



April 13, 2023

File: 3057-23/DIOD/COWICHAN

The Nature Trust of British Columbia
C/O Thomas Reid
500 – 888 Dunsmuir Street
Vancouver, British Columbia
V6C 3K4

VIA EMAIL: Thomas Reid, treid@naturetrust.bc.ca

Dear Mr. Reid:

Re: Dike Maintenance Act Application for Decommission of Dike #49 & Upgrade of Dike #88 – Estuary Restoration Project

1.0 Introduction

This is regarding an application made by the Nature Trust of British Columbia, dated March 14, 2023, requesting Approval under Section 2 (4) of the *Dike Maintenance Act* (DMA) to decommission Dinsdale Dike (Dike #49), and upgrade Koksilah Dike (Dike #88) to mitigate the transfer of risk as a result of decommissioning Dike #49.

2.0 Reference Materials

We have reviewed your DMA Application together with submitted correspondence and the following:

- Cowichan Estuary Marsh Restoration Project: Assessment of Physical Processes and Restoration Opportunities (P. 1 – 170), prepared by Northwest Hydraulic Consultants Ltd. March 9, 2022;
- Cowichan Estuary Marsh Restoration: Preliminary Design Basis (P. 1 – 68), prepared by Northwest Hydraulic Consultants Ltd. June 23, 2022;
- Cowichan Estuary Marsh Restoration Project: Overview of Raising Lochmanetz Road Final Rev. 2 (P. 1 – 9), prepared by Northwest Hydraulic Consultants Ltd. March 16, 2023;

Ministry of Forests

Resource Stewardship Div.
Water Management Branch
Flood Safety Section

Mailing Address:
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Location:
5th Floor 2975 Jutland Road
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- Cowichan Estuary Marsh Restoration Project: Summary of the Transfer of Flood Risk Final, Rev. 1 (P. 1 – 8), Prepared by Northwest Hydraulic Consultants Ltd., March 16, 2023;
- RE: Future of Dinsdale Farm – S/C Decision (P. 1 – 6), Prepared by Thomas Reid, Conservation Land Manager, WCCLMP May 2, 2022;
- Professional Letter of Commitment signed and sealed by Graham Hill, P.Eng, for Northwest Hydraulic Consultants Ltd., March 16, 2023;
- Letter of Support from Larry George, Director of Lulumexun, Cowichan Tribes, “RE: Cowichan/Koksilah Estuary Restoration Projects”, July 27, 2022;
- Letter of Support from the Cowichan Valley Regional District, “RE: Cowichan/Koksilah Estuary Restoration Project”, November 7, 2022;
- Letter of Support from Robert Sales (Dike #88 Dike Authority), “RE: Nature Trust of British Columbia (the “Nature Trust”) Application for Removal and Replacement of Dinsdale Farm Dike”, March 31, 2023; and
- Letter of Support from Jesse Patterson, Section Head Ecosystems West Coast Region (Dike #49 Dike Authority), “RE: Cowichan Estuary Environmental Management Committee Letter of Support for Major Restoration Works in Koksilah/Cowichan Estuary”, September 2, 2022.

3.0 Project Description

The Nature Trust of British Columbia, with the services of Northwest Hydraulic Consultants Ltd. (NHC), will be decommissioning Dike #49 and upgrading Dike #88 as a result of a project to restore the estuary habitat in the Cowichan/Koksilah estuary. The purpose of the decommissioning of Dike #49 is to allow tidal waters to re-enter the marsh platform with sediment augmentation to re-establish the estuary habitat. As a result of the decommission, transfer of flood risk would occur without mitigation to lot description LOT 2 SECTION 10 RANGE 2 AND DISTRICT LOT 690 COWICHAN DISTRICT PLAN VIP70020, referred to as “Property 2”, as described in the application. To prevent this transfer of flood risk, Dike #88 will be raised by approximately 0.5 m along the section of Lochmanetz Road, and a private road “Unnamed Road” will also be raised to function as a private dike.

Work will commence within the spring/summer of 2023 and must be completed by March 31, 2025. All construction impacting the Dikes will be maintained and controlled by an on-site field engineer with experience in geotechnical engineering, preferably with experience in flood protection. The Nature Trust of British Columbia, as soon as is reasonably practicable after completion of the work impacting the Dike, will restore the surface of the work area of Dike #88 and surrounding areas to the preconstruction conditions.

