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**Columbia River Project Water Use Plan**

**Kinbasket and Arrow Recreation Management Plan**

**Physical Works Terms of Reference**

**CLBWORKS-5B Valemount Boat Launch Maintenance**

**May 31, 2019**

## CLBWORKS-5B Valemount Boat Launch Maintenance Physical Works Terms of Reference

### 1 Background

#### 1.1 Introduction

Under Clause (m) of Conditional Water Licence 27068, BC Hydro is required to provide access to the Kinbasket Reservoir. Pursuant to Columbia Water Use Plan (WUP) Schedule A, 4(a)(iv) the feasibility study for the access options at Valemount Marina was completed under CLBWORKS-18 Feasibility of Boat Ramps (report dated October 5, 2007). Following the feasibility study, the Comptroller of Water Rights (CWR) approved upgrades to the facilities at the Valemount Marina under CLBWORKS-5A. As part of the upgrades, BC Hydro replaced the existing concrete ramp and replaced it with a new two-stage ramp with turn-around in 2013, and replaced the boarding floats in 2016.

The purpose of this Terms of Reference (TOR) is to outline BC Hydro's approach and scope of work for maintenance of the Valemount boat launch (Figure 1).

**Figure 1: Valemount boat launch; May 16 2014. Reservoir elevation: 726.4 m (2383.2 ft)  
Lat: 52°40'43.95"N Long: 119°01'27.17"W**



## 1.2 Location

The Valemount boat launch<sup>1</sup> is located on the east shore of the Kinbasket Reservoir, at the Valemount Marina. Access to the boat ramp, used for public recreational access to the reservoir, is approximately 24km off of Highway 5 via a forest service road.

The location of the Valemount boat launch is shown below in relation to the town of Valemount.

Figure 2: Valemount boat launch



## 1.3 BC Hydro's approach to boat launch maintenance

BC Hydro will undertake structural and routine maintenance of access-related facilities at boat launches where BC Hydro has licence or Water Use Plan responsibilities.

In some locations, additional non-access facilities may have been constructed or upgraded as part of the boat launch upgrade projects. Typically, the Park Operator or land owner will hold the responsibility for maintenance of these non-access facilities as part of their crown Licence of Occupation or tenure and would be specified in their Crown Management Plan responsibilities. However, in a few instances where there is no other operator and BC Hydro holds the right and responsibilities by tenure or by the Licence of Occupation, then BC Hydro will additionally take on the maintenance (structural and routine) of these non-access facilities.

These terms are defined below:

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<sup>1</sup> The term 'boat ramp' refers to the concrete or gravel ramp used to access the reservoir. 'Boat launch' is used more broadly to refer to all related facilities, including the ramp, walkways, breakwaters, etc. and may include other non-access related facilities such as a parking lots, etc.

- **Access-related facilities** are defined as those structures and facilities that provide safe access to the reservoir (i.e., ramps, low-water turnarounds, breakwaters, and boarding floats).
- **Non-access-related facilities** are defined as those structures and facilities that provide related infrastructure adjacent to the boat launch but are not directly related to access (e.g., day use areas, parking lots, access roads, toilets, etc.).
- **Structural maintenance** refers to work that occurs at infrequent intervals to ensure the physical facilities are structurally sound and are functioning as intended (i.e., to ensure safe access to the reservoir). Examples would include, repair of a major crack that has formed in a ramp, replacing breakwaters when they can no longer be effectively repaired, etc.
- **Routine maintenance** refers to the work that must occur on a routine and regular basis such as annual activities in preparation for the recreation season, or throughout the recreation season, as required. For access-related facilities this includes, for example, debris or sediment removal, replacing safety signs, and any pre-season repairs to walkways or breakwater bumpers. For non-access related facilities, this may include garbage removal, toilet pumping, etc.

#### 1.4 Maintenance period

BC Hydro will ensure that routine and structural maintenance of the access-related facilities at Valemount will occur so that the general public have safe access to the reservoir for the peak recreation season, and during the spring and fall shoulder recreation seasons when the ramp is available for launching. For the Kinbasket reservoir, these periods are defined as follows:

- Peak season: June 15 to September 15;
- Spring shoulder season: May 24 to June 14; and
- Fall shoulder season: September 16 to September 30.

