



Requirements and Best Management Practices for Making Changes In and About A Stream in British Columbia

Understanding your obligations under the *Water Sustainability Act* and Water Sustainability Regulation



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Disclaimer: Some of the information provided in this document summarizes sections of legislation. If a discrepancy arises between this document and legislation, the legislation takes precedence. While this guidance document relates primarily to the *Water Sustainability Act*, instream works are also regulated by a number of other federal, provincial and municipal acts, regulations and bylaws. Some of these are referenced within this document. It is an individual's responsibility to ensure they are compliant with all applicable legislation.

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NA		

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Appendix: [Scope-specific Best Management Practices for CIAS under the WSA](#)
(available separately)

1. Purpose and Scope

1.1. Purpose and Scope

This document describes mandatory requirements and best management practices (BMP) for making changes in and about a stream (CIAS) under British Columbia's (B.C.) [Water Sustainability Act](#) (WSA). It is designed to help individuals mitigate and avoid impacts to streams, stream channels, aquatic ecosystems, and private property when undertaking CIAS work. The included BMPs can be adopted or built upon in work or environmental management plans to support a WSA submission such as a change approval application or notice of authorized change.

The purpose of this document is to:

- give an overview of relevant legislation, legal requirements, and other expectations and considerations related to making CIAS;
- describe general BMPs that typically apply to all types of CIAS work;
- describe scope-specific BMPs for certain types of CIAS work; and,
- provide additional resources and contact information for planning.

Note: Works that will, or may, impact a stream or stream channel require permission under the WSA or must be authorized by its regulations, such as [Part 3 of the Water Sustainability Regulation](#) (WSR). You **must obtain all required permissions** to conduct CIAS before beginning work to avoid contravening the law. It is recommended that you read this document in its entirety before work begins.

IMPORTANT: Companion Document

[A User's Guide for Changes in and About a Stream](#) (the "User's Guide") is the companion guidance to this document. Refer to the User's Guide for an overview of the legislative requirements and types of permissions associated with making a CIAS. **It is recommended that individuals read the User's Guide before reading this document.**

1.2. Intended Audience

This document is intended for readers who understand basic principles related to hydrology, biology and environmental policy in B.C., and was prepared for proponents intending to make CIAS such as governments, companies, organizations or individuals. This guidance can be used during the planning, designing, undertaking, or monitoring of CIAS work in B.C. Specifically, this document is designed to help those who are:

- submitting a Change Approval application under [WSA s.11](#);
- submitting a notice of an Authorized Change in accordance with [WSR Part 3](#);
- authorized to make a CIAS under a WSA authorization (water licence or use approval);
- ordered to make CIAS by an appropriate decision-maker; or
- authorized to make CIAS by legislation.

Note: If you are unfamiliar with any of the concepts described in this guidance, please consult someone who has a foundational understanding of common CIAS disciplines (e.g., a qualified professional (QP)).

1.3. Limitations and Use

Using this Document

The approaches described in this document are not exhaustive and projects may require different methods tailored to site-specific characteristics. This document is not intended to take the place of professional judgment or experience and cannot be relied upon exclusively to satisfy investigations into environmental requirements of a specific site.

The government of B.C. (the Province) recommends that proponents consider these BMPs when planning CIAS work and to refer to them when preparing reports (e.g., an environmental management plan) as part of a CIAS submission, such as a change approval application or notice of authorized change. These BMPs consider issues that are relevant to decisions that are made under the WSA.

Nature of BMPs

Depending on the circumstances of the project proposal, clients may choose not to adopt these BMPs or may choose to modify BMPs to suit site-specific characteristics/needs. These included BMPs are not legislated requirements specified by a statute. However, these **BMPs may be given legal effect** by incorporation as **terms and conditions** of an authorizing instrument like a water licence or change approval. If a BMP is not incorporated through legislation or an authorizing instrument, then it is best understood as non-mandatory guidance.

This document **supports, and does not replace, the requirements of the WSA** and its associated regulations. Individuals must ensure they are in accordance with **all applicable sections of WSA legislation** and must follow specific **terms and conditions** included in any authorizing instrument or order issued to them. Where a discrepancy occurs between what is described in legislation and what is described in this document, legislation takes precedence.

While this guidance document relates primarily to the WSA, instream works are also regulated by a number of other federal, provincial and municipal acts, regulations and bylaws. Some of these are referenced within this document. **It is an individual's responsibility to ensure they are compliant with all applicable legislation.**

To determine what sections of this document are applicable to their CIAS work, individuals may find it useful to retain the services of a QP (e.g., with adequate training and knowledge of hydrology, biology, engineering and/or environmental policies in B.C.).

Updates over Time

New information and technologies will continue to shape BMPs and expectations for working around water. The Province will aim to update this document periodically to incorporate any new practices and requirements that may arise.

Refer to the [Notes section \(page ii\)](#) of this document to review a summary of revisions made since publishing.

1.4. Terms and Definitions

Defined under the WSA

Several terms used in this document are defined in WSA legislation including:

“**stream**” means:

- a) a natural watercourse, including a natural glacier course, or a natural body of water, whether or not the stream channel of the stream has been modified, or
- b) a natural source of water supply, including, without limitation, a lake, pond, river, creek, spring, ravine, gulch, wetland or glacier, whether or not usually containing water, including ice, but does not include an aquifer.

“**stream channel**”, in relation to a stream, means:

the bed of the stream and the banks of the stream, both above and below the natural boundary and whether or not the channel has been modified, and includes side channels of the stream.

“**changes in and about a stream**” means:

- a) any modification to the nature of a stream, including any modification to the land, vegetation and natural environment of a stream or the flow of water in a stream, or
- b) any activity or construction within a stream channel that has or may have an impact on a stream or a stream channel.

More Definitions and Information

For other definitions and descriptions of which activities may constitute a CIAS under the WSA, refer to the [WSA](#), [WSR](#), and the [User’s Guide](#).

Definitions for the Purpose of this Document

The following general definitions are not defined in legislation, but rather, are intended to provide clarity in this document as well as guidance. These terms are not defined in the WSA or WSR and the definitions below do not carry legal authority. They should not be interpreted as the definitive description of the concepts below.

“**best management practice**” (BMP): A recommended or suggested approach which, if followed, should serve to avoid or mitigate potential impacts of an activity or work.

“**qualified professionals**” (QP): This usually refers to a qualified environmental professional such as an engineer, technologist, technician or scientist, registered in a professional association regulated by the [Professional Governance Act](#). For CIAS, the QP required is often an engineer or geoscientist. Sometimes the appropriate QP may be a professional geomorphologist, hydrologist, biologist, agrologist or forester. QPs may also be qualified in other disciplines or persons with other qualifications. The decision maker may specify a QP with different or additional qualifications (e.g., expertise in floodplain geomorphology).

