.7 Safely return any stranded fish to the main channel.
.8 Stabilize any waste material above the ordinary high water mark. Spoil piles shall be removed or contained within appropriate erosion and sediment control measures.
.9 Minimize removal of riparian vegetation.
.10 Re-vegetate any disturbed area.
.11 Maintain erosion and sediment control until such time as the as re-vegetation is complete.

.7 Machinery shall arrive at site in a clean condition and shall be operated on land (from outside of the water) and in a manner that minimizes disturbance to the bed and banks of the watercourse.

.8 The bed and banks of the watercourse shall be restored to preexisting conditions following a disturbance.

.9 To ensure that fish passage is maintained, culverts in fish bearing waters shall adhere to the following design criteria:

.1 For culverts less than 25 m long the flow velocity through the crossing shall not exceed 1 m/s
.2 For culverts greater than 25 m long the flow velocity through the crossing shall not exceed 0.8 m/s
.3 The crossing shall not be impassable to fish for longer than 3 consecutive days once in 10 years or 7 consecutive days once in 50 years
.4 The culvert shall be designed such that fish passage is possible even in low flows

.10 If more than one culvert is to be installed, a minimum of 2 m between adjacent culverts is recommended. There shall be no more than three culverts at one crossing.

.11 If works are being conducted under a DFO Authorization, all conditions outlined within the Authorization shall be adhered to.

.12 A site visit shall be conducted prior to the commencement of in-water construction activities to determine the site-specific environmental protection measures that may be required (i.e., worksite isolation methods, site restoration considerations, erosion and sediment control materials required, etc.).

.13 Cofferdams or other structures (diversions) shall be installed to separate the dewatered worksite from flowing water. Materials that are used to build these dams shall not be taken from below the high water mark (1 in 2 year high water level). Cofferdams shall be designed to accommodate any expected high flows during the construction period.

.14 Downstream flows shall be maintained at all times. If isolated sites are required, flows shall be detoured around the sites, and original flows through the site shall be restored as soon as work is completed.

.15 A fish salvage operation shall be conducted prior to dewatering of isolated sites.

.16 The contractor shall maintain a culvert gradient as close to the natural stream grade as possible.

.17 The contractor shall install culverts a minimum of 30 cm or 10% of culvert diameter (whichever is greater) below the normal stream bed.

.18 The contractor shall avoid using frozen backfill. Backfill shall be compacted to avoid settling, hydrostatic uplifting or side movements of the culvert that may lead to blockage of fish passage or washouts.

.19 Slopes shall be contoured to an appropriate steepness to minimize erosion; erosion controls shall be installed as soon as possible.

.20 Soils shall be graded in the direction away from the watercourse and never into the stream itself.

ENVIRONMENTAL PROTECTION PROCEDURES 12

BLASTING NEAR A WATERCOURSE

March 2018 Revision

Procedure name:
Blasting Near A Watercourse

Reference number:
EP12

1.0 Description

.1 Blasting within or near a watercourse shall be undertaken as approved by the Manitoba Infrastructure – Remote Road Operations. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 Purpose

.1 To ensure that blasting near water bodies is conducted according to applicable guidelines and permit requirements.

.2 To ensure the protection of aquatic environments by implementing appropriate Best Management Practices during blasting activities.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Dangerous Goods Handling and Transportation Act, CCSM c. D12
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Applicable Provincial Licences and Permits
- Applicable Fisheries and Oceans Canada (DFO) Authorizations or Letters of Advice
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters (1998) (www.dfo-mpo.gc.ca/oceans-habitat/habitat/water-eau/explosives-explosifs/page03_e.asp)
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 Procedures

.1 Blasting plans developed by the contractor shall comply with blasting regulations and reflect the appropriate timing of life cycle events as they relate to critical life functions of fish and wildlife species (i.e. migration, calving, nesting and spawning). Therefore, to reduce impacts to birds and other wildlife, blasting activities shall be restricted to outside the most sensitive breeding and brood rearing months (i.e. May to late-July) as much as possible. Blasting in watercourses classified as fish habitat is prohibited between April 15 and July 15 of any year, or during periods of high stream flow or identified spawning periods.

.2 Where applicable, blasting shall be undertaken during winter months to minimize permafrost degradation.

.3 Reference shall be made to DFO's document "*Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters" 1998*. Blasting plans shall be submitted to and approved by DFO prior to commencement of blasting in areas that could affect fish habitat. See tables 1 and 2 below.

.4 The blasting contractor shall possess all required permits/certificates. Notification shall be given to affected parties including site employees and the local general public prior to each blasting event.

Table 1. Setback distance (m) from centre of detonation of a confined explosive to fish habitat to achieve 100 kPa guideline criteria for various substrates.

	Weight of Explosive Charge (kg)							
Substrate Type	0.5	1	2	5	10	25	50	100
Rock	3.6	5	7.1	11	15.9	25	35.6	50.3
Frozen Soil	3.3	4.7	6.5	10.4	14.7	23.2	32.9	46.5
Ice	3	4.2	5.9	9.3	3.2	20.9	29.5	41.8
Saturated Soil	3	4.2	5.9	9.3	13.2	20.9	29.5	41.8
Unsaturated Soil	2	2.9	4.1	6.5	9.2	14.5	20.5	29

Table 2. Setback distance (m) from centre of detonation of a confined explosive to spawning habitat to achieve 13 mm•sec-1 guideline criteria for all types of substrate.

	Weight of Explosive Charge (kg)						
	0.5	1	5	10	25	50	100
Setback distance (m)	10.7	15.1	33.7	47.8	75.5	106.7	150.9

ENVIRONMENTAL PROTECTION PROCEDURES 13

HERITAGE RESOURCES

March 2018 Revision

Procedure name:
Heritage Resources

Reference number:
EP13

1.0 Description

.1 Heritage resources are an important component of Manitoba's historical legacy which may be uncovered during a wide range of construction activities. Heritage resources may include human remains, a heritage site, a heritage object, and any work or assembly of works of nature or human endeavor that is of value for its archeological, paleontological, pre-historic, historic, cultural, natural, scientific, or aesthetic features, and may be in the form of sites or objects or a combination thereof.

2.0 Purpose

.1 To ensure that due consideration has been given throughout the design and construction phases of the project in order to minimize the potential disturbances to heritage resources.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Heritage Resources Act CCSM. c. H39.1
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 Procedures

.1 Specific areas where heritage or cultural resources of interest are suspected of being present such as along major waterways at crossings shall be inspected prior to the start of construction to confirm potential presence and extent.

.2 Where archeological or historic artifacts are encountered during construction activities, work at that location shall immediately cease

and the discovery shall be reported to the Field Supervisor and Contract Administrator. The Contract Administrator shall inform the Province of Manitoba's Historic Resources Branch and any affected communities.

.3 A specialist historic resource consultant shall be utilized to assess archeological or historic artifacts that are encountered and recommend mitigation measures. Manitoba Infrastructure – Remote Road Operations will engage interested communities and Manitoba's Historic Resources Branch to present and discuss mitigative options.

ENVIRONMENTAL PROTECTION PROCEDURES 14

WILDLIFE

March 2018 Revision

Procedure name: Wildlife

Reference number: EP14

1.0 Description

.1 Wildlife includes a broad range of species that may be affected by various activities. This procedure is intended to compliment other targeted procedures, regulatory requirements and monitoring plans. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 Purpose

.1 To ensure that appropriate environmental measures are implemented to avoid, minimize and/or mitigate potential effects on Wildlife.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Wildlife Act CCSM. c. W130
- The Endangered and Ecosystems Species Act CCSM. c. E111
- Species at Risk Act S.C 2002, c. 29)
- The Manitoba Sustainable Development Forest Practices Guidebook: Forest Management Guidelines for Terrestrial Buffers – 2010-2022
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 Procedures

.1 Employees, workers and other staff shall not hunt or trap wildlife.

.2 The Contractor shall not remove, destroy or disturb species pursuant to *Manitoba Regulation 25/98*, or any future amendment thereof, respecting *Threatened, Endangered and Extirpated Species*, or species listed in the federal Species at Risk Act.

.3 Wildlife habitat shall not be destroyed or damaged, except pursuant to a licence, permit or other authorization issued for the Project.

.4 No person shall take or be in possession of or willfully destroy the nest or eggs of birds.

.5 No person shall remove, disturb, spring or in any way interfere with any trap set out lawfully by any other person for the purpose of taking furbearing animals.

.6 No blasting shall be permitted within close proximity to sensitive wildlife habitat during critical lifecycle periods.

.7 Construction camps and worksites shall be kept clean and tidy. All food and garbage waste shall be stored in an appropriate manner and be disposed of at an area which has been designated as an appropriate waste disposal site.

.8 Employees, workers and other staff shall not feed or harass wildlife that they may encounter.

.9 Nuisance wildlife shall be immediately reported to the Natural Resources officer and onsite supervisor.

.10 Trees containing large nests of sticks and areas where active dens or burrows occur shall be identified, left undisturbed and reported to the Natural Resources Officer.

.11 A 100m buffer is required to be left around eagle nests, and heron rookeries. Additional buffers may apply – see table 1 of Forest Management Guidelines for Terrestrial Buffers (2017).

.12 Whenever it is necessary to remove existing beaver dams reference shall be made to EP11 Section 4.6

.13 To reduce the possibility of vehicle collisions with wildlife, vehicle speed shall not exceed posted speed limits and wildlife warning signs shall be installed where appropriate.

.14 No temporary roadbed borrow operations shall occur within 2 kilometres of known caribou calving areas along access roads from May 7 to July 1 of any given year.

.15 Prior to reinstating a quarry or borrow site, the area shall be surveyed to determine presence or absence of bank swallows and or common nighthawk nests. If nests are discovered, work shall be suspended and the MI Environmental coordinator will be contacted for further advice.

.16 Prior to removing temporary structures, an inspection shall be conducted to determine the presence or absence of barn swallow nests. If nests are discovered, work shall be suspended and the MI Environmental coordinator will be contacted for further advice.

ENVIRONMENTAL PROTECTION PROCEDURES 15

WILDFIRES

March 2018 Revision

Procedure name:
Wildfires

Reference number:
EP15

1.0 Description

.1 Wildfires can be a threat to people and activities taking place in wilderness areas particularly when under dry conditions. Advance planning and the implementation of safety measures is needed effectively respond to wildfires when they do occur.

2.0 Purpose

.1 The purpose of this procedure is to ensure that appropriate measures are in place to prevent and/or minimize effects caused by wildfires during construction and operation activities.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Fires Prevention and Emergency Response Act CCSM. c. F80
- The Forest Act CCSM. c. F150
- The Wildfires Act CCSM. c. W128
- The Workplace Safety and Health Act - CCSM. c. W210
- The Dangerous Goods Handling and Transportation Act C.C.S.M. c. D12
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Wildfires in Manitoba: How to Prepare *[Brochure]*

4.0 Procedures

.1 An evacuation and emergency preparedness plan addressing wildfires shall be implemented and submitted to the Contract Administrator prior to commencing construction.

.2 No fires shall be started without first taking sufficient precautions to ensure that the fire can be kept under control.

.3 To the extent possible, burning shall be avoided during the dry season. In Manitoba the dry season is typically defined as occurring between April 1st and November 15th of a given year. In the event that burning is required, an application for a burning permit shall be submitted for approval to Manitoba Sustainable Development. All conditions imposed by the burning permit shall be adhered to.

.4 In the event that burning is required, any active fires shall be monitored by staff for the duration of the burning activities. No fires shall be left unattended.

.5 No activity shall be conducted which may cause a fire to spread. Similarly, burning or smoldering matter shall not be placed where it may cause a fire to spread.

.6 A primary zone shall be established around camp sites and other longer term temporary structures associated with construction and maintenance activities. Flammable materials such as leaves, brush, dead limbs, and fallen trees shall be cleared from the area regularly.

.7 Combustible materials such as fuel and/or other hazardous substances shall be stored in a safe manner.

.8 The locations of construction camps, offices, and related structures shall be chosen in such a fashion as to minimize the risk of exposure to wildfires.

.9 In the event that a wildfire occurs, it shall be immediately reported to the Contract Administrator and to Manitoba Sustainable Development at 1-800-782-0076.

.10 All reasonable steps shall be taken in order to prevent a fire from burning out of control or spreading from land owned or occupied for construction purposes.

.11 In the event that a wildfire is identified where construction activities are taking place, all reasonable attempts shall be made in order to extinguish the wildfire. All available equipment, services and labor shall be made available at the disposal of an officer for the purposes of wildfire protection operations.

.12 All construction and related activities taking place in the vicinity of a wildfire shall cease until advised by the Contract Administrator that it is safe to resume operations.

ENVIRONMENTAL PROTECTION PROCEDURES 16

EROSION AND SEDIMENT CONTROL

March 2018 Revision

Procedure name: Erosion and Sediment Control

Reference number: EP16

1.0 Description

.1 Erosion and sediment control shall be implemented as required to prevent, minimize and/or mitigate environmental effects. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 Purpose

.1 The purpose of this procedure is to ensure that erosion and sediment control measures are installed to prevent, minimize and/or mitigate environmental effects in accordance with contract specifications, applicable legislation and associated regulations and guidelines.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Fires Prevention and Emergency Response Act CCSM. c. F80
- The Forest Act CCSM. c. F150
- The Wildfires Act CCSM. c. W128
- The Workplace Safety and Health Act - CCSM. c. W210
- The Dangerous Goods Handling and Transportation Act CCSM. c. D12
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 Procedures

.1 The installation of erosion and sediment control measures shall be completed in accordance with the Contract Documents as approved by the Contract Administrator.

.2 Prior to construction, all vegetated areas that are to be preserved or untouched shall be well marked out and noted.

.3 Vegetation cover shall be preserved for as long as possible; operations shall be halted during heavy rainstorms.

.4 Effective erosion and sediment control measures shall be installed before starting work within or near fish habitat.

.5 Erosion and sediment control measures shall be inspected by the contractor regularly and after every major rain or spring melt event; necessary repairs shall be made immediately after damage has been discovered. Inspections will be confirmed by the project manager and Manitoba infrastructure environmental staff.

.6 A turbidity curtain shall be installed downstream of all in-water works within fish bearing waterways.

.7 Hand clearing shall be utilized within 30 metres of a watercourse instead of mechanical clearing where possible to prevent disturbance of the organic soil layer.

.8 Slash and debris that is collected during clearing operations shall be retained and used to temporarily protect erosion-prone slopes.

.9 Sediment shall be prevented from entering streams by placing overburden or topsoil stockpiles a minimum of 100 metres above the high water mark.

.10 Stream banks and bed shall be protected with erosion-resistant materials such as riprap at culvert openings.

ENVIRONMENTAL PROTECTION PROCEDURES 17

CONCRETE WASHOUT AREA MANAGEMENT PRACTICES

March 2018 Revision

Procedure name: Concrete Washout Management

Reference number: EP17

1.0 Description

.1 This procedure specifies best management practices for the implementation and use of concrete washout areas during all phases of construction.

2.0 Purpose

.1 The purpose of this procedure is to ensure that concrete, concrete fines or washout produced is disposed of in accordance with applicable contract specifications, legislations, permits, and authorizations.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Fisheries Act (RSC., 1985, c. F-14)
- Environment Act
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Freshwater Intake End-of-Pipe Fish Screen Guidelines – Department of Fisheries and Oceans 1995 (www.dfo-mpo.gc.ca/Library/223669.pdf)
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 Procedures

.1 Concrete wash out areas should be designated at the pre-construction site meeting and approved by Manitoba Infrastructure – Remote Road Operations.

.2 Concrete washout areas should be located a minimum of 100 metres away from the normal high water mark of a waterbody or watercourse and in a non porous soil location.

.3 Concrete works shall be conducted in a manner that does not allow direct or indirect entry of concrete, concrete fines or concrete washout into the watercourse.

.4 Concrete truck wash out areas shall be at a dedicated site 100m away from nearby watercourses and waterbodies and shall be cleaned up at the end of the construction activities to the satisfaction of the Contract Administrator.

.5 Where water for concrete washout activities is taken from a watercourse or waterbody, the Department of Fisheries and Oceans Freshwater Intake End-of-Pipe Fish Screen Guidelines, the Water Rights Act and other appropriate legislative and mitigative measures must be followed.

.6 The contractor shall comply with all requirements as laid out in the Water Rights Act, including but not limited to:

.1 The contractor must not release any excess cement and/or wastewater to surface waters, including wetlands,
.2 Any containment area must not be connected to or drain to any surface waters, including wetlands, and
.3 Any wastewater generated on site must be contained within the construction site.

.7 The contractor shall comply with all requirements as laid out in the Environment Act Licence regarding utilization, cleanup and disposal of water, waste and hazardous materials at the washout site.

.8 All Concrete obtained and utilized for Manitoba Infrastructure – Remote Road Operations' projects must be sourced from a concrete batch plant licensed in accordance with the Manitoba Environment Act.

.9 The contractor shall comply with all requirements laid out in the Concrete Batch Plant licence.

.10 With regard to reclamation and site cleanup, the contractor will:

.1 Begin reclamation and site cleanup as soon as construction has completed, and
.2 Re-contour, stabilize, and re-vegetate disturbed areas to suit original conditions.

ENVIRONMENTAL PROTECTION PROCEDURES 18

DUST SUPPRESSION PRACTICES

March 2018 Revision

1.0 Description

1. This procedure specifies best management practices for the implementation and use of dust suppression on roadways during all phases of construction.

2.0 Purpose

1. The purpose of this procedure is to ensure that any chemical or material used on roads for suppression dust is done so in accordance with applicable contract specifications, legislations, permits and authorizations.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Fisheries Act (R.S., 1985, c. F-14)
- The Environmental Act, CCSM c E125
- Canadian Environmental Protection Act, 1999, SC 1999, c 33
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 Procedures

.1 Follow the manufacturer's specifications or other tested and approved procedures.

.2 The application shall be limited to the roadway, driveway or parking lot.

.3 Carefully monitor the application rate to ensure adequate coverage without pooling or runoff of products.

.4 The amount of dust suppressant applied should not exceed the minimum amount required to effectively suppress dust.

.5 There should be no evidence of excess product on the roadway.

.6 The material must not migrate or run off the traveled portion of the roadway.

.7 Dust suppressants must conform with the manufacturer's specifications and must not contain concentrations of contaminants that would not normally be found in the suppressant.

.8 Ensure that dust suppressants do not enter and contaminate water bodies, including surface and groundwater. Do not allow the product to leave the roadway.

.9 Do not apply products to areas of roads that are subject to flooding.

.10 Do not apply products if precipitation is occurring, or forecast to occur before the product sets or cures.

.11 Wherever feasible water is to be used in preference over chemical dust suppressants

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5.0 Working Near Water

.1 Observe a 100-metre setback from any watercourse.

.2 Apply as per the manufacturer’s guidelines.

.3 Avoid over-application or application beyond the road shoulder.

