OVERHEAD LINE CONSTRUCTION

VERSION 2.0 Valid until March 31, 2007

Overhead lines are constructed for electrical or telecommunication transmission to suspend across many watercourses that range in size from small streams and ponds to large rivers, lakes and reservoirs.

Although fish habitat occurs throughout a water system, it is the riparian habitat that is most sensitive to overhead line construction. Riparian vegetation occurs adjacent to the watercourse and directly contributes to fish habitat by providing shade, cover and food production areas. It is important to design and build your overhead line project to meet your needs while also protecting riparian areas.

Fisheries and Oceans Canada (DFO) is responsible for protecting fish and fish habitat across Canada. Under Section 35 of the Fisheries Act no one may carry out a work or undertaking that will cause the harmful alteration, disruption or destruction (HADD) of fish habitat unless it has been authorized by DFO. By following the conditions and measures set out below you will be in compliance with Subsection 35(1) of the Fisheries Act.

The purpose of this Operational Statement is to describe measures to incorporate into the design and construction of your overhead line project, in order to avoid the HADD of fish habitat. You may proceed with your overhead line project without a DFO review when you meet the following conditions:

- the work does not involve the clearing of riparian vegetation the removal of select plants within the right-of-way can occur to meet operational and/or safety needs,
- it does not require the construction or placement of any temporary or permanent structures (e.g. islands, poles, crib works, etc.) below the high water mark, and
- incorporate the Measures to Protect Fish and Fish Habitat when constructing overhead lines listed below in this Operational Statement.

If you cannot meet all of the conditions listed above and cannot incorporate all of the measures listed below then your project may result in a violation of Subsection 35(1) of the *Fisheries Act* and you could be subject to enforcement action. In this case, you should contact the closest DFO office if you wish to obtain DFO's opinion on the possible options you should consider to avoid contravention of the *Fisheries Act*.

You are required to comply with all municipal, provincial, territorial and/or federal legislation (for example, the *Navigable Waters Protection Act*) that applies to the work being carried out in relation to this Operational Statement. If you have questions regarding this Operational Statement, please refer to the list of Frequently Asked Questions or contact DFO Regional Headquarters at 1-866-845-6776.

Please notify DFO 10 working days before starting your work by filling out and sending the **Notification Form** directly to DFO Regional Headquarters. It is recommended that you keep a copy of the Operational Statement at the work site to demonstrate to Habitat and Fishery Officer staff, that the conditions and measures as outlined in the OS are being followed.

Area of Application

This Operational Statement applies to the province of British Columbia and Yukon Territory.

Measures to Protect Fish and Fish Habitat when Constructing Overhead Lines

- 1. Minimize the riparian area temporarily disturbed by access activities along the adjacent upland property, and preserve trees, shrubs, and grasses near the shoreline. Use existing trails, roads or cut lines wherever possible, as access routes to avoid disturbance to the riparian area.
- 2. Locate the alignment to avoid or minimize the number of watercourse crossings required. If the alignment is located adjacent to a watercourse, minimize disturbance to the riparian vegetation by selecting areas that have been previously disturbed, reduce right-of-way widths and/or avoid running the alignment parallel to the watercourse.
- 3. Design and construct approaches so that they are perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation.
- 4. Avoid building any structures or meander bends, braided streams, alluvial fans, active floodplains or any other area that is inherently unstable and may result in erosion and scouring of any structures.
 - 4.1. Where possible, locate all temporary or permanent structures, such as poles, sufficiently beyond the top of bank to prevent erosion.
- 5. On wet terrains (e.g. bogs), lines should be installed under frozen conditions, where possible, or using aerial methods (e.g. helicopter).
- 6. Machinery crossing the watercourse (over and back) to bring equipment required for construction to the opposite side of the watercourse is limited to a one-time event. If multiple crossings are required, or if significant erosion and degradation is likely to occur as a result of equipment crossings, then a temporary crossing (e.g. bailey bridge) or other practices should be used to protect these areas. The crossing must also adhere to fisheries timing windows specific to your area.
- Install effective sediment and erosion control measures before starting work to prevent entry of sediment into the watercourse. Inspect them regularly during the course of construction and make all necessary repairs if any damage occurs.
 - 7.1. Avoid work during wet and rainy periods.
- 8. Operate machinery on land and in a manner that minimizes disturbance to the banks of the watercourse.
 - 8.1. Machinery is to arrive on site in a clean, washed condition and is to be maintained free of fluid leaks.
 - 8.2. Wash, refuel and service machinery and store fuel and other materials for the machinery away from the water to prevent any deleterious substance from entering the water.
 - 8.3. Keep an emergency spill kit on site in case of fluid leaks or spills from machinery.
 - 8.4. Restore banks to original condition if any disturbance occurs.
- 9. Stabilize any waste materials removed from the work site to prevent them from entering the watercourse. This could include covering stockpiles with biodegradable mats or tarps or planting stockpiles with grass or shrubs. All storage of waste materials should be kept outside of the riparian area.