Professional Governance Act (PGA) and CIAS Guidance under the WSA

The PGA describes the requirements for regulatory oversight of qualified professionals (registrants) by professional associations (regulatory bodies) to ensure public protection. See the [User’s Guide](#) for more information on the PGA.

1.5. Contact Us and More Information

More information on working around water in B.C. is available on the Province's [water webpage](#) or by contacting the FrontCounter BC office or regional offices. Regional offices may have additional region-specific guidance on making CIAS.

FrontCounter BC Contact Centre

Tel.: 1-877-855-3222 (Toll-Free)

Email: frontcounterbc@gov.bc.ca

Web: www.frontcounterbc.gov.bc.ca

FrontCounter BC Offices

Please call to make an appointment at one of our many locations listed below. More information, including phone numbers for each office, is [available online](#).

- | | | |
|--------------------|-------------------|-------------------|
| 1. 100 Mile House | 11. Fort St. John | 21. Prince George |
| 2. Burns Lake | 12. Haida Gwaii | 22. Quesnel |
| 3. Campbell River | 13. Kamloops | 23. Revelstoke |
| 4. Castlegar | 14. Mackenzie | 24. Smithers |
| 5. Chilliwack | 15. Merritt | 25. Squamish |
| 6. Clearwater | 16. Nanaimo | 26. Surrey |
| 7. Cranbrook | 17. Nelson | 27. Terrace |
| 8. Dawson Creek | 18. Port Alberni | 28. Vanderhoof |
| 9. Fort Nelson | 19. Port McNeill | 29. Vernon |
| 10. Fort St. James | 20. Powell River | 30. Williams Lake |

2. Legislation and Mandatory Requirements

2.1. The Water Sustainability Act

The [Water Sustainability Act](#) (WSA) is the main statute regulating streams and other water resources in B.C. This legislation outlines, among other things, the requirements for using stream water or groundwater, and drilling wells or other works for diversion and use of water.

The WSA regulates the specific requirements for making changes to streams and stream channels, as further described in the definition of “changes in and about a stream” (CIAS), [WSA s.11](#), and [Part 3 of the Water Sustainability Regulation](#) (WSR).

Authority to Make CIAS

CIAS activities or works **must occur in accordance with the WSA and associated regulations**. The authority to make CIAS typically comes from:

- an authorization (water licence or use approval) ([WSA s. 9 or s.10](#));
- a change approval ([WSA s.11](#));
- an order from an appropriate public official (e.g., Assistant Water Manager) ([WSA s.93](#)); or
- an authorized change under [WSR Part 3](#).

What Permission do I Need?

Refer to the [User's Guide](#) for more information on the different types of permission.

Mandatory Requirements

The WSA and WSR have mandatory requirements that generally apply to all CIAS activities. This document summarizes some that are common to CIAS activities or work, as seen in Table 1. Refer to the [WSA](#) and [WSR](#) for a full description of the statutory requirements.

Requirements for CIAS activities or work will depend on:

1. the specific **requirements of legislation** for the CIAS work or activity, and
2. the **terms and conditions** associated with an issued authorizing instrument, such as a change approval.

Note: CIAS activities can fall under the jurisdiction of several pieces of legislation. **It is your responsibility to ensure that work complies with all appropriate statutes and regulations** (Federal, Provincial, Municipal). Refer to the [User's Guide](#) for more information on what other enactments and mandatory requirements can apply.

EXAMPLE: Fisheries and Oceans Canada Fish and Fish Habitat Protection and Pollution Prevention Provisions

The *Fisheries Act* requires that projects avoid causing the death of fish and/or the harmful alteration, disruption or destruction of fish habitat unless authorized by Fisheries and Oceans Canada (DFO). DFO's [Projects Near Water](#) website provides more information on how to protect fish and fish habitat, request a project review or federal authorization, and get information about federal contaminated sites. If you think your project may impact fish or fish habitat, visit DFO's [website](#) to see whether your project may require DFO review and authorization.

Table 1: Summary of statutory requirements under the WSA that apply to CIAS.

WSA Section	Summary
	Refer to the Water Sustainability Act for a full description.
8(1) OR (2)	The exercise of permission given under a change approval or authorization is subject to the WSA and the regulations, the terms and conditions of the change approval or authorization, the orders of the comptroller, a water manager or an engineer, and the prior rights of authorization holders and other change approval holders.
11	CIAS may only be made in accordance with a) the terms and conditions of a change approval, b) the regulations (such as Authorized Changes under Part 3 of the WSR), c) the terms and conditions of an authorization, or d) an order.
29	A person making CIAS must exercise reasonable care to avoid damaging land, works, trees or other property, and must properly inspect, maintain and repair works constructed, operated or used by the person. Works that are no longer in use due to cancellation, abandonment or expiration must be deactivated or decommissioned. A person is liable to owners of land or premises for damage or loss resulting from the construction, maintenance, use, operation or failure of their works.
93	A designated WSA engineer can require the construction, alteration, installation, replacement, repair, maintenance, improvement, sealing, deactivation, decommissioning or removal of any works, as well a restoration or remediation of CIAS, in accordance with this section. An officer, acting in accordance with the directions of a WSA engineer, may take certain actions.
122	The termination of a change approval does not relieve the holder from liability for damage resulting from the works or their failure.

Change Approval, Water Licence, Use Approval or Order

In addition to mandatory requirements in the legislation (such as in Table 1), CIAS that are authorized through a WSA change approval, water licence, use approval or order also include **terms and conditions**. Terms and conditions are legal requirements that must be followed.

Authorized Changes

[WSR Part 3](#) describes mandatory requirements relating to authorized changes. Authorized changes are lower-risk CIAS that generally can be completed without applying for a change approval or authorization so long as the conditions under Part 3 are met. Table 2 provides a summary of the standard requirements applicable to authorized changes, as listed in Part 3.

The terms and conditions provided by a habitat officer in relation to an authorized change are legal requirements that must be followed. Refer to the [User's Guide](#) for more information on authorized changes.

Table 2: Summary of statutory requirements for authorized changes under WSR Part 3.

WSR Section	Summary
	Refer to the Water Sustainability Regulation (Part 3) for a full description.
37(2)	If an engineer considers that an authorized change may have a significant adverse impact on the nature of the stream (including the flow of water in the stream) or the stream channel, they may require an application for a change approval or an authorization to be made in connection with the change.
38	A person proposing to make an authorized change, other than an authorized change described in section 39 (1) (o) to (s), (2) and (5), must provide notice (i.e., a notification) to a habitat officer at least 45 days before beginning the authorized change, and obtain from a habitat officer a statement of terms and conditions.
39	For a CIAS to be an authorized change, the CIAS must meet the criteria, specifications and standard requirements outlined in this section and, where applicable, the associated legislation outlined in this section including but not limited to the <i>Forest and Range Practices Act</i> , <i>Mines Act</i> , and <i>Oil and Gas Activities Act</i> .
40	A person must not enter onto any private land or premises, or use any privately-owned works, without the written consent of the owner of the land, premises or works.
41(1)	A person making or proposing to make an authorized change must provide information requested by an engineer, officer or habitat officer, unless it is a CIAS activity authorized by permit under the Oil and Gas Activities Act (OGAA). ¹
41(2)	Once an authorized change begins, it must be completed without delay unless the delay is necessary to preserve the nature of the stream or stream channel.
41(3)	An authorized change must be designed, constructed and maintained so that the change does not pose a significant risk of harm to public safety, the environment, land or other property.
42	A person who fails to comply with Part 3 must report the non-compliance within 72 hours and comply with the direction of an engineer and habitat officer.
43	A person making an authorized change must take measures to protect water quality as described in this section, including not causing significant adverse impact on the ambient water quality of the stream, etc.