6.0 Approved Products

.1 Water (Preferred)

.2 38%, 35%, 34%, or 30% Calcium Magnesium Chloride

.3 77% Flake Calcium/Magnesium Chloride

.4 32.6%, 30.3%, or 28% Magnesium Chloride,

.5 Lignosulfonate

7.0 Dust and the Public

.1 In the event that construction, maintenance, or operation produces a large quantity of dust

.1 Inform the public to wash any country foods or medicinal plants gathered from the area where the dust settled.

.2 Inform the public to travel with the windows of their vehicles closed when dust on the roadway is visible in the air.

ENVIRONMENTAL PROTECTION PROCEDURES 19

BORROW PIT DECOMMISSIONING

March 2018 Revision

1.0 Description

.1 The excavation of a borrow pit shall be undertaken in areas outlined by the Contractor, Contract Administrator or by Manitoba Infrastructure – Remote Road Operations, and consist of the excavating of material, other than solid rock.

.2 The decommissioning of borrow pits shall include the removal or disposal of all site debris, appropriate sloping of borrow pit sides, removal of site access, and reseeding of the area. The Contractor is responsible for ensuring compliance with all contract specifications, environmental legislation, permits and authorizations.

2.0 Purpose

.1 The purpose of this procedure is to ensure that borrow pit decommissioning operations are conducted in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Fisheries Act (R.S., 1985, c. F-14)
- The Manitoba Sustainable Development Forest Practices Guidebook: Forest Management Guidelines for Terrestrial Buffers – 2010-2022
- Manitoba Infrastructure and Transportation Standard Construction Specifications for Grading – January 2008
- The Manitoba Conservation Brush Disposal Guidebook – March 2005
- The Manitoba Stream Crossing Guidelines for the Protection of Fish Habitat – May 1996
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact

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4.0 Procedures

4.1 Clearing and Grubbing

.1 Where clearing and grubbing is required, it shall be completed prior to excavation of the borrow pit.

.2 Clearing and grubbing shall be limited to the site and associated access routes.

.3 Clearing and grubbing shall only be undertaken between September, 1 of any year and April, 1 of the following year.

.4 All clearing and grubbing operations shall occur in accordance with the Clearing and Grubbing Environmental Protection Procedure (EP1).

4.2 Brush Disposal

.1 Disposal of cleared trees and brush must be done as directed or approved by the Contract Administrator. Disposal may involve burning, compacting, piling, burying, windrowing and compacting, limbing and chipping.

.2 All cleared vegetation, grubbed material, and debris that is to be left in place shall be piled and compacted in windrows. Windrows shall be compacted to lie as close to the ground as possible (maximum height of 0.6 metres) and shall be no closer than 1 metre to the bush line. Windrows are required to have a 15 metre break every 100 metres in length.

.3 Cleared and grubbed material that is to be burned shall be piled for burning. Burn piles shall be located a minimum of 15 metres from other wood and brush piles and standing timber.

.4 Merchantable wood that is identified by the Contract Administrator shall be stockpiled within existing clearings and at least 1 metre from standing timber. Stockpile sites shall not be located within 100 metres of a waterbody. Unless otherwise specified, all stockpiled material shall be removed from Crown land by April 30 following the date of issuance.

.5 The burning of debris piles shall not permitted in the spring or early summer to avoid disturbing small wildlife species which may have young in the piles or may have prepared nesting sites. The best and preferred option for wildlife is burning in the fall or winter.

.6 No burning of debris piles shall occur on deep organic soils. Piles shall be a minimum of 15 metres away from standing timber and the high water mark of any waterbody.

.7 Slash shall be piled in a manner that allows for clean, efficient burning of all material. Avoid mixing soil into the slash.

.8 The Contractor shall obtain a burning permit for open fires between April 1 and November 15. Burning between November 16 and March 31 does not require a burning permit; however, the supervising officer shall be advised prior to any burning. All fires shall be completely extinguished by March 31.

.9 Ensure safety precautions are taken to keep the fire under control. Burn piles shall be monitored, to ensure that subsequent fire hazards are not present. Upon completion of the burn, burn piles shall be completely extinguished.

.10 All occurrences of fire spreading beyond the debris piles shall be reported to the Contract Administrator and the Natural Resources District Supervisor.

.11 All brush disposal operations shall occur in accordance with the Clearing and Grubbing Environmental Protection Procedure (EP1).

4.3 Borrow Pit Sloping

.1 The borrow pit excavation shall be conducted as uniformly as possible to the depths and within the limits outlined by contract specifications, environmental legislation, permits and authorizations.

.2 Upon excavation completion, stockpiled stripped soil shall be placed uniformly over the slopes and bottom of the borrow pit.

.3 Side slopes shall maintain a slope of 4:1, unless otherwise permitted or directed.

.4 Upon completion of the borrow pit excavation, the Contactor shall cap, level and trim the borrow pit prior to decommissioning the area. If burying woody debris, the area shall be capped with ½ metre of clay. Stockpiled topsoil shall be spread, and the area re-vegetated.

4.4 Access Road Removal

.1 The temporary access road to the borrow pit, and any equipment brought onto site, shall be removed as soon as possible following completion of the work or when it is no longer required.

.2 Following the removal of the temporary access road, the site shall be restored; and disturbed areas re-vegetated to suit original conditions.

4.5 Re-Vegetation

.1 Borrow pits will be left in a manner which promotes natural re-vegetation of the site.

.2 In cases where seeding is required, and when conditions permit, seeding shall commence immediately upon completion of capping and trimming operations.

.1 Seeding operations shall not be carried out under adverse conditions of high winds, frozen ground, or ground covered with snow, ice, or standing water.

.2 When conditions do not permit immediate seeding, Manitoba Infrastructure – Remote Road Operations will endeavor to ensure seeding is completed within the next growing season.

ENVIRONMENTAL

PROTECTION

PROCEDURES

20

Quarry Site Selection and Development Requirements

March 2018 Revision

1.0 Description

1. This procedure specifies best management practices for the selection of quarry sites and quarry development. These best management practices are to be applied to quarries established adjacent to the road alignment and to areas within the right of way where blasting and quarrying activities are required for engineering purposes.
2. The Contractor is to comply with all legislation, licences, authorizations and permits respecting the Project.
3. All proposed quarries are subject to a site selection analysis by Manitoba Infrastructure – Remote Road Operations to confirm that the proposed quarry site will not interfere with sensitive features including heritage resources and known cultural sites; sensitive wildlife habitat including species at risk and migratory birds; surface water, fish or fish habitat; or other sensitive sites

2.0 Purpose

1. The purpose of this procedure is to outline criteria for site selection of quarries and their development.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operation (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Mines and Mineral Act C.C.S.M. c. M162
- Quarry Minerals Regulations 1992 M162 — R.M. 65/92
- The Fires Prevention and Emergency Response ACT CCSM. c. F80
- The Forest Act CCSM. c. F150
- The Wildfires Act CCSM c. W128
- The Workplace Safety and Health Act – CCSM. c. W210
- The Dangerous Goods Handling and Transportation Act CCSM. c. D12
- Explosives Act R.S.C., 1985, c. E-17The Manitoba Sustainable Development Forest Practices Guidebook: Forest Management Guidelines for Terrestrial Buffers – 2010-2022
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

- Environmental Protection Specifications – Appendix 8-3: of P6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 Site Selection

.1 No operator of a quarry is to establish or mine a quarry closer than 400 metres from a residence, unless the operator has established a vegetated berm or tree screen sufficient to shield the quarry from view from the residence.

.2 With the exception of quarries that are contiguous with the road right-of-way, all quarry operations shall maintain a 100 metres buffer from the proposed road right-of-way. If no vegetated buffer or screen exists this distance shall be at least 150 metres.

.3 Habitat occupied by endangered species shall be avoided.

.4 Quarry site selection shall consider the proximity of sensitive sites including waterbodies, wildlife, heritage resources and culturally important sites. Setbacks will vary depending on circumstances however selected areas are to be a minimum of:

.1 100 m from a water course or water body,
.2 100 m buffer from any large stick nest, eagle nest, heron rookery, or any other sensitive wildlife area,
.3 30 m from heritage resources or identified cultural sites,
.4 400 m from any residence,
.5 15 m from the property line, and
.6 Other setbacks as required.

.5 Prior to development quarry sites, the potential for acid rock generation will be assessed with the intent of not developing such sites.

5.0 Quarry Development

.1 General

.1 The Contractor shall comply with all legislation, licences, authorizations and permits respecting the Project.

.2 All operations are subject to the appropriate Acts and Regulations,

.3 The Contractor shall not commence any mobilization or drilling activities until a Casual Quarry permit or Quarry Lease have been issued by the Province of Manitoba.

.4 The Contractor's Site Supervisor shall attend a pre-construction meeting with the Contract Administrator, at a mutually agreed upon date, to discuss the development of the quarry and establishment of the crushing operation. The meeting shall be initiated by the Contractor and be held in advance of commencing the field quarry establishment operations. Topics to be discussed shall include the type and quantity of equipment to be used, sequence of work, traffic control, environmental requirements and other pertinent topics.

.5 The Contractor is responsible for maintaining the site and promoting surface water runoff to minimize ponding after rainfall events. In the event that ponding does occur, it shall be discharged or removed using effective erosion and sediment control devices and pumps (if required), as accepted by the Contract Administrator.

.2 Scope of Work

.1 The development of the quarry shall be in accordance with the site plan submitted to Manitoba Infrastructure - Remote Road Operations prior to the beginning of construction and the immediate quarry area plan provided to Manitoba Sustainable Development as part of the work permit application where applicable.

.2 The major components of the Work are as follows:

.1 Access Road Construction,
.2 Clearing and Grubbing,
.3 Blasting, and
.4 Gravel Crushing and Stockpiling of Aggregate.

.3 Site work roads shall be confined to the Quarry Lease with the exception of the quarry access road.

.4 A buffer zone shall be maintained between the excavation area and the registered quarry site boundary.

.3 Fuel Handling and Spill Response

.1 All dangerous goods shall be handled in accordance with The Dangerous Goods Handling and Transportation Act.

.2 The Contractor shall ensure that due care and caution is taken to prevent spills, at all times.

.3 Tank vehicles used to deliver fuel to the work site and/or used to move fuel around the work site must meet the requirements for highway tanks for the shipment of dangerous goods by road set out in CSA Preliminary Standard B620-98, *Highway Tanks and Portable Tanks for the Transportation of Dangerous Goods*

.4 An updated list of key contacts and telephone numbers for reporting spills, problems, etc., shall be kept on-site by the Contractor at all times.

.5 A Workplace Hazardous Materials Information System (WHMIS) file shall be maintained on-site for all hazardous materials at the work area. Prior to commencement of the Work, Safety Data Sheets (SDS) shall be submitted to the Contract Administrator for all hazardous materials to be used on-site. No material shall be brought to the site without prior submission of a MSDS.

.6 All spills shall be reported to the Contract Administrator within 24 hours. The spill report shall include the following:

.1 Personnel responding to the spill,
.2 Material spilled,
.3 Cause of spill,
.4 Estimated amount of material spilled,
.5 Estimated area and volume of soil affected by the spill,
.6 Cleanup action undertaken, and
.7 Means used to contain, transport and dispose of the materials involved.

.7 The Contractor shall designate a qualified supervisor(s) as the on-site emergency response coordinator(s). The emergency response coordinator(s) shall have the authority to redirect manpower and equipment in order to respond in the event of a spill.

.8 Appropriate materials for containment and cleanup of any spill of dangerous goods or hazardous wastes shall be available on-site when such materials are present in the work area. Also, designated personnel and first responders shall be familiar with the storage location and proper application of such containment and cleanup materials.

.9 All spills shall be contained and cleaned up immediately by on-site personnel in accordance with the on-site emergency response and containment plan.

.4 Quarry Site Development and Mobilization

.1 Description

.1 Site development and mobilization covers the mobilization and demobilization of equipment, tools, materials, facilities and all things necessary for the Work including but not limited to site access, site work roads, site drainage, snow removal, clearing and grubbing, general site cleanup and restoration.

.2 Equipment/Materials

.1 Equipment, implements, tools, materials, and facilities shall be of a size and type as required to complete the Work in the required time. The equipment to be used for the Work shall include bulldozers,

front-end loaders, rock trucks, graders, backhoes, and other equipment as needed.

.2 All equipment, implements, tools, plants, materials, and facilities shall be kept in good working order. The Contractor shall have sufficient standby equipment available at all times, as required.

.3 Submittals and Advanced Notice

.1 The Contractor shall submit to Manitoba Infrastructure – Remote Road Operations a site plan showing the location of the proposed crushing operation.

.2 The Contractor shall provide Manitoba Infrastructure – Remote Road Operations at least eleven working days advance notice of the location of the crushing operation. The notice to Manitoba Infrastructure – Remote Road Operations shall include a drawing of the working area including the location of the initial extraction area, the progression of the extraction area and the location of sheds, offices, toilets and other temporary structures, drainage and stockpile areas. The suitability of the working area shall be subject to approval of Manitoba Infrastructure – Remote Road Operations.

.3 The Contractor shall provide the Contract Administrator with at least six working days advance notice of the intention to commence production of aggregates. The notice shall include a preliminary schedule for the clearing, establishment of access, relocation of equipment, establishment of water and wastewater services, blasting and commencement of crushing operation.

.4 Prior to preparatory work for each blast, the Contractor shall submit a blast plan to the Contract Administrator including such information as:

.1 The location, depth and area of each blast;
.2 Diameter, depth, pattern and inclination of blast holes;
.3 The type, strength, amount, column load and distribution of explosives to be used per hole, per delay and per blast; and
.4 The sequence and pattern of delays and the description and purposes of any special methods to be adopted.

.5 Clearing and Grubbing

.1 Description

.1 Clearing and grubbing consists of the removal and disposal of all tree stumps, roots, logs, shrubs, grass, weeds, fallen timber and other surface litter wherever they occur within the crushing operation and stockpile sites.

.2 Clearing shall only occur between September 1 and April 1 of the following year. Felled timber and debris will be disposed of in a manner consistent with EP1 Section 4.1. Merchantable timber is shall be removed from the site by April 30 following the clearing activity.

.3 All persons involved in clearing and grubbing activities shall follow safe work practices and procedures regarding chain saw operation, fueling, personal protective equipment, safety features, and transportation and storage.

.4 All persons involved in tree felling shall posses a training certificate for chainsaw and tree felling operations.

.2 Construction Methods

.1 Prior to the production of aggregates, the source of supply shall be cleared, grubbed and stripped of overburden to only the extent and manner necessary as approved by Manitoba Infrastructure – Remote Road Operations.

.2 Brush disposal shall occur in accordance with the *Manitoba Conservation Brush Disposal Guidebook – March 2005.*

.3 Within the limits as directed and staked out by Manitoba Infrastructure – Remote Road Operations, all brush and trees, except those designated by Manitoba Infrastructure – Remote Road Operations to be saved, shall be cut level with the ground, and all surface debris, excluding merchantable timber but including fallen timber, slash limbs, brush, grass and weeds, shall be disposed as directed or permitted by Manitoba Infrastructure – Remote Road Operations.

.4 All stumps and roots shall be grubbed out within areas where excavation will occur and where the embankment grade is less than one metre above the original ground level.

.5 Trees shall be felled towards the centre of the area to be cleared. Any brush falling outside the area to be cleared shall be moved back to the work area and disposed of as directed by Manitoba Infrastructure – Remote Road Operations. The Contractor shall take all precautions against the damage to other trees, traffic structures, pole lines or property in the felling of trees. The Contractor shall be liable for any damages occurring in the performance of this work.

.6 Timber from which forest products can be manufactured (merchantable) shall be cleared of limbs and stockpiled on the worksite in consolidated piles more than 1 metre from standing timber or as directed or permitted by the Contract Administrator. Merchantable timber shall be made available for community use free

of charge upon request from community member or organizations. Removal and or disposal of any unused merchantable timber remains the responsibility of the contractor.

.7 Quarry operations shall not encroach within 15 metres of any property boundary adjoining, private, municipal, or crown leased land.

.8 No operator of a quarry shall establish or mine a quarry closer than 150 metres from a Provincial Trunk Highway, or Provincial Road, unless the operator has established a vegetated berm or tree screen sufficient to shield the quarry from view from the road or residence. A quarry shall not be established within 400 metres of a residence

.9 The burning of debris piles shall not permitted in the spring or early summer to avoid disturbing small wildlife species, which may have young in the piles or may have prepared nesting sites. The best and preferred option for wildlife is burning in the late summer or fall.

.10 No burning of debris piles shall occur on deep organic soils. Piles shall be a minimum of 15 metres away from standing timber and the high water mark of any waterbody.

.11 Slash shall be piled in a manner that allows for clean, efficient burning of all material. Avoid mixing soil into the slash.

.12 A burning permit is required for open fires between April 1 and November 15. Burning between November 16 and March 31 does not require a burning permit; however, the supervising officer must be advised prior to any burning. All fires must be completely extinguished by March 31.

.13 Ensure safety precautions are taken to keep the fire under control. Burn piles must be monitored, to ensure that subsequent fire hazards are not present. Upon completion of the burn, burn piles must be completely extinguished.

.14 All occurrences of fire spreading beyond the debris piles shall be reported to the District Supervisor.

6.0 Quarrying and Crushing Operations

.1 Description

.1 Quarrying and Crushing Operations consist of those activities associated with the day to day operation of the quarry site, including but not limited to blasting, crushing and stockpiling of materials.

.2 Materials

.1 The produced aggregate and supplementary granular material shall consist of sound durable particles of crushed rock, gravel, stone, sand and fines free from sod, roots and organic material.

.2 The aggregate shall be well graded and shall not vary from the maximum to minimum of the specification ranges for consecutive tests.

.3 Traffic gravel shall be subject to testing at the time the material is being produced in accordance with Manitoba Infrastructure – Remote Road Operations instruction. The Contractor shall place the processed aggregate in a separate stockpile until satisfactory production tests have been completed. Rejected material shall be immediately moved either to the vicinity of the feed end of the crusher for reprocessing or to an area completely removed from any approved material.

.4 The addition of supplementary granular material to a quarried material shall not be permitted.

.5 Crushers shall, unless otherwise approved by Manitoba Infrastructure – Remote Road Operations, be equipped with an approved mechanical sampling device for obtaining samples off the main delivery belt.

.3 Submittals

.1 In accordance with Section 25 of the Manitoba Provincial *Quarry Minerals Regulation – M162* the holder of a quarry permit or lease shall provide the Mining Recorder with:

- .1 An annual statement of the total quantity of quarry mineral produced from the quarry lease;
- .2 A royalty payment;
- .3 A rehabilitation levy payment; and
- .4 The annual rent, no later than the 30th day following the anniversary date of the lease.

.2 Only quarry minerals that are **produced and removed** from the quarry shall be included within the annual statement.

.3 Quarry mineral removed by a contractor for a public purpose is **exempt** from payment of royalties where the public agency certifies in an **exemption certificate** prepared on a form furnished by the recorder that the quarry mineral has been used for a public purpose.

