



* Inlailawatash Limited Partnership (Operated by its General Partner, Inlailawatash Forest Products Ltd.)

Name of Project	Indian River Watershed Landslide Remediation and Mitigation
Location	The project is in the Indian River Watershed, the heart of Tsleil-Waututh's traditional territory. The land is classified as provincial Crown land and falls within the Sea to Sky Resource District. The specific location targeted for remediation is along Hixon Creek, approximately 5 km from the Stawamus-Indian FSR.
Affiliation	The proponent is Tsleil-Waututh Nation, represented by Inlailawatash Limited Partnership. Tsleil-Waututh Nation established Inlailawatash as a wholly owned business in 2004 to manage their forestry tenures and operations in the Indian River Watershed. Currently, Tsleil-Waututh holds a Woodlot Licence, a Non-Replaceable Forest Licence, four Timber Licences, Fee-Simple Forestlands, and is negotiating a First Nations Woodland Licence for the Indian River Watershed.
Project Lead Contact Information	Spencer Taft, 778-834-2961, staft@inlailawatash.ca , 3075 Takaya Drive, North Vancouver.
Objective of the Project.	<p>The overall objective of this project is to mitigate environmental impacts of landslides caused by historical intensive timber harvesting and road construction on unstable terrain in the Indian River Watershed. Tsleil-Waututh Nation's Indian River Watershed Integrated Stewardship Plan (IRWISP) (2014) identified over 75 landslides throughout the watershed and prioritized three specific locations to target for rehabilitation.</p> <p>These landslides have destroyed forest ecosystems, high-value timber, nutrient rich soils, and salmon habitat throughout the watershed. Additionally, engineering reports by SNC Lavalin (1997) and Foresite Engineering and Geoscience (2009) indicate that landslides are expected to continue unless deactivation and restoration prescriptions are conducted on unstable areas of intensive timber harvesting.</p> <p>The two specific objectives of this proposal are: (1) develop and implement a landslide assessment and monitoring program in the Indian River Watershed to identify historical landslides suitable for ecosystem rehabilitation, and to monitor for recent and future landslides; and (2) rehabilitate the landslide restoration area identified in the IRWISP along Hixon Creek (close-up 3 on attached map), one of three locations prioritized for rehabilitation in the IRWISP. In this area, 19 landslides were identified along a 3 km span of Hixon Creek. Both these objectives are directly building upon the IRWISP and are high-priority projects for Tsleil-Waututh.</p>
Proposed Activity/Treatment	Objective (1): we will identify landslides suitable for restoration opportunities by conducting an engineering survey and report, reviewing previous assessments and data, and discussing historical landslides and ecosystem values with Tsleil-Waututh Nation elders and

	<p>community members. We will monitor and identify recent and future landslides by conducting aerial photographic surveys of the watershed.</p> <p>Objective (2): we will rehabilitate the landslide restoration area identified in the IRWISP along Hixon Creek by conducting an engineering survey of the area to determine specific terrain stability issues and the severity of terrestrial and aquatic environmental impacts. Following this survey, we will prioritize terrain stabilization through techniques such as rockfill buttresses, crib-wall check dams, drainage ditches, and biotechnical or vegetative slope stabilization. Following slope stabilization, we will prioritize re-forestation in affected areas and stream restoration in salmon habitats damaged by sediment deposition. The area identified for restoration covers 77 ha.</p>
Cost Estimate	<p>Total estimated cost: \$750,000</p> <p>Objective (1): estimated cost of \$125,000. This includes \$75,000 for the engineering survey to identify historical landslide areas suitable for rehabilitation and \$50,000 aerial photographic surveys to monitor recent and future landslides.</p> <p>Objective (2): estimated cost of \$625,000. This includes \$75,000 for the engineering survey to determine specific terrain stability issues and the severity of terrestrial and aquatic environmental impacts. The remaining \$550,000 will be budgeted for ecosystem restoration prescriptions, including a combination of slope stabilization, re-forestation, and salmon habitat enhancement.</p>
Timeline Estimate	<p>Engineering surveys aerial photographic surveys will commence in June 2017 and lead directly into terrain stabilization and restoration planning. If feasible, terrain stabilization will occur in late summer 2017 before heavy rains begin. Alternatively, all stabilization and ecosystem restoration activities will occur in summer 2018.</p>
FESBC Priorities	<p>This project advances environmental and resource stewardship in BC's forests and fulfills numerous FESBC priorities, including: improving damaged forests; improving forest wildlife and salmon habitat; combining FESBC funding with Tsleil-Waututh Nation's landscape strategy for the Indian River Watershed, as outlined in the IRWISP and the First Nations Woodland Licence; and First Nation government support.</p>
FLNRO Regional Strategic Priorities	<p>This project provides FLNRO an opportunity to collaborate with Tsleil-Waututh Nation to lead forest stewardship efforts by addressing severe ecological impacts caused by historical mismanagement of timber harvesting operations. Additionally, terrain stabilization and landslide mitigation increase harvestable forest area and decrease timber lost to erosion events.</p>



TSLEIL-WAUTUTH NATION INDIAN RIVER WATERSHED PLAN SERIES

MAP 17 LANDSLIDES AND ROAD STATUS

LEGEND

Forest Service Roads

- Maintained Road
- Semi-Permanent Deactivated Road
- Secondary Road Status
 - Active
 - Semi Deactivated
 - Deactivated

Restoration Areas

- Landslide Event/Rehabilitation

Landslides

- Landslide

Year Landslide First Became Visible

- 1936
- 1969
- 2004

0 1.25 2.5 5 Kilometers

This map is a living document and is intended to be amended and refined over time. It is not an expression of the location of Tsleil-Waututh aboriginal title. The data used to produce this map originate from many sources and are presented without prejudice. This map is the property of the Tsleil-Waututh Nation and may not be reproduced without written permission.

Data Sources: Tsleil-Waututh Nation, Province of British Columbia, Government of Canada.

Imagery: Tsleil-Waututh Nation, 2004.

Map produced February 2014 by Tsleil-Waututh Nation

Projection: UTM, NAD83, Zone 10

Map Scale: 1:45,000; Map Scale of Close-Ups 1, 2, & 3: Map Scale 1:15,000

