONS UNLESS NOTED OTHERWISE. WHERE MULTIPLE BRACES OR MEMBERS ARE PRESENT, ADJUST THE BASE PLATE SIZE AS NECESSARY TO ACCOMMODATE THE BOLTED CONNECTIONS OF ALL MEMBERS. WHERE POSSIBLE, BASE PLATE SHALL BE BOLTED TO THE WEB OF THE MEMBER.
2. SEE SHEET GS-01 FOR ADDITIONAL NOTES.



GRATING CLIP DETAIL

NOTE:

1. GRATING OF DEPTH SHALL BE 1½" UNLESS NOTED OTHERWISE.
2. ALL ENDS AND OPENINGS SHALL BE BANDED.
3. ALL GRATINGS SHALL BE SECURED IN PLACE WITH REMOVABLE FASTENERS.
4. MAX. UNIFORM LOAD=100 PSF.

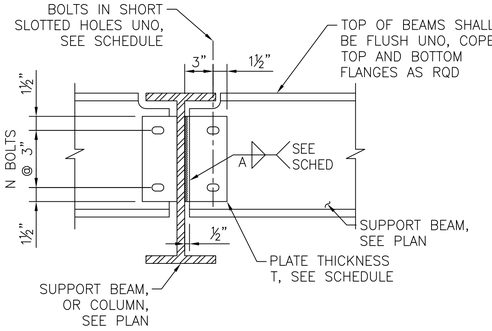


GRATING OR DECKING STOP DETAIL

METAL GRATING

SCALE: NTS

3 / S01



BEAM TO BEAM CONNECTION SCHEDULE					
SUPPORTED BEAM SIZE	NO OF BOLTS N	BOLT SIZE	PLATE THICKNESS T	WELD SIZE A	COMMENTS
L3X2 & SIM	2 HORIZ	¾"	¼	3/16	–
W6 OR C6	2 HORIZ	¾"	¼	3/16	–
W8 OR C8	2	¾"	¼	3/16	–
W10 OR C10	2	¾"	¼	3/16	–
W12 OR C12	3	¾"	¼	3/16	–
W14	3	¾"	¼	3/16	–
W16 OR C15	4	¾"	¼	3/16	–
W18	4	¾"	¼	3/16	–
W21	5	1"	¼	3/16	–
W24	6	1"	5/16	¼	–
W27	7	1"	5/16	¼	–
W30	8	1"	⅜	5/16	–
W36	9	1"	7/16	⅜	–

BOLTED CONNECTION DETAIL

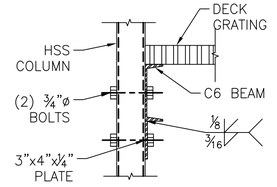
SCALE: NTS

4 / –

COLUMN TO CHANNEL DETAIL

SCALE: NTS

5 / S02



COLUMN TO CHANNEL DETAIL

SCALE: NTS

6 / S02

REGISTERED PROFESSIONAL ENGINEER 80853 PE 2/6/19 OREGON MAR. 11, 2008 CHRISTOPHER C. BOYD

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SAP#			
PL#			
DATE	FEBRUARY 2019		
ENG	CCB	DES	WJZ
DR	WJZ	CH	CCB
APPROVAL			

WALLOWA FALLS HYDROELECTRIC
INTAKE & TAILRACE MODIFICATIONS
INTAKE PLATFORM
DETAILS 1

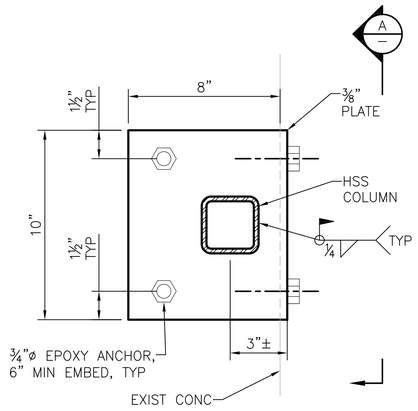
PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 15 | S-04 | REV. B

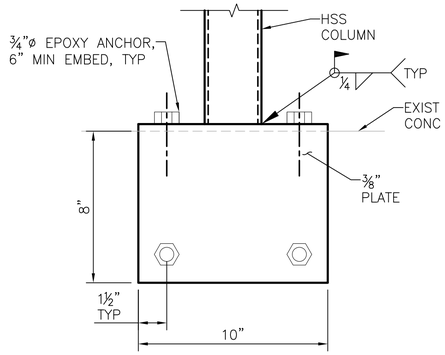
No.	DATE	REVISION	BY	CHK	APP
0	10/19/18	ISSUED FOR CONSTRUCTION	WJZ	CCB	
1	2/6/19	PERMIT REVISIONS	WJZ	CCB	

REFERENCE DRAWINGS | DRAWING No. | REFERENCE DRAWINGS | DRAWING No.