.4 A rehabilitation levy shall be paid by the lease holder for production of aggregate quarry mineral. This only applies to quarry minerals that are **produced and removed** from the quarry lease; no fee is required to be paid as long as the quarry mineral remains stockpiled on the quarry lease. (The current levy is 12¢ per tonne, as of 2018, and subject to change.)

.5 The contractor will inform local communities prior to the commencement of quarry operations and prior to blasting. Communication will include

actions to take if collecting country foods downwind of blasting in areas where dust is likely to settle (thoroughly wash foods prior to consuming)

.4 Construction Methods

.1 Quarry operations shall not be permitted within 150 metres of a Provincial Trunk Highway or Provincial Road or within 400 m of a residence.

.2 The Contractor shall ensure all fuel storage and equipment servicing areas are located a minimum of 100 metres from any waterbody.

.3 If authorized to work in or near a waterbody, the Contractor shall ensure that any work is done in accordance with the *Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, May 1996.*

.4 The Contractor may be subject to operational restrictions if in close proximity to sensitive environmental receptors (such as fish, birds, and wildlife, during critical life stages or periods of traditional land use) as required by Manitoba Infrastructure – Remote Road Operations and/or applicable permits. The frequency of blasts are at the discretion of the contractor based on construction timelines, aggregate requirements, physical conditions of the geography, and availability of supplies, provided the blasts comply with these restrictions.

.5 The local Natural Resource Officer shall be notified no less than one week prior to completion of operations to allow for final inspection of the operation.

.6 All operations must be completed to the approval of the local Natural Resource Officer.

.7 Immediately following blasting, and at any time during the quarry operation, all excavated faces which, in the opinion of the Contract Administrator and/or the Contractor, are unsafe or appear to endanger persons, work, or property, shall be scaled and the loose rock shall be removed from the excavation.

.8 The active excavation face shall be maintained at stable slopes, to the satisfaction of the Contract Administrator.

.9 The Contractor shall ensure work adheres to the maximum peak particle velocity and minimum set back distances as recommended in the *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters, 1998*.

.10 The Contractor shall minimize disturbance to vegetation and install erosion and sediment control measures as directed by the Contract Administrator.

.11 The Contractor shall maintain the quarry site in a tidy condition and free

from the accumulation of debris.

.12 The suitability and location of stockpile sites, as well as access to the sites, including sites at the crushing operation or elsewhere shall be subject to the approval of Manitoba Infrastructure – Remote Road Operations.

.13 The Contractor shall provide stockpile sites, which are level, well drained and have adequate bearing capacity to support the weight of the material that is to be placed thereon.

.14 Stockpiles shall be constructed at locations and by methods that will neither interfere with nor damage utility lines or other utility infrastructure.

.15 Access to stockpiles shall be readily available at all times

.16 The Contractor shall clear the stockpile sites of all debris, vegetation, rocks, snow and other objectionable material prior to placing any aggregate on the stockpile sites.

.17 The pile of material at the end of the discharge belt shall not be allowed to build up to a height greater than 3 metres.

.18 Stockpiling shall be performed using loaders, trucks or stacking conveyors.

.19 When trucks or loaders are used, loads shall be spot dumped uniformly over the entire stockpile area. The aggregate shall be placed in layers not exceeding 1.25 metres in depth. Each layer shall be completed and levelled prior to placing the succeeding layer.

.20 If more than one material is to be stockpiled at the same site, each stockpile shall be separated by a sufficient distance to allow equipment access to all sides of the stockpile.

.21 Aggregates which become mixed with others of different kind, class, source or gradation or which become contaminated by foreign material shall be rejected and promptly removed from the site of work.

.22 The completed stockpiles shall be neat, regular in form and constructed to occupy the smallest feasible area.

7.0 Decommissioning Phase

.1 A Decommissioning Plan shall be developed in consultation with Manitoba Infrastructure – Remote Road Operations and in accordance with all applicable Legislation and Regulations.

ENVIRONMENTAL PROTECTION PROCEDURES 21

WINTER ROAD CLOSURE AND RECLAMATION PLAN

March 2018 Revision

1.0 Description

.1 With construction of all-season roads, existing winter roads shall be closed in segments or in whole and left to regenerate naturally.

.2 Decommissioning of the winter road shall include the removal of site access, removal of culverts, installation of erosion and sediment control (if required) and the promotion of natural re-establishment of vegetation. The Contractor is responsible for ensuring compliance with all contract specifications, environmental legislation, permits and authorizations.

2.0 Purpose

.1 The purpose of this procedure is to ensure that the decommissioning and reclamation of the winter road is conducted in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operations (MI-RRO) Contracts and Associated Documents, specifically 130.15/EP6 – Working In or Within Water, and EP11 – Culvert Maintenance and Replacement
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Manitoba Stream Crossing Guidelines for the Protection of Fish Habitat – May 1996
- Fisheries Act (R.S., 1985, c. F-14)
- The Manitoba Sustainable Development Forest Practices Guidebook: Forest Management Guidelines for Terrestrial Buffers – 2010-2022
- The Manitoba Conservation Brush Disposal Guidebook – March 2005
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

- Joro Consultants. (2015). Various Wildlife Photographs Provided by Joro Consultants from Research and Field Studies. Prepared for Manitoba Floodway and East Side Road Authority.

4.0 Procedures

4.1 Access Removal

.1 As winter roads are decommissioned, access shall be obstructed and blocked using, rocks, gates, timbers or other barriers to impede access.

.2 Temporary access roads intersecting winter roads shall be decommissioned or blocked as soon as possible following completion of the work or when no longer required.

.3 Effective erosion and sediment control measures shall be installed where required.

4.2 Culvert Removal

.1 Material and debris removal shall be timed to prevent disruption to sensitive fish life stages through adherence to DFO's Restricted Activity Timing Windows to prevent disruption of fish and wildlife habitat. The contractor shall not undertake construction activities in fish bearing waters or potentially fish bearing waters between April 15 and July 15 of any year, or during periods of high stream flow. In watercourses determined to contain fall spawning fish species, the contractor shall not undertake "in water" construction activities before July 15 or after September 15.

.2 Machinery shall arrive at site in a clean condition and shall be operated on land (from outside of the water) and in a manner that minimizes disturbance to the bed and banks of the watercourse.

.3 Machinery shall be operated from the top of bank, if required.

.4 The work area shall be isolated from all flowing water in a manner that does not cut off flow to downstream portions of the stream at the time during removal.

.5 If dewatering of the site is required, a qualified Fisheries Biologist with appropriate fish handling permits shall be on hand to make the final decision regarding the need for a water quality monitoring and fish salvage program. If fish salvage is necessary, recovered fish shall be relocated to a safe area outside of the influence of the worksite and transport containers must not be overloaded with fish.

.6 Any old structures shall be removed to a suitable upland disposal site, away from the riparian area and floodplain to avoid waste material from re-entering the watercourse.

.7 The bed and banks of the watercourse shall be restored to preexisting conditions following a disturbance.

.8 A site visit shall be conducted prior to the commencement of in-water construction activities to determine the site-specific environmental protection measures that may be required (i.e., worksite isolation methods, site restoration considerations, erosion and sediment control materials required, etc.).

.9 Cofferdams and other structures (diversions) shall be installed to separate the dewatered worksite from flowing water. Materials that are used to build these dams shall not be taken from below the high water mark (1 in 2 year high water level). Cofferdams shall be designed to accommodate any expected high flows during the construction period.

.10 Downstream flows shall be maintained at all times. If isolated sites are required, flows shall be detoured around the sites, and original flows through the site shall be restored as soon as work is completed.

.11 A fish salvage operation shall be conducted prior to dewatering of isolated sites.

.12 Culvert removal techniques shall be utilized that result in the least amount of impacts to the watercourse and riparian area.

.13 The contractor shall avoid using frozen backfill.

.14 Culvert removal shall be avoided during wet and rainy periods

.15 Slopes shall be contoured to an appropriate steepness to minimize erosion; erosion controls shall be installed as soon as possible, and maintained until complete re-vegetation of the disturbed area(s) is achieved.

.16 Soils shall be graded in the direction away from the watercourse and never into the stream itself.

.17 All brush disposal operations shall occur in accordance with the Clearing and Grubbing Environmental Protection Procedure (EP1).

4.3 Re-Vegetation

.1 Winter roads shall be left in a manner which promotes natural re-vegetation of the site. Vegetation recovery for vascular plants is expected within 5 years, followed by longer periods of success for tree species.

ENVIRONMENTAL PROTECTION PROCEDURES 22

TEMPORARY SITE DECOMMISSIONING

March 2018 Revision

Procedure name: Temporary Site Decommissioning

Reference number: EP22

1.0 Description

.1 Upon the completion of work, all temporary sites shall be decommissioned. The decommissioning shall include the removal or disposal of all site debris, appropriate sloping and regrading of the area, removal of site access, and the promotion of natural re-establishment of vegetation.

.2 The Contractor shall ensure compliance with all contract specifications, environmental legislation, permits and authorizations.

2.0 Purpose

.1 The purpose of this procedure is to ensure that temporary site decommissioning operations are conducted in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operations (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- The Manitoba Stream Crossing Guidelines for the Protection of Fish Habitat – May 1996
- Fisheries Act (R.S., 1985, c. F-14)
- The Manitoba Sustainable Development Forest Practices Guidebook: Forest Management Guidelines for Terrestrial Buffers – 2010-2022
- The Manitoba Conservation Brush Disposal Guidebook – March 2005
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Manitoba Infrastructure and Transportation Standard Construction Specifications for Grading – February 2017

4.0 Procedures

4.1 Site Decommissioning

.1 All temporary structures and equipment shall be removed from the temporary site.

.2 All granular material shall be stripped and removed from the temporary site.

.3 The area shall be leveled to natural or pre-existing grade and slope prior to decommissioning the area. Stockpiled topsoil and other organic matter that had been removed from the site shall be spread to promote natural re-establishment of vegetation.

4.2 Access Road Removal

.1 Access roads and any equipment brought onto site shall be removed or blocked as soon as possible following completion of the work, or when no longer required.

.2 Access roads shall be obstructed and blocked using, rocks, gates, timbers or other barriers to impede access.

4.3 Re-Vegetation

.1 Temporary site locations shall be left in a manner which promotes natural re-vegetation of the site.

.1 In cases where seeding is required, and when conditions permit, it shall commence immediately upon completion of grading, capping and trimming operations. When conditions do not permit immediate seeding, Manitoba Infrastructure – Remote Road Operations shall endeavor to ensure seeding is completed within the next growing season.

.2 Seeding operations shall not be carried out under adverse conditions of high winds, or ground covered with snow, ice, or standing water.

ENVIRONMENTAL PROTECTION PROCEDURES 23

Mussel Salvage

March 2018 Revision

1.0 Description

.1 Mussel survey and if necessary salvage and relocation shall be undertaken as instructed by the Manitoba Infrastructure – Remote Road Operations in advance of various activities, including bridge construction, temporary water crossing structures, spawning shoals or spurs, and/or culvert installation in fish bearing waterways. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 Purpose

.1 The purpose of this procedure is to ensure that mussel survey, salvage and relocation are conducted in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 Legislation and Supporting Documents

- Manitoba Infrastructure – Remote Road Operations (MI-RRO) Contracts and Associated Documents
- Previous East Side Road Authority (ESRA) Contracts and Associated Documents
- Species at Risk Act, S.C. 2002 c.29
- Fisheries Act R.S.C., 1985, c. F-14
- Applicable Fisheries and Oceans Canada (DFO) Authorizations
- Species at Risk (SAR) Permit
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Protocols for Detection and Relocation of Freshwater Mussel Species at Risk In Ontario Great Lakes Area (OGLA) (Mackie et al. 2008) (http://www.dfo-mpo.gc.ca/Library/332071.pdf)
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 Procedures

1. Permits
    1. Mussel Salvages shall be conducted to remove mussels from in-water footprints of project components.
    2. Necessary permits shall be obtained prior to conducting any in-water mussel work.
        i. Mussel salvage and relocation work shall be conducted under and in accordance with a live fish handling permit obtained from Manitoba Sustainable Development.
        ii. Where a species at risk (SAR), as listed under Schedule 1 of the Species at Risk Act is known to occur, or is found in the waterbed, work shall also be conducted under and in accordance with a species at risk (SAR) permit obtained from Department of Fisheries and Oceans (DFO). SAR permit application can be found online at: http://www.dfo-mpo.gc.ca/species-especes/permits-permis/pdf/SARA_permit_application-eng.pdf .
    3. Mussel survey and salvage operations shall be conducted by a qualified biologist:
        i. Mussels captured during the survey shall be identified and transported while submerged to a designated location with similar habitat an appropriate distance upstream from the construction work site. (minimum 250 m)
    4. Fish and mussel handling best practices shall be followed to reduce harm to mussels or mussel habitat.
    5. If a SAR is found in a new area, work shall be stopped, DFO informed DFO, and SAR permit obtained prior to continuing work.
    6. Riparian habitats shall be restored to original pre-work condition.
    7. Applicable measure in *Protocol for detection and relocation of freshwater mussel species at risk in Ontario Great Lakes Area (OGLA)* (Mackie et al. 2008) shall be used including:
        i. Preserve SAR listed mussels killed or mortally injured during survey or relocation in 95% ethanol and supply to DFO as per permit requirement.
    8. Mussel surveys, salvage and relocation activities and results shall be documented in a report generated by the fish biologist and submitted to Manitoba Infrastructure – Remote Road Operations for

review and approval. The report shall contain detailed descriptions, photos, and drawings of site conditions including:

i. Location, habitat profile, description of methodology (including names of collectors) contact information, organization, and schedule of activities.
ii. Results including photos of collected species and sites, depths, locations, and substrate in which each animal was found, numbers and the types of species found.
iii. Fish and mussel data collection table, where work is conducted under SAR permit. MI will supply the DFO template to the fish biologist conducting the work.

9. Any death of a listed SAR mussel during the salvage operation or associated construction shall be reported immediately to MI and the DFO Species at Risk Biologist.
10. Any circumstance during the mussel salvage or associated construction which has lead to the serious harm to fish (including any mussel) or a part of a commercial, recreational, or aboriginal fishery or deposit of deleterious substance in waters with potential fish presence the fish biologist/contractor shall report information to Manitoba Infrastructure – Remote Road Operations for submission to DFO under section 38(4) and 38(5) *Duty to Notify*.
11. Where required, Manitoba Infrastructure – Remote Road Operations shall submit reports to DFO and Manitoba Sustainable Development.

ENVIRONMENTAL PROTECTION PROCEDURES 24

Water Quality Monitoring

March 2018 Revision

1.0 Description

.1 Water quality monitoring shall be undertaken to demonstrate that deleterious substances are not entering fish bearing waters or exceeding MWQSOGs.

.2 Monitoring shall be undertaken as instructed by Manitoba Infrastructure (MI) prior to, during, and after in-water construction activities in fish-bearing watercourses, and may be required when working near fish-bearing watercourses or tributaries to fish bearing watercourses. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 Purpose

.1 The purpose of this procedure is to ensure that water quality monitoring activities are conducted in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 Legislation and Supporting Documents

- MI Contracts and Associated Documents
- Species at Risk Act, S.C. 2002 c.29
- Fisheries Act R.S.C., 1985, c. F-14
- Applicable Fisheries and Oceans Canada (DFO) Authorizations
- Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOGs)
- Canadian Council of Ministers of the Environment – Protocols Manual for Water Quality Sampling in Canada 2011
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (www.gov.mb.ca/waterstewardship/fisheries/habitat/sguide.pdf)
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All - Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 Procedures

.1 Water quality monitoring shall occur:

.1 When working in-water in fish-bearing watercourses, or near fish-bearing watercourses when below the normal high-water mark (Q2, or 1:2 year flood levels)

.2 When working in water upstream of and within 5km of a water treatment plant intake.

.3 As directed by MI when working near fish-bearing watercourses of tributaries to fish bearing watercourses.

.2 Water quality monitoring shall consist of:

.1 Total Suspended Solids (TSS) and turbidity monitoring during stream crossing construction and shall be based on an upstream-downstream approach, with sufficient coverage of the study area to define effects in the initial zone of dilution, as well as effects downstream (spatial extent and magnitude of any increases).

.1 A TSS/turbidity relationship for each in-water work shall be developed; turbidity shall be used as a surrogate for rapid on-site monitoring.

.2 Regular in-situ turbidity monitoring shall be conducted and laboratory Total Suspended Solid samples shall be collected and analyzed as required to validate in-situ monitoring where required by permit licence or authorization for the work.

.3 Further sampling shall be conducted as required by permit, licence or authorization for the work.

.2 Benzene Toluene, Ethylbenzene and Xylene (BTEX), and petroleum hydrocarbon fractions F1 to F4 shall be monitored where equipment is working in water or where there has been an accidental release on land that has the potential to or has resulted in the release entering a waterbody.

.3 Data collected at downstream sites shall be compared to data collected at upstream reference sites (background conditions) and compared to the *Manitoba Water Quality Standards, Objectives and Guidelines* (MWQSOGs) for the protection of aquatic life. Further monitoring and corrective action may be required if data falls beyond applicable standards or guidelines.

.3 Water quality monitoring activities shall be conducted or overseen by a qualified Fish Biologist pre-approved by MI. Works requiring water quality monitoring shall not be undertaken without the presence of a qualified Fish Biologist, or a person trained by a qualified Fish Biologist as authorized by MI.

.4 Where monitoring results demonstrate changes above *Manitoba Water Quality Standards, Objectives and Guidelines* (MWQSOGs), the activity shall cease until effective mitigation measures are taken and shown to be effective.

.1 Where an isolated work area is being dewatered and discharge exceeds guidelines, mitigation measures shall be employed and may include diverting waters to splash pads or small settling ponds before the impacted water re-enters a watercourse, or diverting water to the top of a bank where the water will not run back into the watercourse.

.5 The spatial extent and intensity of water quality monitoring during in-water works shall depend upon the presence and velocity of stream flow at the time of construction, or other permit, licence or authorization requirements.

.6 The Contractor shall be responsible for:

.1 Preparing a Fish and Water Quality Protection Plan for work requiring, or that may require water quality monitoring and submitting the Plan to MI prior to the start of the contract. The Plan shall include a description of the works and measures proposed to mitigate adverse changes to water quality.

.2 Contracting with a qualified fish biologist to conduct water quality monitoring activities unless otherwise directed by MI in writing.

.3 Conducting water quality monitoring prior to, during, and after construction activities.

.4 Reporting exceedances immediately to MI.

.5 Ceasing work if exceedances occur and employing corrective actions to mitigate exceedances prior to restarting work.

.6 Notifying MI immediately when the water quality monitoring plan is not being adhered to.

.7 Submitting water quality monitoring reports prepared by a qualified fisheries biologist to MI.

