

Appendix A

Nature-based Shoreline Project (NBSP) Checklist

Pilot Edition– November 2021

Preamble: Crown land is a public asset and the Province of British Columbia has a responsibility to manage for the economic, social and environmental benefit of British Columbians, now and in the future. Crown land along the shoreline consists of all land seaward of the natural boundary or high-water mark.

This checklist is intended to provide owners and Crown Lease holders of marine waterfront property a pathway to construct [nature-based erosion protection](#) and [restoration](#) works (nature-based shoreline projects, NBSP) that avoid or minimize adverse impacts on the environment, navigation, safety, community values, the interests of the public, and the legal rights of First Nations and others. Nature-based shoreline projects have additional benefits compared to sea walls and other hard armour projects and will:

- Support the integrity and connectivity of natural shoreline processes
- Maintain and enhance shoreline habitat diversity and ecosystem function
- Contribute to reducing and reversing cumulative impacts to shoreline systems from development
- Provide improved public access to the shoreline.

With appropriate guidance from Qualified Coastal and Environmental Professionals, nature-based shoreline projects can be designed to be resilient to sea level rise and other climate change impacts. Recognizing the benefits for coastal ecosystems and communities, the Province offers nature-based erosion protection projects an expedited process compared to the process for hard armour projects such as seawalls and rip rap.

This checklist establishes the requirements for project applications to qualify for review under the **Nature-based shoreline project expedited process**. The checklist identifies project technical and design requirements for applicants for nature-based shoreline projects and will assist Crown Lands officers in evaluating applications more efficiently.

Note that this checklist is in addition to the general application requirements for all Crown land uses

<https://www2.gov.bc.ca/gov/content/industry/crown-land-water/crown-land/crown-land-uses/residential-uses/residential> and Nature-based shoreline project requirements do not affect the discretion of the Province to grant approval for any application. All [blue font](#) content can be found in the glossary of this document.

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EXCLUSIONS

If the answer is Yes to any of the following statements, then the proposed project is likely NOT a nature-based design or requires extra review/does not qualify for the nature-based shoreline project expedited process.

Y/N

Does the new design include a new seawall or rock revetment that covers more than 30% of shoreline length fronting the upland property?

Y/N

Does the design infringe upon [critical or sensitive habitat](#) on [Crown Land](#)?

Y/N

Does the design block public access along the foreshore or beach?

Note: members of the public must be able to readily go around or cross over any constructed structures along the foreshore, i.e., access along the foreshore should not be impeded.

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REQUIREMENTS

1.0 PROPERTY SURVEY AND EXISTING CONDITIONS PLAN

All boxes must be checked off

Provide:

a) Property Survey

- Legal survey of the property with location of property lines and **Natural Boundary** indicated, including date of the survey

b) Existing Conditions Site Plan (pre-construction) shows: (note, one or more sheets may be used as deemed appropriate by the design team)

- North Arrow
- Scale Bar
- Property Owner and Address
- Who drew the plan and date drawn
- Location of buildings and structures shown to scale on the site plan, including any existing structures below the Natural Boundary
- Spot elevations given for the property and shoreline, along with elevation contours at 0.5 m intervals. Vertical Datum to be noted on the drawing notes.
- Type of beach – bedrock or sediment based. If latter, indicate general nature – boulders, cobble, gravel, sand, mud, or a mix of any of these sediment types
- Riparian vegetation – general extent and nature of plant species
- Condition of shoreline – eroding, accreting, or stable (can be a note on existing site plan.)
- Location of building setback(s) required by local code or regulation
- Any streams, wetlands, and their buffers shall be denoted on the existing site plan.
- Existing shore protection structures, and any docks and marine infrastructure on site.
- Aerial photo of property and a photo of existing conditions

For further information see the [Green Shores Guide to the Expedited Process for Nature-based shoreline projects in BC](#).

