



WETLAND MITIGATION HIERARCHY TOOL FOR PLACER MINING PART A: PROJECT INFORMATION

General project information			
Project name		Date of submission YYYY-MM-DD	
Applicant first name		Applicant last name	
Company name		Contact email	
Company address			
Unit number (optional)	Street number and name		
City or town	Territory or province	Postal code	
Project location (including GPS coordinates of project extent and claims list)			
Related application, permit or approval number(s).			
Reference any relevant conditions of approvals related to wetlands.			
Project description			
Description of First Nation Settlement Lands, if any, that overlap the project area.			
Have wetlands been identified, classified and delineated within the project lands?			
☐ Yes – Proceed to Part B of the tool.			
☐ No – STOP. Wetlands must be identified, classified, and delineated within project lands			



WETLAND MITIGATION HIERARCHY TOOL FOR PLACER MINING PART B: MAPPING REQUIREMENTS

Provide a map or maps showing the following:

- ☐ Locations and extents of all mine components, activities, and infrastructure that will be required for the duration of the licence
- ☐ First Nation Settlement Lands
- ☐ All wetlands and their classifications
- ☐ Areas of planned mine components, activities, and infrastructure within wetland areas
- ☐ Areas of wetlands that will be avoided during mining, and any buffers
- ☐ Areas where disturbance to wetlands will be minimized
- ☐ Areas where wetlands will be reclaimed in that year
- ☐ Post-mining features that will be used to reclaim wetlands (e.g., settling ponds, excavations, ditches)



WETLAND MITIGATION HIERARCHY TOOL FOR PLACER MINING

PART C: PROJECT EFFECTS ON WETLANDS

Example

Unique wetland ID													
Total wetland area (ha)	Marsh												
	Shallow water												
	Swamp												
	Fen												
	Bog												
Total wetland area (ha)													
Area of disturbance (ha)	Marsh												
	Shallow water												
	Swamp												
	Fen												
	Bog												
Total area of wetland disturbance (ha)													
Area of wetland avoided (ha)	Marsh												
	Shallow water												
	Swamp												
	Fen												
	Bog												
Total area of wetland avoided (ha)													
Percentage wetland disturbed (%)													
Anticipated disturbance type(s) (see list on next page)													

Disturbance type legend	
Type	Description
Access	
A1	road construction
A2	trail construction
A3	off-road vehicle use
Camps and structures	
C1	Camp – construction of camp
C2	Fuel storage – storage of fuel
Water related infrastructure	
W1	Ditching – ditches and drains
W2	Diversions – diversions of a watercourse
W3	Settling ponds – construction of settling facilities
Excavation and earth works	
E1	Stripping – removal of vegetative mat
E2	Excavation – removal of overburden
E3	Stockpiling – stockpiling of overburden or other materials
E4	Drilling – drill holes
Other features	
F1	Other features not captured above. Ensure an explanation of any additional features is included.

Will wetland areas be avoided by project activities?

- ☐ Yes – Select the from the list of best management practices below to demonstrate.
- ☐ No – Explain why wetlands cannot be avoided.

Planning and design

Size of the project area

- ☐ The project area has been designed to be as small as required to complete the work.

Work within wetland areas

- ☐ Project activities have been planned outside of wetland areas and wetland buffers.
- ☐ Access has been planned to avoid wetland crossings.
- ☐ Stockpile locations have been located outside of wetland areas.

Permafrost

- ☐ Identify whether permafrost soils are present within the project area.
- ☐ If Permafrost is anticipated to be encountered:
- ☐ Potential increased sediment mobilization/ice has been considered when designing the size and shape of settling ponds.
 - ☐ Thawed permafrost sediment will be directed to low spots or settling facilities outside of wetland areas.