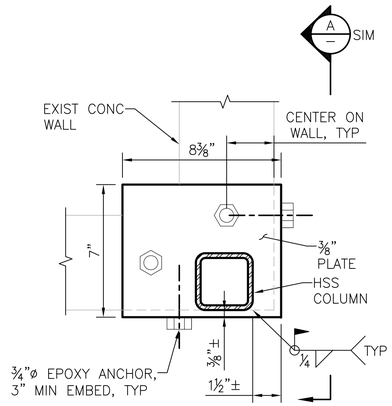
NOTES:
1. SEE SHEET GS-01 FOR ADDITIONAL NOTES.
2. IT IS UNKNOWN IF THERE IS AN EXISTING CONCRETE FOOTING UNDER THE LOCATION IN WHICH THIS COLUMN WILL LAND. IF FOOTING IS PRESENT ANCHOR AS SHOWN, OTHERWISE, POUR A 2-FOOT SQUARE BY 1-FOOT THICK FOOTING AND CENTER IT ON THE COLUMN LOCATION.
3. SHIM OR GROUT BASE PLATES AS REQ'D TO LEVEL PLATFORM
4. COLUMN BASE DETAILS 7 AND 8 ARE DESIGNED TO ALLOW FOR FIELD ADJUSTMENTS TO AS-BUILT CONDITIONS. CONTACT THE ENGINEER IF COLUMNS CANNOT BE WELDED TO THE SUPPORT PLATES SIMILAR TO DETAILS SHOWN.



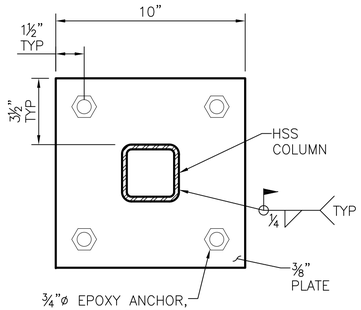
BASE PLATE
SCALE: 3" = 1'-0"
7 S01



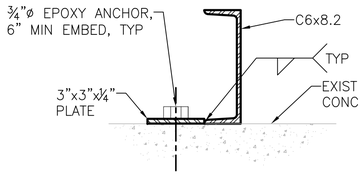
SECTION
SCALE: 3" = 1'-0"
A —



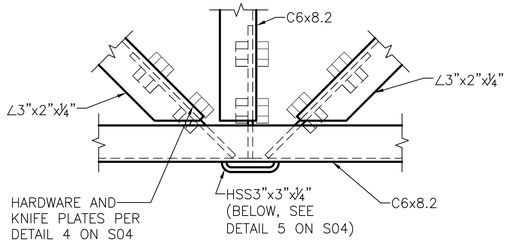
BASE PLATE
SCALE: 3" = 1'-0"
8 S01



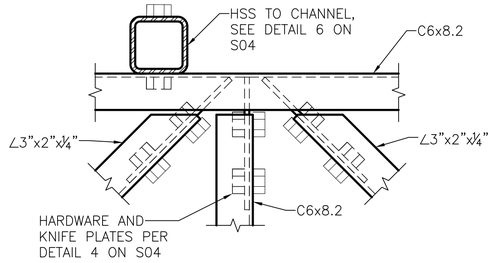
BASE PLATE
SCALE: 3" = 1'-0"
9 S01



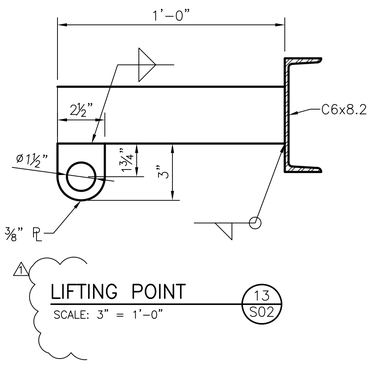
SECTION
SCALE: 3" = 1'-0"
10 S01



DETAIL
SCALE: 3" = 1'-0"
11 S02



DETAIL
SCALE: 3" = 1'-0"
12 S02



LIFTING POINT
SCALE: 3" = 1'-0"
13 S02

REGISTERED PROFESSIONAL ENGINEER
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SAP#			
PL#			
DATE	FEBRUARY 2019		
ENG	CCB	DES	WJZ
DR	WJZ	CH	CCB
APPROVAL			