This letter constitutes approval under the *Dike Maintenance Act* for the above noted works subject to the terms and conditions set forth below:

General

1. The Approval shall remain valid from the date received until March 31, 2025.
2. Approval of the works shall be obtained from the Province of British Columbia and Robert Sales, the local Diking Authorities responsible for the long-term operation and maintenance of Dikes #49 and #88 respectively.
3. The Inspector of Dikes Office shall be notified prior to the commencement of construction as well as at project completion.
4. **Before construction may begin, engineered drawings prepared by a suitably qualified Professional Engineer must be provided to the Deputy Inspector of Dikes regarding upgrades to Dike #88 as per section 2.0 of the British Columbia Provincial Guidelines ‘New Dikes & Upgrades to Existing Dikes’.**
5. **As per the British Columbia Dike Maintenance Act Guideline ‘Decommissioning of a Regulated Dike’, there must be no transfer of flood risk as a result of the decommission of Dike #49 to third party properties without their written consent.**

Design and Construction

6. The design and construction standards for the works affecting Dike #88 must conform, where possible, to the British Columbia Dike Maintenance Act Guidelines ‘New Dikes & Upgrades to Existing Dikes’.
7. The design and construction standards for the works affecting Dike #49 must conform, where possible, to the British Columbia Dike Maintenance Act Guidelines ‘Decommissioning of a Regulated Dike’.
8. The design and construction standards for the works should conform, where possible, to the ‘Dike Design and Construction Guide – Best Management Practices for British Columbia July 2003¹’, and the ‘Riprap Design and Construction Guide March 2000².’
9. The public road known as ‘Lochmanetz Road’, considered part of Dike #88, must be confirmed in writing by the suitably qualified Professional Engineer as capable of functioning with the current level of traffic it was designed for as well as provide adequate

¹ A downloadable copy is available from the Flood Hazard Management webpage
https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/integrated-flood-hazard-mgmt/dike_des_cons_guide_july-2011.pdf

² A downloadable copy is available from the Flood Hazard Management webpage
https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/integrated-flood-hazard-mgmt/riprap_guide.pdf

flood protection as described in the application. This letter will be included in the post-construction reporting.

10. The construction shall be done in accordance with the design, drawings, and specifications that were prepared by the Professional Engineer for the works. The works shall be carried out under the supervision and guidance of a suitably qualified Professional Engineer.
11. All material shall be approved on site by a suitably qualified Professional Engineer with experience in geotechnical engineering.

Quality Control and Assurance

12. The quality control and assurance (QA/QC) monitoring of the construction shall be done under the supervision of a suitably qualified Professional Engineer with experience in geotechnical engineering.
13. Any damage to Dike #88 (ancillary or otherwise) caused by the construction shall be restored to equal to or better than its former or original state. This will include reconciliation for the removal of surficial material that contained organics, recognition of key-in volumes removed and replaced for structural support of the Dike, and wear-and-tear of surfaces during the use of the Dike during the Project timeline. The repair of damage that could affect the structural integrity of the dike must be approved under section 2(4) of the *Dike Maintenance Act*. Provided the suitably qualified Professional Engineer confirms that damages do not affect the structural integrity of the dike then approval of the repairs would not be required.

Record Drawings

10. Within 60 days after project completion, a suitably qualified Professional Engineer shall prepare and submit an electronic copy in PDF format to the Inspector of Dikes Office the following:

- a. Record Drawings: A digital copy of the works record drawings in pdf format. NOTE: **The drawings shall be georeferenced and accompanied by survey baseline layout information and GIS data per the documents referenced below:**
 - [dma_survey-gis_data_requirements.pdf \(gov.bc.ca\)](https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/integrated-flood-hazard-mgmt/dma_survey-gis_data_requirements.pdf)
 - https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/integrated-flood-hazard-mgmt/dma_survey-gis_data_submission_template.xlsx

Important Note: The gradation specifications for all imported fill material used for this project must be added to the record drawings and clearly identified in the geotechnical section of the construction completion report.

- b. Construction Completion Report: A completion report signed and sealed by the suitably qualified Professional Engineer responsible for the project. NOTE: the completion report shall include a summary of onsite testing and inspections carried out and shall provide certification that the completed works will provide safe long-term flood protection.
- c. The Diking Authority for Dike #88 will be provided documentation of any and all changes made to the dike as a result of this project.

Note: The Inspector of Dikes office shall receive written notification of a proposed schedule to complete the works if the works are not substantially complete by the approval expiry date. The Inspector of Dikes office, at its discretion, may grant a time extension and/or may initiate a further review of the project. This may result in amendments to approval requirements or require a new application and approval.

Please note that the above approval pertains only to the *Dike Maintenance Act* and does not apply to any approvals that may be required by other approving agencies.

If you require further information, please contact me at 778-693-2766 or Chantelle.Grafton@gov.bc.ca.

Sincerely,



Chantelle Grafton,
Deputy Inspector of Dikes
Ministry of Forests

cc:

Larry George, Cowichan Tribes
lands@cowichantribes.com

Jesse Patterson, Ministry of Land, Water and Resource Stewardship
Jesse.Patterson@gov.bc.ca

Ann Kjerulf, Cowichan Valley Regional District
Ann.kjerulf@cverd.bc.ca

Shawn Haley, Ministry of Transport and Infrastructure
Shawn.Haley@gov.bc.ca