

LAKE MANITOBA LAKE ST. MARTIN

OUTLET CHANNELS PROJECT

MANITOBA TRANSPORTATION AND
INFRASTRUCTURE

Project Environmental Requirements

June 30, 2022

TABLE OF CONTENTS

- DISCLAIMER I**
- PREFACE..... II**
- LIST OF ACRONYMS AND GLOSSARY OF TERMS V**
 - Acronyms..... v
 - Glossary of Terms vi
- 1.0 OVERVIEW AND GUIDING PRINCIPLES..... 1**
 - 1.1 Project Environmental Requirements Overview 1
 - 1.2 Pre-Construction Activities (Submittals)..... 2
 - 1.3 Record Keeping..... 3
 - 1.4 Compliance Inspections and Enforcement 4
 - 1.5 Staff Orientation and Awareness..... 4
- 2.0 PROJECT ENVIRONMENTAL REQUIREMENTS 5**
 - 2.1 Designated Areas and Access 5
 - 2.1.1 General 5
 - 2.2 Clearing, Grubbing and Brush Disposal..... 6
 - 2.2.1 General 6
 - 2.2.2 Clearing..... 7
 - 2.2.3 Grubbing 7
 - 2.2.4 Brush Disposal 7
 - 2.3 Erosion and Sediment Control 8
 - 2.3.1 General 8
 - 2.4 Groundwater Management..... 9
 - 2.5 Working Within or Near Surface Water..... 9
 - 2.5.1 General 9
 - 2.5.2 Authorizations and Approvals 11
 - 2.5.3 Timing of Work 11

2.5.4 Site Isolation and Dewatering	12
2.5.5 Fish Salvage.....	12
2.5.6 Mussel Salvage	13
2.5.7 Temporary Stream Diversions, Fish Passage, and Base Flows	14
2.5.8 Beaver Removal.....	14
2.5.9 Stream Crossings	15
2.5.10 Water Quality Monitoring	16
2.5.11 Culvert Installation, Maintenance and Replacement.....	16
2.5.12 Blasting Near a Waterbody	17
2.5.13 Aquatic Invasive Species.....	17
2.6 Machinery, Fuel Storage, Materials Handling and Storage, Spill Response and Remediation.....	18
2.6.1 General	18
2.6.2 Spill Response and Remediation	21
2.6.3 Materials Handling & Storage	23
2.6.4 Dangerous Goods/Hazardous Waste Handling and Disposal.....	23
2.6.5 Domestic Solid Wastes, Demolition and Construction Waste	24
2.6.6 Wastewater, Sewage and Manure	25
2.7 Dust Suppression	25
2.7.1 General	25
2.8 Concrete and Asphalt.....	26
2.8.1 General	26
2.9 Noise and Emissions	27
2.9.1 General	27
2.10 Light	27
2.11 Wildlife and Species of Conservation Concern	28
2.11.1 General	28
2.12 Wildfires.....	29
2.12.1 General	29

2.13 Heritage Resources	30
2.13.1 General	30
2.14 Quarries and Borrow.....	31
2.14.1 Quarry Site Selection	31
2.14.2 Quarry Development.....	31
2.15 Site Decommissioning.....	32
2.15.1 General	32
2.16 Revegetation and Vegetation Maintenance.....	33
2.16.1 General	33
2.17 Planned and Unplanned Shutdowns	34
2.17.1 General	34

List of Tables

Table 1: Manitoba’s Environmental Accident Reporting Regulation – Reportable Quantities

List of Figures

Figure A: EMP Process

DISCLAIMER

This document was developed to support the Environmental Management Program (EMP) for the Lake Manitoba and Lake St. Martin Outlet Channels Project (the Project). It has been prepared by Manitoba Transportation and Infrastructure as a way to share information and facilitate discussions with Indigenous rights-holders, stakeholders, and the public. It has been prepared using existing environmental and engineering information and professional judgement, as well as information from previous and ongoing public and Indigenous engagement and consultation. The contents of this document are based on conditions and information existing at the time the document was prepared and do not take into account any subsequent changes. The information, data, recommendations, and conclusions in this report are subject to change as the information has been presented as draft. This draft plan should be read as a whole, in consideration of the entire EMP, and sections or parts should not be read out of context.

Revisions to draft plans have been informed by and will be based on information received from the engagement and consultation process, the Environmental Assessment process, Project planning activities, and on conditions of provincial and federal environmental regulatory approvals received for the Project. As these will be living documents, any changes to the plans that occur after Project approvals are received will be shared with regulators, Indigenous rights-holders, and stakeholders prior to implementation of the change. Either a revision number or subsequent amendment would be added to the specific environmental management plan to communicate the revision or change.

PREFACE

The Lake Manitoba and Lake St. Martin Permanent Outlet Channels Project (the Project) is proposed as a permanent flood control mitigation for Lake Manitoba and Lake St. Martin to alleviate flooding in the Lake St. Martin region of Manitoba. It will involve the construction and operation of two new diversion channels: the Lake Manitoba Outlet Channel (LMOC) will connect Lake Manitoba to Lake St. Martin and the Lake St. Martin Outlet Channel (LSMOC) will connect Lake St. Martin to Lake Winnipeg. Associated with these outlet channels are the development of bridges, control structures with power connections, a new realignment of Provincial Road (PR) 239, and other ancillary infrastructure.

Manitoba Transportation and Infrastructure is the proponent for the proposed Project. After receipt of the required regulatory approvals, Manitoba Transportation and Infrastructure will develop, manage, and operate the Project. These Project Environmental Requirements (PER) are one component of the overall Environmental Management Program (EMP) framework, which describes the environmental management processes that will be followed during the construction and operation phases of the Project. The intent of the EMP is to facilitate the timely and effective implementation of the environmental protection measures committed to in the Project Environmental Impact Statement (EIS), the requirements and conditions of the provincial licence issued under *The Environment Act*, the federal Decision Statement issued under the *Canadian Environmental Act 2012*, and other approvals received for the Project. This includes the verification that environmental commitments are implemented, monitored, evaluated for effectiveness, and adjustments made if/as required. It includes a commitment that information is reported back in a timely manner for adjustment, if required.

A key component for the success of the EMP is environmental monitoring, such that environmental management measures are inspected and modified for compliance with environmental and regulatory requirements, including those set out in provincial and federal approvals received for the Project. As indicated, monitoring results will be reviewed and used to verify predicted environmental assessment conclusions and effectiveness of mitigation measures. If unanticipated effects occur, or if mitigation measures are inadequate, adaptive management measures and subsequent monitoring will be applied as described further in individual environmental management and monitoring plans.