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- 10. Vegetate all disturbed soils, banks and riparian areas by seeding and/or planting trees and shrubs in accordance with the DFO guidance on Riparian Revegetation. Cover seeded and vegetated areas with appropriate measures to prevent soil erosion and to help seeds germinate. If there is insufficient time in the growing season remaining for the seeds to germinate, the site should be stabilized (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring.
 - 10.1. Proper plant selection, taking into consideration desired vegetation height and location can minimize future maintenance requirements.

DFO REGIONAL HEADQUARTERS

Fisheries and Oceans Canada Regional Habitat Manager 200 - 401 Burrard Street Vancouver, BC V6C 3S4 Toll Free: 1-866-845-6776 Fax: (604) 666-7907 email: dfo_epmp@pac.dfo-mpo.gc.ca

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Riparian Areas

Riparian areas (also known as 'riparian zones') are located next to watercourses and can broadly be described as the upland areas adjacent to and nearby a watercourse. Riparian areas can include stream and river banks or lakeshores and are associated with all types of watercourses including swamps, wetlands, tributaries, side channels and intermittently wetted areas.

Riparian areas have a direct influence on aquatic habitat, and form important transition zones between the aquatic and upland environments. As such, riparian areas directly contribute to fish habitat by providing shade, cover, food and nutrients for fish, as well as help to maintain water quality and moderate flows and temperatures that are critical for healthy fish habitat.

Leave strips are identified areas of land and vegetation that should remain in an undisturbed state. They are intended to protect the integrity of the riparian area, and usually extend inland a minimum of 15 meters from the high water mark or top of bank of any watercourse.

Where encroachment into a leave strip or riparian area is required, and harm to fish habitat is unavoidable, project plans should be forwarded to your local DFO office and/or appropriate Provincial or Territorial agency, in advance, for review and to obtain any necessary approvals. Please note, DFO does not require review of your project plans, if the project falls under the governance of a Pacific Region Operational Statement or the Provincial Riparian Areas Regulation, as they have been developed to ensure your works do not result in a harmful alteration, disruption, or destruction (HADD) of fish habitat. For further guidance on working in or around riparian areas, please contact your local DFO office.

For guidance on replanting within disturbed riparian areas, please refer to the section below, Riparian Revegetation.

Please be advised, the information found on this webpage is provided as a general guide and does not constitute approval under any municipal, provincial and/or federal legislation.

Riparian Revegetation

Whether enhancing an existing riparian area on a previously disturbed site or re-establishing riparian vegetation from bare ground, it is important to observe the surrounding plant community of the disturbed area, specific to that biogeoclimatic zone, and select the appropriate species for site specific conditions. Once the proper plants have been selected, it is recommended the following measures be applied:

- Revegetate with native plants in disturbed areas in riparian zones as per the criteria set below, and
- Immediately establish ground cover through seeding and/or other protective materials to control erosion and sediment, and to enhance germination of plants, and
- Conduct regular maintenance to improve the chances of survival within the first year of plant growth; which may include: routine irrigation, removal of invasive species, observation of poor growth, elevated erosion problems, and/or animal intrusion.

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Riparian Planting Criteria

- All tree and shrub species should be native to the local area and where available, of guaranteed nursery stock for successful transplanting. Prior removal of invasive plant species (e.g. Himalayan blackberry, Japanese knotweed, scotch broom) may be required to enhance the survival of transplants.
- 2. When nursery stock is used, the correct botanical name should be used to order planting stock and tags should be left attached for field identification.
- 3. Purchased plant stock should be a minimum of 2 years old, and if transplanting an entire area, planted no greater than 2.0 meters apart for all stock.
- 4. Salvage native plants wherever possible for replanting of the disturbed area, which can also be counted as replacement vegetation.
- 5. For the replacement of individual trees, such as a danger or hazard tree, please refer to the British Columbia Provincial Tree Replacement Criteria. For individual shrub replacement, two shrubs should be replanted for each shrub removed; no replacement of shrubs for trees.
- Fruiting trees and shrubs should be planted to promote recolonization by seed and provide wildlife food sources.
- 7. Stock should be planted in the fall (September to October) or spring (March to April) depending on local conditions.
- 8. To ensure success of the transplants, at least 80% should survive within the first year of planting.
- 9. Additional fertilizing, dedicated watering and/or replanting may be required to establish vigorous vegetative cover throughout the first year of growth.