¹ Contact the [BC Oil and Gas Commission](#) for proposed changes to a permit or authorization under OGAA.

44	A habitat officer may provide a written statement specifying terms and conditions for authorized changes in accordance with this section and the person making the authorized change must adhere to these terms and conditions. If the person making the authorized changes causes damage to the aquatic ecosystem, they must report the damage to a habitat officer within 72 hours and repair the damage as directed by the habitat officer. In the case of damage arising from activities under an <i>Oil and Gas Activities Act</i> permit, the damage is to be reported to the Oil and Gas Commission.
45	A person must ensure that existing authorized water uses are not adversely impacted, and if any might, that the users are given three days' notice and are provided with an adequate supply of water if required by those users.

2.2. Environmental Impact Mitigation

A general principle of planning work near water, such as in and about a stream, is that environmental impacts should be avoided or mitigated to the greatest degree possible. Public officials will consider how individuals have planned to mitigate environmental impacts when reviewing a submission (in this case an application or notice).

When planning a project near water, individuals should follow a general environmental mitigation hierarchy (Figure 1). It is expected that all feasible measures are considered and applied at one level before moving to the next. There is a chance that an application may not be approved if sufficient planning to avoid environmental damaged is not demonstrated.

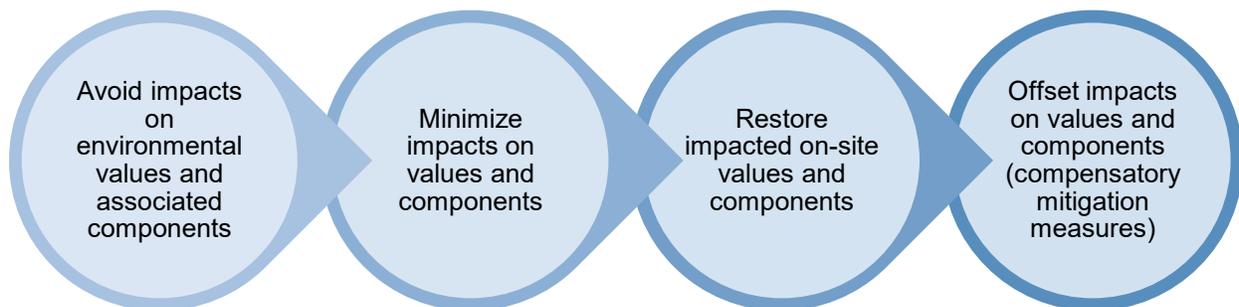


Figure 1: Environmental mitigation hierarchy.

Guidance and strategic approaches on how to incorporate environmental mitigation in work planning is available in the [Environmental Mitigation Policy and Procedures](#). The BMPs described in [Section 4 of this document](#) and the [Appendix](#) provide operational approaches for environmental mitigation that can be incorporated into your work planning and CIAS submission.

3. Best Management Practices

3.1. What are Best Management Practices?

Best management practices (BMPs) are widely accepted and recognized approaches that, when adopted and implemented, help proponents avoid or mitigate potential negative impacts. When planning CIAS activities or works, clients should consider how the project might impact the following general values related to stream health:

- a) public health and safety;
- b) aquatic life and ecosystems;
- c) water quality and quantity; and,
- d) property and infrastructure.

3.2. Best Management Practices for CIAS

This document describes two types of BMPs for CIAS designed to protect general values related to stream health (above): General BMPs and Scope-specific BMPs (as described below). In some cases, these BMPs may be included by decision makers as **terms or conditions in a legal instrument**, such as an authorization, change approval or order. To assist in such cases, recommended citations have been provided in each BMP section/document for the use of decision makers. It is recommended that **all General BMPs and any relevant Scope-specific BMPs be incorporated into your work planning as applicable.**

IMPORTANT: Mandatory vs. Non-Mandatory

BMPs are widely accepted and recognized approaches that, when adopted and implemented, help individuals to avoid and mitigate potential adverse impacts. It is recommended that you use provincial BMPs for your work planning as applicable.

BMPs should be interpreted as **non-mandatory guidance if they are NOT made mandatory by being required in a legal instrument** (term or condition in an authorization, change approval or order). If, however, they ARE referenced as a term or condition, then you **must adhere to any BMPs required in the legal instrument.**

While the following BMPs include provisions to support you in your CIAS work, **it is your responsibility to ensure you comply with all enactments that may be associated with your project.** Refer to the [User's Guide](#) for a general summary of enactments. If in doubt regarding which WSA and WSR requirements apply to your project, contact FrontCounter BC.

IMPORTANT: Terms and Conditions

The statutory decision maker has the discretion to include terms and conditions in a legal instrument such as a change approval, water licence, use approval or order. This document does not mandate how that discretion is to be exercised, whether BMPs should be specified, or how BMPs might be reflected or incorporated in the terms and conditions.

IMPORTANT: Minimizing BMP Content Overlap

The BMPs avoid repeating provisions as much as possible, e.g., practices related to erosion and sediment control may be recommended for every CIAS project, however the best management practices are only provided within the BMP for Erosion and Sediment Control. It is recommended that you **carefully consider and read all BMPs before determining which apply to your project.**

General Best Management Practices

General BMPs include best practice approaches for common activities that can generally be associated with **any CIAS activities and works in B.C.**

See [Section 5 of this guide](#) for the following General BMPs:

5.1. BMPs for Environmental Monitoring of Activities or Works	11
5.2. BMPs for Reduced Risk Timing Windows.....	14
5.3. BMPs for Riparian Vegetation Protection	17
5.4. BMPs for Deleterious Substances and Spill Management.....	19
5.5. BMPs for Erosion and Sediment Control	22
5.6. BMPs for Site Restoration or Maintenance	24

Scope-specific Best Management Practices

Scope-specific BMPs include best practice approaches for more specific CIAS activities and works in B.C. that are often unique to a given project and are not as broadly applicable as General BMPs. All **Scope-specific BMPs and a useful one-sheet checklist** is available in the [Appendix](#) to this document.

IMPORTANT: Scope-specific BMPs applicable to your project are intended to be **used together with every General BMP** listed in this document. General BMPs are typically recommended for CIAS projects in B.C., and Scope-specific BMPs include provisions that complement the general approaches for particular CIAS activities.

