

Kiewit Infrastructure West Co.  
Klamath River Renewal Project  
Technical Specifications

## 31 80 00 – CARE OF WATER

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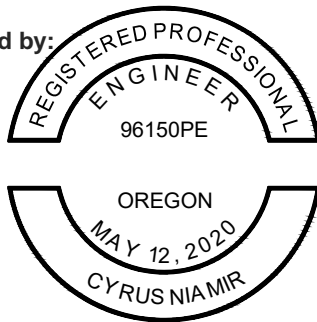
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### REVISION INDEX

Revision No.	Signatures				Date (MMDDYY)	Pages Revised	Remarks
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Approval that this document adheres to the Knight Piésold Quality System:

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### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This specification applies to the works related to Care of Water including but not limited to control of water for temporary work below the normal river water level with the purpose of creating a dry work area for construction activities. This includes construction and operation of:
  - 1. River diversions, work platforms and cofferdams.
- B. Site dewatering and water control include water collection, diversion, containment and pumping activities are described in Section 31 23 00 – Excavation and Fill Placement and 31 25 00 – Erosion and Sedimentation Controls.

#### 1.2 RELATED SECTIONS

- A. Section 02 41 00 – Demolition and Facility Removal.
- B. Section 31 05 00 – Materials for Earthwork.
- C. Section 31 23 00 – Excavation and Fill Placement.
- D. Section 31 25 00 – Erosion and Sedimentation Controls.
- E. Section 31 60 00 – Foundation Preparation.
- F. Section 31 71 00 – Tunnel Construction.
- G. Section 32 50 00 – Roads and Bridges.

#### 1.3 REFERENCE STANDARDS – NOT USED

#### 1.4 DEFINITIONS

- A. **Cofferdam** –Earthfill structure used to provide a dewatered area for construction activities. The Cofferdam may be a historic pre-existing structure.
- B. **Work Platform** – Platform built in Klamath River or portion of embankment left-in-place during removal which is used to provide dry access to or a dewatered construction area.

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- C. **Historic Diversion Dam** – Historic earthfill structure located immediately upstream of the Copco No. 2 intake. There are no technical requirements for this structure.
- D. **Diversion Period** – Period during which the Klamath River is diverted by work platforms and cofferdams.
- E. **Drawdown** – Period during which the facility reservoirs are drawdown to provide access to appurtenant hydraulic structures.
- F. **Final River Channel** – Final excavation lines and grades of Klamath River in areas of embankment, dam, and cofferdam removal.

### 1.5 SUBMITTALS

- A. Items listed in this section are to be submitted to the Engineer for information prior to the start of any Works, unless noted otherwise.
- B. Work Plan and Schedule: Details of in water works methodology and timeline for review and approval by the Engineer prior to commencement of phased embankment, dam, cofferdam, or work platform removal and/or construction.
- C. Flow Monitoring Plan: Methods for providing real-time reservoir inflow data for review and approval by the Engineer.
- D. Reservoir Manipulation Plan: Agreement/planning document describing the use of the upstream project (Keno) and manipulation of reservoir inflows for review and approval by the Engineer.
- E. Maintenance and Surveillance Plan: Develop a maintenance and surveillance plan for all work platforms and cofferdams for review and approval by the Engineer.

### 1.6 QUALITY ASSURANCE

- A. Work shall be performed in conformance with the Drawings, submittals, and other project documents.

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### PART 2 - PRODUCTS

#### 2.1 EQUIPMENT

- A. Equipment shall be the responsibility of the Contractor.

#### 2.2 MATERIALS - NOT USED

### PART 3 - EXECUTION

#### 3.1 GENERAL

- A. The Contractor shall not commence removal or breach of the work platforms or cofferdams until the final river channel construction, including placement of Erosion Protection (E7) material is complete.
- B. Work initiating a breach shall only be commenced with prior written confirmation from the Engineer.
- C. All work located within the Klamath River and below the applicable flood water level shall meet the applicable Federal, State and local codes and regulations.