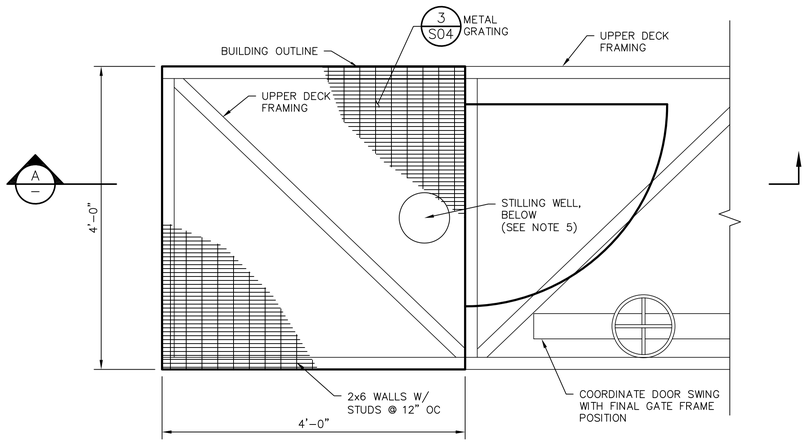
WALLOWA FALLS HYDROELECTRIC
INTAKE & TAILRACE MODIFICATIONS
INTAKE PLATFORM
DETAILS 2

PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

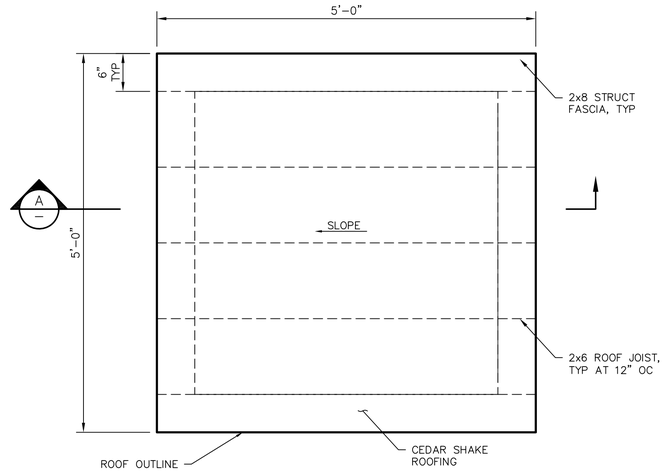
SCALE: AS NOTED | SHEET 16 | S-05 | REV. B

No.	DATE	REVISION	BY	CHK APP
0	10/19/18	ISSUED FOR CONSTRUCTION	WJZ	CCB
1	01/03/19	PERMITTING REVISIONS	WJZ	CCB
2	2/6/19	PERMIT REVISIONS	WJZ	CCB

REFERENCE DRAWINGS | DRAWING No. | REFERENCE DRAWINGS | DRAWING No.



BOTTOM PLAN 1
SCALE: 1" = 1'-0"



TOP PLAN 2
SCALE: 1" = 1'-0"

SECTION A
SCALE: 1" = 1'-0"

PHOTOGRAPH 1
SCALE: NTS

NOTES:
1.
2. SEE SHEET S-07 FOR BUILDING DETAILS.
3. SEE SHEET GS-01 FOR ADDITIONAL NOTES.
4. BUILDING ROOF AND SIDING SHALL MATCH EXISTING WARMING SHED LOCATED NEAR FOREBAY. CEDAR SHAKE SHALL BE USED. SEE PHOTOGRAPH THIS SHEET.
5. SUPPORT STILLING WELL UPPER END USING COOPER B-LINE B3148 OFFSET PIPE CLAMP OR APPROVED EQUAL. MOUNT PIPE SUPPORT TO INTAKE DECK C6.