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2.0 SITE PLAN SHOWING CRITICAL OR SENSITIVE HABITATS

All boxes must be checked off

Provide a site plan showing [Critical or Sensitive Habitat](#):

- On the Existing Conditions Site Plan (or on a separate plan sheet), show the nature and location of designated or identified critical or sensitive habitats and their buffers:
 - Prepared by a [Qualified Environmental Professional](#)
 - Shows critical or sensitive habitat on the property and the [foreshore](#) adjacent to site (including riparian, foreshore, subtidal/littoral zone), and along the shoreline extending at least 50 m each side of the property lines.

For further information see the [Green Shores Guide to the Expedited Process for Nature-based shoreline projects in BC](#).

3.0 COASTAL PROCESSES REPORT

All boxes must be checked off

Provide a Coastal Processes Report. The report must:

- Be prepared by a [Qualified Coastal Professional](#) (P.Eng or P.Geo) with expertise in coastal engineering, coastal geomorphology, or geotechnical engineering with experience in coastal processes.
- Defines incident sea state (wave characteristics) at project site; and design water levels (including clear allowances for components of tides, surge, and wave effects).
- Provide an assessment of coastal sediment transport processes at the site. In particular, coastal/shoreline sediment transport assessment and mapping based on aerial photo interpretation (existing and historical, if available), a site visit, and supporting technical analysis indicating:
 - Dominant and seasonal sediment transport pathways along shoreline adjacent to property and general area;
 - Sediment sources (streams, eroding bluffs, long shore transport) relevant to the [littoral cell](#) for the project; and
 - Sediment sinks or depositional areas that may be connected to the littoral cell for the project.
- Provide before photos (i.e. existing conditions) showing the eroding shoreline prior to the project.

For further information see the [Green Shores Guide to the Expedited Process for Nature-based shoreline projects in BC](#).

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4.0 PROPOSED PROJECT DRAWING PACKAGE

All boxes must be checked off

Provide a drawing package of the proposed shoreline design. Drawings should have:

- Scale Bar
- North Arrow
- Property owner and address
- Who designed the project and date drawn (typical information found in a drawing title border).
- Lot boundaries and dimensions
- Ordinary High Water Mark (OHWM) or Natural Boundary (NB)
- Both existing and new buildings and structures, including accesses and pedestrian paths
- Location of building setback(s) required by local code or regulation
- Any changes to riparian or other vegetation, if applicable

Minimum required drawing sheets include:

- Plan view to scale showing project elements clearly, including all areas that extend onto Crown Land.
- Excavation drawing sheet (if relevant) of any excavations.
- Cross section view(s).
- Riparian zone plan view sheet. A scaled site plan showing the location and typical species composition of the existing riparian zone and clear indications of any removals, planting, and re-vegetation by the project.
- Plan showing existing critical or sensitive habitat overlaid over project plan.
- Site access drawing sheet. Site plan indicating where equipment will access the shoreline, and extent of any work areas including all site access and lay-down areas for the project. This drawing sheet shall also show extent of any critical or sensitive habitat.

For further information see the [Green Shores Guide to the Expedited Process for Nature-based shoreline projects in BC.](#)

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5.0 PROPOSED PROJECT REPORT

All boxes must be checked off

Provide a project report prepared by a Qualified Coastal Professional with experience in Coastal Engineering, confirming that the project site experiences [erosion](#) and/or that the project is intended to address coastal flooding ([storm surge](#), [sea level rise](#), wave runup) at the site and upland property. This report will include input from a Qualified Environmental Professional supporting design that restores or enhances fish and wildlife values.