#### 3.2 COFFERDAM REQUIREMENTS

- A. Cofferdams include the J.C. Boyle historic cofferdam, Copco 1 historic cofferdam, Iron Gate historic cofferdam and extended cofferdam, and the Iron Gate Downstream Toe Berm.
- B. Cofferdam locations and integrity may vary from those assumed on the Drawings and design documents. All cofferdams utilized for river diversion during construction shall be inspected and approved by the Engineer following drawdown and prior to use.
- C. The Contractor shall determine specific cofferdam requirements for each of the above listed locations and if additional construction is necessary for the cofferdams to meet these requirements.
- D. If bypass pumping is necessary, all pumps shall have sufficient capacity to control the upstream water level at peak design flow of the cofferdam.

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1. The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.

### 3.3 WORK PLATFORM REQUIREMENTS

- A. Work Platforms include all structures labelled as work platforms and the Iron Gate Spillway Access Tracks.
- B. Work platform locations and alignments may be varied by the Contractor to suit the Contractor's construction planning, means and methods, provided the following requirements are strictly satisfied:
  1. Work platform top elevations remain unchanged.
  2. Work platform slopes and minimum crest widths remain unchanged.
  3. All changes are approved by the Engineer prior to construction.
- C. Work platforms shall provide access for the design construction vehicle load and resist piping and internal erosion. Work platforms exposed to high velocity flowing water or susceptible to erosion shall be stabilized to reduce the potential for erosion.

### 3.4 RIVER DIVERSION

- A. The Contractor shall develop a debris management plan to ensure the river diversions function as designed.
- B. River diversions to be monitored during drawdown, operations and following storm events.
- C. Debris management to be implemented as required.

### 3.5 SEEPAGE AND CARE OF WATER

- A. Seepage shall be controlled or diverted for the full diversion period as required so that erosion of cofferdams or work platforms does not take place.
- B. The Contractor is responsible for the extent of dewatering required to perform the construction work in the dry.

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- C. Sumps and dewatering pumps may be provided to keep excavations and fill placement occurring as per Section 31 23 00 – Excavation and Fill Placement and foundations per Section 31 60 00 – Foundation Preparation.
- D. All excavations and placement of fills occurring in-River requires the development of an in-River Placement Plan. Methods are the responsibility of the Contractor, to be approved by the Engineer.

### 3.6 HYDRAULIC CONDITIONS AND PLANNING

- A. The design water levels and associated flows are presented on the Hydrotechnical Drawings.
- B. The Cofferdam and Work Platform crest elevations, including freeboard, are minimum requirements.
- C. The Project Area is located downstream of the Keno Dam/Link River Dam and planning document shall be developed to manipulate inflows to the project Area during the drawdown year.
- D. All drawdown and construction scheduling requirements are to adhere to the drawdown staging and embankment removal staging as shown on the Drawings and in the Design Report.

### 3.7 MAINTENANCE AND SURVEILLANCE

- A. The Contractor shall prepare and implement a Maintenance and Surveillance Plan for each cofferdam or work platform for the detection, prevention, and correction of issues in order to ensure the safety of all personnel and the construction area.
- B. Notification and communication to the Engineer is required in all emergency situations related to Care of Water.

### 3.8 COFFERDAM CONTROLLED BREACH

- A. The partial removal of material from the cofferdams or work platforms will limit the cofferdam ability to resist high water levels and other design loads.
- B. All controlled cofferdam breach shall be monitored, surveyed, and maintained in accordance with the Drawings.



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### 3.9 REMOVAL OF COFFERDAMS AND WORK PLATFORMS

- A. Removal of a Cofferdam or Work Platform shall be to the lines and grades as shown on the Drawings.
- B. Removal of a Cofferdam or Work Platform can only commence following inspection and approval of the structures and construction located within the associated work areas by the Engineer.
- C. The excavations required for removal shall comply with Section 31 23 00 – Excavation and Fill placement.

END OF SECTION 31 80 00