REGISTERED PROFESSIONAL ENGINEER
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MAR. 11, 2008
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SAP#			
PL#			
DATE	FEBRUARY 2019		
ENG	CCB	DES	CCB
DR	WJZ	CH	CCB
APPROVAL			

WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS INTAKE PLATFORM CONTROL BUILDING PLAN AND SECTIONS

PACIFICORP — A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 17 | S-06 | REV. B

No.	DATE	REVISION	BY	CHK	APP
0	10/19/18	ISSUED FOR CONSTRUCTION	WJZ	CCB	
1	01/03/19	PERMITTING REVISIONS	WJZ	CCB	
2	2/6/19	PERMIT REVISIONS	WJZ	CCB	

REFERENCE DRAWINGS | DRAWING No. | REFERENCE DRAWINGS | DRAWING No.

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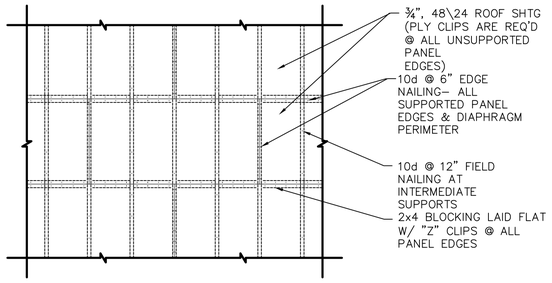
NOTES:
1. SEE SHEET GS-01 FOR ADDITIONAL NOTES.



NOTES:
1. MIN. EDGE DISTANCE FOR NAILS SHALL BE 3/8"
2. MIN. SHTG SHEET SIZE SHALL BE 2'-0"x4'-0"
3. NAIL HEAD SHALL NOT BREAK OUTER PLY OF SHEATHING
4. NAILS SHALL BE COMMON WIRE TYPE.

ROOF SHTG DETAIL

SCALE: 3/4"=1'-0"

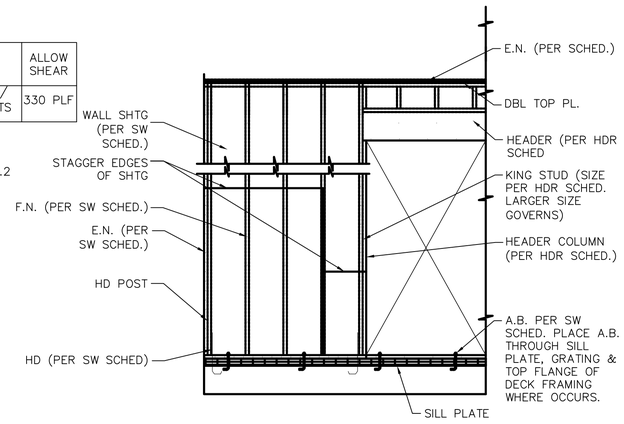
1

SHEARWALL SCHEDULE

MARK	PANEL EDGE NAILING	PANEL FIELD NAILING	PANEL EDGE FRAMING	APA RATED SHTG	ANCHOR BOLT SIZE & SPACING	HOLD DOWN	ALLOW SHEAR
1	8d @ 6" O.C.	8d @ 12" O.C.	2x	3/8" (1) SIDE	5/8"ø A.B. @ 48" O.C.	SIMPSON LTT19 W/ ¾"ø ANCHOR BOLTS	330 PLF

* – PROVIDE PORTAL FRAME IN ACCORDANCE WITH 2015 IBC FIGURE 2308.6.5.2

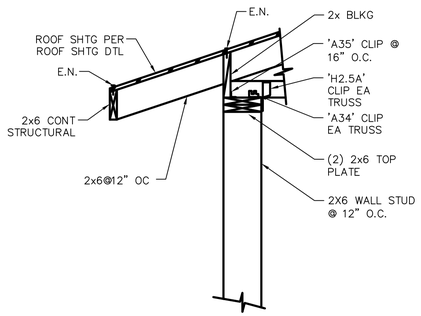
NOTE:
1. FOR EXTERIOR WALLS NOT MARKED USE 1 .
2. MIN. EDGE DISTANCE FOR NAILS SHALL BE 3/8".
3. MIN. SHTG SHEET SIZE SHALL BE 2'-0"x4'-0".
4. NAIL HEAD SHALL NOT BREAK OUTER PLY OF SHTG.
5. NAILS SHALL BE COMMON WIRE TYPE.
6. E.N. = EDGE NAILING
   F.N. = FIELD NAILING
7. THERE SHALL BE A MINIMUM OF TWO A.B. PER EA. PIECE OF SILL PLATE.
8. LOCATE A.B. NO MORE THAN 12" & NO LESS THAN 4" FROM EA. END OF EA. SILL PLATE.
9. SW = SHEAR WALL, HD = HOLD DOWN, HDR = HEADER, A.B. = ANCHOR BOLTS