.7 Water Quality Monitoring Reports shall include:

.1 Coordinates of sampling locations,

.2 Description of the construction activity(ies),

.3 Description of the Total Suspended Solids (TSS)-Turbidity relationship,
.4 Measurements and timing of measurements of TSS and Turbidity,
.5 All other sampling data and analysis, and
.6 Exceedances based on rapid on-site monitoring results and corrective actions employed to mitigate exceedances.

.8 Water quality analysis shall be conducted at an Canadian Association for Laboratory Accreditation certified laboratory. Field equipment shall be calibrated in accordance with manufacturer's specifications prior to the start of monitoring work.

ENVIRONMENTAL PROTECTION PROCEDURES 25

Prevention of the Transfer of Invasive Species

March 2018 Revision

1.0 Description

.1 Procedures to prevent the transfer of invasive species shall be undertaken as instructed by Manitoba Infrastructure (MI) prior to, during, and after construction activities, including in-water work and work in sensitive or wilderness areas. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.0 Purpose

.1 The purpose of this procedure is to ensure that the transfer of aquatic and terrestrial invasive species are not transferred from one worksite to the next in accordance with applicable environmental legislation, regulations, guidelines, permits and contracts.

3.0 Legislation and Supporting Documents

- MI Contracts and Associated Documents
- Fisheries Act R.S.C., 1985, c. F-14
- Aquatic Invasive Species Regulations SOR/2015-121
- The Water Protection Act C.C.S.M C. W65
- Applicable Fisheries and Oceans Canada (DFO) Authorizations
- Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOGs)
- Applicable Provincial Licences and Permits
- Environmental Protection Procedures – Appendix 8-2: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018
- Environmental Protection Specifications – Appendix 8-3: of P6 – All- Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation, and God's Lake First Nation Environmental Impact Statement – April 2018

4.0 Procedures

.1 Aquatic Environment

.1 The Contractor shall ensure that equipment which has previously been in contact with an aquatic ecosystem, including but not limited to rivers,

lakes, and marshes is properly cleaned so as to prevent the spread of aquatic invasive species.

.1 Equipment of particular concern includes, water tanks, tank trucks, pumps, hoses, intake screens, boats and motors, and fish and water monitoring equipment.

.2 Equipment coming in contact with aquatic ecosystems shall be cleaned drained completely, dried, and inspected before and after contact. Cleaning is defined as the removal of all aquatic plants, animals, and sediments.

.3 Equipment that has or will come in contact with listed control zones (see attached Map) shall be decontaminated using one of the methods described in table 1. (See Manitoba Sustainable Development's website for the most up to date list of Control zones: http://www.gov.mb.ca/waterstewardship/stopais/)

Table 1: Decontamination methods for water related equipment as described by Manitoba Sustainable Development. Source: http://www.gov.mb.ca/waterstewardship/stopais/help/methods.html [2017-03-09]

Product	Dilution	Method	Duration	Next steps
Bleach 5.25% (household sodium hypochloride)	100 ml bleach to 1 L of water	Completely submerge and ensure the item is in direct contact with solution.	30 minutes	Rinse thoroughly with potable water and wipe down with a cloth.
Vinegar (white) (5% acetic acid)	No dilution required	Completely submerge and ensure the item is in direct contact with solution.	60 minutes	Rinse thoroughly with potable water and wipe down with a cloth
7% hydrogen peroxide	64 ml to 1 L of water	Completely submerge and ensure the item is in direct contact with solution.	60 minutes	Rinse thoroughly with potable water and wipe down with a cloth.
Table salt (NaCl)	10 ml of salt to 1 L of water	Completely submerge and ensure the item is in direct contact with solution.	24 hours	Rinse thoroughly with potable water and wipe down with a cloth.
Hot water (>60 C)	N/A	Completely submerge and ensure the item is in direct contact with water at all times.	10 seconds	Wipe down with a cloth.
Hot water (>60 C)	N/A	Clean with hot water (minimum 60 C) that is discharged at a pressure between 40 to 60 psi. The water must be sprayed no more than 10 cm from the surface being cleaned.	All surfaces being cleaned must receive a minimum of 20 seconds of exposure to the hot water.	Wipe down with a cloth.
Temperatures below -10 C	N/A	Expose item to required minimum temperature.	three consecutive days	None

.4 Equipment that has come into contact with aquatic ecosystems in another province, territory, or country must be decontaminated as described in Table 1.

.2 In the event that aquatic invasive species are discovered during inspection the contractor shall inform the MI project manager and environmental coordinator as well as Manitoba Sustainable Development using the web-form linked below:
(http://www.gov.mb.ca/waterstewardship/stopais/ais_reporting.html

.2 Terrestrial Environment

.1 To prevent the transfer of terrestrial invasive species, all equipment shall be cleaned to remove all earthen material and plant debris and inspected before being brought to sight and before it is removed from sight. Cleaning shall be carried out with a pressure washer or scrub brush. If soap is used it shall be phosphate free.

.2 In the event terrestrial invasive species are discovered the contractor shall inform the MI project Manger and environmental coordinator and the Invasive Species Council of Manitoba using the web-form at:
http://invasivespeciesmanitoba.com/site/index.php?page=report-a-sighting

.3 Documentation

.1 Documentation of measures to ensure the prevention of the spread of aquatic and terrestrial species invasive species shall be incorporated into the respective Water Quality and Fish Protection Plan and Monthly Environmental reports including:

.1 History of equipment work locations and potential sources of contamination.

.2 Detailed Cleaning and Decontamination Plan and procedures (methods) to be employed.

.3 Documentation of cleaning and decontamination (date, personnel, confirmation of methods used).

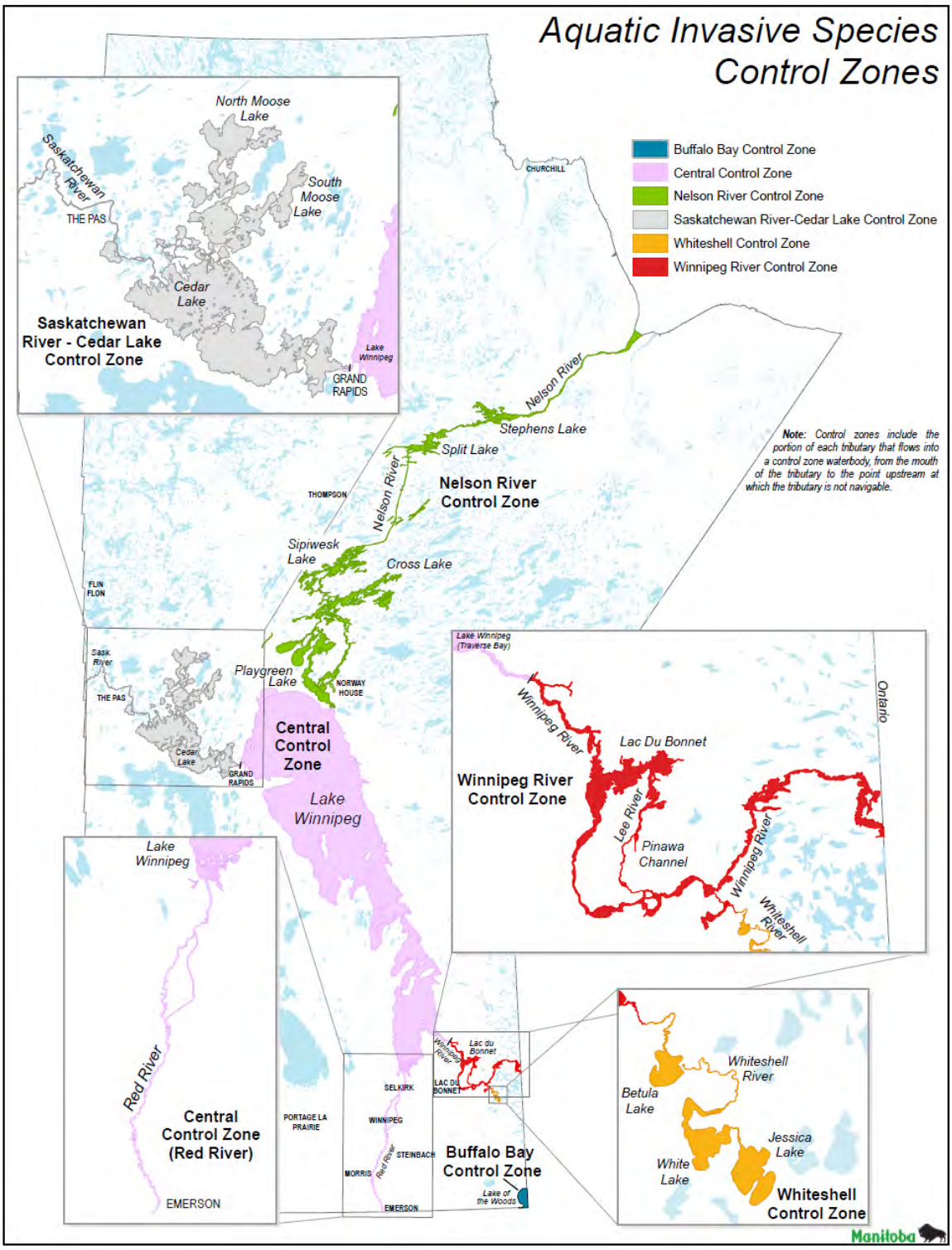

Figure 1: Manitoba Aquatic Invasive control Zone Map. Source: http://www.gov.mb.ca/waterstewardship/stopais/help/control_zone.pdf

Appendix 8-3:
Environmental Protection Specifications

ENVIRONMENTAL PROTECTION SPECIFICATIONS - 130

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130.1 DESCRIPTION

.1 This Specification covers general requirements for the protection of the Environment.

130.2 ENVIRONMENTAL PROTECTION PLAN

.1 The Contractor shall plan and implement the Work of this Contract in accordance with the Specifications and Drawings.

130.3 SUBMITTALS

.1 The Contractor shall submit details of the proposed Designated Areas for review and acceptance by the Contract Administrator in accordance with the General Conditions. Submittals shall include marked up Drawings, and coordinates of the proposed Designated Areas including access, and shall provide sufficient detail to demonstrate full compliance with these specifications. Designated Areas requiring submittals are:

.1 laydown and staging area(s);
.2 waste storage area(s);
.3 fuel storage and refuelling area(s);
.4 equipment servicing area(s);
.5 work camp(s);
.6 parking area(s);
.7 cement batch plant(s);
.8 cement washout area(s); and
.9 others as required by the Contract Administrator.

.2 The Contractor shall submit for review and acceptance by the Contract Administrator 10 business days in advance of the start of work:

.1 Environmental Emergency Plan for Spill Response and Remediation;
.2 Material Safety Data Sheets;
.3 A Water Quality and Fish Protection Plan including but not limited to:

- Construction Phase Erosion and Sediment Control measures;
- In-water works;
- Water quality monitoring;
- Isolation plan;
- Fish salvage and;
- Mussel salvage.

.4 monthly reports providing the records as specified in 130.5 of this Specification;
.5 Waste Management Plan;
.6 Material Management Plan in the event of an Unplanned Shutdown;
.7 Problem Wildlife Management Plan;
.8 Cement Washout Plan;
.9 Petroleum Storage and Equipment Fuelling and Servicing Plan;
.10 Evacuation and Emergency Preparedness Plan in the Event of a Wildfire;
.11 Copies of all required approvals, clearances, permits, licences, and certificates issued to the contractor, or their sub-contractors, including but not limited to:

- Batch Plant Environment Act Licence;
- Fish collection permits;
- Septic permits;
- Crown Lands Well permit.

.12 Other submittals as required.

130.4 ENVIRONMENTAL APPROVALS AND AUTHORIZATIONS

.1 No work is to begin without having the proper permits or authorizations on hand for said work.

.2 The Contractor shall adhere to conditions specified in any and all permits, authorizations, licences, approvals and letters of advice or directive issued for the Work.

.3 Where MI applies for permits, authorizations, licences, approvals and letters of advice or directive to any regulatory body to facilitate the Contractor's work plan, there shall be no award for damages, delay claims or other costs by the Contractor on MI as a result of delays in issuance or rejections of applications.

130.5 RECORD KEEPING

.1 The Contractor shall maintain a record file at the Site in which all relevant information relating to materials handling, spills, leaks, releases, and the implementation and adjustment of the environmental protection measures shall be documented. The Contractor shall maintain a copy of these records for a minimum of 5 years. Relevant information and/or significant events to be documented and provided to the Contract Administrator in a timely fashion may include, but are not limited to:

.1 all accidents, spills, leaks, and releases and the reporting and clean-up procedures used;
.2 any reviews, improvements and adjustments to the environmental protection measures;
.3 details of all environmental training sessions, including the schedule of these sessions and the names of participants;
.4 a full inventory of dangerous goods brought onto the site;
.5 a full inventory of all hazardous wastes encountered on the site;
.6 records of all waste hauled from the site for disposal, including the location, name and description of the disposal facility and waybills/manifests;
.7 records of all material hauled from the site for recycling, including the location, name and description of the person or facility the material was delivered to;
.8 records of all fuel transported and stored at the site;
.9 records of equipment inspections and maintenance;
.10 records of all public complaints;
.11 records of actions taken to remove deleterious substances and debris from watercourses;
.12 records of annual use of pesticides; and
.13 wildlife encounters and/or management measures employed.

130.6 GENERAL

.1 All construction traffic shall be restricted to the Site, existing roads, or approved access routes.

.2 The Contractor shall employ all reasonable precautions to prevent the general public from entering the Site.

.3 The Contractor shall maintain equipment and vehicles in good working order and shall restrict the servicing of equipment to Designated Areas. Where equipment and vehicles cannot be moved to the Designated Area, spill containment is required.

.4 The design of temporary works shall be provided to the Contract Administrator and shall be approved in advance of construction. There may be cases where community concerns and/or

changing regulatory schemes may require the Contractor to design temporary works beyond what is outlined in regulation or in these General Requirements. If costs associated with these additional temporary works are not identified prior to the Submission Deadline, GC7.00 will apply.

.5 In the design of temporary works, the Contractor shall assume, unless otherwise advised in writing by the Contract Administrator, that all watercourses are navigable and shall design temporary works in accordance with this premise. Where navigability cannot be provided, the Contractor shall provide a plan that outlines warning signage and markers and alternate means of passage for approval by the Contract Administrator.

130.7 INSPECTIONS

.1 Periodic inspections of the site will be conducted to ensure that the Site is managed in accordance with the specifications. The Contractor shall address inadequate environmental protection measures, remediate contamination and restore site conditions to the satisfaction of the Contract Administrator.

.2 As sites are decommissioned the CA will retain a third party independent environmental consultant to assess these sites. The contractor shall remediate, including appropriate disposal of contaminated material to the satisfaction of the CA.

130.8 DESIGNATED AREAS AND ACCESS

.1 The Contractor shall construct and maintain Designated Areas for their intended purpose and in a manner which provides for inspection including the regular clearance of snow.

.2 The Designated Areas shall be contained within the Site unless otherwise authorized by the Contract Administrator.

.3 The topsoil in Designated Areas shall be stripped and stockpiled for later reuse in site restoration. Granular material shall be placed to ensure all weather accessibility.

.4 Locations within Designated Areas where equipment, hazardous material and/or wastes will be stored or maintained shall be underlain with at least 30 cm of impermeable soil or approved equal and lined with an impermeable groundsheet to contain spills and minimize cleanup costs. Hazardous materials must also comply with the additional requirements outlined in 130.9.2.4.4.

.5 Designated Areas shall be located a minimum of 100 metres from any waterbody.

.6 Access to Designated Areas from a public roadway shall be such that it is not a safety hazard to the employees or the general public.

.7 The Contractor shall restore the Designated Areas and access roads not required for on-going maintenance to their original condition.

.8 The Contractor shall ensure access to Designated Areas is restricted to prevent access of unauthorized personnel.

130.9 MATERIALS HANDLING, STORAGE AND DISPOSAL

130.9.1 General

.1 All construction areas shall be kept clean and orderly at all times during and at completion of construction.

.2 The Contractor shall take all reasonable measures to prevent compounds harmful to human health or the environment from being released.

.3 All unused, partially used and waste material shall be removed and properly disposed of prior to the end of the Contract.

.4 Materials required for spill containment and clean up shall be available at all locations where construction related activities occur.

130.9.2 Handling and Storage of Wastes

130.9.2.1 Domestic Solid, Demolition and Construction Waste

.1 Waste material shall be recycled to the degree that is economically and practically feasible.

.2 There shall be no dumping of waste on or off the construction site.

.3 Different waste streams shall not be mixed.

.4 Waste shall be stored in Designated Areas for each worksite and camp as approved by the Contract Administrator. At no time during construction shall domestic solid, demolition, or construction waste be permitted to accumulate at any other location on the work site.

.5 All waste materials shall be collected and contained in marked containers appropriate to the waste classification until removed from the site for recycling or disposal as approved by the Contract Administrator.

.6 All solid waste generated at the camp must be disposed of at a registered waste disposal ground or recycling facility. On-site burning or burial is not permitted.

130.9.2.3 Domestic Sewage and Grey Water

.1 All sewage and grey water shall be collected through the provision of a wastewater management system in compliance with the Manitoba Regulation No. 83/2003 respecting Onsite Wastewater Management Systems or any future amendments thereof.

.2 All collected sewage shall be removed from the site at least once every seven (7) days, where transportation permits, by a registered sewage hauler and disposed of at a Designated licensed wastewater treatment facility.

130.9.2.4 Dangerous Goods/Hazardous Waste Handling and Disposal

.1 Dangerous goods/hazardous wastes shall be identified and shall be handled in accordance with The Dangerous Goods Handling and Transportation Act and Regulations, WHMIS and any other applicable regulation.

.2 All dangerous goods/hazardous waste storage areas shall have the top soil stripped and lined with at least 30 cm of impermeable material and an impermeable ground sheet in a manner as to minimize the spread of any leak or spill. Top soil shall be stored and used in the restoration of the area.

.3 All dangerous goods/hazardous wastes shall be stored with a storage vessel or constructed dyking system designed to contain 110% of the total volume. Where dyke shall be used it shall be designed and maintained in such a manner so as to capture spills. Accumulated fluid in the dyke is to be disposed of as hazardous waste unless test results from an approved accredited lab demonstrate otherwise.

.4 A WHMIS file shall be maintained on-site for all hazardous materials at the work area. Prior to commencement of the Work Material Safety Data Sheets (MSDS) shall be submitted to the Contract Administrator for all hazardous materials to be used on-site. No material shall be brought to the site without prior submission of a MSDS.

.5 The Contractor shall have staff trained and certified in the handling of dangerous goods present on-site whenever dangerous goods are being transported, stored or utilized for the performance of the work. All staff responsible for the handling of dangerous goods and hazardous wastes must also be trained in emergency spill response and containment.

.6 All dangerous goods/hazardous waste shall be confined to Designated Areas and stored in a secure manner to prevent access by unauthorized personnel.

