

**Construction Management Plan
Carmen-Smith Hydroelectric Project
FERC Project No. 2242**



Eugene Water & Electric Board

October 2019

INTRODUCTION

Pursuant to the 2016 Settlement Agreement (SA), Exhibit A, License Article 16 and the May 2019 License, Eugene Water & Electric Board (EWEB) is required to develop a Construction Management Plan (CMP) applicable to construction activities within the Project.

The Scope and Purpose of this (CMP) is to create a programmatic framework for safe and efficient execution of construction projects, for communicating responsibilities and resolving construction related issues amongst the appropriate parties, and for identifying and mitigating construction related impacts to workers, the public, and the environment. As discussed in the March 2019 EWEB memo to Settlement Parties, specific responses to the thirteen SA Article 16 items for specific projects at specific locations during specific times of the year is beyond the scope of this document given the status of facility designs and the six-month timeline for Fish Working Group (FWG) approval and submission to FERC. EWEB anticipates project specific construction management and operational procedures addressing specific SA Article 16 performance measures (items *a, k, m* below) will be developed at the 60% design stage, and incorporated into the construction specifications for each project. Project specific construction management, operational procedures, plans, or any other documentation addressing specific SA Article 16 performance measures and the 13 specific items listed in SA Article 16 will be subject to FWG review and approval by the Fish Agencies and USDA Forest Service, consistent with the intent of the SA Article 16. In the CMP sections below, EWEB will provide as much detail as is feasible and available with certainty at the time of this writing.

The March 2019 EWEB memo to the Fish Working Group (FWG), states, in part, the following:

The CMP would [will] detail the minimum requirements for all actions, and provide direction to project managers and contractors in their development of project drawings, plans, specifications, sediment and erosion control plans, detailed action-specific Quality Control and Inspection Program (QCIP) plans (which must be filed with FERC approval), and other project-specific construction plans.

The elements of this CMP and the subsequent specific plans for individual construction projects will comply with Oregon Department of Environmental Quality's (ODEQ) water quality certification(s), pursuant to Section 401 of the Clean Water Act; the Biological Opinions (BO) from National Marine Fisheries Service (NMFS) and US Fish and Wildlife Service (USFWS); best management practices (BMP) contained in the NMFS BO and standard in the Joint Permit from the Army Corps of Engineers (the Corps) and Oregon Department of State Lands (ODSL) including the 404 in-water construction permit used to protect both biological and ecological resources.

SA ARTICLE 16 ITEMS AND GENERAL APPROACH

Article 16 Construction Management Plan criteria (in italics), and EWEB's general approach to addressing each of the 13 performance criteria are as follows:

Within 6 months after license issuance, the Licensee, in consultation with the Fisheries Work Group and subject to approval by the Fish Agencies, USDA Forest Service and Oregon Department of Environmental Quality in accordance with their statutory authorities, shall develop and file with the Commission for approval a construction management plan for construction activities at the

Project pursuant to the new license. Following Commission approval, the Licensee shall implement the plan

The plan shall address the following:

a) Measures designed to minimize adverse impacts in turbidity and other water quality parameters in the reservoir and downstream of Trail Bridge Dam during reservoir drawdown and construction periods.

Control of discharges to any water body are general requirements for all construction projects and are standard language in EWEB construction contracts. Division 1 Specifications (Construction Specifications Institute) are a standard part of a contract and require compliance with a broad range of environmental protection measures. For example, the Division 1 Specifications require the general contractor to apply for and comply with required ODEQ Stormwater Permit (NPDES 1200C) which shall include a site specific Erosion Control and Spill Response Plan that includes best management practices (BMP). EWEB also ensures that specific criteria and mandatory conditions (e.g. turbidity) referenced in the documents listed below will be applicable to all construction under this CMP and incorporated into all project specific Division 1 Construction Specifications. These reference documents shall include:

- NMFS Biological Opinion
- USFWS Biological Opinion
- The DEQ Water Quality Certification
- Specific construction project permits (e.g., Corps 404 and OSDL) and ODEQ Water Quality Certifications

The above reference documents have overlapping criteria and performance standards which results in complete coverage of measures *to minimize adverse impacts in turbidity and other water quality parameters*. Approval of measures by members of the FWG will be afforded both through consultation and approval of specific project plans (in accordance with the SA) and through review and comment of permit and certification issuance from their respective agencies.

