

Highway Maintenance Specification Sections

3-300 Highway Snow Removal

3-310 Winter Abrasive and Chemical Snow and Ice Control

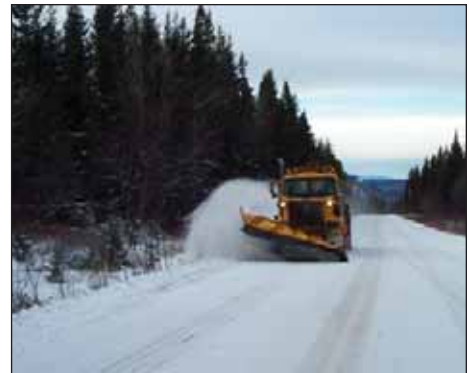
3-320 Roadside Snow and Ice Control

Available at:

http://www.th.gov.bc.ca/BCHighways/contracts/maintenance/Schedule_21_Maintenance_Specifications.pdf

5.9 Winter Road Management

Winter road maintenance activities include snow removal, snow and ice control, and application of winter abrasives and de-icing chemicals. These activities are undertaken to ensure winter road surfaces remain clear and safe for the travelling public.



Environmental Issues

Primary environmental issues relating to routine winter road management activities are summarized in the following table. It should be noted that site-specific conditions might present additional issues you will need to address in planning and undertaking your works.

Work Activity	Potential Environmental Impacts	Performance Standards and Legal Requirements
Snow Removal	May introduce sediment or other deleterious substances to a watercourse through snow removal activities or improper storage	No release of any substance that could be deleterious (toxic) to fish or fish habitat (<i>Fisheries Act</i> , Sections 34(1) and 36(3)). Reporting of any polluting substance spills (<i>Environmental Management Act</i> , Section 79(5)) and disposal of all waste materials in accordance with the Act (<i>Environmental Management Act</i> , Waste Disposal Regulation).

Winter Road Management

Work Activity	Potential Environmental Impacts	Performance Standards and Legal Requirements
Snow Removal	May damage aquatic features, roadside riparian vegetation, or other significant habitats through the side casting of accumulated snow, ice, sediment, and de-icing compounds	No harmful alteration, disruption or destruction of fish habitat without authorization (<i>Fisheries Act</i> , Section 35(1)). No alteration of a stream unless authorized by an approval, licence, or order (<i>Water Act</i> , Section 9), or through a Notification (<i>Water Act</i> Regulation, Part 7).
	May damage habitat through the improper location of sediment and debris disposal sites in ditches, wetlands, or other significant habitat areas	No harmful alteration, disruption or destruction of fish habitat without authorization (<i>Fisheries Act</i> , Section 35(1)). No alteration of a stream unless authorized by an approval, licence, or order (<i>Water Act</i> , Section 9), or through a Notification (<i>Water Act</i> Regulation, Part 7).
Application of Winter Aggregate and De-icing Compounds	May introduce sediment or other deleterious substances to a watercourse through application or improper materials containment at storage location	No release of any substance that could be deleterious (toxic) to fish or fish habitat (<i>Fisheries Act</i> , Sections 34(1) and 36(3)). Reporting of any polluting substance spills (<i>Environmental Management Act</i> , Section 79(5)) and disposal of all waste materials in accordance with the Act (<i>Environmental Management Act</i> , Waste Disposal Regulation).
	May damage roadside and riparian vegetation or other significant habitats through the over-spraying of de-icing compounds	No harmful alteration, disruption or destruction of fish habitat without authorization (<i>Fisheries Act</i> , Section 35(1)). No alteration of a stream unless authorized by an approval, licence, or order (<i>Water Act</i> , Section 9), or through a Notification (<i>Water Act</i> Regulation, Part 7).
Spring Cleaning of Winter Traction Materials <i>See Section 6.3</i>	May degrade air quality and highway visibility, particularly in spring, posing health and safety problems for highway users and nearby residents	Compliance with local air quality regulations and municipal bylaws.
	May introduce sediment or other deleterious substances (i.e., salt, sand, aggregates) to roadside watercourses through runoff or the cleaning of accumulated materials from the highway surface	No release of any substance that could be deleterious (toxic) to fish or fish habitat (<i>Fisheries Act</i> , Sections 34(1) and 36(3)).
	May contaminate surface waters, groundwater, and soils when snowbanks melt and release accumulated de-icing and anti-icing compounds	Reporting of any polluting substance spills (<i>Environmental Management Act</i> , Section 79(5)) and disposal of all waste materials in accordance with the Act (<i>Environmental Management Act</i> , Waste Disposal Regulation).