Monitoring results and application of adaptive management measures will inform follow-up reporting to regulators and any required revisions to environmental management plans. Manitoba Transportation and Infrastructure has initiated discussions with rights-holders and the Rural Municipality (RM) of Grahamdale in the Project area on the establishment of an Environmental Advisory Committee (EAC). The EAC would be a platform for sharing monitoring results and discussing issues of concern. In addition, Manitoba Transportation and Infrastructure anticipates that the EAC will coordinate Indigenous Environmental Monitors and communications during the construction period and will be working with rights-holders and stakeholders on its structure and purpose.

Manitoba Transportation and Infrastructure remains committed to consultation and ongoing engagement with Indigenous rights-holders and stakeholders that are potentially impacted by the Project. Detailed EMP review discussions were incorporated into Indigenous group-specific consultation work plans. Engagement opportunities included virtual open house events, sharing draft environmental management, and monitoring

plans, sharing plan-specific questionnaires, and meetings to discuss related questions and recommendations. The intent has been to offer multiple avenues to share information about the Project so that rights-holders and stakeholders would be informed and could provide meaningful input into Project planning. The original draft EMP plans and questionnaires that were posted on the Project website for public review and comment are being replaced by the second draft of each plan as it becomes available. Feedback and recommendations received were used to update the current version of the draft plans, which are posted to the Project website at: <https://www.gov.mb.ca/mit/wms/lmblsmoutlets/environmental/index.html>.

Figure A displays a summary of the EMP process. The EMP provides the overarching framework for the Project Construction Environmental Management Program (CEMP) and the Operation Environmental Management Program (OEMP). These will be updated prior to Project construction and operation, respectively, and will consider applicable conditions of *The Environmental Act* provincial licence, *Canadian Environmental Assessment Act 2012* federal Decision Statement conditions and other approvals, any other pertinent findings through the design and regulatory review processes, and key relevant outcomes of the ongoing Indigenous consultation and public engagement processes. Until such time, these plans will remain in draft form.

The purpose of the CEMP and OEMP is to guide how environmental issues will be addressed during construction and operation, respectively, and how adverse effects of activities will be mitigated. The CEMP is supported by several specific or targeted management plans that will guide Manitoba Transportation and Infrastructure's development of the Project's contract documents and subsequently, the Contractor(s) activities, in an environmentally responsible manner and to meet regulatory compliance in constructing the Project. The OEMP will include some of the same targeted plans developed to manage issues during construction, but prior to construction completion, they would be revised and adapted to suit the specific needs during the operation phase.

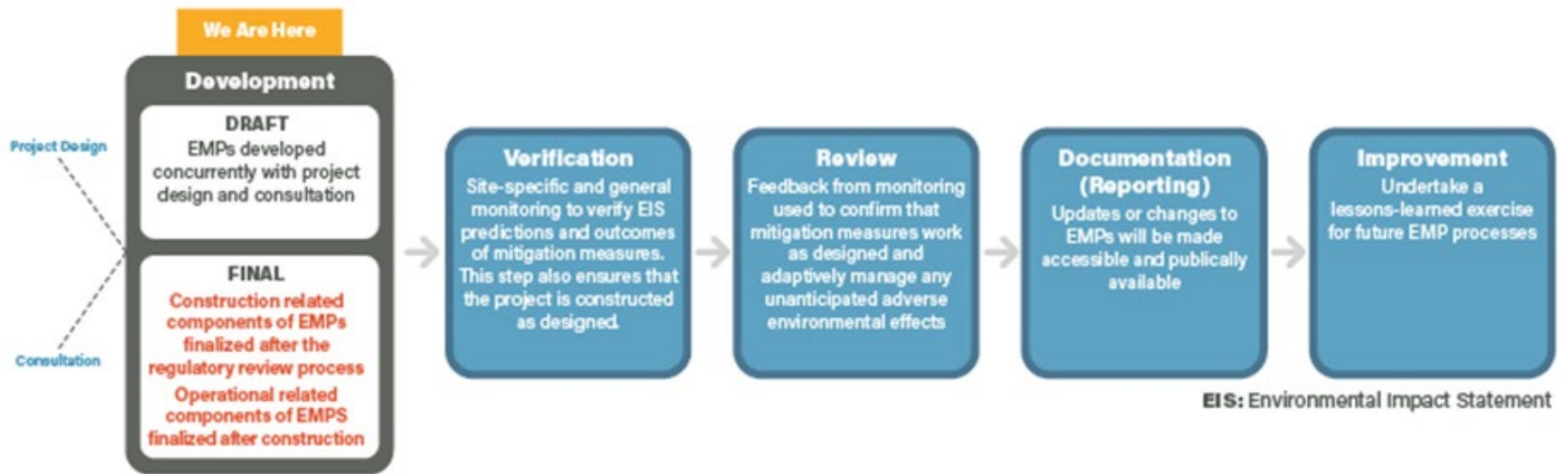


Figure A: EMP Process

LIST OF ACRONYMS AND GLOSSARY OF TERMS

Acronyms

AgBMP	Agricultural Biosecurity Management Plan
AMP	Access Management Plan
CEMP	Construction Environmental Management Program
cm	centimetre
DFO	Fisheries and Oceans Canada
EAC	Environmental Advisory Committee
EIS	Environmental Impact Statement
EMP	Environmental Management Program
ESS	Environmentally sensitive sites
L	litre
LMOC	Lake Manitoba Outlet Channel
LSMOC	Lake St. Martin Outlet Channel
m	metre
MECP	Manitoba Environment, Climate and Parks
MNRND	Manitoba Natural Resources and Northern Development
MSD	Material Safety Data
OEMP	Operation Environmental Management Program
PER	Project Environmental Requirements
PR	Provincial Road
the Project	Lake Manitoba and Lake St. Martin Permanent Outlet Channel Project
QMP	Quarry Management Plan
RM	Rural Municipality
ROW	right-of-way
RVMP	Revegetation Management Plan
SAR	Species at risk
TC	Transportation Canada
WHMIS	Workplace Hazardous Materials Information System

Glossary of Terms

Batch Plant: refers to concrete and asphalt production facilities.

Construction: refers to the period and activities associated with constructing Project infrastructure, including site preparation and decommissioning.

Decommissioning: refers to the closure and/de-construction of infrastructure or work sites.

Designated Areas: refers to specific sites that have been identified for a specific purpose which requires special approvals and/or careful documentation, maintenance, and decommissioning.

Environmental Monitor: refers to the individuals, groups or designated representatives engaged by Manitoba Transportation and Infrastructure to monitor, inspect, and document compliance with contractual and regulatory requirements associated with the construction activities and associated works for the Project. The monitor may also be an active member (or representative) of the Project's Environmental Advisory Committee.

Environmentally Sensitive Site (ESS): locations, features, areas, activities, or facilities that were identified during the environmental assessment process to be ecologically, socially, economically, culturally, or spiritually important or sensitive to disturbance and require protection during construction of the Project.