Specific prescriptions for the control and management of turbidity and water quality for individual projects are dependent on the specific location and construction details of the specific project, and are beyond the scope of this Construction Management Plan.

b) Maximum allowable increases and decreases in water surface levels in the McKenzie River downstream of Trail Bridge Dam during reservoir drawdown and construction periods.

Ramping rates for the McKenzie River during drawdown of Trail Bridge Reservoir for specific construction projects will be consistent with Section 4.4.3 of the Aquatics Management Plan (AMP), as described here:

1. Trail Bridge Reservoir drawdown(s) for the purpose of implementing projects in the SA, will be considered scheduled maintenance and therefore subject to a river ramping rate of 0.4 ft/hr at the Trail Bridge USGS gage. As per AMP Section 4.4.3, EWEB will notify the FWG two weeks prior to utilizing this maintenance ramp rate.
2. If EWEB determines that a ramp rate higher than 0.4 ft/hr is needed, EWEB will develop, in consultation with and submit with the approval and support of the FWG and the Fish Agencies and USDA Forest Service, a waiver request to FERC (which could be modified with mitigation measures) measures.

c) Fish salvage, including relocation or deposit of salvaged fish, during reservoir drawdown and construction periods.

Fish salvage will be done consistent with the terms and conditions outlined in the USFWS and NMFS Biological Opinions (USFWS 2018, NMFS 2018). Key procedures to be followed include:

- Conducting salvage under the supervision of a fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish.
- Using approved methods for safe and effective capture and relocation of aquatic species including hand-held dipnet sweeps, beach seining, and electrofishing along with coolers, aerators, and timely transport to the nearest safe reservoir or riverine habitat.
- All fish will be counted and recorded with condition at time of capture and release. All captured brook trout will be removed in accordance with direction provided by Oregon Department of Fish and Wildlife (ODFW).

EWEB will develop specific construction plans for individual projects in consultation with the FWG and subject to approval by the Fish Agencies and USDA Forest Service. In each plan, EWEB will identify and describe conditions where observation for stranding and salvage operations will be needed and propose specific salvage methodologies and timing. In general, reservoir drawdowns below the normal operating range in Trail Bridge will necessitate salvage planning as will the construction of any cofferdam. The need for salvage operations in Smith and Carmen Diversion reservoirs will be evaluated in consultation with the FWG, and subject to approval by the Fish Agencies and USDA Forest Service, during development of construction plans.

The USFWS and NMFS Biological Opinions include fish salvage, and thus ESA Section 10(a)(1)(A) scientific collection permits will not be required. However, a Scientific Taking Permit will need to be obtained from ODFW for capture, handling, and relocation of all non-ESA fish and other vertebrate species collected during fish salvage operations.

d) Interim fish passage measures for up and downstream native migrant fish at Trail Bridge Dam during reservoir drawdown and construction periods.

For interim up and downstream fish passage at Trail Bridge Dam during construction of Trail Bridge fish passage facilities, EWEB will adhere to SA Section 2.9.2 Interim Measures:

#6 EWEB shall continue to fund Oregon Department of Fish and Wildlife for interim upstream bull trout passage at Trail Bridge Dam, consistent with the existing Eugene Water & Electric Board /Oregon Department of Fish and Wildlife Intergovernmental Agreement # 13-0007, effective July 1, 2013 through June 30, 2018 until such time that the permanent trap and haul facility at Trail Bridge Dam is operational.