.7 Disposal of hazardous waste shall only be at hazardous waste facilities licensed under The Dangerous Goods Handling and Transportation Act.

.8 All hazardous waste stored at Designated Areas shall be removed from the site at least once every seven (7) days or as approved by the Contract Administrator. Should access to the site pose an issue, all hazardous waste shall be stored in an approved storage vessel until transportation of waste can be accomplished.

.9 All used oil shall be stored in leak-proof drums with tight fitting lids or tanks until removed to a registered waste oil facility or hazardous waste disposal facility. Outdoor storage of used oil in drums must be stored in such a manner so as to provide for secondary containment, prevent corrosion and damage from collision and prevent a spill to the environment.

.10 Used oil filters shall be drained, placed into suitable storage containers and disposed of at approved facilities. The oil drained out of the used filters shall be collected and handled in the same manner as used oil.

.11 A pesticide use permit shall be obtained prior to the application of pesticides. The Contractor shall ensure that all pesticides are applied by a licensed commercial applicator and adhere to all conditions specified in Manitoba Regulation 94/88 respecting Pesticides or future amendments thereof and associated permits. The Contractor is to submit a completed post seasonal form to the Contract Administrator at Substantial Performance and at the end of each calendar year, confirming that the terms and conditions of the permit have been satisfied.

130.9.2.5 Petroleum Handling and Storage

.1 Fuel tanks are not to be used without a proper authorization and documentation of such (Permit, etc.)

.2 All petroleum handling, and storage shall comply with Manitoba Regulation 188/2001 respecting Storage and Handling of Petroleum Products and Allied Products or future amendments thereof, the Manitoba Fire Code and all other applicable requirements.

.3 Petroleum products shall be transported in accordance with the Manitoba Provincial Dangerous Goods Handling and Transportation Act.

.4 Fuelling of storage tanks and mobile equipment is to take place within Designated Area(s) for fuel storage and fuelling.

.5 In the event that a piece of equipment must be fuelled or maintained outside a Designated Area, the fuel shall be transported in approved containers.

.6 All fueling activities shall use spill trays and/or polyethylene (HDPE) groundsheets to contain the fuel and prevent fuel from being spilled onto the ground surface. Fuelling areas should be kept clean and free of snow and other materials so as to allow clear access and routine inspection and leak detection.

.7 Tank vehicles used to deliver fuel to the worksite and/or to refuel around the worksite shall meet the requirements for highway tanks for the shipment of dangerous goods by road set out in CSA Preliminary Standard B620-98, Highway Tanks and Portable Tanks for the Transportation of Dangerous Goods or any future amendment thereof.

.8 Equipment shall not be refueled from fuel dispensed from a watercraft.

.9 Petroleum storage shall be a minimum of 3 metres from property lines or buildings, 15 metres horizontally from hydroelectric poles and lines, 1 metre from other storage tanks and 100 metres from any watercourse.

.10 Petroleum storage tanks shall be grounded and the dispensing tank shall be attached with a bonding cable to an appropriate location on the receiving tank prior to commencement of fueling.

.11 Petroleum products shall be labeled as to their contents and stored and handled within Designated Areas which clearly identify the materials present.

.12 Access to the Designated Area(s) for petroleum storage areas shall be restricted to authorized personnel.

.13 Storage tanks shall be secured.

.14 Signs shall be posted in Designated Area(s) for fuel storage and refueling including:

.1 Materials identification and hazard placards;
.2 Storage tank permit(s);
.3 Spill response procedures including contact list in the event of a spill;
.4 Clean up procedures;
.5 Fuelling procedures; and
.6 Access restrictions.

.15 Personnel involved in the handling and storage of fuels shall have WHMIS and spill response training.

.16 Combustible engines shall be shutdown during fueling.

.17 No smoking and no open flames are permitted at storage tanks or the Designated Area for fuel storage and refueling at any time.

.18 Only above ground storage tanks shall be used for the storage of bulk petroleum products. All storage tanks over 230 litres must be double-walled tanks meeting the standard defined under the Canadian Council of Ministers of the Environment Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products. All storage tanks over 5000 litres require a permit and must meet the requirements under the Manitoba Regulation 188/2001 respecting Storage and Handling of Petroleum Products and Allied Products or any future amendments thereof,

.19 Storage tanks shall be equipped with overfill protection and spill containment at the transfer area(s) in the system design approved by the Contract Administrator.

.20 Product inventory shall be taken weekly by the owner/operator of all above-ground storage tanks greater than 5000 litres and retained for inspection upon request.

.21 Barriers shall be installed to encircle petroleum storage tanks to prevent collisions with vehicles and heavy equipment. The mass, height and setback of the barricades are to be determined by the size of equipment on site and shall be operable under conditions of snow accumulation.

.22 All petroleum storage containers and tank vehicles shall be inspected daily for leaks and spillage. Damaged or leaking fuel storage containers shall be promptly removed from the Site.

.23 Secondary containment shall be incorporated at locations where stationary equipment is used.

.24 Fuel barrels shall be transported in accordance with the Dangerous Goods Handling and Transportation Act and be securely fastened to vehicles during transport.

.25 Fuel transfers must be monitored.

.26 All vehicles hauling fuel shall carry materials and equipment for emergency spill response.

.27 All petroleum product storage sites and mobile transportation units shall, at all times, be equipped with appropriate categories of equipment and volumes of fire suppression products.

130.10 SPILLS, REMEDIATION AND EMERGENCY RESPONSE

.1 All spills or accidental releases of petroleum products or other hazardous substances to a watercourse, to federal lands, and/or as specified by the Manitoba Regulation 439/87 respecting Environmental Accident Reporting or future amendments thereof shall be immediately reported to Manitoba Sustainable Development and the Contract Administrator.

It is the responsibility of the Contractor to conduct appropriate soil testing on Designated Area(s) and contract work sites prior to the mobilization of equipment to site to establish baseline conditions. The Contractor will be held responsible for any contamination unless evidence to the contrary can be provided by the Contractor.

.2 All environmental emergencies shall be reported to the Contract Administrator within 24 hours whether it was necessary to report the spill to Manitoba Sustainable Development or not. The report shall include the following:

.1 Location of spill or release (GPS coordinates);
.2 Personnel responding;
.3 Materials spilled;
.4 Cause of spill;
.5 Estimated quantity of released material;
.6 Estimated area and volume of soil affected;
.7 Cleanup action undertaken; and
.8 Means used to contain, transport and dispose of the materials involved.

.3 The Contractor shall designate a qualified on-site emergency response coordinator(s) who shall be on site at all times that work is being undertaken. The emergency response coordinator(s) shall have the authority to redirect manpower and equipment in order to respond in the event of a spill, release or other environmental emergency.

.4 All spills or releases of petroleum and other products shall be contained, treated and disposed of in accordance with the Manitoba Regulation 188/2001 respecting the Storage and Handling of Petroleum Products and Allied Products Regulation or any future amendment thereof and any other applicable requirement.

.5 An updated environmental emergency plan for each dangerous good/hazardous waste shall be maintained in the work area at all times. The environmental emergency plan must include:

.1 The identification of any environmental emergency that can reasonably be expected to occur and that would likely cause harm to the environment or constitute a danger to human life or health and identification of the harm or danger;
.2 a description of the measures to be used to prevent, prepare for, respond to and recover from any environmental emergency identified above;
.3 a list of individuals who are to carry into effect the plan in the event of an environmental emergency and a description of their roles and responsibilities;
.4 the identification of the training received for each of these individuals;
.5 a list of the emergency response equipment and the equipment's location; and
.6 the measures to be taken to notify members of the public who may be adversely affected by an environmental emergency.

.6 The Contractor is responsible for restoring site, including soil and water remediation resulting from the activities of the Contractor, any Subcontractors and agents of the Contractor.

.7 As the Designated Areas are scheduled for decommissioning, the Contract Administrator will coordinate an environmental site assessment(s) of the Designated Areas by MI or its Agent. The Contractor will provide notice to the Contract Administrator at least 30 days prior to completion of work and/or Designated Area(s) decommissioning.

.8 Where spill events occur, the Contract Administrator will coordinate an environmental site assessment(s) by MI or its Agent.

.9 The Contract Administrator and the MI will coordinate the submission of a Remedial Action Plan (RAP) to Manitoba Sustainable Development for approval, if necessary. The Contractor shall remediate contaminated sites as per the criteria identified in the approved RAP and to the satisfaction of the Contract Administrator.

.10 The Contractor may, at their expense, engage a member of the Association of Professional Engineers and Geoscientists of the Province of Manitoba to draft and submit a RAP to Manitoba Sustainable Development for approval. The Contractor must provide copies of the RAP draft(s) and approval(s) to MI prior to the start of remediation.

.11 Where multiple Contractors are using a Designated Area the Contract Administrator shall ensure an agreement is reached between Contractors to deal with overlap of responsibility for site restoration and remediation.

.12 The Contractor shall provide a work plan and schedule to the Contract Administrator regarding remediation activities within 10 business days following receipt of approved RAP and at minimum 5 business days prior to the anticipated start of remedial works. Remedial works shall only begin in the presence of MI or their designated agent.

.13 The Contractor shall provide the equipment and personnel required to conduct the remediation in a timely manner and shall work cooperatively with MI and their designated agent to address site contamination.

.14 The Contractor shall dispose of all contaminated materials at a licensed treatment facility unless otherwise provided for in the RAP. Contaminated runoff or water shall be collected and contained. The collected runoff shall be disposed of as identified in the RAP.

.15 Waybills for disposal shall be provided by the Contractor to the Contract Administrator in all instances. The Contract Administrator may, prior to issuing Substantial Performance to the Contractor, require a hold-back, which will be released to the Contractor following submission of all waybills.

130.11 DUST AND PARTICULATE CONTROL

.1 All work shall be conducted by methods that minimize the raising of dust from construction operations.

.2 Water or approved dust suppressants only shall be used for dust control when necessary. The use of waste petroleum or petroleum by-products is not allowed.

.3 All vehicles used to haul materials to or from the work site shall have the load covered with a tarpaulin during transport.

.4 All stock piles or spoil piles shall be maintained as to minimize wind erosion.

130.12 NOISE AND NOISE LIMITATIONS

.1 All equipment supplied by the Contractor shall be effectively sound-reduced by means of silencers, mufflers, acoustic linings, acoustic shields or acoustic sheds.

.2 The Contractor shall comply with the noise By-laws of the adjacent First Nations and/or municipal authorities.

.3 Any operation of equipment outside the hours as regulated by the adjacent First Nations and/or municipal authorities shall require an exemption in writing. The Contractor shall provide a copy of such an exemption to the Contract Administrator.

.4 The Contract Administrator may impose requirements on the Contractor to minimize noise nuisance at their discretion.

130.13 PLANNED AND UNPLANNED SHUTDOWNS

.1 The Contractor shall ensure all equipment, supplies, and any other items used during construction are relocated to Designated Areas for laydown and staging or taken off site prior to any shutdown period.

.2 All dangerous goods/hazardous waste shall be removed from the Site, including from the Designated Areas for waste and/or fuel storage, for any shutdown period where transportation permits and/or at the discretion of the Contract Administrator. In all instances dangerous goods/hazardous waste shall be securely stored and inspected regularly during the shutdown.

.3 Waste products shall be removed from the construction site during a shutdown period, including from the Designated Areas where transportation permits and/or at the discretion of the Contract Administrator. The demolition and construction waste products, such as gravel and waste concrete, may be left on-site as long as they are stored in a secure Designated Area for waste.

.4 The Contractor shall submit a plan to the Contract Administrator for removal and/or securing of equipment, supplies and waste materials in the event of an unplanned shutdown.

130.14 STAFF TRAINING AND AWARENESS

.1 The Contractor shall provide mandatory training and awareness sessions prior to the start of construction and to new personnel to ensure all personnel working on the Contract are aware of and understand the environmental provisions of the Contract documents including relevant drawings, specifications and Contractor submittals and updates. Such orientation and participants shall be documented.

.2 The Contractor shall submit the planned frequency and records of these meetings. The Contractor shall maintain access to all environmental provisions of the Contract documents including relevant drawings, specifications and Contractor submittals and updates, in a location and manner accessible to all employees, subcontractors, and agents,

130.15 WORKING WITHIN OR NEAR WATER

130.15.1 General

.1 Material, cleared vegetation, stockpiles and/or waste shall not be deposited or stored within 100 metres of a watercourse, unless approved by the Contract Administrator, No borrow shall be removed from within 100 meters of a water body.

.2 Construction activities shall not occur within 100 meters of a watercourse with the exception of construction of a watercourse crossing.

.3 Where a 100 meter distance is not possible, a buffer zone of undisturbed vegetation between the construction activities and the watercourse shall be established. The buffer zone width shall be established according to the following formula: Width = 10 meter + 1.5(slope gradient) or 30 meters whichever is greater.

.4 Backfill installed adjacent to a fish bearing water body shall consist of clean and well graded granular material that is free of fines. Rip-Rap and other rock or granular materials to be used in or adjacent to a fish bearing water body shall be free of fines.

.5 Vehicles and other equipment shall be kept away from and out of the water unless otherwise approved by the Contract Administrator. Equipment shall not be washed within 100 meters of a watercourse. Where the Contractor will be using equipment or supplies in water, and where there is risk of importing invasive species, the Contractor shall clean the equipment and

supplies in accordance with Manitoba Sustainable Development's Protocol for Cleaning Equipment.

.6 Whenever it is necessary to remove existing beaver dams, the Contractor shall adhere to the 130.15.10. Work plans for beaver dam removal shall be provided to the Contract Administrator 10 business days prior to the start of dam removal for application of a beaver dam removal permit from Manitoba Sustainable Development.

.7 Effective erosion and sediment control measures shall be implemented where and when necessary to prevent sediment from entering any watercourse and in accordance with 130.16.

.8 The Contract Administrator and/or an MI Environment Officer shall inspect the site prior to the commencement of in-water construction activities.

.9 Deleterious substances shall be prevented from entering any watercourse or any of their contributory channels.

.10 A silt curtain should be placed downstream of in water work.

130.15.2 Timing of Work

.1 The Contractor shall schedule, plan, and carry out works such that in-water work is kept to a minimum. When practical, in-water work shall be staged to occur as a single event.

.2 In-water work shall be restricted to low flow periods and shall be scheduled during a period when the watercourse is seasonally dry or frozen to the bottom whenever possible.

.3 The Contractor shall not undertake construction activities in watercourses during periods of high stream flow.

.4 South of Leaf River, the Contractor shall not undertake construction activities in fish bearing waters or potentially fish bearing waters between April 1 and June 30, during periods of high stream flow or identified spawning periods. In waters that have fall spawning fish, the Contractor shall not undertake construction activities between September 15 to April 30, unless otherwise authorized by the Fisheries and Oceans Canada and Manitoba Sustainable Development.

.5 North of Leaf River, the Contractor shall not undertake construction activities in fish bearing waters or potentially fish bearing waters between April 15 and July 15, during periods of high stream flow or identified spawning periods. In-waters that have fall spawning fish, the Contractor shall not undertake construction activities between September 1 to May 15, unless otherwise authorized by the Fisheries and Oceans Canada and Manitoba Sustainable Development.

130.15.3 Disturbance to Stream Bed and Stream Banks

.1 Machinery access for in-water work shall be limited to a single point on the shoreline. The distance between the machinery access point and the worksite shall be minimized. The machinery shall arrive on site in a clean, washed condition, and be free of fluid leaks prior to any in-water work.

.2 The Contractor shall use an in-water pad built of washed gravel where in-water equipment activity may generate excess sediment.

.3 The Contractor shall minimize the disturbance to stream bed and banks. The bed and banks of the watercourse shall be restored to preexisting conditions following a disturbance.

.4 The Contractor shall use existing trails, roads or cut lines to access the site where possible to avoid disturbance to riparian vegetation.

.5 Debris and other objects shall be lifted out of the water whenever possible. Items shall not be dragged across the stream bed/lake bottom and banks/shoreline.

130.15.4 Authorizations and Approvals

.1 Construction within 30 meters of a waterway requires authorization by Manitoba Sustainable Development except construction of watercourse crossing approaches.

.2 Fisheries and Oceans Canada Authorization(s) may be required prior to the commencement of any in-water or near water work. MI shall obtain these permits as required. The Contractor is required to provide MI with all project specific information required for these submissions a minimum 90 calendar days prior to the undertaking of in-water and/or near water works, with the understanding that Fisheries and Oceans Canada may request additional information. MI shall

not be responsible for delays associated with Fisheries and Oceans Canada Authorization(s). All conditions specified in Fisheries and Oceans Canada Authorizations, Letters of Advice and/or other Fisheries and Oceans Canada directives apply to the work.

.3 Transport Canada (TC) Navigation Protection Approval(s) may be required for the construction of permanent, temporary or other watercourse crossings and/or in water structures. MI shall obtain these permits as required. The Contractor is required to provide MI with all project specific information required for these submissions a minimum 90 calendar days prior to the need to undertake the works with the understanding that TC may request additional information. MI shall not be responsible for delays associated with TC Navigation Protection Approval(s). All conditions specified in TC Navigation Protection Approval(s) and other directives apply to the work.

.4 For all temporary work and construction activities required for in-water works MI will apply for required authorizations, permits, and approvals. Contractors must supply detailed schedules and work plans to facilitate these applications and cooperate with additional information requests from regulatory bodies. It may take up to 90 or more business days to process applicable authorizations, permits required. The contractor is bound by all conditions specified in regulatory directives applicable to the work. MI shall not be held responsible for any delays related to approvals.

130.15.5 Stream Crossings

.1 Where possible existing stream crossings shall be utilized to traverse watercourses. The number of temporary stream crossings shall be minimized.

.2 All stream crossings shall be constructed in accordance with The Manitoba Stream Crossing Guidelines for the Protection of Fish Habitat – May 1996.They must be designed for their intended construction loading and to accommodate intended water flows.

.3 Streams shall be crossed at right angles at a narrow channel section where the width is no greater than five meters, measured from high water mark to high water mark. Meander bends, braided streams, alluvial fans and other unstable areas shall be avoided.

.4 The natural alignment of the stream shall be maintained.

.5 Dredging, infilling, grading or excavating of the channel bed or banks of fish bearing waterways will require DFO authorizations.

.6 If there is no existing crossing and the watercourse must be crossed, the contractor must either:

.1 Construct a temporary crossing or ice bridge. Ice bridges constructed solely of clean water do not require Fisheries and Oceans Canada Authorization provided they do not obstruct fish passage during timing windows. Ice bridges constructed otherwise require Fisheries and Oceans Canada Authorization; or

.2 Ford the watercourse. For one-time crossing (over and back) of watercourses where the width is no greater than five meters, measured from high water mark to high water mark. For larger watercourses or crossings that require multiple fordings, Fisheries and Oceans Canada Authorization shall be obtained.

.7 Fording activities may require water quality monitoring as per 130.15.8.