Use existing access

- ☐ Existing access routes (e.g., roads, trails) will be used.
- ☐ Other/Additional information (describe)

Access development

- ☐ Movement of vehicles and equipment will be restricted to designated access routes.
- ☐ Duplicate access has been avoided; where available, existing access has been used.
- ☐ The width of the access within wetland areas will be narrowed (consistent with safety and traffic needs) to reduce the extent of wetland disturbance.
- ☐ Gravel, fill, or other stockpiled materials will not be stored or deposited within wetland areas during access construction.
- ☐ Other/Additional information (describe)

Exploration

Work within wetland areas

- ☐ Exploration within wetland areas will be avoided.
- ☐ Stockpiling within wetlands will be avoided.
- ☐ Temporary camps will not be established within wetland areas.

Tree clearing in wetland areas

- ☐ Where trees must be cleared, they will be felled and yarded away from wetland areas, not into wetland areas.

Water released from drill holes

- ☐ Where water is released from drill holes (i.e., artesian flow), it must be managed to avoid erosion or direct drainage into wetlands and water bodies.
- ☐ Other/Additional information (describe)

Excavations and stockpiling

Work within wetland area

- ☐ Vegetation clearing, soil stripping, and excavation activities will be avoided within wetland areas.
- ☐ Project facilities and storage will be established away from wetland areas.
- ☐ Prior to excavation, the project footprint will be clearly delineated with physical markers (e.g., stakes, flags or other means) to reduce the chance of inadvertent wetland disturbance related to project activities outside of the footprint. The visibility of signage for all equipment used in the project area will be considered.
- ☐ Waste rock piles, stockpiles, fill, or sources of hazardous materials (e.g., fuel, lubricants) will not be stored within wetlands.

Stockpiling

- ☐ Stockpiles will be sited in areas that are stable, on level ground and protected from surface flow such as wetlands, stream channels, runoff, flood waters etc.
- ☐ Other/Additional information (describe)

Water management and settling ponds

Effluent entering wetlands

- ☐ Water used during mining activities will not be released into wetland areas.

Settling pond development in wetland areas

- ☐ Settling ponds will be avoided within wetland areas.

Prior to construction of settling ponds:

- ☐ Construction will be sited away from wetland areas, on a large, flat portion of land outside flooding areas and/or areas adjacent to a streambed to avoid flooding or high flows washing out the settling pond.
- ☐ The underlying material of the settling pond and related dykes in the area will be made up of a sufficiently thick enough layer of fine materials to reduce seepage into surrounding areas. An area with an impervious underlying material such as bedrock will reduce water loss. An area with an impervious underlying material such as bedrock will reduce water loss from the settling pond.

Water management and settling ponds (continued)

Wetland contamination

- ☐ The storage/use of equipment, hazardous materials, or potential contaminants of concern will be avoided within or near wetland areas.
 - ☐ Mine camp and refueling facilities will be established away from wetland areas and refuelling will be avoided within wetland areas.
 - ☐ Overburden, pay gravels, and other materials will be stored outside of wetland areas on level ground or on surfaces sloping away from wetland areas.
 - ☐ Vehicles and immobile machinery, equipment, fuel barrels, lubricants, and other materials will be stored away from wetland areas.

Wetland sedimentation

- ☐ Sediment removed from settling ponds will be stored away from wetland areas.
- ☐ Other/Additional information (describe)

Closure

Incidental wetland disturbance

- ☐ The project footprint will be clearly delineated with physical markers (e.g., stakes, flags or other means) to reduce the chance of inadvertent wetland disturbance related to project activities outside of the footprint. The visibility of signage for all equipment used in the project area will be considered.

Waste removal

- ☐ All refuse will be removed from wetland areas.
- ☐ Equipment or other materials will not be buried or left within wetland areas.
- ☐ Other/Additional information (describe)

Will wetland disturbance be minimized during project activities?

☐ Yes – Select the from the list of best management practices below to demonstrate minimization of wetland disturbance.

☐ No – Explain why wetland disturbance cannot be minimized.