#7 Based on seasonal available water flow and existing equipment capabilities, EWEB shall implement the interim downstream passage flows at Trail Bridge Dam, as generally described in Table 2.9 below. Interim downstream passage began in 2016 and shall continue until upstream and downstream fish passage has been completed as required in Exhibit B, AMP Sections 4.1.2 and 4.1.3. During construction of upstream and downstream fish passage, interim downstream passage flows described in Table 1 below will be implemented as practicable.

Table 1. Table of Interim Downstream Passage Flows at Trail Bridge Spillway

Time Period	General Flow Pattern	Minimum turbine flow	Gate opening	Notes
March – mid-September				
Mar - Jun	High fluctuating	650 cfs	6"	Gate open when flows are > 1050 cfs. Gate moved no more than 2x per week.
Jun - Jul	High but falling	650 cfs	6"	Likely timeframe for flows to drop below 1050 cfs for the summer. Likely timeframe for Trail Bridge turbine outage- all flow through spillway for 1-2wks.
Aug – mid-Sept	Low stable	650 cfs	6"	Likely gate will be closed due to flows <1050 cfs.
Mid-September – October				
Mid-Sept - Oct	Low stable	650 cfs	0"	If >1050 cfs, gate will be closed before hatchery Chinook are placed in Trail Bridge Reservoir.
November – February				
Nov – Feb	High fluctuating	Full generation	0"	No spill for purposes of fish passage. Normal operations.

e) *Interim fish passage measures for up and downstream native migrant fish at Sweetwater Creek Culvert during reservoir drawdown and construction periods.*

EWEB will maintain Trail Bridge Reservoir at a minimum elevation of 2,083 feet from 15 August to 31 October as required by SA Interim Measure 4, except as allowed by this CMP.

EWEB will plan and schedule all construction efforts requiring drawdown below 2,083 feet to take place outside the above referenced timeframes, to the extent feasible based on construction needs, allowable in-water work windows, weather, and other considerations. If a construction related drawdown below 2,083 feet cannot practically be avoided, during the 15 August to 31 October window, EWEB will, in consultation with the FWG, and subject to approval by the Fish Agencies and USDA Forest Service, develop a plan to provide upstream bull trout passage into Sweetwater Creek during the time Trail Bridge Reservoir is below 2083 feet. In the event of an unexpected drawdown or continuation of a drawdown below 2083 feet between 15 August and 31 October, EWEB will:

- expedite construction and minimize the time period when the reservoir is below elevation 2083,
- provide a 10 business day notice to the FWG of the impending timing, duration, and reason for the drawdown,
- authorize the contractor to work special work hours outside Standard Construction Scheduling, as defined in AMP section 2.1.1, to expedite completion of the work requiring the drawdown,
- develop a plan, in consultation with the FWG, and subject to approval by the Fish Agencies and USDA Forest Service, to provide manual fish passage using trap (net-pen) and haul or other methods agreed to in consultation.

For downstream passage, the drawdown elevation which would necessitate a culvert extension is unknown at the time of this writing due to gaps in bathymetry data in the vicinity of the Sweetwater Creek culvert. EWEB will pursue further investigation and if it is determined that sufficient water depth at the culvert

outfall does not exist for a drawdown, EWEB will, in consultation with the FWG, and subject to approval by the Fish Agencies and USDA Forest Service, develop a plan to provide safe downstream passage from Sweetwater Creek during the time Trail Bridge Reservoir is drawn down.

f) Routing of water for the entire Project during reservoir drawdown and construction periods, including Bypass Reaches.

The general scope of this Article 16 provision f) is addressed more specifically in items b), g), h), and j) and by specific bypass reach flow requirements in AMP section 4.2.3 (Smith Bypass Reach), section 4.2.1 (UCBR), and by interim downstream passage flows at Trail Bridge Spillway found in Table 1. Routing of Project water – i.e., water entering, retained in or released from Smith Reservoir, Carmen Diversion, or Trail Bridge Reservoirs during drawdown and construction for any particular project is an operational issue requiring close coordination between powerplant operations and specific discrete construction activities. This general CMP assumes that reservoir level management and water routing during reservoir drawdown and construction periods will be managed by EWEB personnel using standard protocols and existing facilities (e.g., penstock/turbine, spillways and existing bypass pipes, diversions, and release structures) with discharges to existing downstream pathways. In most cases, a project specific Reservoir Operations and Water Routing Plan will be necessary to ensure efficient coordination between power generation operations, and construction personnel. Therefore, the project specific Reservoir Operations and Water Routing Plan will be determined as a key initial activity after contract award and before mobilization of contractor personnel for active construction of the particular project.