Environmental Best Practices

The following BPs are provided as guidelines to help you ensure your routine works are completed in compliance with the performance standards and environmental legislation. Please note that the general BPs provided apply for most work activities within this category; if BPs specific to the activity are available they are also noted below.

Regulatory Agency Contact

- Prior to beginning your winter road management activities, identify any sensitive habitat areas, including wetted ditches and natural watercourses (streams, lakes and marine foreshores), found within your work area that may be of concern to regulatory agencies.
- Meet with the appropriate regulatory agency contact, as listed in Section 8, to discuss site-specific environmental protection measures. Refer to Section 7 for information on the Memorandum of Understanding with MoE and the recommended protocol for maintaining regular communications with regulatory agencies.

Site Management

- Identify and avoid sensitive habitat areas that may be negatively impacted from the side-casting of snow and ice cleared from winter roads. For example, pools on small streams crossing the highway provide essential winter habitat for fish. These pools can be lost when ploughed material accumulates and displaces water in the pool with ice and snow.
- Avoid ploughing snow and ice into sensitive habitat areas. In addition to contributing to habitat losses, winter aggregate materials (e.g., sand, salt, etc) can infill channels and degrade habitat and water quality in watercourses and wetlands.

Material Selection

- Consider the use of alternatives to road salt in environmentally sensitive areas (i.e., near watercourses).
- Where possible, in areas where dust generation is a concern during spring highway surface cleaning activities, choose larger-sized aggregate or pre-washed materials to help minimize dust generation.

Materials Storage

- Store materials such as de-icing compounds on impermeable surfaces to prevent their release to soils and groundwater.
- Minimize loss at storage piles. Ensure that aggregate storage piles are not contributing sediment to nearby watercourses. Keep storage piles of materials containing de-icing compounds (road salt) well covered and dry to prevent chemical release in storm water runoff.
- Use caution during loading of trucks to minimize loss of materials.

Winter Road Management

- Ensure that hazardous materials use, storage and disposal is in accordance with the information contained in their Material Safety Data Sheets.
- Minimize the release of salty snowmelt waters from snow storage piles to soils and groundwater by directing runoff to areas less sensitive to impact.

Equipment Use

- Ensure equipment is selected and operated to more accurately apply salt to road surfaces and prevent over-spray.
- Reduce the need for salt application through better removal of snow and ice prior to the application of de-icing chemicals.



Key Information Sources

The documents and websites listed below are recommended resources for winter road maintenance. They can provide examples of existing protocols and management strategies, as well as additional information on specific operational BPs (e.g., erosion and sediment control techniques).

MoT Technical Circulars:

There are no relevant Technical Circulars authored to-date for this activity.

All Technical Circulars are available at:

http://www.th.gov.bc.ca/Publications/Circulars/Current_technical.asp

Locally Developed BPs

(Provide any locally-developed BPs):

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Other Resources:

Water Quality Best Management Practices Compendium Website.

Environmental Protection Division, Ministry of Environment.

http://www.env.gov.bc.ca/wat/wq/nps/BMP_Compendium/nps_bmp.htm

Best Management Practices to Mitigate Road Dust from Winter Traction Materials. Ministry of Water, Land and Air Protection. March 2005.

http://www.env.gov.bc.ca/air/airquality/pdfs/roaddustbmp_june05.pdf

Road Salt and Snow and Ice Control Primer. Transportation Association of Canada. December 1999.

<http://www.tac-atc.ca/francais/pdf/primer.pdf>

Roadsalt and Winter Maintenance for British Columbia Municipalities, Best Management Practices to Protect Water Quality. Warrington, P.D. December 1998

<http://www.env.gov.bc.ca/wat/wq/bmps/roadsalt.html>

Environmental Impacts of Road Salts. Environment Canada Science and Environment Bulletin. January/February 2002.

http://www.ec.gc.ca/science/sandejan02/article3_e.html



Checklist for Environmental Protection Requirements

- Is your proposed work considered a “routine” maintenance activity? If not, approvals or permits may be required. Contact your local municipal, provincial, or federal regulatory agency staff.
- Has this project been discussed with local environmental regulatory staff? In addition to the BP information presented, other site-specific conditions may apply.
- Have site-specific environmental protection requirements been identified? List below:
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 - _____
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