.8 Temporary stream crossings shall be removed as soon as possible following completion of the construction activities or when it is no longer required, whichever is sooner.

GR130.15.6 Base Flow, Diversions and Fish Passage

.1 The Contractor is responsible for maintaining base flows for the duration of construction activities in watercourses requiring in-water and near water work, including those works which may require the installation of cofferdams and related structures, unless otherwise approved.

.2 Temporary stream diversions may be used wherever a watercourse must be completely blocked to allow work in the dry.

.3 Temporary stream diversions shall be constructed under low flow conditions. The Contractor must ensure the diversion structure design accommodates any expected high flows during the construction period. Materials used shall not be taken from below the high water mark.

.4 Diversion channels shall be constructed in the dry by excavating from downstream to upstream and removing the ends of the channel last. Diversion channels shall have gentle curves and similar gradient to the natural watercourse.

.5 In-water diversion structure channels shall be constructed using erosion resistant materials.

.6 Existing watercourses shall not be disturbed until temporary diversion channels have been constructed.

.7 Gradient controls shall be used to ensure that diversion channel slopes correspond to the existing channel gradients.

.8 Erosion control measures shall be installed to protect any unstable channel beds and banks in accordance with 130.16 of this specification.

.9 The diversion channel shall be routinely inspected to identify areas of incipient erosion. Eroded areas shall be repaired immediately.

.10 A pumped diversion may be used to maintain flows downstream in non-fish bearing watercourses.

.11 For pumped diversions of fish bearing watercourses all water intakes shall be sized and screened to prevent blockage and/or fish mortality in accordance with Fisheries and Oceans Canada's Freshwater Intake End-of-Pipe Fish Screen Guideline.

.1 The pumping system shall be sized to accommodate expected watercourse flow from storm events.

.2 Pumps shall be discharged onto geofabric, gravel, straw bales or an alternate approved by the Contract Administrator to dissipate the energy of discharge.

.12 Temporary stream diversions shall be designed to provide fish passage, even during low flow conditions. The diversion shall be removed during fish migration periods where elevated pipes are used.

.13 At least one-third of the width of any fish bearing watercourse shall be left open to permit the safe and unimpeded passage of fish. If width is to be constricted by more than two thirds Fisheries and Oceans Canada Authorization is required. Authorizations shall be sought in accordance with 130.15.4

.14 The original flows through the site shall be restored as soon as work is completed.

130.15.7 Fish Salvage

.1 The Contractor cannot initiate any work where fish salvage may be required without a live fish handling permit and the direct oversight of a qualified Fish Biologist.

.2 Fish salvage shall be conducted prior to the commencement of in-water construction activities and/or prior to dewatering of an isolated work area.

.3 Where fish salvage is being coordinated by others, the Contractor must cooperate and coordinate with the Contract Administrator, MI and its agents.

.4 The Fish and Water Quality Protection Plan shall be developed by the Contractor so as to minimize the onsite requirement for a fish biologist to the greatest extent practical. Any alterations to the submitted Fish and Water Quality Protection Plan shall be submitted 15 days in advance of the start of work.

.5 The Contractor must advise the Contract Administrator 15 business days in advance of in-water works where fish salvage is required. The Contractor shall reconfirm the schedule 5 business days and 48 hours in advance of the start of work. Any alteration to the schedule after the 5 business days which results in direct or indirect costs to the Contractor Administrator, MI or its agent shall be at the Contractor's expense.

.6 Fish salvage shall be conducted immediately after an area within a watercourse has been isolated. Partial dewatering is permissible to decrease wetted area and increase efficiency of capture, however, the fish salvage shall be completed prior to dewatering the entire area.

.7 The Contractor must provide access and facilitate fish salvage activities including removal of ice within the isolated area and any other works as necessary at no additional cost.

.8 Isolation structures shall be monitored by the Contractor once the fish salvage is completed to ensure that they remain barriers to fish passage and do not allow fish to enter the isolated area. In the event that the isolation is breached or expanded in a manner that may allow fish to enter the isolated area, fish salvage by MI or its agent will be required. The salvage shall be conducted at the Contractor's expense.

130.15.8 Water Quality Monitoring

.1 Water quality monitoring shall be required for in-water work in fish-bearing watercourses and may be required when working near fish-bearing watercourses or tributaries to fish bearing watercourses to demonstrate that deleterious substances are not entering into the watercourse. Water quality monitoring shall also occur when working upstream and within 5km of a water treatment plant intake.

.2 A Fish and Water Quality Protection Plan shall prepared by the Contractor in advance of construction works and any amendments must be submitted 15 days in advance of the start of work requiring or may requiring water quality monitoring. The Plan shall include a description of the works and measures proposed to mitigate adverse changes to water quality.

.3 Where water quality monitoring is being coordinated by others, the Contractor must cooperate and coordinate with Contract Administrator, MI and its agents. All water quality monitoring activities must be conducted or overseen by a qualified Fish Biologist. No works requiring monitoring shall be undertaken without a qualified Fish Biologist representative.

.4 The Contractor must advise the Contract Administrator 15 business days of work where water quality monitoring is or may be required. The monitoring shall be conducted prior, during and after construction activities. The Contractor shall reconfirm the schedule 5 business days and 48 hours in advance of the start of work. Any alteration to the schedule which results in direct or indirect costs to the Contract Administrator, MI or its agent shall be at the Contractor's expense.

.5 Where monitoring results demonstrate changes above Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOGs), the activity shall cease until effective mitigative measures are taken. Where an isolated work area is being dewatered and discharge exceeds guidelines, mitigation measures may include diverting waters to splash pads or settling ponds prior water re-entering a watercourse or diverting to the top of bank where the water will not run back into the watercourse.

130.15.9 Culvert Maintenance and Replacement

.1 Construction and maintenance activities, including material and debris removal, shall be timed to prevent disruption to sensitive fish life stages on fish bearing waterways by adhering to the timing windows outlined in 130.15.2 where accumulated material is preventing the passage of water and/or fish through the structure.

.2 Emergency debris removal(s) may be carried out at any time of year.

.3 The Contractor shall limit the removal of accumulated material to the area within the culvert, immediately upstream of the culvert and to that which is necessary to maintain culvert function and fish passage.

.4 Erosion controls shall be installed as soon as possible in accordance with 130.16 of this specification.

.5 Accumulated material and debris shall be removed slowly to allow clean water to pass, to prevent downstream flooding and reduce the amount of sediment-laden water going downstream.

.6 Installation or replacement of culverts shall occur in isolated and dewatered worksites. Diversion structures shall be installed in accordance with 130.15.6 of this specification.

.7 Culverts in fish bearing waters shall adhere to the following design criteria to ensure that fish passage is maintained:

.1 For culverts less than 25 meters long the flow velocity through the crossing shall not exceed 1 metre/second;
.2 For culverts greater than 25 meters long the flow velocity through the crossing shall not exceed 0.8 metre/second;
.3 The crossing shall not be impassable to fish for longer than 3 consecutive days once in 10 years or 7 consecutive days once in 50 years; and

.4 The culvert shall be designed such that fish passage is possible even in low flows.

.8 A minimum spacing of 2 meters between adjacent culverts is required if more than one culvert is to be installed at a crossing location. There shall be no more than three culverts at one crossing.

.9 The Contractor shall maintain a culvert gradient as close to the natural stream grade as possible.

.10 The Contractor shall install culverts a minimum of 30 centimeters or 10% of culvert diameter (whichever is greater) below the normal stream bed.

.11 The Contractor shall avoid using frozen backfill. Backfill shall be compacted to avoid settling, hydrostatic uplifting or side movements of the culvert that may lead to blockage of fish passage or washouts.

.12 Slopes shall be contoured to an appropriate steepness to minimize erosion.

.13 Soils shall be graded in the direction away from the watercourse and never into the stream.

.14 Metal culverts are not to remain on site and should be disposed at an appropriate disposal or recycling facility.

130.15.10 Beaver Dam Removal

.1 Beaver Dams to be removed shall be identified in consultation with and as approved by the Contract Administrator. Beaver dams may not be removed without first obtaining authorization from Manitoba Sustainable Development.

.2 Removal of the dam shall not adversely affect a fishery, or recreational property uses that depend on the dam's existence, both upstream and downstream.

.3 Removal activities shall be restricted to removal or breaching of the dam itself and shall not involve channel or shoreline modification downstream of the dam.

.4 Beaver dam removal is not to be conducted in the winter as this may result in loss of fish habitat.

.5 Whenever possible remove beaver dams by hand.

.6 Remove the dam gradually to allow a slow release of water to prevent sediment release and potential flooding downstream.

.7 if explosives are to be used in dam removal, individual detonations shall not exceed one kilogram of explosives, diesel fuel and fertilizer are not to be used as explosives.

.8 Removals are not to be completed on beaver dams directly connected to a culvert or bridge.

130.15.11 Blasting Near a Watercourse

.1 The Contractor may be requested by the Contract Administrator to modify the timing of blasts to respect key life cycle events to critical life functions of fish and wildlife.

.2 Blasting near watercourses classified as fish habitat shall adhere to set back and weight of explosive charge guidelines as referenced in Fisheries and Oceans Canada document Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters 1998. Where these guidelines cannot be met, blasting plans shall be submitted to the Contract Administrator for MI's application to Fisheries and Oceans Canada to obtain necessary approvals prior to commencement of blasting in areas that could affect fish habitat.

130.16 EROSION AND SEDIMENT CONTROL

.1 Erosion and sediment control measures shall be installed in accordance with the Contract specifications and as directed by the Contract Administrator.

.2 Erosion and sediment control for work near water must be installed prior to any disturbance and maintained throughout the contract.

.3 Erosion and sediment control for road works must be installed and maintained progressively as directed by the Contract Administrator.

.4 Prior to construction, all vegetated areas that are to be preserved or untouched shall be well marked. Vegetation cover shall be maintained to the greatest extent possible adjacent to watercourses.

.5 Vegetation cover shall be preserved for as long as possible by staging construction. Vegetation within 30 m of a watercourse shall be cleared by hand.

.6 Operations shall be halted during heavy rain events.

.7 Erosion and sediment control measures shall be installed before starting work within 100m of a waterway. Erosion and sediment control measures are to be inspected weekly and after every major rain or melt event for proper functioning; necessary repairs shall be made immediately.

.8 Turbidity curtains shall encircle in-water works and be installed in such a manner so as to prevent sediment from escaping the isolated area.

.9 Slash and debris from clearing operations shall be retained and used to temporarily protect erosion-prone slopes.

.10 Stream banks and bed at culvert openings shall be protected with erosion-resistant materials such as riprap.

.11 The Contractor shall ensure that the point of discharge from seepage, runoff water or pumped water from any excavation is a minimum of 30 meters from any watercourse.

.12 All disturbed areas including shorelines shall be restored to their original condition as soon as practicable following completion of construction activities. The restoration may include but is not limited to, infilling of any temporary diversion channels; removal of construction materials and debris; installation, maintenance, and removal of sediment and erosion control measures and re-vegetation of disturbed areas.

.13 When re-vegetation by seeding, the Contractor shall use an approved seed mix in accordance with the Contract. Where there is sufficient time in the growing season seeding will commence immediately upon completion of trimming operations. Seed mixtures will be selected based on specific soil conditions and location.

.14 Pesticides shall be applied by hand within 30 m of all waterbodies.

.15 Sediment and erosion control measures shall remain in place and be maintained until the vegetation has become established.

130.17 CLEARING AND GRUBBING

130.17.1 General

.1 Clearing and grubbing shall be limited to the Site and associated access routes.

.2 Clearing and grubbing shall not occur between April 1 and September 1 of any year to minimize disturbances to wildlife and habitat.

.3 Prior to clearing or grubbing work areas shall be clearly marked and approved by the Contract Administrator.

.4 A vegetation buffer shall be maintained between the ROW and any development including, but not limited to, borrow areas, quarries, laydown areas, personal property, utility poles and camps as outlined in the Forest Management Guidelines for Terrestrial Buffers.

.5 A vegetation buffer shall be maintained between the ROW and sensitive features including, but not limited to, sticknests, mineral licks, dens, heritage sites as outlined in the Forest Management Guidelines for Terrestrial Buffers.

130.17.2 Clearing

.1 Clearing in known permafrost areas will be minimized where possible. Where clearing cannot be avoided the Contractor shall retain the top layer of organic soil, ground vegetation and an insulating cover.

.2 Areas for selective clearing (i.e. sensitive) must be accurately flagged as approved by Contract Administrator prior to clearing. Appropriate mitigation measures must be identified and applied. Any new sensitive areas found during clearing must be reported to the Contract Administrator and are not to be cleared.

.3 Trees shall be felled towards the centre of the ROW and woody debris shall not fall or be pushed into standing timber. Any debris or trees that fall outside of the ROW shall be moved back into the ROW.

.4 Clearing activities shall be limited to removing vegetation to ground level without disturbing root mass. Height of stumps shall not exceed 30 centimetres.

.5 Clearing within 30m of a watercourse shall be by hand.

130.17.3 Grubbing

.1 Grubbing activities shall end 2 meters from any standing timber to avoid disturbing the root systems of nearby standing trees and reduce blow down.

.2 The Contractor will take steps to avoid damage to property when grubbing. The Contractor is responsible for any damages and will be required to fix any damage to property to its original condition.

.3 Grubbing will not change access to the existing trails, trap lines, portages and other travel corridors.

130.17.4 Disposal and Storage

.1 Merchantable wood identified by the Contract Administrator shall be stockpiled outside and immediately adjacent to the clearing limits. Stockpile sites shall be located within existing clearings or areas of non-merchantable timber. Unless otherwise specified, all stockpiled material shall be removed from Crown Land by April 30 of any given year.

.2 Disposal of cleared trees and brush must be done as directed or approved by the Contract Administrator. Disposal may involve burning, compacting, piling, burying, windrowing and compacting, limbing and chipping.

.1 Windrows have to be compacted as close to the ground as possible with a maximum height of 0.6 metre.

.2 If burying is selected as a means of disposing woody debris, the area shall be capped with ½ metre of clay, followed by the stockpiled topsoil, and revegetated.

.3 Wood and brush piled for burning must be located at least 15 meters from other wood and brush piles and standing timber prior to burning. If piles are windrowed for burning a 15 meter break should occur for every 100 meters in length. Trees and brush shall be piled in a way that allows for clean and complete burning of all material. Avoid mixing soil into the slash. See 130.20 for additional burning restrictions.

.4 For exploratory clearing burning must occur in the centre of the right of way or push outs, whichever is furthest from standing timber.

130.18 HERITAGE RESOURCES

.1 Areas where heritage or cultural resources of interest are suspected of being present shall be inspected prior to the start of construction.

.2 Work shall immediately cease where archaeological or historic artifacts are encountered during construction activities. The discovery shall be reported to the Contract Administrator and MI.

.3 Work at the location will be suspended until a Historic Resource Consultant can assess archeological or historic artifacts that are encountered and mitigation measures are confirmed with the Manitoba Historic Resources Branch.

130.19 WILDLIFE

.1 During the term of the Contract, the Contractor, its employees and agents shall not hunt, trap or harass wildlife at or in the vicinity of the Site.

.2 The Contractor shall not remove, destroy or disturb endangered species or their habitat as defined under the Manitoba Endangered Species Act and/or Species at Risk Act.

.3 Wildlife habitat shall not be destroyed or damaged, except pursuant to a license, permit or other authorization issued for the Project.

.4 No person shall take, or have possession of, or willfully disturb, destroy the nest or eggs of birds pursuant to the Migratory Birds Convention Act and/of the Manitoba Wildlife Act.

.5 No person shall remove, disturb, spring or in any way interfere with any trap set out lawfully by any other person for the purpose of taking furbearing animals.

.6 The Contract Administrator may restrict construction activities, including blasting, within close proximity to sensitive wildlife or wildlife habitat during critical lifecycle periods.

.7 Construction camps and worksites shall be kept clean and tidy and free of wildlife attractants. All food and garbage waste shall be stored in bear proof containers away from sleeping quarters and be disposed of at an area which has been designated as an appropriate waste disposal site. Disposal shall occur at regular intervals.

.8 Employees, workers and other staff shall not feed or harass wildlife that they may encounter. Nuisance wildlife shall be immediately reported to the Natural Resources Officer, Contract Administrator and onsite supervisor.

.9 Trees containing large nests of sticks and areas where active dens or burrows occur shall be identified, left undisturbed and reported to the Contract Administrator. No construction is to occur within 100m of an eagle's nest, heron rookery or other sensitive wildlife area without prior approval from the Contract Administrator and MI.

130.20 WILDFIRES

.1 An evacuation and emergency preparedness plan addressing wildfires shall be prepared and submitted to the Contract Administrator prior to the commencement of work.

.2 No fires shall be started without first taking sufficient precautions to ensure that the fire can be kept under control. The Contract Administrator must be notified prior to any burning.

.3 Burning will normally occur between November 16th and March 31st. To the extent possible, burning shall be avoided between April 1st and November 15th of any given year. In the event that burning is required, an application for a burning permit shall be submitted by MI for approval to Manitoba Sustainable Development.

.4 All fires shall be monitored by the Contractor for the duration the burning activities. No fire shall be left unattended.

.5 No activity shall be conducted which may cause a fire to spread. Similarly, burning or smoldering matter shall not be placed where it may cause a fire.

.6 A primary zone shall be established around camp sites and other longer term temporary structures associated with construction and maintenance activities. Flammable materials such as leaves, brush, dead limbs, and fallen trees shall be cleared from the area regularly.

.7 Combustible materials shall be stored in a safe manner.

.8 The locations of construction camps, offices, and related structures shall be chosen in such a fashion as to minimize the risk of exposure to wildfires.

.9 No burning shall occur on deep organic soils like peat. If a fire occurs in peat soils it must be immediately extinguished.

.10 Burning near communities or roadways shall occur only when weather conditions allow the safe dispersal of smoke.

.11 Any wildfire or any fire outside the intended burn area, shall be immediately reported to the Contract Administrator and to Manitoba Sustainable Development at 1-800-782-0076.

.12 All reasonable attempts shall be made to extinguish wildfires. All available equipment, services and labor shall be made available for the purposes of wildfire protection operations.

.13 All construction and related activity taking place in the vicinity of a wildfire shall cease until advised by the Contract Administrator that it is safe to resume operations.

130.21 CEMENT BATCH PLANT AND CONCRETE WASH OUT AREA

.1 It is the Contractor's responsibility to ensure that on-site concrete batch plants have a current Environment Act Licence and Crown Lands Work Permit prior to commencing on-site operation.

.2 The Contractor shall apply for the Crown Lands Work Permit unless otherwise advised by the Contract Administrator, and shall provide to the Contact Administrator prior to the start of work.

.3 Where MI applies for the Crown Lands Work Permit for the batch plant, the Contractor shall provide MI a copy of all necessary documentation a minimum 45 days prior to operation to support the work permit application including but not limited to the Environment Act Proposal, environmental protection/management plans and Licence.