Planning and design

Wetland contamination

☐ Equipment to be used on site will be cleaned and inspected to verify it is free of soil and plant material.

☐ An Emergency Response or Fuel Spill Contingency Plan will be developed in accordance with existing guidelines.

Erosion and sedimentation

☐ A system of diversion ditches or channels and drains will be designed to control runoff and reduce erosion.

☐ Other/Additional information (describe)

Access development

New access construction

☐ Wetlands will be crossed at right angles to reduce the area of disturbance.

☐ Appropriate surface drainage will be maintained (e.g., with the use of ditches, culverts) across wetland crossings.

☐ Erosion and Sediment Control (ESC) measures will be employed as warranted to reduce the potential for sediment deposition into wetland areas. ESC measures will be inspected and repaired periodically to verify they are functioning as intended.

☐ Heavy equipment and vehicle traffic will be minimized at wetland crossings to reduce disturbance and the potential for soil compaction.

☐ Vehicles and equipment adapted for low ground pressure will be used at wetland crossings (e.g., wide tires, dual tires, bogies, tracks, central tire inflation).

Permafrost

☐ Areas of permafrost (e.g., south-facing slopes in areas of discontinuous permafrost) will be avoided.

☐ Where permafrost is unavoidable, routes will be selected that are upslope or on ridges where bedrock is closer to the surface.

Off-road vehicle use

☐ Existing trails will be used to access wetland areas.

☐ Low-impact vehicles and/or all-terrain vehicles (ATVs) will be used for exploration and to access the work site.

Work timing

☐ Access development will be planned during dry and/or frozen conditions.

☐ Heavy equipment will be moved when the ground surface is frozen with good snow cover.

Access development (continued)

Winter access roads

- ☐ Adequate frost penetration and snow cover to support vehicles and equipment within wetland areas will be verified prior to use.
- ☐ Access will be repaired frequently, as warranted, to avoid erosion and limit the potential for increased disturbance area should access users develop alternate pathways to avoid the damage (e.g., flooding, rutting).
- ☐ Bulldozer blades will be raised during travel to avoid cutting organic soils.
- ☐ Other/Additional information (describe)

Exploration

Exploration techniques

- ☐ Exploration methods with limited potential effects on wetlands will be used (e.g., electrical resistivity, ground penetrating radar, seismic refraction surveys) to focus exploration efforts and associated surface disturbance.

Ground disturbance

- ☐ The footprint of exploration activities will be minimized in wetland areas (e.g., avoid stripping surficial soils, reduce drill pad size, follow minimal disturbance practices).

If drilling and/or test pits are required within wetland areas, the following BMPs will be employed:

- ☐ Drill pad size will be reduced
- ☐ The topsoil and existing vegetative mat and roots will be left intact on drill pads within wetland areas.
- ☐ Ground disturbance will be reduced with the use of hand excavation and/or appropriately sized excavators.
- ☐ Topsoil (i.e., soils enriched with organic matter) will be stripped and stockpiled separately from subsoils for later use in reclamation.
- ☐ Low-impact drilling equipment will be used (e.g., tracked equipment).
- ☐ Grubbing (e.g., removing the roots of trees and shrubs) will be limited or delayed on drill pads within wetland areas.
- ☐ Test pits will be backfilled and reclaimed as soon as possible following exploration activities.
- ☐ If work in the winter is required, snow will be cleared in a manner that leaves the ground surface as undisturbed as possible.

Exposure to contaminants

- ☐ No equipment refuelling or servicing will be undertaken within 30 metres of wetlands, waterbodies, or watercourses.
- ☐ Where wetland areas cannot be avoided, drip trays will be used under immobile machinery (e.g., water pumps) to contain all fuel or oil leaks.
- ☐ Other/Additional information (describe)

Excavations and stockpiling

General

- ☐ Access will be limited within wetland areas.