In the event that a significant safety issue arises at the Valemount boat launch outside of the maintenance period, then BC Hydro will use reasonable efforts to ensure the site is secured until the hazard can be removed or mitigated.

## 2 Valemount boat launch maintenance

### 2.1 Area of responsibility

The Valemount boat launch sits within the Valemount Marina. The Valemount Marina Association maintains the non-access related facilities (e.g., toilet, parking lots, etc.) under agreement with Recreation Sites and Trails BC. BC Hydro is responsible for the structural and routine maintenance of the access-related facilities as shown in Table 1 below.

**Table 1: Facilities at Valemount with BC Hydro’s maintenance responsibilities**

Mooring Floats*	Access Road	Parking Lot	Toilet	Lower Turn Around	Concrete Ramps	Boarding Floats	Southern Rock Breakwater	Northern Breakwater**
Non-access related facilities				Access-related facilities				
X	X	X	X	BCH	BCH	BCH	BCH	BCH

BCH = BC Hydro will undertake maintenance (both structural and routine)

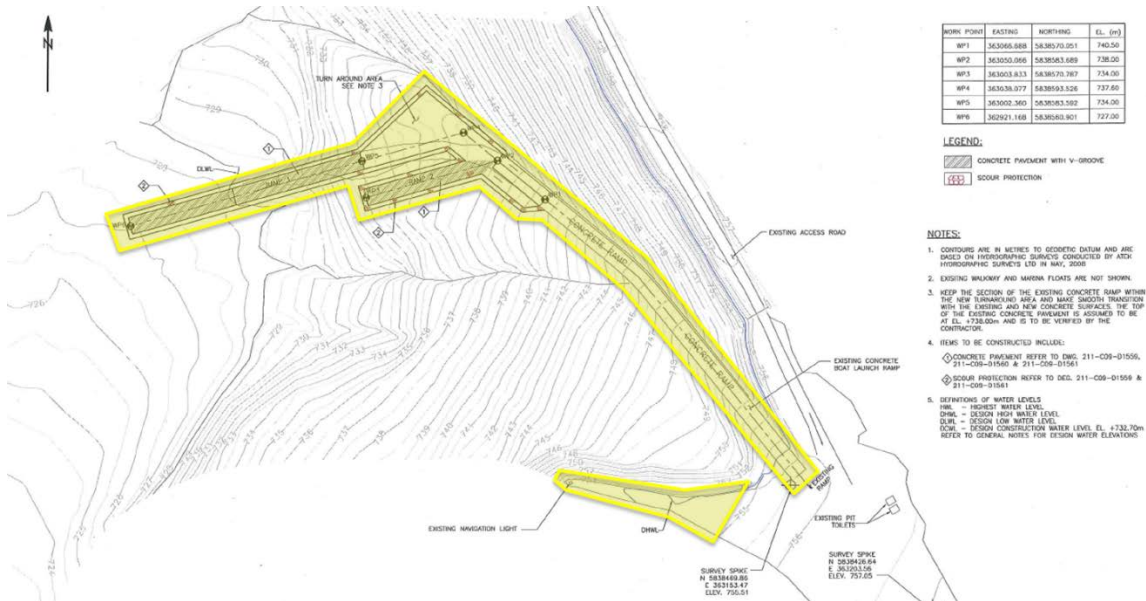
X= Asset exists but are not to be maintained by BC Hydro

\*Valemount Marina Association operates a number of mooring floats that are located adjacent to the ramp.

\*\*To be constructed under CLBWORKS-5A.

The yellow highlighted area shown in Figure 3 represents BC Hydro's area of responsibility for the Valemount boat launch. This polygon is provided to give greater clarity and certainty on which parts of the launch comprise BC Hydro's ongoing obligations under Clause (m) of CWL 27068.

**Figure 3: Valemount boat launch. Yellow highlights represent BC Hydro's area of responsibility for facility maintenance. Not indicated below is the northern floating breakwater which is still to be constructed.**



## 2.2 Facilities to be maintained

Table 2 below provides a more detailed list of the facilities on which BC Hydro will undertake maintenance at the Valemount boat launch and the typical type of work required. The work listed under the heading 'Details' is not exhaustive but is provided for illustration purposes. All items below are to be inspected at least once annually with repairs to be done as needed. Any public safety hazards will require immediate action.