Fish-Bearing: refers to waterbody containing fish as defined in the *Fisheries Act*.

Maintenance: refers to the period and activities related to Project upkeep.

Merchantable Timber: refers to woody vegetation, specifically a tree, which is a specific taper, straightness, diameter, and overall form which allows it to be harvested for commercial, community, or personal use.

Ordinary High-Water Mark: refers to the average expected elevation at which a waterbody or wetland would reach at least once in every two-year period (1:2).

Post-Construction: refers to the period and activities related to the time after which the Project is constructed and operational.

Qualified Environmental Professional: refers to designated individuals or groups with adequate certification and experience, as approved by the Contract Administrator, to perform key tasks, as indicated (e.g. fisheries and aquatics, or wildlife).

Revegetation: refers to, and includes, all works associated with site preparation, seeding and germination of plants for erosion control, aesthetics, or any other purpose.

Rights-holders: include First Nations, Metis Communities and other Indigenous communities who hold Aboriginal or Treaty rights that are protected under Section 35 of the Constitution Act 1982. Commonly, these include hunting, trapping, fishing, or gathering rights.

Contractor: refers to the individuals, entities or groups contracted by Manitoba Transportation and Infrastructure to undertake specific Project construction, operation, or maintenance activities, and includes all subcontractors and affiliates.

Contract Administrator: refers to the individuals, entities or groups delegated by Manitoba Transportation and Infrastructure to provide professional Engineering and Consulting Services for the Permanent Outlet Channels Project. This includes oversight of construction and maintenance contracts and operations; review of contractor submittals, plans and proposals for compliance with Project commitments and restrictions and making recommendation for acceptance or rejection of such plans by the Owner; and monitoring, inspecting, documenting, and enforcing compliance with contractual and regulatory requirements.

Runoff: Surface water that flows overland and into streams, wetlands, or waterbodies, or into drainage systems

The Owner: refers to Manitoba Transportation and Infrastructure or a designated representative delegated by Manitoba Transportation and Infrastructure with overall responsibility for, and oversight of, Project design, construction, and operation.

Waterbody: Standing and flowing surface waters (such as a creeks, rivers, lakes, and wetlands with open water), including seasonally and ephemerally occurring surface waters.

1.0 OVERVIEW AND GUIDING PRINCIPLES

1.1 Project Environmental Requirements Overview

The Project Environmental Requirements (PERs) form part of the Environmental Management Program (EMP) for the Lake Manitoba and Lake St. Martin Outlet Channels Project (the Project). Environmental protection and regulatory compliance during construction will be facilitated through the use of a Construction Environmental Management Program (CEMP). The CEMP has been prepared by Manitoba Transportation and Infrastructure and will be provided at the tendering stage. The Contractor(s) will adhere to the CEMP, and its associated plans as a condition of the Project contract(s).

The Project is being constructed, operated, and maintained under approvals and associated conditions under the *Canadian Environmental Assessment Act 2012* and in Manitoba, under *The Environment Act*. Additional permits, licences, approvals, or authorizations may apply to single or multiple Project components.

The PERs represent requirements and commitments that are fundamental to Manitoba Transportation and Infrastructure's regulatory compliance requirements, including Project approvals, permits, licences and authorizations. They are specific to the work and activities conducted under the authority of any and all licences, permits, authorizations or approvals obtained for the Project. Requirements listed in these PERs are not mutually exclusive of one another and must be adhered to for all activities pertaining to construction, post-construction, maintenance, and decommissioning activities for the Project.

No work or activity is to begin without having obtained applicable permits or authorizations for the work. 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. Where Manitoba Transportation and Infrastructure 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 Manitoba Transportation and Infrastructure as a result of delays in issuance or rejections of applications. Copies of necessary licences, approvals, permits, and contract documents (including this PER) shall be kept on site and readily available.

The PERs are based on long-standing approaches that have been used on other Provincial projects and proven effective in mitigating potential environmental effects from construction activities. They are intended to outline environmental requirements for Contractors and Project works. Other topic-specific environmental management plans provide further information on monitoring and mitigation measures to verify the conclusions of the Project Environmental Impact Statement (EIS) and identify the need for adaptive management (if required). The PERs are considered incidental to all Project-related works or activities and will not be measured for payment unless indicated otherwise by the Contract Administrator.

Upon award of a contract Manitoba Transportation and Infrastructure will provide the Contractor with the most current version of the PERs, and will issue updates, as required. It is anticipated that Manitoba Transportation and Infrastructure will review and update the PERs periodically as required to confirm that requirements reflect best practices and comply with changing regulation and legislation. PER updates may

occur more frequently in circumstances where legislative changes occur in advance of the PER review schedule.

The PERs are supported by an Environmental Protection Plan (EPP) and three associated mapbooks. The three mapbooks provide site-specific environmental protection measures for the construction and operation of the LMOC, LSMOC, and Provincial Road (PR)R 239, respectively. The EPP mapbooks provide site-specific environmental sensitivities and the associated environmental protection measures. The EPP mapbooks supplement the PERs and are intended for use in the field by construction contractors and environmental staff during Project planning and construction.

More specifically, environmentally sensitive sites (ESS) have been identified for the Project. ESS are locations, features, areas, activities, or facilities that were identified during the environmental assessment process to be ecologically, socially, economically, culturally, or spiritually important or sensitive to disturbance and require protection during construction of the Project. The determination of ESS will include the consideration of Indigenous traditional knowledge.

The EPP mapbooks have been developed for the Project to present the location and spatial extent of ESS. Each map has a corresponding tabular summary of information including relevant mitigation measures to address the potential environmental effects of each ESS site. The mapping is an iterative process and will be updated as required for the duration of the Project.

It should also be noted that Manitoba Transportation and Infrastructure (or its designate) will implement a Project Complaint Resolution Process (CRP) to address Project-related construction and operation complaints. The CRP will be initiated upon the submission and receipt of a Project-related complaint, including from any person, Indigenous rights-holders, or from the Rural Municipality (RM) of Grahamdale or other stakeholders. If a Project activity is found to be in compliance with the applicable environmental and licensing requirements and/or Project commitments, the complaint will be considered resolved; however, it should be noted that mitigation, monitoring, or other considerations may be required. If the Project activity is found to be out of compliance with the applicable environmental and licensing requirements and/or Project commitments, Manitoba Transportation and Infrastructure will implement corrective action, as required to transition to compliant status (e.g., in compliance with regulatory requirements, conditions of approval, and/or Project commitments).