Preconstruction/site preparation activities

- ☐ The project footprint will be clearly delineated with physical markers (e.g., stakes, flags or other means) to reduce the chance of inadvertent wetland disturbance related to project activities outside of the footprint. Consider the visibility of signage for all equipment used in the project area.

Vegetation clearing, soil stripping, salvaging, and stockpiling

- ☐ Vegetation clearing and soil stripping will be conducted within wetland areas only where necessary.
- ☐ Topsoil (i.e., soils enriched with organic matter) and the vegetative mat will be salvaged prior to excavation and stored for later use in reclamation. Wetland topsoil materials will be stored in separate piles from upland topsoil.
- ☐ Vegetation clearing and soil stripping will be minimized in upland areas adjacent to wetlands (particularly areas uphill from wetlands) to reduce the risk of wetland sedimentation.
- ☐ The distance that soils travel for storage will be minimized.
- ☐ Vegetation, such as shrubs, grasses, and small trees will be piled with stockpiles of organic material to protect organic soil from erosion and improve the survival of vegetation during closure.
- ☐ Geotextile materials will be installed on stockpiled and salvaged soils (particularly topsoil and organic surface material) to prevent sedimentation, erosion, and establishment of undesirable vegetation (e.g., weeds).
- ☐ Large trees and vegetation will be stockpiled for later use in reclamation (e.g., stabilization of reclaimed slopes).

Stockpiling

- ☐ Organics, topsoil, and fine soils will be stored separately from subsoil (overburden).
- ☐ Overburden will not be stockpiled on top of topsoil.
- ☐ Stockpiles will be stored in stable, readily accessible piles for later use.
- ☐ If stockpiles are anticipated to encounter surface flow (e.g., wetlands, stream channels, runoff, flood waters), the lower slopes of the stockpiles will be armoured with large rocks/riprap to reduce soil mobilization.
- ☐ Containment berms will be placed around the perimeter of stockpiles with high moisture content (e.g., organic material, settling pond fines) to reduce the potential for erosion.

Permafrost

- ☐ Exposed permafrost will be excavated as a near-vertical cut face to minimize the surface area of permafrost exposed to ambient temperatures and precipitation and minimize disturbance to insulating vegetation on top of the cut bank.
- ☐ Tailings will be pushed up against permafrost cut faces as soon as possible following completion of mining at that location.

Erosion

- ☐ Disturbance to vegetation and soils will be minimized in areas near wetlands, to reduce the potential for erosion and subsequent wetland sedimentation.
- Stockpiles will be protected from wind and water erosion by:
- ☐ maintaining shallow angled slopes
 - ☐ stockpile small trees, shrubs, and grasses with the top layer of organic soil to protect the organic soil.
- ☐ Areas where construction is complete will be revegetated to reduce the potential for erosion.
 - ☐ Coarse material (i.e., rock) will be used to reduce the potential for water erosion (e.g., covering slopes that are difficult to revegetate, lining ditches).

Excavations and stockpiling (continued)

Mining activities

- ☐ Work within wetland areas will be completed under dry or frozen conditions.
- ☐ Access will be limited within areas of the project where soil stripping has not yet been conducted to avoid soil compaction.

Introduction of invasive species

- ☐ Equipment/machinery will be verified to be clean and is free of pre-existing soil or vegetative matter prior to arrival on site to reduce the likelihood of introduction and/or spread of invasive vegetation.
- ☐ Invasive vegetation will be monitored for and managed, as appropriate.
- ☐ Invasive plant material will be properly disposed of to reduce the risk of spread.
- ☐ Other/Additional information (describe)

Water management and settling ponds

Surface water diversion

Surface water will be diverted away from areas of disturbance where practical by:

- ☐ constructing bypass channels and/or berms capable of handling seasonal floods
- ☐ avoiding storing waste rock piles or sources of hazardous materials (e.g., fuel, lubricants) near
- ☐ ditches, bypass channels, or wetlands.
- ☐ In the case of multi-year mining operations, the project area will be assessed for locations that may seasonally flood, and seasonal closures will be enacted to protect land features from flooding.
- ☐ To maintain connectivity between upstream catchment areas and receiving wetlands, natural drainage areas will be designed throughout the project area.