3.3. Alternatives to Best Management Practices

While alternative practices may be explored, adherence to any cited BMPs becomes mandatory if you are issued a change approval, water licence, use approval or order with terms and conditions that require you to follow one or more of the BMPs, such as by incorporating them by reference. Following these BMPs can help a proponent meet the statutory requirements under the WSA and WSR, and help avoid impacts to stream values. However, given the diversity of CIAS activities and works, the following BMPs will not always be suitable. Alternatives to the BMPs may be explored if they meet the mandatory requirements within the legislation and do not contravene the terms and conditions of a change approval, water licence, use approval or order.

4. Additional Links and Resources

Provincial Resources

- [B.C. Water Policies](#)
- [B.C. Water Webpage](#)
- [Change Approval Activity Guide](#)
- [Change Approval Guide](#)
- [Environmental Mitigation Policy for B.C.](#)
- [Notification Activity Guide](#)
- [Notification Guide](#)
- [Provincial Danger Tree Methodologies](#)
- [Provincial Tree Replacement Criteria](#)
- [Scientific Fish Collection Permit Guidelines \(salvage activities\)](#)
- [Water Rights Database](#)
- [Wetlands of British Columbia: A Guide to Identification](#)
- [Wetlands in B.C. Website](#)

Federal Resources

- [Projects Near Water, Fisheries and Oceans Canada \(DFO\)](#)
- [Navigation Protection Program under Canadian Navigable Waters Act](#)

5. General Best Management Practices for CIAS

5.1. Best Management Practices for Environmental Monitoring of Activities or Works

This section describes best management practices (BMPs) for environmental monitoring to prevent, mitigate, and/or manage risks of changes in and about a stream (CIAS). It is intended to be used with all other General BMPs in this document and with any Scope-specific BMPs applicable to the project. More information on Scope-specific BMPs is available in the [Appendix](#).

IMPORTANT: Mandatory vs. Non-Mandatory

BMPs are widely accepted and recognized approaches that, when adopted and implemented, help individuals to avoid and mitigate potential adverse impacts. It is recommended that you use provincial BMPs for your work planning as applicable.

BMPs should be interpreted as **non-mandatory guidance if they are NOT made mandatory by being required in a legal instrument** (term or condition in an authorization, change approval or order). If, however, they ARE referenced as a term or condition, then you **must adhere to any BMPs required in the legal instrument**.

Background

Environmental monitoring ensures that an authorized activity follows the requirements of legislation and the terms and conditions of an authorizing instrument, such as a change approval or a licence. It is important that the person undertaking any environmental monitoring has the appropriate qualifications and expertise. This will depend on the circumstances but could involve monitoring by a qualified professional with adequate training and knowledge of hydrology, biology, engineering and/or environmental policies in B.C. to determine whether these requirements are properly considered in planning activities or works and followed in implementation. Depending on the nature of the activities or works, an environmental monitor may be on-site continually or may make periodic site visits.

IMPORTANT: Adherence to General and Applicable Scope-Specific BMPs

You are expected to follow the General BMPs for all CIAS projects in addition to any Scope-specific BMPs that pertain to your project. Refer to the [Appendix](#) for more information on the Scope-specific BMPs.

Best Management Practices

The following provisions represent BMPs for monitoring practices in relation to CIAS activities or works under the WSA. If a legal instrument, such as a change approval or licence, requires that you follow any of these BMPs, **the corresponding terms listed below are the mandatory conditions of that requirement and must be followed unless otherwise specified in the instrument.**

- a) An environmental monitor must be retained with respect to CIAS who is appropriately qualified to monitor the activities and works to assure compliance with WSA and WSR legislation and the terms and conditions of the authorizing instrument.
- b) CIAS activities and works must be monitored by an environmental monitor during any

period where there is a risk that they may adversely impact the proper functioning of the stream, stream channel or aquatic ecosystem, or that they may be inconsistent with the terms and conditions of the authorizing instrument.

- c) The holder of an approval or authorization, a proponent or site manager must confer an environmental monitor with the authority to halt and modify work activity if it is necessary to prevent or manage a risk to the stream, stream channel, aquatic ecosystem, private property or authorized uses of water.
- d) A copy of authorizing instruments authorizing the CIAS (e.g., change approval or licence) and relevant BMPs related to the work must be available at the worksite at all times.
- e) A pre-construction meeting must be held between the approval holder or proponent, site manager, environmental monitor, and any contractors managing activities and works to ensure a common understanding of the legal requirements and relevant BMPs for the project.
- f) Within 60 days of the project's completion, the environmental monitor must:
 - i. complete and submit at least one copy of an environmental monitoring report to the person authorized to make the CIAS (e.g., the approval holder, proponent or key contractor); and,
 - ii. make the report available at the request or direction of a WSA official or as required by the authorizing instrument.

Environmental Monitoring Report Components

Table A lists common components for preparing an environmental monitoring report. Your monitoring report may differ, depending on the characteristics of the project or specific directions provided by an authorizing instrument.

Table A: Common environmental monitoring report components.

Section	Components
Project Description	<input type="checkbox"/> Project name <input type="checkbox"/> Site location <input type="checkbox"/> Description of activities or works (CIAS) <input type="checkbox"/> Description of stream (e.g., channel width, wetted width, depth) <input type="checkbox"/> Person or organization undertaking the activities or works, including contact information <input type="checkbox"/> Proponent, approval holder or authorization holder, including contact information
Site Inspections	<input type="checkbox"/> Monitoring characteristics (e.g., streamflow, water quality measurements) <input type="checkbox"/> Frequency of monitoring <input type="checkbox"/> Person(s) conducting the monitoring <input type="checkbox"/> Dates and times of monitoring <input type="checkbox"/> Monitoring locations <input type="checkbox"/> Weather at the time immediately preceding each monitoring visit <input type="checkbox"/> Summary description of each inspection visit, as applicable
Construction Stage	<input type="checkbox"/> A brief description of the CIAS activities or works that occurred and how they fit into the larger work project, if relevant.
Mitigation Measures/ Structures	<input type="checkbox"/> Review of the mitigation measures and/or compensatory mitigation measures required by an authorizing instrument or listed in a client's

	environmental management plan, and whether these measures were achieved.
Salvage Results	<input type="checkbox"/> Results of any fish and amphibian salvages conducted prior to activities or works, if applicable. This section should include at a minimum the specific site location(s), list of species, and numbers salvaged.
Comments/ Other	<input type="checkbox"/> Description of any incidents related to environmental issues or emergencies that occurred on the site and how they were monitored, mitigated and remediated. <input type="checkbox"/> Description of any outstanding mitigative measures or monitoring programs needed for the completion of site restoration.
Photographs	<input type="checkbox"/> Representative date stamped photographs should be taken pre-construction, during each site inspection, during and after all incidents, and after completion of site restoration.