.4 The Contactor must obtain all applicable permits for ground or surface water withdrawals and provide to the Contract Administrator prior to the start of operations. Permits are required under the Water Rights Act where water removal from a surface water course exceeds 25,000L/day.

.5 Concrete wash out areas shall be located so as to avoid the removal of standing timber. Concrete wash out areas shall be a minimum 100 m from a water course or other sensitive feature and shall not drain to any water course.

.6 Decommissioned concrete wash out areas shall be left in such as manner so as to not impede future construction activities or pose a hazard to people or the environment.

130.22 MEASUREMENT AND PAYMENT

.1 The requirements set out in 130 are considered incidental to the Work and will not be measured for payment unless indicated otherwise in the Specifications.

Appendix 8-4:
Safe Work Plan (Sample)

SAFE WORK PLAN

Contract For:	Enter COMPANY name		
Contract Number:	Enter Contract Number, an example P4-BR-B4 (P4 is the project area, BR is the First Nation, B4 is brush clearing contract 4)		
Location:	Enter location of Work		
Project Owner:	East Side Road Authority	**Dates of Work:**	Enter dates of work based on Work Plan or Contract schedule
Contract Administrator	**Name:** **Phone:**	Enter name of CA and phone #'s	

1. Description of Work

Prime Contractor Contact Information	**Project Manager:**	**Tel:**
	Site Supervisor:	**Tel:**
	Safety Officer:	**Tel:**
	Environment Officer:	**Tel:**
	Worker Safety Representative:	**Tel:**
	As the PRIME CONTRACTOR, Enter the name and phone number of the designated project manager, site supervisor, safety officer, environment officer, and worker safety representative.	
Scope of Work / Major Tasks **If applicable refer to Supplemental Conditions 2.00 AND Add Additional Tasks**	Enter the scope of work. Scope of work may be found in the Contract (see Supplemental Conditions 2.00) or Work Plan. Write/type as is provided in the Contract or Work Plan, or provide a brief description. Be sure to include all primary tasks.	
Sub-Contractor Contact Information	**Project Manager:**	**Tel:**
	Site Supervisor:	**Tel:**
	Safety Officer:	**Tel:**
	Environment Officer:	**Tel:**
	Worker Safety Representative:	**Tel:**
	As the SUB- CONTRACTOR, Enter the name and phone number of the designated project manager, site supervisor, safety officer, environment officer, and worker safety representative.	
Subcontractor Scope of Work / Major Tasks	Enter the scope of work of the sub-contractor. Scope of work may be found in the Contract or Work Plan. Write/type as is provided in the Contract or Work Plan, or provide a brief description. Be sure to include all primary tasks.	

SAFE WORK PLAN

2. Equipment Involved

Equipment	Number	Owner

Enter each piece of equipment individually involved with this contract. Include the unit number and the owner of the equipment. If there are two dozers, use one line for each dozer to identify unit number.

3. Training Requirements and Qualifications

All Personnel	Enter the training requirements and qualifications for all personnel. Example: WHMIS, first aid, company orientation, safe work plan, task specific certifications, etc.
Subcontractors	Enter the training requirements and qualifications for all subcontractors. Example: WHMIS, First Aid, task related certifications, company orientations, safe work plans, etc.
Other (i.e Task/Area Specific Requirements)	Enter the training requirements and qualifications related to specialized work activities for all personnel and subcontractors. Example: Fall Protection Training, Excavation, Flagging Coordinator/ Person, etc.

Training Records Available: YES ☐ NO ☐

4. Personal Protective Equipment

All On-Site Personnel	Enter the personal protective equipment (ppe) to be worn on-site and the class / type of PPE.
Area / Task Specific Requirements	Enter the personal protective equipment (ppe) that is to be for specific tasks, include class / type and /or the CSA standard.
Other Requirements	Enter any additional personal protective equipment (ppe) to be worn for specific tasks, include class / type and /or the CSA standard.

SAFE WORK PLAN

Hazard Rating System	
Severity 1) Fatality or Disability 2) Loss Time Injury 3) Reportable Injury - No loss Time 4) Minor Medical Treatment	**Probability** a) Immediate b) Probable c) Possible d) Remote

5. Scope of work: Please supply all relevant Safe Work Procedures

Work Activity	Hazards (Ranked by Severity and probability)	Controls	Safe Work Procedures Available
Enter the work activity. Enter one work activity per line, using the scope of work activities. Examples of work activities would be Installing Culvert OR Mechanical Brush Clearing.	Enter all the hazards associated with the work activity listed. ← Once all hazards are identified for the identified work activity, use the Hazard Rating System above to identify the severity and probability for each identified hazard.	For each hazard, provide or plan for a control measure, such as: Eliminate (including substitute) – e.i. remove the hazard or substitute (replace) hazardous material or machines Engineering – e.i. designs, modifications, processes Administrative Control – e.i. alter the way work is done, policies, rules, including safe work practices and operating procedures Personal Protection Equipment – e.i. reduce exposure such as contact with chemicals and noise.	☐ Yes ☐ No Check Yes or No for each activity identified.
			☐ Yes ☐ No

SAFE WORK PLAN

6. Control Measures to Protect Other Workers/Public: This section details how you will protect other workers and members of the public sharing the worksite, or working in areas adjacent to the worksite from any physical or chemical hazards that the work may generate. In the case of occupied office space chemical hazards include dust and odours.

Hazard	Control Measure
Identify the hazard(s) that may affect workers or the public.	For each hazard identified, provide a control measure to eliminate the hazard.

7. Emergency Contacts

Local Fire Department:	Provide the phone number for the local fire department. If none, make inquiries on the next possible resources. A source must be identified.
Ambulance Service: (If Available)	Provide a number. If not, provide reference on how the procedure.
RCMP/Band Constable:	Provide local police detachment phone number(s).
Nearest Hospital / Nursing Station:	Name: Phone Number: Provide phone number to nearest hospital or nursing station.
Driving Directions to Nearest Hospital / Nursing Station:	Provide written instructions to hospital / nursing station or attach the written driving instructions.
Map Attached:	**Yes** ☐ **No** ☐ Attach map to nursing station.
Manitoba Conservation:	**Information: (204) 945-6784** **Environmental Accident Reporting: (204) 945-4888 or 1-800-214-6497**
Workplace Safety and Health Branch i.e. Serious Incidents Reporting	**(204) 957-7233 or 1-855-957-7233**

SAFE WORK PLAN

8. On Site Emergency Responders and Equipment	
On-Site Emergency Coordinator	Identify the on-site Emergency Coordinator.
Back-up On-Site Emergency Coordinator	Identify the BACK-UP on-site Emergency Coordinator.
Emergency Communication Device(s) **a) Summoning Assistance** **b) Site Evacuation**	List the devices used to communicate (CALL) for emergency assistance and to evacuate. If protocol has been attached, please identify in this area.
Standby Emergency Transportation Vehicle(s)	Identify the mode of emergency transportation available on-site.
List of all 1st Aiders on site	Identify level of first aiders and post.
Location of First Aid Kits	Identify location of all first aid kits.
Location of Fire Extinguishers	Identify location of all fire extinguishers.
Location of Spill Kits	Identify location of all spill kits.
Location of Portable Eye Wash Station	Identify location of potable eye wash station OR protocol.
Location of Material Safety Data Sheet(s)	Identify location of Material Safety Data Sheets.
Location of Muster Point	Identify MUSTER POINTS.

SAFE WORK PLAN

	Name	Title	Date
Person drafting this Safe Work Plan:	John Doe	Safety Officer	January 1, 2000
	John Doe, Safety Officer, January 1, 2000		
Project Manager Approval:	Susie Doe	General Manager	January 1, 2000
	Susie Doe, General Manager, January 1, 2000		
Contractor's Safety Person :	John Doe	Safety Officer	January 1, 2000
	John Doe, Safety Officer, January 1, 2000		
Worker Safety Representative(s):	Willy Doe	Safety Worker Rep. /Equipment Operator	January 1, 2000
	Willy Doe, Safety Worker Representative / Equipment Operator, January 1, 2000		

This Safe Work Plan does not in any way replace the Contractor's responsibilities under the Workplace Safety & Health Act and Regulations to ensure Workplace Safety and Health Programs are in place to protect workers and members of the public from potential hazardous conditions on the job.

This Safe Work Plan shall be posted at the project site and made available to Manitoba Infrastructure Safety and Environment Officers, and Construction Inspectors. The Safe Work Plan will be used to monitor safe practices on site as required by the Workplace Safety and Health Act.

Appendix 8-5: Sustainability Assessment of the Proposed Project

Appendix 8-5
Sustainability Assessment of the Proposed Project

Appendix 8-5: Sustainability Assessment of the Proposed Project

Principles and Guidelines of Sustainable Development	Actions Undertaken and Commitments by MI
Integration of Environmental and Economic Decisions	▪ The proposed Project to construct an all-season road linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation is part of the provincial commitment to provide all-season road access to and between remote, isolated communities on the east side of Lake Winnipeg. ▪ The purpose of the proposed Project is to provide safe and more reliable road transportation between the communities as well as economic and social benefits. ▪ The scope of the environmental impact assessment of this Project considers biophysical, socio-economic and Indigenous environmental components. ▪ The conclusion of the environmental impact assessment is that the social economic and health benefits outweigh any potential adverse environmental effects.
Economic decisions should adequately reflect environmental, human health and social effects.	
Environmental and health initiatives should adequately take into account economic, human health and social consequences.	
Stewardship	▪ MI is committed to being a positive and creative force for the protection and enhancement of the environment; having respect for the public that could be affected by our decisions and actions; and being responsible stewards of the environmental resources in our care. ▪ The proposed Project is consistent with the recommendations in 'Promises to Keep …Towards a Broad Area Plan for the East Side of Lake Winnipeg' (East Side Planning Initiative 2004) which concluded that there was support for a regional all-season road network north of the Bloodvein First Nation community and concluded that action today will provide benefit for many generations into the future. ▪ The proposed Project is part of a regional transportation network that will eventually connect the remote communities on the east side of Lake Winnipeg with the provincial road network. This will benefit the health, social well-being and economy of those communities for future generations. ▪ The proposed Project, and future road projects, will provide employment training and experience opportunities for Indigenous communities in the region.
The economy, the environment, human health and social well-being should be managed for the equal benefit of present and future generations.	
Manitobans are caretakers of the economy, the environment, human health and social well-being for the benefit of present and future generations.	
Today's decisions are to be balanced with tomorrow's effects.	
Shared Responsibility and Understanding	▪ MI has undertaken an extensive Indigenous and Public Engagement Program (IPEP) consisting of community meetings, traditional knowledge studies and open houses (**Chapter 5**) aimed at providing information about the proposed Project and obtaining information for use in the project design and environmental assessment. ▪ Information obtained from the IPEP has been incorporated into the final design of the proposed Project and has been used in the development of specific mitigation measures in the environmental assessment report.
Manitobans should acknowledge responsibility for sustaining the economy, the environment, human health and social well-being, with each being accountable for decisions and actions in a spirit of partnership and open cooperation.	
Manitobans share a common economic, physical and social environment.	

Principles and Guidelines of Sustainable Development	Actions Undertaken and Commitments by MI
Shared Responsibility and Understanding	▪ The project design has considered the various issues and concerns of Manitobans living on the east side of Lake Winnipeg including regional transportation, economic development and employment opportunities, cost of goods and services and indigenous and community development.
Manitobans should understand and respect differing economic and social views, values, traditions and aspirations.	
Manitobans should consider the aspirations, needs and views of the people of the various geographical regions and ethnic groups in Manitoba, including Indigenous peoples, to facilitate equitable management of Manitoba's common resources.	
Prevention	▪ MI is committed to understanding the potential environmental effects of the Project and has adopted measures aimed at protecting and preserving our environment and promoting sustainable development. ▪ The proposed Project was subject to a broad-scoped environmental assessment (this document) that identified, assessed and mitigated potentially adverse environmental effects and identified environmental protection measures to check that mitigation measures are implemented and effective. ▪ Environmental protection plans, specific component plans and monitoring plans will be implemented to prevent potentially adverse environmental effects and to implement actions to correct mitigation measures that are not fully effective. ▪ The proposed Project was designed to use previously disturbed areas, wherever feasible.
Manitobans should anticipate, and prevent or mitigate, significant adverse economic, environmental, human health and social effects of decisions and actions, having particular careful regard to decisions whose effects are not entirely certain but which, on reasonable and well-informed grounds, appear to pose serious threats to the economy, the environment, human health and social well-being.	
Conservation and Enhancement	▪ The proposed Project was subject to a broad-scoped environmental impact assessment that identified, assessed and mitigated potentially adverse effects on ecological processes, biological diversity and life-support systems. ▪ Specific baseline studies were carried out on vegetation, aquatic and wildlife resources to provide relevant, recent and representative ecological information for consideration in the environmental assessment. ▪ Indigenous values were considered in decision-making processes through the inclusion of traditional and local knowledge in the design of the proposed Project and in the environmental assessment. ▪ Mitigation measures for the proposed Project include provisions to limit access by hunters and fishers to the region by blocking and re-vegetating temporary access roads.
Manitobans should:	
(a) maintain the ecological processes, biological diversity and life-support systems of the environment	
(b) harvest renewable resources on a sustainable yield basis	
(c) make wise and efficient use of renewable and non-renewable resources	
(d) enhance the long-term productive capability, quality and capacity of natural ecosystems	

Principles and Guidelines of Sustainable Development	Actions Undertaken and Commitments by MI
Rehabilitation and Reclamation	▪ Any contaminated sites resulting from construction activities or encountered along the road right-of-way will be assessed and remediated in accordance with provincial standards. ▪ Construction sites for the proposed Project, including quarry sites, borrow areas, staging areas, construction camps and temporary access roads will be re-vegetated once these temporary areas are no longer required using natural processes augmented with native and naturalized plants and seeds.
Manitobans should:	
(a) endeavour to repair damage to or degradation of the environment	
(b) consider the need for rehabilitation and reclamation in future decisions and actions	
Global Responsibility	▪ While the focus of the proposed Project is a relatively small area on the east side of Lake Winnipeg, MI's scope extends throughout the east side of Lake Winnipeg region to areas in northern Manitoba. Environmental issues within the scope of this region include transportation, boreal woodland caribou protection, protected areas and tourism and recreation that have global implications. ▪ The proposed Project has a relatively small regional project footprint area and a correspondingly small ecological footprint, while the socio-economic footprint is comparatively larger due do employment and economic development opportunities.
Manitobans should think globally when acting locally, recognizing that there is economic, ecological and social interdependence among provinces and nations, and working cooperatively, within Canada and internationally, to integrate economic, environmental, human health and social factors in decision-making while developing comprehensive and equitable solutions to problems.	
Guidelines for Sustainable Development	
Efficient Use of Resources - which means:	▪ While the proposed Project does not involve the commercial use of natural resources, the environmental assessment considered the protection of existing resources and the potential for future resource harvesting and use in the future due to improved road access over time. ▪ The potential for future resource harvesting and use was considered in the cumulative environmental assessment for the proposed Project.
(a) encouraging and facilitating development and application of systems for proper resource pricing, demand management and resource allocation together with incentives to encourage efficient use of resources	
(b) employing full-cost accounting to provide better information for decision makers	
Public Participation - which means:	▪ MI has built on the history of public participation carried out for east side of Lake Winnipeg initiatives including the East Side Planning Initiative and the Large Area Transportation Network. ▪ The IPEP for the proposed Project (**Chapter 5**) consisted of leadership and community meetings, Traditional Knowledge Studies and open houses aimed at providing information about the proposed Project and obtaining information for use in the project design and environmental assessment. ▪ Notification for the engagement program included newspaper announcements, posters placed
(a) establishing forums which encourage and provide opportunity for consultation and meaningful participation in decision making processes by Manitobans	
(b) endeavouring to provide due process, prior notification and appropriate and timely redress for those adversely affected by decisions and actions	

Principles and Guidelines of Sustainable Development	Actions Undertaken and Commitments by MI
(c) striving to achieve consensus amongst citizens with regard to decisions affecting them	in public locations, letters to individuals and organizations and phone calls to community leadership and coordinators. ▪ The engagement program will continue through construction and the operation and maintenance phases of the proposed Project.
Access to Information - which means:	▪ The IPEP provided information on the proposed Project to First Nation and other potentially affected communities, and facilitated input to the project design and environmental assessment. ▪ Information obtained from Indigenous communities during baseline studies and the IPEP for the environmental assessment was provided to the communities. This included meeting notes, minutes, maps, photographs and other forms of information. ▪ This environmental assessment report and supporting documentation will be placed on the public registry of the Environmental Assessment and Licencing Branch of Manitoba Sustainable Development.
(a) encouraging and facilitating the improvement and refinement of economic, environmental, human health and social information	
(b) promoting the opportunity for equal and timely access to information by all Manitobans	
Integrated Decision Making and Planning - which means: encouraging and facilitating decision making and planning processes that are efficient, timely, accountable and cross-sectoral, and which incorporate an inter-generational perspective of future needs and consequences.	▪ Broad Area Planning for the east side of Lake Winnipeg (East Side Planning Initiative 2004) was born out of the 'Report of the Consultation on Sustainable Development Implementation (COSDI)' (Government of Manitoba 1999) and continued through the Large Area Network Study (SNC Lavalin *et al.* 2011a). ▪ These initiatives have served as models for implementing the principles and guidelines of sustainable development through integrated decision making and planning.
Waste Minimization and Substitution - which means:	▪ The proposed Project is located in a remote area of Manitoba that is only accessible by air and winter road. This provides both a challenge and an opportunity to MI to employ locally available materials, supplies and labour to the extent feasible. ▪ The right-of-way for the proposed Project will be selected for constructability to minimize the extent of disturbance beyond the project footprint to the extent feasible. ▪ Locally available materials will be used in the construction and operation of the proposed Project to the extent feasible, including rock and aggregate materials for road building and organic soils for reclamation. ▪ The extent of cleared areas, including number of trees cut, will be minimized; salvageable trees will be made available to local communities for use as firewood.
(a) encouraging and promoting the development and use of substitutes for scarce resources where such substitutes are both environmentally sound and economically viable	
(b) reducing, reusing, recycling and recovering the products of society	
Research and Innovation - which means: encouraging and assisting the researching, development, application and sharing of knowledge and technologies, which further our economic, environmental, human health and social well-being.	▪ Baseline studies, wildlife research and mapping for the environmental assessment of the proposed Project have incorporated recent research findings and technologies. ▪ Traditional and local knowledge has been used to augment and support scientific knowledge and technologies whenever possible.

Chapter 9:
Follow-up and Monitoring Programs

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9.0 FOLLOW-UP AND MONITORING PROGRAMS

The objective of the Monitoring Program is to assess whether proper measures and controls are in place and are being properly implemented for environmental protection and human health and safety.