TYPICAL SHEAR WALL SCHEDULE

SCALE: N.T.S.

2



ROOF JOIST SUPPORT SECTION

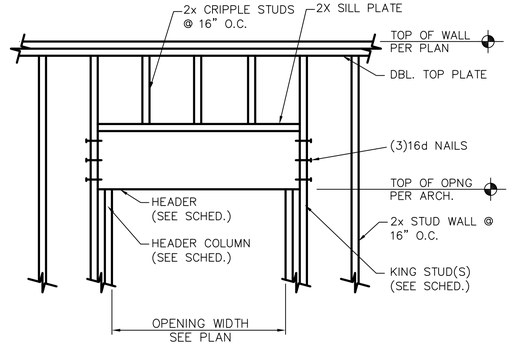
SCALE: 3/4"= 1'-0"

3

WOOD HEADER SCHEDULE

HEADER MARK	OPNG WIDTH	HEADER SIZE	HEADER COLUMN	KING STUD(S)
H1	4'-0" MAX	(2) 2x6 DF-L#1	(1) 2x6	(1) 2x6

NOTES:
1. WHERE BUILT-UP STUDS OR HEADER BEAMS ARE REQUIRED SEE PARTIAL FASTENING SCHEDULE ON IBC TABLE 2304.10.1.



WOOD HEADER ELEVATION AND SCHEDULE

SCALE: N.T.S.

4

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MAR. 11, 2008
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PL#			
DATE	FEBRUARY 2019		
ENG	CCB	DES	
DR	WJZ	CH	
APPROVAL			

WALLOWA FALLS HYDROELECTRIC INTAKE & TAILRACE MODIFICATIONS INTAKE PLATFORM CONTROL BUILDING DETAILS

PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 18 | S-07 | REV. B

No.	DATE	REVISION	BY	CHK	APP
0	10/19/18	ISSUED FOR CONSTRUCTION	WJZ	CCB	
1	2/6/19	PERMIT REVISIONS	WJZ	CCB	

REFERENCE DRAWINGS | DRAWING No. | REFERENCE DRAWINGS | DRAWING No.

BORDER REVISED 03/17/17 GRH

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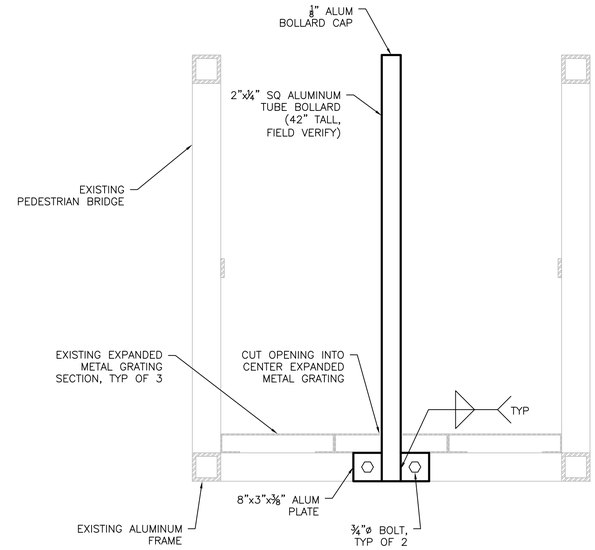
NOTES:
1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STRUCTURES, DIMENSIONS, AND CONDITIONS PRIOR TO FABRICATION OR PURCHASE OF NEW STRUCTURES AND EQUIPMENT. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CHANGE OF CONDITIONS.