1.2 Pre-Construction Activities (Submittals)

The Contractor shall submit the following (where applicable) for review and acceptance by the Contract Administrator no less than 14 business days in advance of the start of work:

- Details for proposed designated areas
- Environmental Emergency Plan for Spill Response and Remediation
- Material Safety Data Sheets
- 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
- Mussel salvage
- Monthly reports providing the records as specified in Section 1.5
- Waste Management Plan
- Material Management Plan in the event of an Unplanned Shutdown
- Problem Wildlife Management Plan
- Cement Washout Plan
- Petroleum Storage and Equipment Fueling and Servicing Plan
- Evacuation and Emergency Preparedness Plan in the Event of a Wildfire
- 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
 - Groundwater well permit
- Other submittals as required

1.3 Record Keeping

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 is documented. The Contractor shall maintain a copy of these records for a minimum of 5 years after contract closeout. Relevant information and/or significant events are to be documented and provided to the Contract Administrator in a timely fashion. Records may include, but are not limited to:

- all accidents, spills, leaks, and releases and the reporting and clean-up procedures used
- any reviews, improvements, and adjustments to the environmental protection measures
- details of all environmental training sessions, including the schedule of these sessions and the names of participants
- a full inventory of dangerous goods brought onto the site
- a full inventory of all hazardous wastes encountered on the site
- records of all waste hauled from the site for disposal, including the location, name and description of the disposal facility and waybills/manifests
- 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
- records of all fuel transported and stored at the site
- records of equipment inspections and maintenance
- records of all public complaints
- records of actions taken to remove deleterious substances and debris from waterbodies
- records of annual use of pesticides
- wildlife encounters and/or management measures employed

As a general requirement, all work shall be photo-documented, and notification of the work will be provided to the Manitoba Transportation and Infrastructure on a monthly basis for record keeping purposes. All construction shall be governed by the *Standard Construction Specification, Special Provisions* and the *Project Environmental Requirements* set out in the standard contract.

1.4 Compliance Inspections and Enforcement

As indicated, the PERs represent requirements and commitments that are fundamental to regulatory compliance as well as Project approvals, permits, licences and authorizations. Manitoba Transportation and Infrastructure personnel or representatives, at their discretion, may inspect work sites to confirm and verify that any and all requirements are adhered to. Failure to comply with PERs, Project approvals, permits, licences and authorizations may result in stop work orders, improvement orders, contract termination, and/or suspension or termination of approvals, permits, licences and authorizations to conduct the work.

In addition to any penalties or orders issued by Manitoba Transportation and Infrastructure, the Contractor will accept all liability and responsibility for issues of non-compliance and for any penalties issued by federal or provincial regulators. The Contractor is responsible for ensuring compliance with all applicable contract specifications, environmental legislation and regulation, Project approvals, permits, licences and/or authorizations.

1.5 Staff Orientation and Awareness

The Contractor shall provide mandatory orientation and awareness sessions for their entire workforce prior to the start of construction, and to new personnel before they begin work, to ensure all personnel working on the contract are aware of and understand the Project environmental sensitivities and relevant environmental guidelines and procedures of the Project. All training and orientation sessions shall be documented.

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.

2.0 PROJECT ENVIRONMENTAL REQUIREMENTS

2.1 Designated Areas and Access

Designated areas and proposed accesses shall be identified for approval by the Contract Administrator prior to development and the start of work (prior to the pre-construction meeting). Designated areas shall include, but are not necessarily limited to camps, quarries, borrow, equipment maintenance, fuel and other material storage and other purposes as required. The development, maintenance and decommissioning of such sites shall be conducted in a manner which complies with all applicable legislation, regulations, permits, approvals, authorizations, or licences.

2.1.1 General

- The Contractor shall submit details for proposed designated areas for review and acceptance by the Contract Administrator in accordance with general conditions and contract documents. 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 include, but are not necessarily limited to:
 - laydown and staging area(s)
 - waste storage area(s)
 - fuel storage and refueling area(s)
 - equipment servicing area(s)
 - work camp(s)
 - parking area(s)
 - cement batch plant(s)
 - cement washout area(s)
 - quarry and borrow sites
 - others as required by the Contract Administrator
- Siting of designated areas will be subject to a biophysical review to avoid ESSs or sensitive habitats.
- Designated areas will be located within the ROW, in disturbed areas and/or using existing facilities wherever possible.
- The Contractor shall construct and maintain designated areas in a manner that facilitates regular inspection activities and have adequate spacing for snow removal and storage.
- Unless otherwise authorized by the Contract Administrator, designated areas shall be contained within the designated work limits, in disturbed areas, or by using existing facilities wherever possible.
- The topsoil in designated areas shall be stripped and stockpiled for later reuse in site restoration. Granular material or other surface preparation, as approved by the Contract Administrator, shall be placed to ensure all weather accessibility.

- Locations within designated areas where equipment, hazardous material and/or wastes will be stored or maintained shall be underlain with at least 30 centimetres (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 Section 2.5.
- Designated areas shall be located a minimum of 100 metres (m) from waterbody or wetland or as approved by the Contract Administrator.
- Designated areas will be kept clear of snow and/or miscellaneous materials to allow for clear access and routine inspection and leak detection.
- The Contractor shall restore the designated areas and access roads not required for on-going maintenance to their original condition (see Section 2.15 Site Decommissioning).
- There shall be no entry of personnel or equipment, or work conducted on private property without proper authority.
- Access management details for designated sites shall be developed by the Contractor in accordance with Access Management Plan (AMP) and Agricultural Biosecurity Management Plan (AgBMP) for submission, review and approval by the Contract Administrator and Manitoba Transportation and Infrastructure.

2.2 Clearing, Grubbing and Brush Disposal

Clearing and grubbing of vegetation includes the removal of vegetation (clearing) or root mass and organic material (grubbing) for site preparation or as part of specific works but does not include mowing activities. Clearing and grubbing shall be conducted in accordance with contract documents, or as instructed by the Contract Administrator.

2.2.1 General

- Clearing shall not occur between April 1st and August 30th of any year unless otherwise authorized by the Contract Administrator in order to avoid disturbance to nesting birds and other wildlife.
- If clearing within the nesting period (April 1 to August 31) is required, a nest survey may be undertaken by a qualified environmental professional if warranted and approved by the Contract Administrator.
- Clearing and grubbing shall be limited to the construction or contract limits unless otherwise approved by the Contract Administrator .
- Prior to clearing or grubbing, the work area shall be clearly staked or marked and approved by the Contract Administrator so as to prevent over-clearing. Where possible, existing vegetation shall be retained.
- Existing roads, road allowances, trails, portages, and other travel ways shall not be blocked or altered as a result of clearing and grubbing activities so as not to interfere with other users.
- All grubbed organic and topsoil layers with leaf litter and root mass shall be stockpiled in appropriate locations and retained for reclamation efforts.

- The Contractor shall take all precautions against damage to other trees, traffic structures, pole lines or property. The Contractor is liable for any damages occurring in the performance of this work.
- Clearing, grubbing, and burning operations shall be conducted in accordance with the applicable Provincial and Municipal regulations and Acts.