Hazardous materials and contaminant containment

- ☐ When equipment must operate within wetlands:
 - ☐ Equipment and vehicles will be verified to be in good operating condition prior to, and during project activities
 - ☐ Large spill trays or impermeable berms will be used for the storage of non-mobile equipment to protect the wetland
 - ☐ Daily leak inspections will be conducted on equipment such as containers, hoses and nozzles.
 - ☐ Damaged or leaking equipment will be labelled and put out of commission until repaired.
- ☐ A spill kit will be readily available in all areas where spills have the potential to occur, and all staff will be trained appropriately regarding its use.

Settling pond construction

- ☐ Settling ponds will be constructed in previous mine excavations to limit site disturbance.
- ☐ A water recycling system will be implemented to reduce water use requirements.

Water management and settling ponds (continued)

Settling pond maintenance

- ☐ Settling ponds will be regularly inspected for damage or leaking/seeping, erosion, instability, or overtopping.
- ☐ To reduce the risk of erosion and/or failure, damages to settling ponds will be repaired promptly after they have been identified.
- ☐ Other/Additional information (describe)

Closure

Remove infrastructure, buildings, equipment, materials, and debris from the site

- ☐ All equipment, infrastructure, utilities, drain fields, holding tanks, and garbage/debris existing in the project area will be decommissioned/deactivated, removed, and properly recycled or disposed of.
- ☐ Materials will be recycled, if possible (e.g. tires, scrap metal).
- ☐ Petroleum products and any other chemicals used in the mining operation will be safely removed and properly disposed of. Local disposal and recycling facilities will be used, and local landfill requirements will be complied with. Alternative disposal at appropriate facilities will be arranged if materials cannot be properly disposed of locally.

De-activate or reclaim roads and trails as required

- ☐ Road infrastructure will be removed, such as bridges and culverts.
- ☐ Soil compaction will be reduced by scarifying/roughening, excavating, and/or ripping road surfaces.
- ☐ Access will be re-contoured to tie-in to the predominant topography and side-cast materials will be pulled back to establish natural drainage patterns and increase soil stability and the likelihood of vegetation establishment.
- ☐ Natural surface drainage patterns will be re-established by introducing surface features such as gullies and swales.

Invasive species control

- ☐ Salvaged organic soil and topsoil will be replaced within stripped areas.
- ☐ Invasive vegetation control measures will be implemented as warranted, especially if invasive plants have been identified in or near wetland areas.
- ☐ Other/Additional information (describe)



WETLAND MITIGATION HIERARCHY TOOL FOR PLACER MINING PART F: WETLAND RECLAMATION

Is wetland reclamation planned as part of the project?

- ☐ Yes – Use the worksheet below to describe the nature of wetland reclamation
☐ No – Explain why wetland wetland reclamation is not planned.

Provide the areas of wetland disturbance and reclaimed wetland by wetland class in the table below. Calculate net wetland area by class by subtracting the area of disturbed wetland from the area of reclaimed wetland.

Wetland classification	Marsh	Shallow water	Swamp	Fen	Bog	Total
Area of Wetland Disturbance (ha)						
Area of Reclaimed Wetland (ha)						
Net Wetland Area (Area Reclaimed - Area Disturbed)						

If the Total Net Wetland Area is negative in the table above, provide a rationale explaining why.

If the Net Wetland Area is negative in the table above for any wetland class, provide a rationale explaining why wetlands were not able to be reclaimed to the same class of wetland.

Select the post-mining features that will be used for wetland reclamation:

- ☐ Settling pond(s)
☐ Excavations
☐ Drainage ditches
☐ Other (describe)

Select the from the list of best management practices below to describe how wetland reclamation will be undertaken at the project.