The key issues with Project water routing during drawdown and construction are: 1) maintaining minimum flows for habitat and fish survival in the reaches below the reservoirs, 2) adherence to ramp rates, 3) minimize flow impacts during sensitive times of spawning and incubation, 4) ensuring construction operations are not accidentally inundated during reservoir fluctuations, and 5) allowing continuous power generation to the extent practicable. The general operational strategy for routing water during drawdown and construction is as follows:

1. Prepare a project specific Reservoir Operations and Water Routing Plan, addressing the following:
 - a. Pool elevation (draw down level) necessary for construction.
 - b. Expected time frame and seasonal flow and weather conditions for the drawdown /construction window.
 - c. Starting maximum pool elevation of other reservoirs, if those reservoirs will also be drawn down to establish a contingency storage capacity.
 - d. Minimum required flows in the Smith and Lower Carmen bypass reaches during the construction period. These construction period minimum flows will adhere, as applicable and to the extent practicable, to the flow requirements specified in the SA and License. EWEB anticipates fish passage construction at Trail Bridge Dam to be substantially complete before bypass reach flow requirements are implemented.
 - e. Guidelines for maximum flows dependent of weather conditions and time of year.
 - f. Routing plan to maintain drawn down condition under normal condition (no significant storms or power plant outages expected) based on analysis of historical operating data.
 - g. Contingent routing plan if minor storms or power plant outages occur.

- h. Contingent plan for shutting down construction during extended storms or power plant outages.
2. Execute and maintain drawdown using existing equipment and facilities (spillways, stop logs, weirs, release structures, turbines, etc.) to minimize inflow and/or maximize outflow from the reservoirs as required for the particular construction effort in progress.
3. Balance and adjust power generation at the Carmen and Trail Bridge powerhouses and spillways to achieve criteria 1 and 2 above.
4. If a storm event or pending storm, transmission line outage, or other event occurs, implement contingent routing plan(s).
5. Return reservoirs and water routing to normal operations as soon as possible following allowable ramp rates or as approved by the Fish Agencies and USDA Forest Service in subsequent plans and documentation under this CMP and in a waiver filing with FERC.

Trail Bridge Reservoir drawdowns will be managed by balancing inflows from the Smith Bypass Reach, the McKenzie River (including spill at Carmen Diversion Dam), Sweetwater Creek, and the Carmen powerhouse with outflows through the Trail Bridge powerhouse and spillway.

For a Smith Reservoir drawdown, pool elevations can be managed and maintained by flow through the Carmen powerhouse, closing the Carmen Diversion tunnel, utilizing the Smith spillway or combinations thereof.

For a drawdown of Carmen Diversion, pool elevations can be managed by removing stoplogs to increase sluiceway discharges, by lowering Smith Reservoir to allow greater flow through the diversion tunnel, by adjusting diversion tunnel bulkheads, or all three.

g) Maximum allowable increases and decreases in water surface levels in Trail Bridge Reservoir during reservoir drawdown and construction periods.

Drawdown of Trail Bridge Reservoir prior to construction efforts shall meet the ramp rates identified in AMP Section 4.4.1.1.(2)(a), or as otherwise agreed to in consultation with the FWG and subject to approval of the Fish Agencies and USDA Forest Service. Minimum pool elevations required for a specific construction project or task will vary depending on the construction effort, and will be identified during the design of the project, generally based on constructability and dam safety issues. Minimum pool elevation shall be included in the project specific Reservoir Operations and Water Routing Plan. Where dam safety or constructability issues are determined to not apply, minimum water surface levels (e.g., maximum drawdown) shall be established at the highest reasonable pool elevation that keeps construction equipment out of the water.