PEDESTRIAN BRIDGE PLAN — 1 / C01
SCALE: NTS



SECTION — A / —
SCALE: 1 1/2" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER
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2/6/19
OREGON
MAR. 11, 2008
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SAP#			
PL#			
DATE	FEBRUARY 2019		
ENG	CCB	DES	WJZ
DR	WJZ	CH	CCB
APPROVAL			

WALLOWA FALLS HYDROELECTRIC
INTAKE & TAILRACE MODIFICATIONS
PEDESTRIAN BRIDGE MODIFICATIONS
SECTIONS AND DETAILS

PACIFICORP — A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 19 | S-08 | REV. B

No.	DATE	REVISION	BY	CHK	APP
0	10/19/18	ISSUED FOR CONSTRUCTION	WJZ	CCB	
2	2/6/19	PERMIT REVISIONS	WJZ	CCB	

REFERENCE DRAWINGS | DRAWING No. | REFERENCE DRAWINGS | DRAWING No.

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Appendix B

EPA Construction Stormwater Pollution Prevention Plan Template – Section 5 (Pollution Prevention Standards)

SECTION 5: POLLUTION PREVENTION STANDARDS

5.1 Potential Sources of Pollution

Instructions (see CGP Part 7.2.3.g):

- Identify and describe all pollutant-generating activities at your site (e.g., paving operations; concrete, paint, and stucco washout and waste disposal; solid waste storage and disposal).
- For each pollutant-generating activity, include an inventory of pollutants or pollutant constituents associated with that activity (e.g., sediment, fertilizers, and/or pesticides, paints, solvents, fuels), which could be exposed to rainfall or snowmelt, and could be discharged from your construction site. You must take into account where potential spills and leaks could occur that contribute pollutants to stormwater discharges, and any known hazardous or toxic substances, such as PCBs and asbestos, that will be disturbed or removed during construction.

Construction Site Pollutants

Pollutant-Generating Activity	**Pollutants or Pollutant Constituents** (that could be discharged if exposed to stormwater)	**Location on Site** (or reference SWPPP site map where this is shown)
Heavy equipment operation	Petroleum, oil, lubricants	Entire site

5.2 Spill Prevention and Response

Instructions (see CGP Parts 2.3.6 and 7.2.6.vii):

- Describe procedures you will use to prevent and respond to leaks, spills, and other releases. You must implement the following at a minimum:
  - ✓ Procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases. Identify the name or title of the employee(s) responsible for detection and response of spills or leaks; and
  - ✓ Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity consistent with Part 2.3.6 and established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, occurs during a 24-hour period. Contact information must be in locations that are readily accessible and available.
- Some projects/site may be required to develop a Spill Prevention Control and Countermeasure (SPCC) plan under a separate regulatory program (40 CFR 112). If you are required to develop an SPCC plan, or you already have one, you should include references to the relevant requirements from your plan.

- The contractor will ensure that the following materials for emergency erosion control are on site: (1) a supply of sediment control materials (e.g., silt fence, straw bales), and (2) oil absorbing floating booms and spill containment kits at the work site.
- Workers will be trained in spill prevention and proper disposal procedures.

- Covered storage will be provided for waste materials and supplies.
- Spill containment kits will be stored at each work site and the construction crews will be trained in proper use.
- If a spill of chemical pollutants such as fuel or hydraulic fluid should occur, the contractor will attempt to contain the spilled material. The following procedures will be followed:

  (a) Notify the project inspector immediately.
  Add inspector contact info when available.

  (b) For spillage on land, construct earthen berms or use other suitable barricade material of sufficient size to contain the spill and keep it from spreading.

  (c) For spillage on water, attempt to isolate and contain the spilled material. Commercial booms or other suitable materials shall be kept on site during construction to contain fuel and oil spills on water.

- If a fluid leak does occur, the project inspector shall be notified immediately, and all work ceased at that specific location until the leak has been rectified.
- If a spill of fuel or hydraulic fluid occurs, the contractor will immediately attempt to contain the spilled material and notify the appropriate regulatory agency following the spill response plan and all applicable local, state, federal regulations.
- If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately to make repairs, install replacements, or install additional controls as necessary.

5.3 Fueling and Maintenance of Equipment or Vehicles

Instructions (see CGP Parts 2.3.1 and 7.2.6):

– Describe equipment/vehicle fueling and maintenance practices that will be implemented to eliminate the discharge of spilled or leaked chemicals (e.g., providing secondary containment *(examples: spill berms, decks, spill containment pallets)* and cover where appropriate, and/or having spill kits readily available.)