Terrain and landscape

- ☐ Level or depressional areas, or areas with existing hydrological connectivity such as adjacent to a watercourse will be selected for wetland reclamation as these areas are more likely to have groundwater close to the ground surface.
- ☐ The reclaimed landscape will be recontoured to tie-in to the surrounding natural topography.
- ☐ Natural drainage patterns will be restored and the potential risk of sediment entering waterbodies will be limited (e.g., remove culverts, cut through roads and dikes with potential to fail, install water-diversion means, such as slope drains).
- ☐ Disturbed areas will be graded to shallow final slopes (less than 2:1).
- ☐ Other/Additional information (describe)

Water source and fluctuations

Water source and fluctuations - general

The following best management practices will be employed to facilitate adequate water supply interacting with the plant rooting zone during the growing season:

- ☐ The water table elevation will be identified during the driest time of year (e.g., late summer), and used to inform excavation depths.
- ☐ Passive overland flow will be allowed to enter reclaimed wetlands with appropriate site contouring (e.g., gentle slopes).
- ☐ Ditches will be disabled to avoid draining water away from the reclaimed wetland (e.g., with the use of fill, dams).
- ☐ In shallow waters and marshes, a staff gauge will be installed within the deepest portion of reclaimed wetlands for water level measurements during monitoring.
- ☐ Install perpendicular berms, check dams, or small retention dikes across slopes to slow surface runoff, encouraging infiltration and lateral water spread to prevent draining the upland soils.
- ☐ Wetland areas will be reclaimed to a maximum resultant water depth of less than 2 m.
The maximum water depth within reclaimed wetlands will be: _____ metres.
- ☐ Sediment will be prevented from entering downgradient waters with appropriate erosion and sediment control measures.
- ☐ Fish passage will be prevented from active channels of watercourses into reclaimed wetlands to avoid fish becoming trapped within reclaimed wetlands.
- ☐ Existing ditches will be modified (i.e., partially filled with excavated fine materials and stabilized with rock and/or vegetation) to be shallow channels which connect reclaimed settling ponds to create a complex of wetland classes.
- ☐ The following best management practices will be employed to facilitate adequate water supply
- ☐ Other/Additional information (describe)

Soil stripping, handling and storage

Soil stripping, handling, and storage

- ☐ The sequence of events of progressive reclamation will be planned to minimize material handling and movement, placing stockpiles in readily accessible areas that minimize travel and will not result in excess traffic travelling over top of material after it has been placed.
- ☐ Travel over soil stockpiles with vehicles or equipment will be avoided and traffic limited within recontoured areas to prevent soil compaction.
- ☐ Large coarse woody debris will be stockpiled for later placement during reclamation to limit site access, promote revegetation, and provide wildlife habitat.

Backfilling pits and trenches

- ☐ Soil within trenches or ditches will be backfilled and stabilized to avoid draining reclaimed wetlands.
- ☐ Material used to backfill will be verified to be free from contaminants (e.g., hydrocarbons, treated wood).

Topsoil and organic material

- ☐ Salvaged topsoil and/or organic material will be spread over the recontoured wetland areas to provide a growing medium for vegetation.
- ☐ Topsoil and/or organic material will be replaced to a depth of approximately 30 to 100 cm within reclaimed wetland areas.
- ☐ Topsoil and/or organic materials will be replaced as quickly as possible to limit loss from erosion and improve success of revegetation from native seedbanks.
- ☐ Salvaged topsoil and/or organic materials will be replaced in a rough and loose fashion and incorporate roots, brush, stumps and other woody debris to create microsites and protect against erosion.
- ☐ Where topsoil and/or organic materials are limited, swamp and marsh wetland habitats will be prioritized to receive greater depths of this material than the deeper portions of shallow open water wetlands that may be able to tolerate less organic material.
- ☐ Other/Additional information (describe)