Project report contents will include:

- Specifications for a nature-based protection design (e.g., no significant hard armour except to tie in with neighbouring property).
- Demonstration that the design allows for the continuation of natural processes such as longshore sediment transport AND riparian vegetation growth.
- Demonstration that the design is based on analysis of erosion potential, wave energy and backshore width AND a demonstrated need:
 - a) to protect existing permanent structures AND/OR
 - b) to enhance degraded shore habitat that can be addressed by nature-based shoreline measures.
- If a [Hybrid Design](#) is utilized (i.e. design that includes some hard shore elements such as rock structures, groynes, revetments, and similar engineered structures along with [soft shore](#) elements) the project report shall include the rationale for the inclusion of any such structures in design and how the design still meets other specifications noted above.
 - Note: buried revetments are typically used where there is a concern for rapid erosion. Such designs on eroding shorelines can become permanently exposed if there are not natural processes to re-nourish the beach at the structure (or a confirmed maintenance plan to re-nourish the project at regular intervals). If natural coastal processes or implementation of a maintenance plan are not able to re-nourish the structure, the hybrid design is likely not appropriate for consideration as a nature-based expedited process project.

For further information see the [Green Shores Guide to the Expedited Process for Nature-based shoreline projects in BC](#) and [GSH Environmental Management Plan for Construction](#)

NOTE: An Environmental Management Plan will be required before an approval is granted but is not required for initial screening.

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6.0 EXISTING AUTHORIZATIONS

All boxes must be checked off

Before submission, the proponent shall make their best effort to confirm the following:

- The proposed project or any part of it is not on Crown land that has been designated as a reserve or withdrawal under sections 15, 16, or 17 of the Land Act. Reserve or withdrawal designations may restrict shoreline development. These areas will be identified as Land Act sections 15, 16, or 17's on digital maps (see below).
 - The proposed project or any part of it must not overlap an existing crown land dispositions or application
 - The application and proposed project must comply with any other applicable federal, provincial, local government laws and regulations.
- Online Services Explore Tool at: <https://portal.nrs.gov.bc.ca/web/client/explore> (Natural Resource Online Services) or by contacting FCBC toll free at 1- 877-855-3222 or visit www.frontcounterbc.gov.bc.ca to find your local office.

7.0 LAND TITLE/LEASE

All boxes must be checked off

The following conditions shall be confirmed in the application:

- The proponent is the owner or Crown lessee of the [upland property](#).
- Land Title Certificate or Lease must be provided for upland property

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8.0 OTHER

All boxes must be checked off

All archaeological sites in B.C. are protected under the [Heritage Conservation Act](#). This applies whether sites are located on public or private land, and whether the site is known or unknown. Protected archaeological sites may not be altered or changed in any manner without a permit.

- Applicants should request archaeological information about the project site through a BC Archaeological Information Request Form prior to submitting their project application.

Archaeological sites: The [Natural Resource Online Services](#) tool can be used to determine known archaeology sites. If the report indicates the presence of an archaeology site within the proposed project vicinity, further assessment by a qualified archaeological professional may be required

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DEFINITIONS

- **Critical or Sensitive Habitats**
 - Areas providing important feeding, resting, spawning, nesting, or rearing habitat for species designated under the federal *Species at Risk Act*, *Migratory Birds Convention Act* or the *BC Wildlife Act*, or identified as “red” or “blue” listed species by the BC Conservation Data Centre;
 - “Environmentally Sensitive” or “Significant Areas” identified by the federal, provincial, regional, or municipal government;
 - Shore and marine areas identified as “Important Bird and Biodiversity Areas” by Nature Canada and Birds Canada; and
 - Other valued foreshore habitats including estuaries, fresh and saltwater marshes, wetlands, eelgrass beds, kelp beds, clam beds, spawning and rearing areas for fish, and feeding and resting areas for seabirds and marine mammals.
- **Erosion:** The wearing away of land by natural forces (opposite of accretion); pertaining to a beach, the carrying away of beach material by wave action, tidal currents, littoral currents, or wind action. Shorelines may experience both erosion and accretion of varying magnitudes at varying times. Proper assessment of erosion rates requires long-term monitoring of the shoreline.
- **Foreshore:** The area between high tide (defined in BC as Higher High Water Large Tide, as per Canadian Hydrographic Service) or Ordinary High Water Mark and low tide water levels in marine systems, or between seasonal high water and low water levels on lakes.
- **Green Shores for Homes:** applies to new development, and renovations and modifications of existing structures on residential properties. It is for both freshwater and marine shorelines.
- **Green Shores for Shoreline Development:** applies to multifamily residential and commercial marine and lakeshore waterfront development projects as well as to infrastructure development (such as public walkways) and shore protection works in public spaces (parks and recreational areas).
- **Hybrid Design:** A combination of nature-based and traditional hard-armoured shoreline approaches (Sutton-Grier et al., 2015)
- **Littoral Cell:** A littoral cell is a section of a coastline that encompasses the full sedimentation cycle: sources, sinks, and paths (Inman D.L. (2005))
- **Nature-based solutions:** “Nature-based Solutions are actions to protect, sustainably manage and restore natural and modified ecosystems in ways that address societal challenges effectively and adaptively, to provide both human well-being and biodiversity benefits. They are underpinned by benefits that flow from healthy ecosystems and target major challenges like climate change, disaster risk reduction, food and water security, health and are critical to economic development” ([IUCN, 2021](#))
- **Nature-based protection and restoration:** Design which entails the use of native materials such as gravel, sand, logs, root masses and vegetation in designs that are, to some degree, dynamic, relying on and/or mimicking local natural processes and physical material to provide shoreline protection and restoration.