Specific Pollution Prevention Practices

Fueling and Vehicle Maintenance Measures
▪ Prior to mobilizing to the project site, all equipment will be washed to minimize the introduction of foreign materials and fluids to the project site. All equipment will be free of oil, hydraulic fluid, and diesel fuel leaks. ▪ Vehicle staging, cleaning, maintenance, refueling, and fuel storage will take place in a designated area at least 100 feet from waterways per USFS standard RMA-7S. ▪ All vehicles operated within 100 feet of the river will be inspected daily for fluid leaks before leaving the vehicle staging area. Any detected leaks must be repaired in the vehicle staging area before the vehicle resumes operation. ▪ All equipment operated in the river will be cleaned before beginning operations below the ordinary high water line to remove all external oil, grease and dirt. ▪ All other types of power equipment within 100 feet of the water will be inspected daily for fluid leaks and repaired. The contractor must prepare daily inspection reports. ▪ If a fluid leak does occur, the project inspector will be notified immediately, and all work ceased at that specific location until the leak has been rectified. At all times during construction, fluid spill containment equipment will be present on-site and ready for

deployment should an accidental spill occur. The project inspector reserves the right to refuse equipment that does not meet criteria. ▪ Stationary power equipment (e.g., generators) operated within 100 feet of the waterway will be diapered to prevent leaks. ▪ All fuel and lubricants will be stored in containers and areas that conform to applicable local, state and federal regulations.	
Installation	These measures will be implemented within the established staging area.
Maintenance Requirements	▪ If a spill of fuel or hydraulic fluid occurs, the contractor will immediately attempt to contain the spilled material and notify the appropriate regulatory agency following the spill response plan and all applicable local, state, federal regulations. ▪ Petroleum contaminated soils resulting from contractor fueling, greasing, and cleaning, or due to fluid leaks will be removed and disposed of following all applicable local, state, and federal regulations.
Design Specifications	BMPs selected by the contractor will follow the Oregon Department of Environmental Quality's Construction Stormwater Best Management Practices Manual (DEQ 2013).

5.4 Washing of Equipment and Vehicles

Instructions (see CGP Parts 2.3.2 and 7.2.6):

– Describe equipment/vehicle washing practices that will be used to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other types of wash waters (e.g., locating activities away from waters of the U.S. and stormwater inlets or conveyances and directing wash waters to a sediment basin or sediment trap, using filtration devices, such as filter bags or sand filters, or using other similarly effective controls).

– Describe how you will prevent the discharge of soaps, detergents, or solvents by providing either (1) cover (*examples: plastic sheeting or temporary roofs*) to prevent these detergents from coming into contact with rainwater, or (2) a similarly effective means designed to prevent the discharge of pollutants from these areas.

Specific Pollution Prevention Practices

Equipment Washing	
▪ Prior to mobilizing to the project sites, all equipment will be washed to minimize the introduction of foreign materials and fluids. All equipment will be free of oil, hydraulic fluid, and diesel fuel leaks. ▪ Vehicle staging, cleaning, maintenance, refueling, and fuel storage must take place in a designated area at least 100 feet or more from any stream. ▪ All equipment operated instream must be cleaned before beginning operations below the bankfull elevation to remove all external oil, grease and dirt. ▪ Prior to mobilizing to the project site, all equipment will be washed to minimize the introduction of foreign materials and fluids to the project site. All equipment will be free of oil, hydraulic fluid, and diesel fuel leaks.	
Installation	As necessary on a daily basis.
Maintenance Requirements	▪ Inspect and maintain on a daily basis
Design Specifications	BMPs selected by the contractor will follow the Oregon Department of Environmental Quality's Construction Stormwater Best Management Practices Manual (DEQ 2013).

5.5 Storage, Handling, and Disposal of Building Products, Materials, and Wastes

Instructions (see CGP Parts 2.3.3 and 7.2.6):

– For any of the types of building products, materials, and wastes below in Sections 5.5.1-5.5.6 below that you expect to use or store at your site, provide the information on how you will comply with the corresponding CGP provision and the specific practices that you will be employ.