Erosion and sediment control

- ☐ Vegetation cover will be established as soon as possible to control erosion with the use of plant and organic materials stockpiled during stripping.
- ☐ Soil stripping will be scheduled to minimize the time that soils will be exposed.
- ☐ Erosion and sediment control measures will be implemented prior to the commencement of works that may mobilize sediment into wetlands and water bodies (e.g., steep slopes, ditches which may easily erode, outlet areas which may experience scour).
- ☐ Exposed slopes will not be left smoothly graded and compacted; instead, a roughened ground surface will be implemented
- ☐ The ground surface will be roughened by:
 - ☐ creating grooves, furrows or steps,
 - ☐ using tracked equipment along the slope, and/or
 - ☐ incorporating coarse materials including woody debris and rocks.
- ☐ Surface roughening methods will be completed perpendicular to the slope direction, as grooves parallel to the hill will accelerate runoff and increase erosion.
- ☐ Excavating, moving, or replacing soil materials during excessively windy or wet conditions will be avoided.
- ☐ Surface drainage will be diverted away from erodible slopes and surfaces to reduce the risk of soil, silt and sediments entering wetlands and water bodies.
- ☐ Diversion of sediment-laden water into wetland areas will be avoided.

Soil stripping, handling and storage (continued)

Erosion and sediment control (continued)

- ☐ Drainage ditches and other channels will be searched for evidence of headward erosion in an upstream direction, also known as headcuts. All headcuts will be remedied as soon as possible as they have the potential to result in sedimentation and/or drainage of reclaimed wetlands.

- ☐ Other/Additional information (describe)

Plant communities and wildlife habitat

Plant communities

- ☐ Areas of natural, undisturbed vegetation in and around the project area will be retained to promote the natural ingress of native species.
- ☐ Topsoil and organic material will be replaced as soon as possible (within one year of stockpiling) to improve seed germination success from the seedbank.
- ☐ Soil within trenches or ditches will be backfilled and stabilized to avoid draining reclaimed wetlands. topsoil and organic material. If the potential success is anticipated to be limited due to the availability of material, alternative measures such as seeding, or applying fertilizer will be considered.
- ☐ An irregular bottom surface will be created within reclaimed wetlands (i.e., not smooth) with variable depths of shallow and deeper pools where different types of vegetation can establish.
- ☐ Reclaimed wetlands will be designed with gentle slopes (e.g., a minimum of 5:1).
- ☐ Equipment and vehicles will be clean and inspected to verify they are free of soil and plant material prior to arrival at the project area to minimize the potential of the introduction of invasive species.
- ☐ Deeper zones will be near the centre of the wetland, with the bottom sloping gradually shallower towards the wetland edges.
- ☐ A rough and loose ground surface will be created to provide microsites which help retain water and provide shelter to promote vegetation germination, growth, and establishment.
- ☐ A backhoe will be used to salvage 'islands' of soil and vegetation (i.e., the size of the bucket) from wetland areas anticipated to be disturbed by project activities. These 'islands' will be stored root side down on the stockpiles for topsoil/organic material until reclamation. During wetland reclamation, salvaged 'islands' will be directly placed into prepared depressional areas within the reclaimed wetlands.
- ☐ A qualified professional will be consulted to improve the chances of successful natural revegetation.

Wildlife habitat

- ☐ Wetland complexes with a diversity of wetland and upland habitats will be created, including swales, depressions, ponds, and islands, by utilizing and interconnecting existing features.
- ☐ The shorelines of reclaimed wetlands will be modified to create gently sloped, irregularly shaped, complex and variable shorelines with bays and peninsulas (maximizing the shoreline length to surface area ratio).
- ☐ Small, shallowly sloped islands will be created to provide habitat and protect against erosion.
- ☐ Coarse woody debris will be distributed across the site to provide microsites, increase biodiversity, and protect against erosion, including standing dead trees.
- ☐ Various sized rocks and boulders will be distributed for microsites and wildlife habitat.
- ☐ Other/Additional information (describe)