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- **Natural boundary:** “The visible high water mark of any lake, stream, or other body of water where the presence and action of the water are so common and usual and so long continued in all ordinary years as to mark upon the soil of the bed of the lake, river stream, or other body of water a character distinct from that of the banks, both in vegetation and in the nature of the soil itself” (BC Land Act)
- **Offshore:** Beyond the low tide water levels in marine systems (alternatively references as sub-tidal). For the purpose of defining sea state, a depth of water in which waves are not shoaling, refracting, or breaking due to shallow water transformations.
- **Qualified Coastal Professional:** An engineer, geoscientist, or geotechnical engineer in good standing with their professional organization with demonstrated experience and/or training pertaining to shore protection and coastal processes and acting within their professional abilities. (Note: The design of a NB shoreline may require more than one professional as a single professional may not have sufficient expertise in all required areas of expertise required to undertake the project, such as wave modeling, sediment transport, and coastal geomorphology.)
- **Qualified Environmental Professional:** is a professional designated under s.21 of the Riparian Area Protection Act, including biologist, or other suitably qualified professional in good standing with their professional organization, acting within their professional abilities with expertise in shoreline ecology and habitat function.
- **Restoration (habitat):** The purpose of ecosystem restoration activities is to restore significant ecosystem function, structure, and dynamic processes, including physical processes that have been degraded, damaged, impeded or destroyed. Ideally, this process would allow for the site potential vegetation to re-establish, including mature trees.
- **Sea level rise (SLR):** The increase in sea level attributed to the effects of climate change. For the design of foreshore projects, the important consideration is the regional (or local) sea level rise that accounts for local vertical land movement. See [Guidelines for Sea Dikes and Coastal Flood Hazard Land Use](#) for more information.
- **Shore Length:** Length of the shore zone as measured along the natural boundary.
- **Soft Shore Protection:** Soft shore protection refers to installing natural, flexible shoreline material where erosion control is needed. Soft shore protection approaches may use beach “nourishment” (sand replenishment), logs and large natural woody debris, vegetation, and re-sloping a bank or bluff. Often these soft shore protection approaches are used in combination to augment site stability or to address different issues in different parts of a site.
- **Storm surge:** The rise in seawater level caused solely by a storm. Storm surge is caused primarily by a storm pushing water upwind, as well as atmospheric effects. The amplitude of the storm surge at any given location depends on the orientation of the coast line with the storm track; the intensity, size, and speed of the storm; and the local bathymetry.
- **Upland property:** For the purposes of this checklist, used in context with the definition of [Natural Boundary](#), means the property directly adjacent to a waterbody, the surface of which is higher than the natural boundary of the water body.