2.2.2 Clearing

- Clearing within 30 metres (m) of a waterbody shall be done by hand.
- Unless otherwise authorized by the Contract Administrator, all brush, and trees, except those designated to be saved shall be cut at a height not greater than 300 mm above ground level (as per general specification).
- All surface debris, excluding salvageable or merchantable timber but including fallen timber, slash limbs, brush, grass, and weeds shall be disposed of in an appropriate manner.
- There shall be no bulldozing of trees or woody debris into standing timber.
- Removal of riparian vegetation shall be kept to a minimum to help maintain the stability of waterbody banks. The area over which vegetation in riparian vegetation areas is removed shall affect no more than one third (1/3) of the total woody vegetation in the right-of-way (ROW) within 30 m of the ordinary high-water mark of a waterbody. Vegetative root masses found within the waterbody banks shall remain undisturbed unless specified in the Contract Documents.
- Trees shall be felled towards the center of the area to be cleared. Any brush falling outside the area to be cleared shall be moved back into the work area immediately and disposed of.
- Cleared trees and vegetation shall not obstruct waterways during any season and shall be kept above the ordinary high-water mark. Stockpiles or windrows of any material are to be kept a minimum of 100 m from any waterbody's ordinary high-water mark.

2.2.3 Grubbing

- Grubbing shall not occur within 2 m (2.5 yards) of standing timber in order to prevent damaging root systems of adjacent standing trees and to reduce the potential of future blow down.

2.2.4 Brush Disposal

- Timber from which forest products can be manufactured (merchantable timber) shall be cleared of limbs and neatly stockpiled piled within the work limits as directed or permitted by the Contract Administrator. All salvageable timber shall be offered to Indigenous communities for use as firewood.
- All stockpiled material located on Crown Land shall be removed or disposed of by April 30 following clearing activities, where applicable.
- Disposal of cleared trees and brush must be conducted in a manner approved by the Contract Administrator. Disposal may involve burning, compacting, piling, burying, windrowing, and compacting, limbing and chipping. Disposal methods may be restricted or prohibited in certain locations if they are deemed to result in future issues.

- 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 m) and shall be no closer than 1 m to the bush line. Windrows are required to have a 15m break every 100m in length.
- Wood and brush piled for burning must be located at least 15 m from other wood and brush piles or standing timber. If piles are windrowed for burning a 15 m break in the windrow should occur for every 100 m of length.
- Slash shall be piled in a manner that allows for clean, efficient burning of all material. Avoid mixing soil into the slash
- Where applicable, the Contractor shall obtain a burning permit for open fires between April 1 and November 15 and must adhere to all permit conditions. Burn permits may not be issued in dry conditions. Burning is prohibited during high wind events. 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.
- All occurrences of fire spreading beyond burn piles shall be reported to the Contract Administrator and Manitoba Natural Resources and Northern Development.

2.3 Erosion and Sediment Control

Erosion and sediment control measures include long-term, temporary, or emergency stabilization of any and all soil types to prevent undesirable soil movement or soil releases and discharges to a waterbody during Project construction or operation. Erosion and Sediment Control may also include efforts to minimize substrate disturbance and sediment uplift or suspension during in-water work.

2.3.1 General

- A Sediment Management Plan (SMP) has been developed and describes measures to minimize impacts of in-stream sediment during the construction phase of the Project. This plan should be referenced for planning purposes and detailed mitigation requirements.
- Vegetation cover within the Project limits (as defined in tender contracts) shall be preserved for as long as possible or left undisturbed if it does not inhibit work. All vegetated areas that are to be preserved or left untouched shall be well staked and identified.
- Effective erosion and sediment control measures shall be properly installed before starting any work to prevent undesirable soil movement or the entry of sediment into any waterbody or wetland.
- The installation of erosion and sediment control measures shall be completed in accordance with the Contract Documents, or as approved by the Contract Administrator. Final erosion protection measures shall be installed progressively during all phases of the Project.
- Erosion and sediment control measures shall be inspected and maintained by the Contractor on a daily basis, as well as during and after every major rain, runoff, or spring melt event. Any necessary repairs and adjustments shall be made immediately to ensure that measures are effective in controlling erosion and sedimentation.

- Erosion and sediment control measures shall be maintained in all disturbed sites until soils have stabilized and complete revegetation of all disturbed areas is achieved.
- If an Erosion Control Blanket is used the product shall be 100% biodegradable, composed of natural fibers, including netting, filling, and thread.
- Efforts shall be made to minimize the duration of soil exposure and run-off shall be diverted away from exposed soils.
- Construction and maintenance activities shall be halted during heavy rains with the exception of those works pertaining to erosion and sediment control.
- Temporary spoil piles, overburden and topsoil shall not be placed within 100 m of any waterbody's ordinary high-water mark. Temporary spoil piles shall be positioned and maintained in a manner that prevents direct or indirect sediment releases into a waterbody.

2.4 Groundwater Management

The Project has the potential to impact the environment in several ways, including water level changes in aquifers, water quality changes, and changes in the relationship of the groundwater aquifer discharge to the surface water system.

- A Groundwater Management Plan (GWMP) and a SWMP have been developed for the Project and will be referenced for planning purposes prior to conducting drilling activities, working in or near water, managing drainage and for detailed mitigation requirements.
- Drill holes will be sealed as soon as possible following drilling activities or in the case of a groundwater level rise.
- Construction dewatering will be limited through appropriate construction planning and will be in accordance with terms and approval conditions of *The Groundwater and Water Well Act* and *The Water Rights Act*.

2.5 Working Within or Near Surface Water

In-water work includes any and all activities occurring within the ordinary high-water mark of a waterbody. Requirements in this section apply to work in or near fish-bearing and non-fish bearing waterbodies, fish passage, fish and mussel salvage, dewatering, temporary diversions, temporary crossings and access pads, stream crossings (bridges and culverts), blasting near a waterbody, debris and sedimentation removal, and water quality monitoring.

2.5.1 General

- The Contractor shall schedule, plan, and carry out works such that in-water work is kept to a minimum. Whenever possible, in-water work shall be staged to occur as a single event, rather than repeat activities at different times.
- A Surface Water Management Plan (SWMP) has been developed for the Project and should be referenced for planning purposes prior to working in or near water and for detailed mitigation requirements.