Amendments

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Recommended Citation

For the use by WSA statutory decision makers during the water authorization process:
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Contact us: FrontCounter BC

Tel.: 1-877-855-3222 (Toll-Free)

Email: frontcounterbc@gov.bc.ca

Web: www.frontcounterbc.gov.bc.ca

In Person: Call to make an appointment at one of our many locations:

<https://portal.nrs.gov.bc.ca/web/client/locations>

5.2. Best Management Practices for Reduced Risk Timing Windows

This section describes best management practices (BMPs) for observing reduced risk timing windows to reduce risk to aquatic species and provides expectations for work outside of these windows. It is intended to be used with all other General BMPs in this document and with any Scope-specific BMPs applicable to the project. More information on Scope-specific BMPs is available in the [Appendix](#).

IMPORTANT: Mandatory vs. Non-Mandatory

BMPs are widely accepted and recognized approaches that, when adopted and implemented, help individuals to avoid and mitigate potential adverse impacts. It is recommended that you use provincial BMPs for your work planning as applicable.

BMPs should be interpreted as **non-mandatory guidance if they are NOT made mandatory by being required in a legal instrument** (term or condition in an authorization, change approval or order). If, however, they ARE referenced as a term or condition, then you **must adhere to any BMPs required in the legal instrument**.

Background

Changes in and about a stream (CIAS) activities or works can significantly impact aquatic and terrestrial habitats and should therefore occur during periods of reduced risk. A reduced risk timing window, in relation to a stream, is a period of the year where CIAS can be made with minimized risk to fish, wildlife or the aquatic ecosystem of the stream (see Table B).

Reduced risk timing windows are specified by a habitat officer and can vary across regions (see [Regional Timing Windows B.C.](#)). [WSR s.44](#) describes a habitat officer's authority to specify timing windows on notice of authorized changes. A WSA decision maker may receive similar recommendations from a habitat officer when making a decision on a change approval or authorization application.

Additional timing windows may apply for specific species. Some species-at-risk (i.e., organisms designated provincially or federally as vulnerable, threatened or endangered), rare species, or species of cultural value may not have established reduced risk timing windows and identification of a timing window may require input from a QP with qualifications and expertise related to such species.

Table B: Examples of benefits from adhering to a reduced risk timing window.

Wildlife	Potential Benefits of Timing Windows or Description
Fish and fish habitat	Avoids harm to spawning habitat, fish eggs, and juvenile fish while preventing impacts to fish that may be migrating, over-wintering, or rearing. Prevents harmful alteration, disruption or destruction of spawning habitat, sediment introduction, fish egg and alevin destruction, and behavioural impacts (e.g., displacement).
Amphibians	Amphibians can be especially sensitive to CIAS impacts. Using appropriate timing windows can mitigate impacts to amphibians and their habitats. Appropriate timing windows depend on the habitats and potential for species presence.

Beaver dams	Avoids unintended mortality of beaver kits in the lodge and adult beavers during the winter. Prevents unintended impacts to other overwintering aquatic organisms and fish. ²
Birds	Reduces the risk of impacting bird eggs, nests, and young. Timing windows are site-specific, depending on which species may be present and habitat sensitivity.

Advice on Identifying Species

To determine the reduced risk timing window, you might need to determine which species are present in the stream, stream channel or aquatic ecosystem. Also, depending on how CIAS related activities are carried out, both terrestrial and aquatic ecosystems may be impacted. The following steps may help individuals identify species that may be impacted.

- Identify the location where CIAS activities and works are planned.
- Use online or physical resources to identify aquatic and terrestrial species within the project area. A QP may be useful in identifying species.
- If there is no data about the presence of fish species available, treat the stream as if it is fish-bearing.
- If there is no data about the presence of fish species available and the stream converges with a fish-bearing stream, use the reduced risk timing window for the receiving stream.
- Where the presence of species at risk in the stream, stream channel or aquatic ecosystem are identified, instream work should be avoided or comprehensive mitigation measures or compensatory mitigation measures should be considered. More information is available through associated [species recovery strategies](#).

Determining Reduced Risk Timing Windows

Once the potentially impacted species are identified, use the reduced risk timing windows to inform your work plan. Regional information, possible related terms and conditions, and timing windows can be viewed [online](#) (or searched using “regional timing windows B.C.”).

Working Outside of Reduced Risk Timing Windows

If working outside the reduced risk timing window is unavoidable, then it may be appropriate to incorporate additional monitoring into the project plan. A rationale may be required for an alternative timing window, detailing how potential adverse impacts will be avoided, mitigated or compensatory mitigation measures considered. This rationale should be prepared by a qualified person (QP) with appropriate qualifications and expertise to assess the impacts of the works and activities and may include:

- Explanation why work cannot occur during approved regional timing windows.
- List of potentially impacted species.
- Description of pre-disturbance habitat quality at the proposed worksite and expected post-disturbance habitat quality.
- How impacts will be avoided, mitigated or, if not mitigable, addressed by compensatory mitigation measures (e.g., offsetting).
- How work will be planned and implemented to avoid fish bearing sections of the stream (when feasible) or to achieve fish absence in the work area(s) by salvage or other approaches.

² Additional guidance on this topic is provided in the BMP for Beaver and Beaver Dam Management in the [Appendix](#).

IMPORTANT: Adherence to General and Applicable Scope-Specific BMPs

You are expected to follow the General BMPs for all CIAS projects in addition to any Scope-specific BMPs that pertain to your project. Refer to the [Appendix](#) for more information on the Scope-specific BMPs.

Best Management Practices

The following provisions represent BMPs for considering reduced risk timing windows when planning a CIAS project under the WSA. If a legal instrument, such as a change approval or licence, requires that you follow any of these BMPs, **the corresponding terms listed below are the mandatory conditions of that requirement and must be followed unless otherwise specified in the instrument.**

- a) Work must occur during the reduced risk timing window for the identified species or appropriate steps taken to implement mitigation measures or compensatory mitigation measures to prevent or address impacts of the CIAS activities if occurring outside the reduced risk timing window.
- b) Work must be planned for favourable weather and low flow water conditions within the approved work timing window.
- c) Species that may be impacted by the CIAS activities must be identified and plans must be in place to minimize and mitigate any impacts in the event of an incident.

Additional Resources

- [Regional Timing Windows B.C.](#)
- [Species and Ecosystems at Risk in B.C.](#)
- [Brochures for Species and Ecosystems at Risk in B.C.](#)
- [Recovery planning documents for species at risk](#)
- [Wildlife Habitat Features](#)
- [Accounts and Measures for Managing Identified Wildlife \(by species\)](#)
- [Accounts and Measures for Managing Identified Wildlife \(by forest region\)](#)
- [DFO Timing Windows \(marine and estuarine timing windows\)](#)

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5.3. Best Management Practices for Riparian Vegetation Protection

This section describes best management practices (BMPs) to protect riparian vegetation and habitat function as a result of changes in and about a stream (CIAS). It is intended to be used with all other General BMPs in this document and with any Scope-specific BMPs applicable to the project. More information on Scope-specific BMPs is available in the [Appendix](#).