Ground Seeding

Growth of ground cover after seeding reduces surface erosion, enhances soil absorption and stability, as well as promotes establishment of newly planted trees and shrubs. For optimal germination, seeding should occur in the spring or fall. When used as an erosion control measure, seeding is suitable anytime within the growing season to protect disturbed soils, and should be placed on any disturbed soils that will lie dormant for a period of time prior to planting. Laying mulch will further reduce erosion as well as enhance germination by protection of the seeds and retaining moisture.

A seeding mix should be selected based on site specific conditions (e.g. soil type, soil moisture, climate) but will usually include fall rye and local grasses. Advice from a local seed supplier or professional agrologist on seed mixture selection and application rates may be required.

Suggested Planting Layout

The planting layout will depend on what is required to re-establish or enhance existing vegetation, species selected, density of plants, mature plant heights and planting system: linear, random, grid, etc. A Riparian Plant List is provided below to help with your selection of suitable plants. For site specific advice on plant selection and/or layout, please consult with a qualified professional or other knowledgeable source.

Riparian Plant List

The following plant list indicates those tree and shrub species native to the Pacific Region, that are recommended for planting within riparian areas next to streams, rivers, lakes and wetlands to enhance or maintain fish habitat values. This is not an exhaustive list as plant selection will vary according to site conditions and should serve only as a guide. Please consult with a qualified professional or other knowledgeable source for site specific advice.

Although some species below may be suitable for the marine environment, please refer to the Stewardship Series document, Shoreline Structures Environmental Design for further guidance on planting in and around tidal or estuarine areas.





RIPARIAN AREAS AND REVEGETATION

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Common Name	Latin Name	Coastal ¹	Southern nterior ¹	Northern ¹
Deciduous Tree Species	-	_		-
Vine Maple	Acer circinatum	X		
Douglas Maple	Acer glabrum var. douglasii	Х	Х	Х
Broadleaf Maple	Acer macrophyllum	Х		
Red Alder	Alnus rubra	Х		
Sitka Alder	Alnus viridis ssp sinuata		Х	Х
Western Paper Birch (White Birch)	Betula papyrifera	Х	Х	
Black Hawthorn	Crataegus douglasii*	X	X	
Pacific Crabapple	Malus fusca*	X		
Balsam Poplar (Black Cottonwood)	Populas balsamifera*	X	X	X
Trembling Aspen	Populas tremuloides*			X
Pin Cherry	Prunus pensylvanica*	X		
Choke Cherry	Prunus virginiana*	X	X	
Cascara	Rhamnus purshiana*	Х	Х	
Mountain Ash	Sorbus aucuparia*	Х		
Coniferous Tree Species		_		_
White Spruce	Picea glauca	Х	X	X
Engelmann Spruce	Picea engelmann			Х
Black Spruce	Picea mariana	X		X
Sitka Spruce	Picea sitchensis	X		
Lodgepole Pine	Pinus contorta		X	X
Western White Pine	Pinus monicola	X	X	
Ponderosa Pine	Pinus ponderosa		X	X
Douglas Fir	Pseudotsaga menziesli	X	X	X
Western Red Cedar	Thuja picata	X	X	
Western Hemlock	Tsuga heterophylla	Х		





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Shrub Species				
Saskatoon	Amelanchier alnifolia*	X	Х	X
Spreading Dogbane	Apocynum androsaemilfolium		Х	
Kinnickinnick	Arctostaphylos uva-ursi*	Х	Х	
Dwarf Birch	Betula nana & glandulosa			X
Redstem Ceanothus	Ceanothus sanguineus		Х	
Red Osier Dogwood	Cornus sericea *	X	X	X
Beaked Hazelnut	Corylus cornuta*	X	X	X
Ocean Spray	Holodiscus discolour	X	X	
Black Twinberry	Lonicera involucrata*	X	Х	Х
Mock Orange	Philadelphus lewisii		Х	
Pacific Ninebark	Physocarpus capitatus	Х	2	
Prickly Rose	Rosa acicularis*		Х	Х
Nootka Rose	Rosa nutkana*	Х	Х	
Thimbleberry	Rubus parviflorus*	Х	Х	X
Salmonberry	Rubus spectabilis*	X	Х	X
Willow	Salix spp	X	X	Х3
Blue Elderberry	Sambucus cerulea*	X	Х	
Red Elderberry	Sambucus racemosa*	X	X	X
Soopalallie	Sorbus sitchensis*		Х	
Sitka Mountain Ash	Sorbus sitchensis*	Х	Х	Х
Hardhack	Spiraea douglasii	Х	Х	Х
Snowberry	Symphoricarpus alba*	Х	Х	Х
Red Huckleberry	Vaccinum parviflorum*	Х		
Highbush Cranberry	Viburnum trilobum*	Х	Х	Х

Notes:

* denotes fruit-bearing species

1 three generalized climatic regions within the Pacific Region

2 wet-belt south of Shuswap Lake only

3 live staking with spp. lasiandra and exigua may be undertaken if sufficient access to groundwater is available year round