PROJECT ENVIRONMENTAL REQUIREMENTS

- Disturbance to the waterbody bed and banks shall be minimized. Use existing trails, roads or cut lines to access the site where possible to avoid disturbance to riparian vegetation.
- Construction activities shall not occur within 100 m of a waterbody with the exception of construction of a waterbody crossing or other authorized in-water or near-water works, or unless directed by the Contract Administrator.
 - If a 100 m distance is not possible, a buffer zone of undisturbed vegetation shall be provided between the work and the waterway. Using a buffer zone width of approximately 10 m plus 1.5 times the slope gradient or 30 m, whichever is greater.
- There shall be no fueling, equipment maintenance, repair or washing within 100 m of the ordinary high-water mark, and measures will be used so that runoff and water used for equipment cleaning does not enter any water body.
- All construction activities shall be suspended during adverse weather conditions (i.e., heavy rains).
- Soils shall be spread or graded in a direction away from the waterbody and never into the stream itself.
- Natural alignment of streams should be maintained to the extent feasible.
- Flow shall not be constricted by more than one third of the original stream width.
- Immediately after disturbance or upon completion of the work in or around waterbodies, waterbody banks, and riparian vegetation areas, the disturbed areas shall be restored to the original contour and gradient and cover treatment applied.
- If an area cannot be restored to its original contour and gradient due to instability or other reasons, a stable gradient shall be constructed, and cover treatment applied.
- Machinery fording shall be limited to a one-time event (over and back) and shall occur only if an existing crossing at another location is not available or practical to use. Fording shall only be conducted in a manner approved by the Contract Administrator.
- If minor rutting is likely to occur, waterbody bank and bed protection methods (e.g., swamp mats or rig mats) shall be used provided they do not constrict flows, block fish passage or cause sediment release into the waterbody.
- If rock is used to stabilize waterbody banks, it shall meet appropriate specifications, be clean and free of fine materials, and of sufficient size to resist displacement during peak flood events.
- The waterbody banks shall be stabilized, restored to their original shape, adequately protected from erosion and re-vegetated with native species.
- Any water intakes or outlet pipes in fish bearing waters shall have screens to prevent entrainment or impingement of fish and follow the measures as outlined in Fisheries and Oceans Freshwater Intake End-of-Pipe Fish Screen Guideline (<https://publications.gc.ca/collections/Collection/Fs23-270-2004E.pdf>).

2.5.2 Authorizations and Approvals

- Fisheries and Oceans Canada (DFO) authorization(s) or Letters of Advice may be required prior to the commencement of any in-water or near water work. Manitoba Transportation and Infrastructure shall address these requirements. The Contractor is required to provide Manitoba Transportation and Infrastructure 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 (or as otherwise directed by Manitoba Transportation and Infrastructure or the Contract Administrator), with the understanding that DFO may request additional information. Manitoba Transportation and Infrastructure shall not be responsible for delays associated with DFO authorization(s). All conditions specified in DFO authorizations, Letters of Advice and/or other DFO directives apply to the work.
- Transport Canada (TC) Navigation Protection Program Approval(s) may be required for the construction of permanent or temporary waterbody crossings and/or other in-water structures. Manitoba Transportation and Infrastructure shall obtain these permits, as required. The Contractor is required to provide Manitoba Transportation and Infrastructure with all Project-specific information required for these submissions a minimum 90 calendar days prior to the need to undertake the works (or as otherwise directed by Manitoba Transportation and Infrastructure or the Contract Administrator) with the understanding that TC may request additional information. Manitoba Transportation and Infrastructure shall not be responsible for delays associated with TC Navigation Protection Program Approval(s). All conditions specified in TC Navigation Protection Program Approval(s) and other directives apply to the work.
- For all temporary work and construction activities required for in-water works, Manitoba Transportation and Infrastructure will apply for required authorizations, permits, and approvals. The Contractor 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. Manitoba Transportation and Infrastructure shall not be held responsible for any delays related to approvals.

2.5.3 Timing of Work

- In-water work shall be restricted to low flow periods and shall be scheduled during a period when the waterbody is seasonally dry or frozen to the bottom whenever possible.
- South of 53rd parallel, the Contractor shall not undertake any in-water activities in fish-bearing waters or potentially fish-bearing waters between September 15 and June 30 of the following year, during periods of high stream flow or identified spawning periods, unless otherwise authorized by DFO and Manitoba Natural Resources and Northern Development.

2.5.4 Site Isolation and Dewatering

- All work requiring site isolation and dewatering shall be conducted in accordance with contract documents, applicable permits, approvals, licences, or authorizations, or as directed by the Contract Administrator.
- Isolation structures must not constrict more than one-third of a fish-bearing waterbody.
- Sediment control measures (e.g., turbidity curtains) shall be used where appropriate prior to the installation and/or removal of any isolated structures.
- Isolated structures must be constructed and sized to prevent overtopping or failure.
- Sediment-laden dewatering discharge shall be pumped to a settling basin, filtering system or through dense terrestrial vegetation of sufficient distance from the waterbody to allow sediment deposition prior to re-entry downstream of the construction area, or as directed by the Contract Administrator.
- All pump discharge points shall be lined with clean rock or other acceptable flow-dissipating applications in order to prevent erosion and the release of suspended sediments.
- Accumulated sediment and excess material shall be removed from the isolated area before removing the isolation structure.
- Where a cofferdam shall be installed, it will be designed to accommodate any expected high flows during the construction period. All spoil material and debris shall be removed from the isolated area prior to the removal of the cofferdam. Surface drainage patterns for other Project components will be re-established where possible.

2.5.5 Fish Salvage

- A fish salvage operation must be conducted where site isolation and/or dewatering within a fish-bearing waterbody is required.
- Fish salvages shall be conducted by qualified environmental professional possessing a live fish handling permit. All fish shall be handled as little as possible and in a manner that minimizes stress and prevents fish injury or death.
- Fish salvage shall be conducted immediately after an area within a waterbody has been isolated. Partial dewatering is permissible to decrease wetted area and increase efficiency of fish capture, however, the fish salvage must be completed prior to complete dewatering of the isolated area.
- If a fish or mussel salvage is required, a Fish Salvage Plan shall be submitted by a professional certified to conduct such works and approved or modified by the Manitoba Transportation and Infrastructure Biologist.
- All captured fish shall be cataloged by species. The length and weight of a representative proportion of captured fish species shall be recorded.
- The following information shall be collected and recorded:
 - Date
 - Location (waterbody name and geographic coordinates)
 - Description of project/construction works
 - Physical habitat parameters – channel width, wetted width, size (area) and depth of salvage area, water temperature

- Fish capture method (e.g., Seine net, dip net, gill net, backpack electrofishing)
- Effort (e.g., two passes with a seine net; two people dip netting for 0.5 hours; backpack electrofishing for 350 seconds)
- Number of fish collected, by species
- Length and weight of a representative proportion of captured fish species