IMPORTANT: Mandatory vs. Non-Mandatory

BMPs are widely accepted and recognized approaches that, when adopted and implemented, help individuals to avoid and mitigate potential adverse impacts. It is recommended that you use provincial BMPs for your work planning as applicable.

BMPs should be interpreted as **non-mandatory guidance if they are NOT made mandatory by being required in a legal instrument** (term or condition in an authorization, change approval or order). If, however, they ARE referenced as a term or condition, then you **must adhere to any BMPs required in the legal instrument**.

Background

The removal of riparian vegetation is detrimental to the proper functioning of streams. In some cases, the removal of riparian vegetation is inevitable, creating potential conflict between environmental values and human interests. It is important for projects to make and implement a plan to protect vegetation during CIAS works.

IMPORTANT: Adherence to General and Applicable Scope-Specific BMPs

You are expected to follow the General BMPs for all CIAS projects in addition to any Scope-specific BMPs that pertain to your project. Refer to the [Appendix](#) for more information on the Scope-specific BMPs.

Best Management Practices

The following provisions represent BMPs for managing riparian vegetation when conducting CIAS activities under the WSA. If a legal instrument, such as a change approval or licence, requires that you follow any of these BMPs, **the corresponding terms listed below are the mandatory conditions of that requirement and must be followed unless otherwise specified in the instrument**.

- a) Areas of work and access routes must be clearly marked onsite prior to starting work, e.g., for work, staging, storage, access, and the route taken must minimize disturbance to riparian vegetation.
- b) No riparian vegetation is removed other than what is needed for site access and to complete the CIAS activities or works.
- c) Removal of roots or trees that are embedded in the stream bank must be avoided, and root protection zones must be described in advance for any tree that can be retained. These trees must be delineated and protected at the onset of works.
- d) Vegetation clearing for site and work area access must be limited by using existing trails, roads or cut lines as access routes.
- e) Trees and shrubs with roots embedded in the stream or stream channel are only removed if there are concerns about human safety or the activities or works cannot be completed

without their removal.

- f) Salvage seed or live stakes from the natural vegetation prior to disturbance for site restoration following the work.
- g) If vegetation on both sides of the stream or stream channel must be cleared, strategies must be used to limit fording by equipment. Removal of trees used by birds and other wildlife while they are breeding, nesting, roosting or rearing young should be avoided to the greatest extent possible. Protected trees (e.g., raptor nest sites) must not be removed.
- h) Where proposing to top or remove trees, a person who is appropriately qualified to assess impacts to avian species must be consulted (e.g., a professional biologist).
- i) Felling or topping trees must be carried out by someone who is appropriately qualified (e.g., a professional forester) to assess and mitigate the impact of the activities or works.
- j) Pruning or removing tree limbs must be prioritized over removing the entire tree.
- k) Falling or pruning of trees must occur in a manner that will not disturb aquatic organisms and does not damage the banks and the bed of the stream.
- l) Large woody debris and the stumps of large diameter trees must be left in place where it is safe to do so.
- m) Micro-habitats such as tree snags, basking logs, and rock piles (hibernacula) must be retained on the landscape where it is safe to do so.
- n) Tree protection measures are used, including horizontal root protections and vertical trunk and crown protections, where potential adverse impacts to tree parts are identified.
- o) Trees are felled away from the stream or stream channel, unless there are public or worker safety concerns. Trees that are felled into the stream or stream channel are removed during the instream work timing window in a manner that does not damage the bed or banks of the stream (stream channel) and are placed at a site where they will not enter the stream channel during high flows.
- p) Removal of riparian trees and shrubs using hand tools/saws is preferable over use of heavy equipment to minimize ground disturbance. Where equipment must be used, a machine-free zone adjacent to the stream or stream channel to protect the bank from ground compaction is followed, where practicable.
- q) Wildlife is excluded (such as through fencing) from the project's disturbance area where activities or works could adversely impact wildlife habitat.

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5.4. Best Management Practices for Deleterious Substances and Spill Management

This section describes best management practices (BMPs) to prevent the introduction of any contaminants or substances to a stream, stream channel or aquatic ecosystem that could cause significant adverse impacts. It is intended to be used with all other General BMPs in this document and with any Scope-specific BMPs applicable to the project. More information on Scope-specific BMPs is available in the [Appendix](#).

IMPORTANT: Mandatory vs. Non-Mandatory

BMPs are widely accepted and recognized approaches that, when adopted and implemented, help individuals to avoid and mitigate potential adverse impacts. It is recommended that you use provincial BMPs for your work planning as applicable.

BMPs should be interpreted as **non-mandatory guidance if they are NOT made mandatory by being required in a legal instrument** (term or condition in an authorization, change approval or order). If, however, they ARE referenced as a term or condition, then you **must adhere to any BMPs required in the legal instrument**.

Background

[WSA s.46](#) prohibits the introduction of debris, refuse, carcasses, human or animal waste, pesticides, fertilizers, contaminants or another matter or substance into a stream, stream channel or an area adjacent to a stream. These are often referred to as deleterious substances. Unless allowed by a permit or piece of legislation, a person must not introduce or allow the introduction of such contaminants or substances into a stream, a stream channel or an area adjacent to a stream in such quantity or manner as to cause significant adverse impact to:

- the stream or stream channel,
- the existing uses of the water from the stream,
- the property of riparian owners on the stream,
- an aquifer that is hydraulically connected to the stream or the existing uses of the water from that aquifer, or
- the aquatic ecosystem of the stream.

Common spills that contravene the law include but are not limited to gas leaks, oil, diesel or chemical spills and any other release of hazardous material to the environment. The [Environmental Management Act](#) and the federal [Fisheries Act](#) also prohibit the introduction of deleterious substances into a watercourse without proper authority.

Spill Management

A spill of a deleterious substance into a stream may trigger the provisions of the [Environmental Management Act \(EMA\), Part 7, Division 2.1 – Spill Preparedness, Response and Recovery](#) that both require responsible persons and allow the government to take immediate action to prevent (or prevent the continuation of) the hazard or threat caused by the spill and resolve immediate and long-term impacts. Depending on the circumstances, other permissions may also be required. If a spill response action would cause more harm to the stream, stream channel or aquatic ecosystem than the threat or hazard created by a spill, it is not considered necessary, and is not required by EMA Division 2.1.

Ongoing or subsequent remediation work to the stream, stream channel and the aquatic ecosystem will need to be authorized as a CIAS under the WSA. The [Spill Reporting Regulation](#) prescribes the information that is required, as well as the time and manner in which it is required, for reporting a spill.