This CMP assumes Trail Bridge Reservoir will be drawn down to the elevation needed to complete the necessary construction and remain at that elevation only until the necessary construction effort is complete. Once construction is complete and it is safe to do so, the reservoir will be brought back to normal operating range.

Maximum water surface elevations during construction will not exceed 2090', the maximum for normal operations.

Minimum water surface elevations needed for construction purposes will be determined after the 60% design stage. A final Reservoir Operations and Water Routing Plan will be determined after awarding the construction contract and before mobilization to the site.

h) Contingency actions to maintain adult native fish access to Bypass Reaches from Trail Bridge Reservoir if reservoir drawdown restricts access.

This provision applies to the Smith Bypass Reach and the Lower Carmen Bypass Reach of the McKenzie River upstream of Trail Bridge Reservoir, and only applies to drawdowns below the normal, authorized low water operating elevation of 2078 feet. Drawdown (lowest elevation) needed for construction is thought to be approximately 2058.5 (2 feet below Trail Bridge spillway crest elevation), but could go as low as 2055 with further development of designs and construction planning. Contingency actions for adult fish access to the Smith and Lower Carmen bypass reaches for the first drawdown below elevation 2078 shall include the following:

- 1) EWEB will monitor the historic Smith River and McKenzie River channels as they are exposed during the first drawdown below elevation 2078, and reasonably determine if sediment deposition, boulders, woody debris, or other materials are blocking access for adult native fish. EWEB shall document channel conditions and evaluate for blockages, by measuring depth and velocity as contiguous percent and cumulative percent.
- 2) If blockages ARE NOT reasonably determined to exist, EWEB shall document this condition in a Technical Memorandum presenting the findings from the depth and velocity measurements described above and distribute the memo to the Fish Working Group.
- 3) If blockage ARE reasonably determined to exist, EWEB shall document the extent and type of blockages. This is most likely to occur across the substantial gravel deposit at the mouth of Smith River.
- 4) In the event of a passage blockage, EWEB will propose remedies within 5 days of documenting a blockage, and develop a plan, in consultation with the FWG and subject to approval by the Fish Agencies and USDA Forest Service to provide passage. Depending on timing EWEB may request expedited FWG review in accordance with SA-License Article 1(c). Potential remedies include but are not limited to increased flow in the Smith Bypass Reach and excavation.

i) Contingency actions to address loss of native fish production during reservoir refill, if warranted.

In the context of this action item, loss of native fish production can occur when spawning occurs in the reservoir draw down zone and the redds are subsequently inundated upon reservoir refill. This is primarily an issue for Chinook salmon and bull trout affected in Trail Bridge reservoir, but could also affect native cutthroat trout during drawdowns of Carmen Diversion and Smith reservoirs.

EWEB anticipates that the draw down at Trail Bridge Reservoir will affect a single spawning season. Lowering of the reservoir may expose substrate suitable for native fish spawning at the mouths of both Smith and McKenzie (LCBR) rivers. In 2004, Stillwater Sciences identified spawning habitat suitable for bull trout and spring Chinook salmon within the normal fluctuation zone of Trail Bridge Reservoir in the LCBR. Spawning habitat at the Smith delta within the normal fluctuation zone has not been specifically evaluated. Lowering the reservoir below 2078 will expose additional gravel, however, the suitability of that gravel for spawning is unknown.

For the past several years, placement of adult Chinook above Trail Bridge Dam has occurred only at the top of Smith bypass reach using very ripe fish toward the end of the spawning season. The objective of this is to foster spawning in-place and as soon after placement as possible. During this time, no adult Chinook have been placed in the Lower Carmen Bypass Reach or in Trail Bridge Reservoir, although combinations of

egg box/egg injection and fry placement have occurred. If this practice continues through the period of fish passage construction, EWEB anticipates there will be no fish spawning in the Trail Bridge Reservoir inundation zone and therefore, no loss of production due to reservoir refill.