2.5.6 Mussel Salvage

- Where required, mussel salvages shall be conducted to remove mussels from the in-water footprint(s) of Project components.
- Mussel salvage and relocation work shall be conducted by a qualified environmental professional under and in accordance with a live fish handling permit.
- 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 SAR permit obtained from DFO. If a species at risk is found in a new area, the Contractor shall stop work, inform DFO and obtain a species at risk permit prior to continuing work.
- Mussels captured during the survey and salvage will 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).
- Applicable measure in *Protocol for detection and relocation of freshwater mussel species at risk in Ontario Great Lakes Area (Mackie et al. 2008)* shall be used.
- Mussel surveys, salvage and relocation activities and results shall be documented in a report generated by the qualified environmental professional and submitted to Manitoba Transportation and Infrastructure for review and approval. The report shall contain detailed descriptions, photos, and drawings of site conditions including:
 - Location, habitat profile, description of methodology (including names of collectors) contact information, organization, and schedule of activities.
 - 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.
 - For mussel surveys conducted under SAR permit, the qualified environmental professional shall also submit a fish and mussel data collection table. Manitoba Transportation and Infrastructure will supply the template prepared by DFO to the qualified environmental professional.
 - Any death of a listed species at risk Mussel during salvage operations or associated construction must be reported immediately to Manitoba Transportation and Infrastructure. Manitoba Transportation and Infrastructure will be responsible for communicating with and the DFO SAR Biologist.

2.5.7 Temporary Stream Diversions, Fish Passage, and Base Flows

- The Contractor is responsible for maintaining base flows for the duration of construction activities in waterbody's requiring in-water and near water work, including those works which may require the installation of cofferdams and related structures, unless otherwise approved.
- Flow shall be maintained at all times to maintain downstream fish habitat and permit the safe and unimpeded passage of fish, if required. A temporary diversion channel to direct flows and fish passage around the work site shall be constructed if flows are to be constricted by more than one third of the original stream width in fish bearing waters. In non-fish, bearing waters a pumped diversion may be used to maintain flows downstream.
- Temporary stream diversions shall be designed to provide fish passage, even during low flow conditions.
- Instream diversion structures shall be constructed using erosion resistant materials.
- Temporary diversion channels shall be constructed in the dry. Gradient controls shall be used to ensure that diversion channel slopes correspond to the existing channel gradients.
- Temporary diversion channels shall be designed to accommodate expected waterbody flow from storm, runoff, or spring melt events.
- Temporary diversion channels shall be routinely inspected to identify areas of incipient erosion. Eroded areas shall be repaired promptly.
- Existing waterbodies shall not be disturbed until temporary diversion channels have been constructed.
- Diversion channels shall be opened from the downstream end first. Stabilize the connection of the diversion channel to the main waterbody. Pump flows around work site, if possible, during construction of the channel connection.
- Pumping system for pumped diversions shall be sized to accommodate any high flows of the waterbody during the construction period. Pumps shall be monitored at all times, and back-up pumps shall be readily available on-site in the event of pump failure.
- The original flows through the site shall be restored as soon as work is completed.

2.5.8 Beaver Removal

- Work plans for beaver dam removal shall be provided to the Contract Administrator for review and approval no less than 14 business days prior to the start of dam removal.
- Beaver dam removal shall be scheduled to comply with in-water work timing windows, and shall not affect a fishery, or recreational property uses that depend on the dams existence, both upstream and downstream.
- The Manitoba Natural Resources and Northern Development (MNRND) District Office shall be contacted before proceeding with the beaver dam removal. Dam removal permits or wild animal kill permits shall be obtained, as or if required, prior to removal of beaver dams or beavers. Consultation with users' identified by MNRND may be necessary before removal of beaver dams or beavers can proceed. Any safety concerns or potential downstream infrastructure shall be identified, and any potentially affected stakeholders who should be consulted will also be identified.

- Beaver removal shall be conducted in accordance with acquired wild animal kill permits.
- 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.
- When a series of dams is to be removed this shall typically be done starting from the most downstream dam and working upstream.
- The beaver dam shall be removed gradually (20 cm at a time), allowing water to release slowly to minimize sediment at the bottom of the pond from being released downstream.
- Wherever possible, beaver dams should be removed by using hand tools. Where removal by hand tools is not possible then machinery may be used.
- The width of the breach opening of the beaver dam shall not exceed the width of the original stream channel to prevent bank erosion and flooding adjacent properties.

2.5.9 Stream Crossings

- Where possible, existing stream crossings shall be utilized to traverse waterbodies.
- All stream crossings shall be constructed in accordance with The Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat (https://www.gov.mb.ca/fish-wildlife/pubs/fish_wildlife/fish/sguide.pdf) and DFO's Interim Code of Practice: Temporary Stream Crossings (<https://www.dfo-mpo.gc.ca/pnw-ppe/codes/temporary-crossings-traversees-temporaires-eng.html?wbdisable=true>).
- If there is no existing crossing and the waterbody must be crossed, the Contract Administrator may approve the construction of a temporary crossing to keep all vehicles and equipment out of the waterbody.
- Stream crossings shall be located at straight stream sections, perpendicular to the bank. In particular, meandering bends, braided streams, alluvial fans, and other unstable areas shall be avoided.
- When feasible, the construction of stream crossings shall be scheduled for the period of lowest stream flow and should be a single event.
- The natural alignment of the stream shall be maintained.
- A minimum vegetated buffer strip of 30 m shall be maintained between the worksite and waterbody except at the actual crossing location.
- The number of temporary stream crossings constructed shall be minimized.
- Temporary stream crossings shall be removed as soon as possible following completion of the work or when it is no longer required, whichever is sooner.
- Natural debris removal shall be limited to that which is necessary to protect bridge piers or abutments or to that which is blocking culverts.

2.5.10 Water Quality Monitoring

- Guidance for surface water quality monitoring is described in the Surface Water Management Plan.
- Water quality monitoring shall be required if described in tender documents for in-water work in fish-bearing waterbodies and may be required when working near fish bearing waterbodies or tributaries to fish bearing waterbodies to demonstrate that deleterious substances are not entering into the waterbody. Water quality monitoring shall also occur when working upstream and within 5km of a water treatment plant intake.
- The Contractor must advise the Contract Administrator no less than 30 business days in advance 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 7 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, Manitoba Transportation, and Infrastructure or its designate shall be at the Contractor's expense.
- Where water quality monitoring is being coordinated by others, the Contractor must cooperate and coordinate with Manitoba Transportation and Infrastructure and its agents. All water quality monitoring activities must be conducted or overseen by a qualified environmental professional or a suitable equivalent at the discretion of the Contract Administrator.