The responsible person(s) acting under government direction may take necessary spill response steps without obtaining normally required WSA change approvals, if:

- immediate response action is needed to prevent, or prevent the continuation of the hazard or threat caused by the spill;
- the immediate response action is a CIAS that is not authorized by WSA/WSR; and,
- any harm to the stream, stream channel or aquatic ecosystem caused by the response action is outweighed by the hazard or threat caused by the spill.

Oil and Gas Spills or Incidents

The B.C. Oil and Gas Commission incident and spill reporting guidelines and instructions require the oil and gas permit holder to report incidents to the Commission within 24 hours. More information is available in [B.C. Oil and Gas Commission Incident Reporting Instructions and Guidelines](#).

Reporting Spills

Report spills immediately – Mandatory at all times

When a spill occurs, or there is the risk of one occurring, it must be reported immediately to Emergency Management British Columbia (EMBC) by calling **1-800-663-3456**. More information can be found on the government's [Report A Spill](#) webpage.

It is best practice to notify a WSA engineer and habitat officer of spills as soon as practicable to ensure the actions taken are necessary and appropriate (and thus avoid non-compliance under WSA).

IMPORTANT: Adherence to General and Applicable Scope-Specific BMPs

You are expected to follow the General BMPs for all CIAS projects in addition to any Scope-specific BMPs that pertain to your project. Refer to the [Appendix](#) for more information on the Scope-specific BMPs.

Best Management Practices

The following provisions represent BMPs for avoiding or managing the introduction of deleterious substances into a stream while conducting CIAS activities under the WSA. If an authorizing instrument, such as an approval or licence, requires you to follow these BMPs, **the corresponding terms listed below are the mandatory conditions of that requirement and must be followed unless otherwise specified in the instrument.**

- a) Equipment must operate from outside the stream channel, wherever possible. Mechanized equipment and machinery must not be operated within the water without appropriate mitigation measures.
- b) Steps must be taken to prevent the introduction of silt, debris, refuse, sediment or sediment-laden water, raw concrete or concrete leachate, or any other deleterious substances into streams, ditches and storm sewer systems so that the quality of water is not adversely affected.

- c) Equipment and machinery must be clean and in good operating condition (e.g., power washed and free of leaks or excess oil and grease). No equipment refueling or servicing is undertaken within thirty (30.0) metres of any stream or surface water drainage.
- d) Hydraulic machinery that is in and about a stream must use environmentally sensitive hydraulic fluids which are non-toxic to aquatic life and are biodegradable.
- e) Paints and solvents must be stored, mixed and transferred in spill containment trays on land at least thirty (30.0) metres from any stream or surface water drainage.
- f) All waste materials must be stored outside of the riparian area until appropriate disposal. All excess drilling mud, cuttings and other waste materials must be stored a minimum of thirty (30.0) metres away from the stream on flat ground to prevent sediment and other deleterious substances from entering the stream.
- g) To prevent the release of substances toxic to fish, there must be no use of treated wood products within the stream or stream channel or ditch lines.
- h) Fill, road crush, riprap or other materials used in or about the stream must be inert, clean and free of contaminants. Processed rock must not be acid generating or metal leaching.
- i) A spill response plan and spill kit suitable for all substances on-site must be readily accessible on-site in the event of a release of a deleterious substance to the environment.

Additional Resources

- [B.C. Oil and Gas Commission Incident Reporting Instructions and Guidelines.](#)
- [Relocation of Soils from Contaminated Sites](#), Ministry of Environment, 2009
- [Remediation of Sites Contaminated by a Spill](#), Ministry of Environment, 2009

For more information on spill reporting, please contact the Environmental Emergency Program at SpillReports@gov.bc.ca or refer to the [Spill Reporting Fact Sheet](#) and [Spill Reporting Regulation](#) of the [Environmental Management Act](#).

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5.5. Best Management Practices for Erosion and Sediment Control

This section describes best management practices (BMPs) to reduce and mitigate sedimentation, runoff, and erosion associated with construction in and about streams. It is intended to be used with all other General BMPs in this document and with any Scope-specific BMPs applicable to the project. More information on Scope-specific BMPs is available in the [Appendix](#).

IMPORTANT: Mandatory vs. Non-Mandatory

BMPs are widely accepted and recognized approaches that, when adopted and implemented, help individuals to avoid and mitigate potential adverse impacts. It is recommended that you use provincial BMPs for your work planning as applicable.

BMPs should be interpreted as **non-mandatory guidance if they are NOT made mandatory by being required in a legal instrument** (term or condition in an authorization, change approval or order). If, however, they ARE referenced as a term or condition, then you **must adhere to any BMPs required in the legal instrument**.

Background

Erosion is defined under the [WSR s.1](#) as the wearing away by the action of water of the stream channel or the materials used in works. Sedimentation, while not defined under the WSR, is commonly understood as the action or process of forming or depositing sediment (matter that settles to the bottom of a liquid).

Managing the erosion potential of a site as a first step and retaining as much of the riparian area as possible are the best ways to reduce sedimentation during changes in and about a stream (CIAS). Where riparian disturbance is unavoidable, individuals should adopt measures to minimize sediment run-off into streams to protect water quality and the surrounding aquatic ecosystem.

IMPORTANT: Adherence to General and Applicable Scope-Specific BMPs

You are expected to follow the General BMPs for all CIAS projects in addition to any Scope-specific BMPs that pertain to your project. Refer to the [Appendix](#) for more information on the Scope-specific BMPs.

Best Management Practices

The following provisions represent BMPs for mitigating sedimentation, runoff, and erosion associated with CIAS activities under the WSA. If a legal instrument, such as a change approval or licence, requires that you follow any of these BMPs, **the corresponding terms listed below are the mandatory conditions of that requirement and must be followed unless otherwise specified in the instrument.**

- a) Equipment must operate from outside the stream channel, wherever possible.
- b) Fill, excavated material, debris, or other erodible materials must be contained and placed at least thirty (30.0) metres outside of the bank of the stream and to an area where the material will not result in sediment run-off into the stream or another stream.
- c) Materials that are placed on the stream banks or within the active stream channel or floodplain (such as rock or riprap) must be free of fine particulates, overburden, debris, and or other substances that are potentially harmful to aquatic life and water quality.

- d) Machinery must be operated outside the bank of the stream and away from the edge of the streambank to avoid soil compaction, disturbance and potential transport of sediments to the stream channel.
- e) Sediment, runoff, and erosion control measures must be developed and implemented before CIAS activities and works begin, including details on the steps that will be taken to reduce sedimentation when significant precipitation or overland flow events occur. Efficacy of these measures is monitored during construction and adjustments are made, if needed.
- f) If activities or works occur during periods of heavy or persistent precipitation, these must be halted if sedimentation from them poses a significant risk of harm to the stream, stream channel or aquatic environment.
- g) Ditches, water bars, or water diversions in the work area must be constructed so they do not directly discharge sediment-laden surface run-off into the stream unless the discharge is authorized (e.g., waste discharge permit).
- h) Any diverted flow is carried to a vegetated area or area (e.g., settling basin) where fine particulates and/or sediment can settle out before the water can be returned to the stream.
- i) Disturbance to existing vegetation on and adjacent to the stream or stream banks must be avoided.
- j) Where excavated or disturbed material remains within the work area, these must be graded to a stable angle of repose and sediment mobilization mitigation measures must be employed.