As part of any construction plan involving the drawdown of Trail Bridge Reservoir, EWEB will, in consultation with the FWG, and subject to approval by the Fish Agencies and USDA Forest Service, develop measures to address the potential loss of fish production.

j) Provision of interim flows of at least 30 cfs from Carmen Diversion Dam into upper Carmen Bypass Reach when reasonably practicable (e.g., not restricted by activities in the Carmen Reservoir and Upper Carmen Bypass Reach) prior to implementation of flows of 30 cfs under Section 4.2.1.1 of the Aquatics Management Plan.

Currently (June 2019), Carmen Diversion Reservoir is drawn down to elevation 2621 feet or less, by order of FERC Portland Regional Office of Dam Safety. The former normal operating elevation was up to 2625 feet with spill occurring at that elevation and above. During the current drawn down state, flow is managed by stop-log manipulation in the sluice bays. EWEB is currently releasing 30 cfs or more and will continue to release approximately 30 cfs when reasonably practicable (e.g., not restricted by activities in the Carmen Reservoir and Upper Carmen Bypass Reach). EWEB will notify the FWG at least 10 business days before any activities that interfere with the release of 30 cfs.

k) Public or other authorized uses in and around construction sites and Project areas affected by construction, and related public safety and associated risks.

Public access to Trail Bridge Campground and Smith Reservoir is currently closed through 2021 for Carmen powerplant and campground construction. Public access via vehicle to Carmen Diversion Reservoir, including the day use area is closed through 2020 due to the draw down and construction activity related to dam safety concerns. Both of these closures were made in consultation with the USFS and are administrative Forest closures.

EWEB will work with the USFS and other interested parties to protect public safety by closing construction areas. Public notice will be made in coordination with the USFS as noted below in item *m*).

l) Authorization for use and occupancy of National Forest System lands outside of the Project Boundary needed during construction activities.

License Article 24 requires execution of an Intergovernmental Agreement (IGA) within 1 year following license issuance, and before occupancy or any ground disturbing activities (aka construction) occurs within the Project Boundary. Outside the Project Boundary, Article 24 envisions a Special Use Permit as a minimum, potentially an IGA amendment, and site specific plans that include an alternative locations analysis, biological assessments, and NEPA analyses, all of which are subject to USFS review and approval. The extent to which lands outside of the Project Boundary will be needed for construction has greatly diminished due to the changes in fish passage facilities. As currently envisioned, EWEB believes sufficient geologic and construction waste areas exist within the Project Boundary that no new areas are needed.

For a particular construction project, if areas outside the Project Boundary are identified as needed, an IGA Amendment or other process as identified in the Roads, Waste Areas, and Staging Areas Management Plan will be pursued prior to the completion of design documents.

For the purpose of this CMP, all construction activities, including the location of staging, laydown, and waste management areas, shall be shown on project drawings and specified within the Construction Specifications as occurring within the Project Area. As a sole exception to this rule, undesignated short term usage and occupancy of previously disturbed areas within the NFS and outside the Project Area, may be administratively approved by local USFS staff.

m) Public education and outreach regarding construction activities and alternative recreation access sites in coordination with the USDA Forest Service.

Public education and outreach for construction activities and alternative recreation site access shall be performed by EWEB personnel in cooperation and coordination with USDA Forest Service. EWEB's public outreach during ongoing construction activities will continue similar to current levels of outreach for the construction projects at the Carmen powerplant and Carmen Diversion Reservoir. Examples of this outreach include:

- Press releases from both EWEB and the Forest Service
- Posting Project area closures and information on social media and EWEB and Willamette NF websites
- Highway reader boards
- Signage in and around the Project

EWEB shall develop, implement and maintain a communications strategy to provide timely public education and outreach regarding specific construction activities that will limit recreational access to areas within the license boundary.