Environmental Assessment (EA) is a planning tool that attempts to predict adverse environmental effects and identify mitigation measures to avoid them or minimize them if avoidance is not possible. As there is a degree of uncertainty about potential effects and the ability of mitigation measures to address those effects, a follow-up program is used to verify the accuracy of the effects assessment and to determine the effectiveness of mitigation measures. The goal of a monitoring program is to ensure that appropriate measures and controls are in place to decrease the potential for adverse environmental degradation during construction, maintenance and operation of projects and to provide clearly defined action plans and emergency response procedures to account for human health and environmental safety. Follow-up and monitoring programs also ensure that a project is proceeding in accordance with conditions as stipulated in regulatory permits and authorizations.

Manitoba Infrastructure (MI) is responsible for the construction and maintenance of highways in the Province of Manitoba including the recently constructed Project 1 - All-Season Road from Berens River First Nation to Bloodvein First Nation. This has provided MI with extensive knowledge regarding the effectiveness of mitigation measures and the planning and implementation of follow-up and monitoring programs. This knowledge has been and will continue to be applied for the proposed Project 6 – All-Season Road Linking Manto Sipi Cree Nation, Bunibonibee Cree Nation and God's Lake First Nation (the Project).

9.1 Follow-up Program

MI will implement a follow-up program to verify the accuracy of the EA and to determine the effectiveness of the mitigation measures. The objectives of the follow-up program are as follows.

- Verify predictions of environmental effects identified in the EA.
- Determine the effectiveness of mitigation measures in order to modify or implement new measures where required.
- Support the implementation of adaptive management measures to address previously unanticipated adverse environmental effects.
- Provide information on environmental effects and mitigation measures that can be used to improve and/or support future EAs including Cumulative Effects Assessments (CEA).
- Support environmental management systems used to manage the environmental effects of projects.

Follow-up monitoring programs targeting Valued Components (VCs) will be implemented, where and when appropriate, to demonstrate the accuracy of the predicted Project effects and mitigation on VCs where uncertainty exists. Mitigation measures identified in **Chapter 6** will be implemented and the

effectiveness will be verified through inspection and monitoring. Based on the effects assessment and as noted in **Chapter 8, Section 8.2**, a strategic plan for monitoring the aquatic and terrestrial environments will be developed in association with local liaison committees and appropriate federal and provincial departments to meet MI's commitments and regulatory requirements. The monitoring programs will be outlined in an Aquatic Environment Monitoring Plan and a Terrestrial Environment Monitoring Plan. Monitoring plans will be developed as part of the Construction Phase Environmental Management Plan (CPEMP) **(Chapter 8, Section 8.2)**. The communication mechanisms with local Indigenous communities, stakeholders and regulatory authorities are outlined in **Section 9.4**.

9.1.1 Inspection

Inspection is the organized and routine examination or evaluation of a construction project or activity. Inspection results will be compared to pre-defined requirements and/or standards to determine whether an activity conforms to these. Environmental inspection will provide an essential function in environmental protection and implementation of mitigation measures. The follow-up program will include a comprehensive and integrated inspection program to facilitate effective implementation of environmental protection measures and compliance with regulatory approvals.

Inspectors will visit work sites and inspect for compliance with license and permit(s) terms and conditions and adherence to the Environmental Protection Specifications (ES 130s) and the Environmental Protection Procedures (EPs) described in **Chapter 8**. Environmental inspectors will interact with contractors and MI Project Manager (ex: pre-construction meeting, daily discussions). Inspection activities will be recorded daily with non-compliance reported to MI and the contractor. Inspection activities will be documented and inspection documents will be submitted to the MI Project Manager and Construction Supervisor. Monthly summary reports will also be submitted to the MI Project Manager and senior management. MI will report results to regulatory authorities and will notify regulatory authorities of emergency situations.

9.1.2 Monitoring

Monitoring is the continued observation, measurement or assessment of environmental conditions at and surrounding a construction site or resulting from a construction activity. Monitoring activities will include the following.

- Environmental monitoring to verify the accuracy of the predictions made and the effectiveness of the mitigation measures.
- Compliance monitoring to verify whether a practice or procedure meets licence/authorization/permit or legislated requirements.

Monitoring can determine if environmental effects occur as predicted, if residual effects remain within acceptable/regulatory limits, that criteria or objectives are not exceeded and that mitigation measures are effective. Monitoring allows for adaptive management where the results indicate further environmental protection is required. The specific mitigation measures that will be implemented to reduce or avoid adverse effects to VCs (physical, aquatic, terrestrial, Species at Risk, Indigenous people

and human environments) are outlined in the Assessment of Environmental Effects Before Application of Proposed Mitigation Measures (**Chapter 6, Appendix 6-4)** and described in **Chapter 6, Section 6.4**.

An environmental monitoring program will be developed that addresses all phases of the Project. The monitoring program will allow for adaptive management if monitoring results demonstrate a need for additional environmental protection or enhancement. Monitoring plans will describe parameters to be monitored, methods to be used, roles, responsibilities and reporting requirements.

Appropriate follow-up and environmental monitoring plans for the aquatic and terrestrial environments will be developed in the future through discussion with Manitoba Sustainable Development and local Indigenous communities. The monitoring plans will be shared with community liaison committees and appropriate federal and provincial authorities for their review and comment. Additional monitoring or adjustments to the plans will be made in consideration of the responses received. The communication mechanisms with local Indigenous communities, stakeholders and regulatory authorities are outlined in **Section 9.4**.

9.2 Management Structure

In the event of the observation of non-compliance with legal and/or environmental requirements or contractor obligations to environmental protection, MI will have intervention mechanisms in place in the form of a clearly-defined management structure for reporting, decision-making, correction of non-compliance and monitoring of corrective actions. MI's Environmental Management Plan (EMP), as described in **Chapter 8**, is the tool that will provide the means to confirm that environmental protection activities are being implemented as required. Monitoring, reporting and management decision-making are integral to the various levels and elements of MI's EMP that is modeled after the Environmental Management System produced by the International Organization for Standardization Standard 14001 (**Chapter 8, Figure 8-3**).

The monitoring program will be administered by MI directly and third-party contract administrators, if employed. If outside contract administrators are required, the responsibilities of MI and others will be identified in the Contract Administrator Agreements and described in the Construction Phase EMP. MI Environmental Services Section and Water Management & Structures Division staff will serve as a quality control (service/product oriented) and assurance (process oriented) through audit function for environmental aspects. Inspections will be used to check for compliance with environmental protection requirements outlined in the contract documents.

MI's inspectors will oversee the construction activities of the tendered contracts and monitor for compliance with the construction specifications and regulatory requirements. MI will have an onsite inspector on the work site at all times that work is being undertaken to check that the environmental protection measures are constructed, implemented and maintained (ex: silt fences, sediment barriers) in accordance with contract documents. Environmental inspections will be conducted by civil technologists and other construction inspectors with oversight and periodic inspections by environmental inspectors.

Onsite inspectors will have the authority to issue a stop work order and/or order other additional environmental protection measures deemed necessary to provide environmental protection. Examples of when a stop work order may be issued include, but are not limited to, uncovering human remains or archaeological resources or in the event of a spill. In the event of non-compliance, environmental concerns will be brought to the attention of the Project Manager who will address them with the contractor.

9.3 Compliance Monitoring Program

The environmental compliance monitoring program will monitor the application of action plans and emergency response procedures for environmental protection and human health and safety. Environmental monitoring components are included in MI contracts through ES 130s and further described in EPs described in **Chapter 8, Appendix 8.3 and Appendix 8.2**, respectively. Contractors will be responsible for the preparation and implementation of environmental protection plans, health and safety plans, emergency response plans, erosion and sediment control plans, hazardous materials management plans and the completion of and reporting on applicable monitoring programs. An adaptive management approach will be implemented whereby lessons learned and improvements identified during inspection and monitoring will be applied to continually improve subsequent environmental protection activities. MI will also monitor the application of action plans and emergency response procedures for environmental protection and human health and safety.

9.3.1 Oversight of Design and Construction Plans

The first implementation of monitoring activity occurs through oversight of design and construction plans to confirm that measures to protect the environment are incorporated. This occurs during the Project Planning and Construction Planning phases. Staff from MI's Engineering, Safety and Environment units review design iterations and drafts of contracts as they become available from engineering specialists who are contracted to design and prepare contract tenders for each road or bridge segment of the Project. Contract documents are reviewed to ensure they reflect:

- applicable comments received from the local Indigenous communities and other stakeholders
- environmental design requirements
- mitigation commitments identified in the EIS including:
    - mitigation measures to offset effects to migratory bird and wildlife species of cultural significance obtained from Environment and Climate Change Canada guidelines (Environment and Climate Change Canada 2018)
- other regulatory requirements including:
    - conditions outlined in Environment Act Licence, CEAA 2012 conditions and *Fisheries Act* Authorizations

9.3.2 Preliminary Environmental Monitoring Programs

Contractors will be required to submit their Environmental Protection Plans to the proponent for review and approval, prior to initiating work on the Project in accordance with ES 130.2 (Environmental Protection Plan) and ES 130.3 (Submittals) (**Chapter 8, Appendix 8.3**). The contractor will be responsible for drafting a Water Quality and Fish Protection Plan in accordance with ES 130.3.2.3, for the proponent's review, prior to the start of work.

9.3.3 Construction Monitoring

During construction, contractor activities will be inspected and monitored daily to verify that environmental protection requirements identified in contract specifications, the ES 130s and EPs are being met. Monitoring will also be used to observe if there are environmental effects resulting from sensitive activities (ex: in water works). Construction monitoring inspections will commence with the start of construction and be conducted as described in the Construction Phase EMP (**Chapter 8**). MI onsite inspectors will interact with contractors and MI Project Managers (ex: pre-construction meeting, inspections, other meetings). The activities will include inspections to construction and environmental mitigation measures, ensuring environmental mitigations are installed correctly and are effective during project construction and maintenance activities. Inspections will be conducted on a daily basis during construction activities, with additional inspections and monitoring for erosion and sediment control conducted during and/or immediately after significant rain events.

The contractor will be responsible for ensuring that construction proceeds as required by law and prescribed in the Acts, regulations, authorizations and permits that apply to the Project. Inspections during construction will include fuel storage containers, tank vehicles, dangerous goods and hazardous wastes storage facilities/sites for releases of fuel, dangerous goods or hazardous waste, sediment and erosion controls, clearing and grubbing debris, clean-up and litter controls. The contractor will be required to maintain records such as the dates that inspections took place, the name of the inspector, length of silt fence cleaned and, in the event of debris or deleterious substance releases, the corrective actions that were taken. Standard inspection and reporting forms to maintain a documented record of the site conditions (ex: environmental inspection checklist, daily environmental field report, environmental incident report) will be developed prior to construction as discussed in the Environmental Management Plan Framework (**Chapter 8, Appendix 8-1**).

Construction activities have the potential to introduce sediment and other deleterious substances into watercourses potentially affecting drinking water quality and human health. Potential effects of in-stream construction activities include disturbance to the streambed and bank resulting in erosion and suspension of sediment, alterations to channel hydraulics and discharge of sediment during dewatering.

The primary indicator for these effects is Total Suspended Solids (TSS), with turbidity used as a surrogate for rapid onsite monitoring[1]. Water quality will be monitored during in-water works and/or other construction activities conducted near water, as appropriate. Water quality monitoring is described in EP24 (Water Quality Monitoring) (**Chapter 8, Appendix 8.2**) and will include a turbidity monitoring program to be conducted during in-stream construction activities to document the spatial extent and magnitude of potential effects.

Other sampling may be undertaken to monitor for other water quality properties that may be affected from release of deleterious substances, as appropriate. Data collected at downstream sites will be compared to upstream reference sites (ex: background conditions) to monitor the effects of construction in relation to Manitoba Water Quality Standards, Objectives and Guidelines for protection of Aquatic Life. A list of mitigation items that will be inspected prior to, during and immediately following construction at sites located at or near watercourses is provided in **Appendix 9-1**.

9.3.4 Post-Construction Monitoring

Post construction monitoring (maintenance and operation) will be conducted to verify that permanent measures are working as planned (ex: erosion control measures, revegetation, fish passage at crossing locations) and to allow implementation of adaptive measures if needed. VCs requiring post-construction monitoring will have specific follow-up and monitoring programs developed in consultation with appropriate regulatory bodies and will be based on the results of the pre-construction and construction monitoring programs, specific site situations and requirements of licences, authorizations, permits or legislation. Post-construction monitoring will be conducted for durations appropriate to the conditions being monitored.

Requirements for reclamation and closure of temporary construction facilities, borrow pits and winter roads are addressed in EP19 (Borrow Pit Decommissioning), EP22 (Temporary Site Decommissioning) and EP21 (Winter Road Closure and Reclamation Plan) (**Chapter 8, Appendix 8.2**).

MI will discuss with regulatory authorities the appropriateness of releasing reports/data to the public, as noted in **Section 9.4**, in consideration of the on-going protection of VCs. General update information on the status of monitoring studies will be provided to the local Indigenous communities and the general public in the form of Project briefs (ex: newsletters) and updates to MI's website. MI will take an adaptive management approach in providing appropriate and effective monitoring programs that address feedback received from directly affected communities.

9.4 Reporting

Results from the follow-up and monitoring programs will be provided as appropriate to community liaison and advisory committees, stakeholders, local Indigenous communities and federal and provincial

[1] TSS will be measured in the laboratory and turbidity will also be measured in situ. A relationship between TSS and turbidity will be developed to facilitate the use of more frequent in situ measurements of turbidity to estimate TSS concentrations.

authorities. The content, format, number and frequency of monitoring program reports for regulatory authorities will be determined in accordance with guidance received from regulatory authorities. If the monitoring programs identify any unforeseen environmental effects or the environmental protection measures are not performing as intended, the Manager of Environmental Services will bring such occurrences to the attention of the MI senior leadership and recommend amendments. MI, with its consultants will consider the results from the follow-up and monitoring programs and input received from community liaison committees, regulators and others in its review of the status of the environmental protection activities on an on-going basis and amend programs as necessary. As the proponent/owner of the Project, MI will make final decisions on adjustments to environmental activities.

Reporting on VCs follow-up and monitoring studies will be submitted to MI annually by consultants conducting the studies. Post-construction monitoring reports and data will be made available to regulatory authorities as required. Due to the sensitivity of the information and data contained in post-construction follow-up and monitoring reports (ex: location data of species at risk), MI will discuss with regulatory authorities the appropriateness of releasing reports/data to the public in consideration of the on-going protection of VCs.

General update information on the status of follow-up and monitoring programs will be provided to local Indigenous communities (ex:, Manto Sipi Cree Nation, Bunibonibee Cree Nation, God's Lake First Nation, God's Lake Narrows Northern Affairs Community) and the general public in the form of Project briefs (ex: newsletters) and updates to MI's website for the Project. MI is committed to on-going dialogue with local community members regarding the monitoring of species important to traditional use. MI will update the mitigation measures outlined in **Chapter 6, Appendix 6-4** as the Project proceeds and share it with the local Indigenous communities. MI will take an adaptive management approach in providing appropriate and effective monitoring programs that address feedback received from affected communities.

CHAPTER 9 APPENDICES

Appendix 9-1: Mitigation Inspections at Watercourse Crossings

Mitigation Inspections	Construction Stage		
	Pre-Construction	Construction	Post-Construction
Deleterious Substances Storage, Spill Prevention and Removal			
▪ Spill clean-up kits are present on site.	✓	✓	
▪ Storage and waste containers, including fuel, are located a minimum of 100 m from the high water mark.	✓	✓	
▪ Storage and waste containers are intact/sealed and clearly labeled.	✓	✓	
▪ Waste containers are of sufficient volume for materials requiring disposal.	✓	✓	
▪ Secondary containment is present where necessary and functioning as intended.	✓	✓	
▪ Hazardous waste is being removed from the site regularly.		✓	
▪ Spills/leaks are cleaned up.		✓	✓
▪ All waste (hazardous and non-hazardous) has been removed from site.			✓
Construction and Maintenance Equipment, Machinery and Materials			
▪ Designated vehicle/equipment maintenance and wash down areas are located a minimum of 100 m from the high water mark.	✓	✓	
▪ Designated vehicle/equipment fuelling areas are located a minimum of 100 m from the high water mark.	✓	✓	
▪ Construction vehicles and equipment are clean and free of leaks.	✓	✓	
▪ Equipment and vehicles are being maintained and refuelled a minimum of 100 m from the high water mark.	✓	✓	
▪ All construction equipment and materials have been removed.			✓
▪ All temporary stream crossings or diversions have been removed.			✓
Erosion and Sediment Control			
▪ Appropriate erosion and sediment control measures are in place.	✓		
▪ Erosion and sediment control materials are on site and available for immediate use (ex: silt fencing, erosion control blanket, straw wattle, geotextile).	✓		
▪ Erosion is not occurring (ex: washouts, rilling, slumping).		✓	✓
▪ Water quality downstream matches upstream (turbidity) (ex: sediment plume visible in nearby watercourses, site runoff is visibly turbid).		✓	✓
▪ Existing drainage is adequately managing site run off (ex: runoff is directed away from surfaces that are susceptible to erosion).		✓	✓
▪ Stockpiled materials (ex: overburden, soil piles) are stored a minimum of 100 m from the high water mark and adequately protected.		✓	✓
▪ Erosion and sediment control measures have been properly installed.		✓	✓
▪ Erosion and sediment control measures are adequately maintained and functioning as intended (ex: no excessive sediment accumulation behind silt fencing/check dams, interceptor/diversion ditches intact with no visible signs of channel erosion).		✓	✓

Mitigation Inspections	Construction Stage		
	Pre-Construction	Construction	Post-Construction
Sensitive Areas			
▪ Construction limits and/or any sensitive areas are clearly marked (ex: soft floodplains, unstable banks).	✓	✓	✓
▪ Clearing limits are clearly marked prior to vegetation removal near watercourses.	✓		
▪ Riparian clearing is conducted within the designated area with no vegetation damage or removal outside clearing limits.		✓	✓
Working In/Near Watercourses			
▪ Heavy equipment remains above the high water mark.		✓	
▪ During in-stream works, downstream flows are maintained at all times.		✓	
▪ Pump intakes used in fish bearing waters are screened.		✓	
▪ Pumps are discharged onto a non-erodible surface, such as geotextile or rock apron.		✓	
▪ Work is taking place in accordance with appropriate timing windows for the protection of fish and fish habitat as per regulatory guidelines and/or approvals.		✓	
Remediation			
▪ Disturbed areas and slopes adequately restored and stabilized (ex: rip rap, seeding, plantings).			✓
▪ Crossing sites are physically stable with no visible signs of channel or bank erosion or slumping.			✓
▪ Vegetation in seeded/planted areas is established and growing.			✓

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10.2 Personal Communications

Harding, Bruce. 2018. Senior Water Resource Engineer. TREK Geotechnical Inc. Email and telephone correspondence with Kurt Mazur, Senior Biologist, North/South Consultants Inc. MB, October 23, 2018.