Additional Resources

- [Erosion and Sediment Control Association of British Columbia](#)
- [International Erosion Control Association](#)
- [B.C. Water Quality Guidelines](#)

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5.6. Best Management Practices for Site Restoration or Maintenance

This section describes best management practices (BMPs) for site restoration or maintenance planning, implementation and monitoring for changes in and about a stream (CIAS). It is intended to be used with all other General BMPs in this document and with any Scope-specific BMPs applicable to the project. More information on Scope-specific BMPs is available in the [Appendix](#).

IMPORTANT: Mandatory vs. Non-Mandatory

BMPs are widely accepted and recognized approaches that, when adopted and implemented, help individuals to avoid and mitigate potential adverse impacts. It is recommended that you use provincial BMPs for your work planning as applicable.

BMPs should be interpreted as **non-mandatory guidance if they are NOT made mandatory by being required in a legal instrument** (term or condition in an authorization, change approval or order). If, however, they ARE referenced as a term or condition, then you **must adhere to any BMPs required in the legal instrument**.

Background

Site restoration refers to the process of returning a work area to an augmented condition or a condition resembling its original pre-disturbance ecological state. Site maintenance can apply to the ongoing activities conducted to meet restoration objectives. Stream channel restoration or maintenance can help ensure that a stream can maintain adequate flow to support a healthy ecosystem and human activities; prevent further disturbance to the stream channel; and enhance, create or re-establish habitat or natural conditions.

Conducting site restoration activities correctly can help minimize the risk of long-term impacts to the stream, stream channel, and aquatic ecosystem, such as those caused by erosion or loss of riparian habitat. Stream channel restoration or maintenance work involves careful planning as it can require long-term, complex monitoring and data collection for fish populations, stream conditions, water quality, temperature and/or turbidity. Ideally, any habitat enhancement, restoration or maintenance work is planned and conducted with consideration of species biology, habitat ecology, hydrology, and geomorphology.

Authorized Changes under WSR Part 3

It may be possible to carry out site restoration or maintenance as an authorized change if it can occur in accordance with [WSR Part 3 \(WSR\)](#). WSR s.39(1)(g), (h), and (j) specifically outline the criteria to be met for site restoration or maintenance to be considered as authorized changes under WSR. If the specifications **do not meet** these requirements, and the work is not authorized under another section of WSR Part 3, the work will require a change approval, water licence, use approval or order.

- WSR s.39(1)(g): the restoration or maintenance of a stream channel by the government;
- WSR s.39(1)(h): the restoration or maintenance of a stream channel by a municipality or regional district;
- WSR s.39(j): the restoration or maintenance of fish habitat by the Crown in right of either Canada or British Columbia;

Permissions

A review and authorization under the federal *Fisheries Act* may also be required. If the work is in association with a dike, refer to the *Dike Maintenance Act*.

IMPORTANT: Adherence to General and Applicable Scope-Specific BMPs

You are expected to follow the General BMPs for all CIAS projects in addition to any Scope-specific BMPs that pertain to your project. Refer to the [Appendix](#) for more information on the Scope-specific BMPs.

Best Management Practices

The following provisions represent BMPs for site restoration related to CIAS activities or works under the WSA. If a legal instrument, such as a change approval or licence, requires that you follow any of these BMPs, **the corresponding terms listed below are the mandatory conditions of that requirement and must be followed unless otherwise specified in the instrument.**

- a) Where water-based operations are required, the placing of spuds, anchors or other equipment outside the footprint of the project area (e.g., dredge area) must be avoided.
- b) The topsoil must be protected from compaction and admixing. Replace topsoil over root networks at a stable angle of repose without compaction at the completion of the work.
- c) The planting of live stakes must be timed for the dormant season in the spring (prior to leaf out) or in the fall (once the leaves have dropped).
- d) Disturbed areas (including riparian areas) must be restored to an augmented or ecologically similar state with suitable species to restore the vegetative cover and prevent surface erosion and subsequent siltation of the stream. This may include hydroseeding the banks and areas adjacent to the stream with a heavy mulch, tackifier and local, ecologically suitable seed mix (i.e., does not include undesirable or invasive species).
- e) Revegetation must include a diverse mix of native ecologically suitable trees, shrubs, and herbaceous plants appropriate to the site conditions. In addition to tree replacement quantities, shrub and herbaceous species must be replaced on the landscape to their natural assemblage.
- f) All equipment, supplies, and non-biodegradable materials must be removed from the site and disposed of at an approved facility, including non-permanent sediment control works once they are no longer required, or any suspended sediment has settled (e.g., non-biodegradable silt fences).
- g) Soil amendments and/or mulch must be used, where appropriate, to promote growth of newly planted vegetation, particularly in well drained soils. Regular watering is conducted, where appropriate, until plants and stakes become established.
- h) A plan must be in place to monitor the effectiveness of the restoration and site stability over time (e.g., over one or more growing seasons or one or more freshets).
- i) Only material that is necessary to mitigate flooding or to facilitate the proper functioning of the stream must be removed. Material that is not causing an adverse impact to the functioning of the stream and whose removal may adversely impact instream habitat, such as debris that is more than one-third buried, must be left in place.
- j) For dredging projects, restore the channel bed and banks to their natural state as much as practicable. Replace or restore any habitat features that were disturbed.

Additional Resources

- [Watershed Restoration Project and Management Reports, BC Government](#)
- [Erosion and Sediment Control Association of BC Best Management Practices](#)
- [Guidelines for Planning Watershed Restoration Projects, Watershed Restoration Technical Circular No.1, BC Government, 1995](#)
- [Fish Habitat Rehabilitation Procedures, Watershed Restoration Technical Circular No. 9, BC Government, 1997](#)
- [Lands Near Water: Riparian Restoration and Enhancement](#) (updated 2018)
- [Stream, Riparian, and Watershed Restoration](#)
- [Stewardship Centre BC: Stewardship Practice Guides](#)
- [Stream Stewardship – A Guide for Planners and Developers \(1993/94\)](#)
- [The British Columbia Watershed Restoration Program: Summary of the Experimental Design, Monitoring and Restoration Techniques Workshop \(Table 3\) 1994](#)
- [Watershed Restoration Planning and Priority Setting: An Emphasis on Fish Habitat 2004](#)
- [Wetland Mitigation in Washington State Part 2: Developing Mitigation Plans, 2006.](#)
- [Projects Near Water](#), Fisheries and Oceans Canada (DFO)
- [Mitigating the Impacts of Channel Maintenance in the Lower Fraser Valley](#), MOE, 2006
- [Provincial Tree Replacement Criteria](#)

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