**Table 2: Facility details at Valemount boat launch with a description of maintenance activities.**

Facilities	Details
<b>Access related facilities</b>	
Concrete boat ramp	<ul style="list-style-type: none"> <li>Concrete panels.</li> <li>Structural maintenance: inspect for cracks, depressions and any other significant abnormalities that will impede safe access to the reservoir.</li> <li>Routine maintenance: remove sediment and/or debris and/or vegetation where it obstructs access and/or could harm the facilities. Smaller pieces of debris and sediment that can be moved by hand will be performed by the Valemount Marina Association.</li> </ul>

Facilities	Details
Scour protection (toe and sides of ramp)	<ul style="list-style-type: none"> <li>• Riprap.</li> <li>• Structural maintenance: inspect for slumps and depressions.</li> <li>• Routine maintenance: removal of debris and/or vegetation that could displace the riprap. Smaller pieces of debris and sediment that can be moved by hand will be performed by the Valemount Marina Association.</li> </ul>
Boarding Floats	<ul style="list-style-type: none"> <li>• A line of floating timber wharves</li> <li>• Structural maintenance: inspect for any reduction in freeboard, missing hardware, defects, etc.</li> <li>• Routine maintenance: removal of any unauthorized equipment.</li> </ul>
Southern Rock Breakwater	<ul style="list-style-type: none"> <li>• Rubble mound breakwater.</li> <li>• Structural maintenance: inspect for slumps, depressions, erosion and/or any other deformities.</li> <li>• Routine maintenance: removal of debris and/or vegetation that could displace the riprap.</li> </ul>
Northern Breakwater (to be constructed)	<ul style="list-style-type: none"> <li>• A breakwater to the north is still to be constructed. Structural and routine maintenance will be similar in scope and effort as other breakwaters throughout the province.</li> <li>• Structural maintenance: inspect equipment (e.g., chains, shackles, etc.) for wear and tear and proper function.</li> <li>• Routine maintenance: removal of debris, replace missing hardware, etc.</li> </ul>

### 2.3 Known Structural Maintenance and Construction

In 2018, a Wind and Wave Analysis and inspection of the boat launch facility evaluated two existing issues (Moffat and Nichol, 2018). The first issue is that northerly winds are creating waves that can cause issues for inexperienced boaters utilizing the low water ramp. The second issue is that the erosion seen at the southern rubble mound breakwater is likely due to the slope protection material being too small and the chosen construction method being inadequate for the forces generated on Kinbasket Reservoir. An onsite inspection confirmed the feasibility of the design and placement of a floating breakwater to the north of the low water ramp and also the feasibility of repairing the southern breakwater by placing larger riprap at the toe of the slope and building it upwards.

The budget to design, construct, and install a northern floating breakwater is captured under CLBWORKS-5A: Valemount Marina Boat Launch Project. Once this breakwater is complete, it will form part of BC Hydro’s ongoing maintenance responsibilities as shown in Section 2 of this document.

The budget to repair the southern breakwater is shown in section 3 below.

### 2.4 Permit information

Annual notification is provided to the Ministry of Forests, Lands, Natural Resource Operations and Rural Development for maintenance works within an existing footprint according to *The Approved Work Practices for Boat Launch Construction and Maintenance in BC Hydro Managed Freshwater Systems (AWP)*. This notification covers those boat launches located on the Kinbasket Reservoir and were approved through the Water Use Planning process (i.e., Nixon, Bush Harbour, and Valemount Marina).

### 2.5 Safety

All work must be in compliance with all WorkSafeBC health and safety regulations and must be undertaken following BC Hydro’s current processes for ensuring worker and contractor safety.

### **3 Budget**

Total Program Cost: \$639,961

#### **4 References**

BC Hydro (May 13, 2014). Approved Work Practices for Boat Launch Construction and Maintenance in BC Hydro Managed Freshwater Systems. 21pp.

Moffat and Nichol (Oct 5, 2007). CLBWORKS-18 Kinbasket Reservoir and Mid-Columbia River Boat Launch Ramps Feasibility Study. Produced for BC Hydro. 162pp.

Moffat and Nichol (Sept 14, 2018). CLBWORKS-5A Kinbasket: Valemount Marina Ramp Extension, Wind and Wave Analysis. Produced for BC Hydro. 49pp.