5.5.1 Building Products

(Note: Examples include asphalt sealants, copper flashing, roofing materials, adhesives, concrete admixtures, and gravel and mulch stockpiles.)

General

- Building products will be stored at the identified staging area.

5.5.2 Pesticides, Herbicides, Insecticides, Fertilizers, and Landscape Materials

General

- Not applicable.

5.5.3 Diesel Fuel, Oil, Hydraulic Fluids, Other Petroleum Products, and Other Chemicals

General

Oil and fuel products will be stored in such a manner as to prevent discharge from the storage area, which will be located in the staging area.

Specific Pollution Prevention Practices

Vehicle Staging and Maintenance	
▪ Description: Vehicle staging, cleaning, maintenance, refueling, and fuel storage will take place in a designated area at least 100 feet from any waterway. ▪ All fuel and lubricants will be stored in containers and areas that conform to applicable local, state and federal regulations. ▪ Stationary power equipment (e.g., generators) operated within 100 feet of any stream, water body or wetland will be diapered to prevent leaks.	
Installation	These measures will be implemented in the established staging area.
Maintenance Requirements	If a fluid leak does occur, the project inspector will be notified immediately, and all work ceased at that specific location until the leak has been rectified. At all times during construction, fluid spill containment equipment will be present on-site and ready for deployment should an accidental spill occur. The project inspector reserves the right to refuse equipment that does not meet criteria.
Design Specifications	NA

5.5.4 Hazardous or Toxic Waste

General
Disposal of containers or surplus products will be handled in accordance with local, state and federal regulations and taken to an approved landfill site.

Specific Pollution Prevention Practices

Hazardous Waste Management	
▪ Description: Hazardous or toxic waste will be stored and disposed of separately from other construction materials/debris. ▪ State of Oregon requirements will be followed.	
Installation	Apply standard as needed.
Maintenance Requirements	Should a spill occur, it will immediately be cleaned up using approaches that do not require site wash down. Emergency spill kits will be kept within close proximity to areas where hazardous materials are stored or used.
Design Specifications	NA

5.5.5 Construction and Domestic Waste

General
- Disposal receptacles will be placed in proximity to active work sites and emptied as needed. Construction debris will be emptied as needed at an approved landfill site.

5.5.6 Sanitary Waste

Specific Pollution Prevention Practices

Portable Toilets	
Portable toilets will be placed in proximity to each work area. Each will be positioned at least 100 feet from any waterway	
Installation	Upon initial mobilization to each site.
Maintenance Requirements	Inspect and maintain daily.

Design Specifications	NA

5.6 Washing of Applicators and Containers used for Paint, Concrete or Other Materials

Instructions (see CGP Parts 2.3.4 and 7.2.6):

– Describe how you will comply with the CGP Part 2.3.4 requirement for washing applications and containers.

General

- All washout of concrete trucks, containers or applicators will be completed in designated concrete washout areas. No excess concrete will be dumped at the site.

Specific Pollution Prevention Practices

Concrete Washout	
▪ Drip pans a ground cloths will be used beneath extraction points from concrete mixing equipment. ▪ Portable prefabricated concrete washout containers (e.g. buckets, tubs, Eco pans) will be used onsite. All cleaning of concrete mixers, troughs, pumps and containers will be done in a predesignated washout container, which will be removed for proper offsite disposal at the end of the project. ▪ Small concrete handling equipment (hand tools, shovels, rakes, trowels, etc.) may be washed in a formed area awaiting concrete pour or in a washout container.	
Installation	Washout containers will placed a minimum of 50 feet from any watercourse, wetland or sensitive area.
Inspection Maintenance Requirements	▪ Inspect concrete washout containers daily and check for capacity (maintain minimum freeboard of 12 inches) and leaks. ▪ Washout containers should be taken offsite for disposal or emptied once they are 75% full. ▪ Full containers can be disposed of offsite or concrete can be allowed to harden, the concrete can be broken up, removed and disposed of per applicable solid waste regulations.
Design Specifications	NA

5.7 Fertilizers

Instructions (CGP Parts 2.3.5 and 7.2.6.ix):

Describe how you will comply with the CGP Part 2.3.5 requirement for the application of fertilizers.

General

- Not applicable

5.8 Other Pollution Prevention Practices

Instructions:

Describe any additional pollution prevention practices that do not fit into the above categories.

General

- None