2.5.11 Culvert Installation, Maintenance and Replacement

- Culvert maintenance will follow DFO's Interim Code of Practice: Culvert Maintenance (<https://www.dfo-mpo.gc.ca/pnw-ppe/codes/culvert-maintenance-entretien-ponceaux-eng.html>).
- Old culverts are not to remain on site and should be disposed at an appropriate disposal or recycling facility.
- Material and structures shall not be kept within 100 m of a waterbody.
- Utilize culvert removal techniques that minimize impacts to the waterbody and riparian area.
- The Contractor shall maintain a culvert gradient as close to the natural stream grade as possible.
- The Contractor shall embed culverts a minimum of 30 cm or 10% of the total culvert diameter (whichever is greater) below the normal stream bed.
- The Contractor shall avoid using frozen backfill to ensure proper compaction. 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.
- Any debris and other materials that has accumulated in a culvert due to construction activities shall be removed gradually. Whenever possible, debris and other materials shall be removed by hand.
- Removal of debris (i.e., branches, stumps, other woody materials, garbage, etc.) shall be limited to the area within the culvert, immediately upstream of the culvert and to that which is necessary to maintain proper culvert function and safe fish passage.
- Accumulated 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. Gradually reintroducing flow will also reduce the potential for stranding fish in upstream areas.

- Accumulated sediment removal shall be limited to within the culvert and to the level of the waterbody bed, to maintain embedment of the culvert.
- Sediment shall be removed in a manner that prevents it from moving downstream.
- Emergency debris removal using hand tools or machinery (e.g., backhoe) may be carried out at any time of year. Emergencies include situations where there is imminent risk of damage to property or the environment or is in the interest of public health or safety.

2.5.12 Blasting Near a Waterbody

- The Contractor shall plan and time blasting activities to adhere to legislated and regulated restrictions to respect key life cycle events to critical life functions of fish and wildlife.
- The Contractor shall possess all required blasting permits and certificates. Advanced notification shall be given to affected parties including site employees and the local general public prior to each blasting event.
- The use of ammonium nitrate-fuel oil mixtures in or near water frequented by fish shall be avoided to prevent the deposit of toxic by-products (ammonia).
- Blasting near fish-bearing waterbodies shall adhere to set back and weight of explosive charge guidelines as referenced in DFO document Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters (<https://publications.gc.ca/site/eng/82558/publication.html>). Where these guidelines cannot be met, blasting plans shall be submitted to the Contract Administrator for application to DFO to obtain necessary approvals prior to commencement of blasting in areas that could affect fish habitat.

2.5.13 Aquatic Invasive Species

- Construction will comply with the provincial aquatic invasive species regulations (*The Fisheries Act*).
- Equipment that has or will come in contact with Lake Manitoba or listed control zones must be decontaminated using one of the methods described in Manitoba's Aquatic Invasive Species Regulation (See MNRND website: (<https://www.manitoba.ca/stopais/spread/decontamination.html>) for the most up to date list of Control zones)
- 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.
 - Equipment of particular concern includes, water tanks, tank trucks, pumps, hoses, intake screens, boats and motors, and fish and water monitoring equipment.
 - Equipment which has been in contact with Lake Manitoba, Fairford River, Lake St. Martin, or Lake Winnipeg water must be washed before coming in contact with another waterbody.
- Equipment coming in contact with aquatic ecosystems must be cleaned and drained completely, dried, and inspected before and after contact. Cleaning is defined as the removal of all aquatic plants, animals, and sediments.

- In the event that aquatic invasive species are discovered during inspection the Contractor shall inform the Contract Administrator and shall remove the equipment or machinery from the work site until it has been cleaned to the satisfaction of the Contract Administrator. MNRND shall also be notified by using the web-form linked below:
http://www.gov.mb.ca/waterstewardship/stopais/ais_reporting.html
- Documentation of measures to facilitate 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:
 - History of equipment work locations and potential sources of contamination.
 - Details of cleaning / decontamination plan and procedures (methods).
 - Documentation of cleaning and decontamination (date, personnel, confirmation of methods used)

2.6 Machinery, Fuel Storage, Materials Handling and Storage, Spill Response and Remediation

Improper machinery maintenance, fuel storage, materials handling, and storage can create hazards to people, property, and the environment. The following requirements apply to all works during all Project phases.

2.6.1 General

- The Contractor is responsible for ensuring compliance with all applicable legislation, regulation, permits, approvals, licences and/or authorizations.
- A Waste Management Plan shall be prepared for the Project that will include practices for management of both general and hazardous wastes.
- Machinery shall arrive on site in a clean condition and shall be kept in good working order and free of fuel, oil, or fluid leaks. Machinery that is found to be leaking any fuel, oil or other fluids shall be moved off the work site immediately for repair.
- All fuel handling and storage shall comply with *Storage and Handling of Petroleum Products and Allied Products Regulation 188/2001 under The Dangerous Goods Handling and Transportation Act C.C.S.M. c. D12.*
- Storage of fuel stored in drums or containers of 230 litres (L) or less shall comply with the requirements of the *Manitoba Fire Code.*
- Designated area(s) shall be established for fuel storage, materials handling, and storage, equipment cleaning, refueling, and servicing. Any designated area shall be located at least 100 m away from the high-water mark of any waterbody or wetland and shall be kept clear of snow and/or miscellaneous materials to allow for clear access and routine inspection and leak detection.
 - Machinery and equipment shall be washed, refueled, and serviced in such a manner that wash water shall not contaminate surface water or be discharged into a waterbody.

PROJECT ENVIRONMENTAL REQUIREMENTS

- In the event that a piece of equipment must be refueled or serviced outside a designated area, the fuel shall be transported in approved containers. Absorbent pads or other precautions, such as drip trays or a high-density polyethylene groundsheet, shall be used as secondary catchment or containment in the event of spillage.
- All mobile equipment that is not in use shall be parked within a designated area(s) where possible. Equipment exhibiting signs of leaks or spills shall be parked over secondary containment to prevent soil contamination.
- All designated areas used for petroleum storage shall be a minimum distance of 3 m from a property line or building and 15 m horizontally from hydroelectric poles and lines.
- Tank vehicles used to deliver fuel to the work site and/or used to move fuel around the work site shall meet the current Canadian Standards Association requirements for highway tanks for the shipment of dangerous goods by road (<https://tc.canada.ca/en/dangerous-goods/containers/tank-trucks-trailers-tc-portable-tanks/standard-csa-b620-highway-tanks-tc-portable-tanks-transportation-dangerous-goods>).
- All fuel storage containers and tank vehicles shall be inspected daily for leaks and spillage. Damaged or leaking fuel storage containers shall be promptly removed from site. All used petroleum products and other regulated hazardous wastes shall be collected and disposed of at a licensed facility in accordance with applicable legislative requirements.
- Equipment shall not be refueled from a watercraft.
- All designated sites, including but not necessarily limited to refueling, fuel storage and equipment servicing sites are to be fully remediated (i.e., returned to pre-existing condition, or below Canadian Council of Ministers of the Environment guideline) once they are no longer required or have been decommissioned. If necessary, soil testing will be performed to verify site conditions.
 - The Contractor will be liable and responsible for any required remediation and disposal of contaminated material from all applicable work sites and designated areas to an appropriate licenced facility. It is in the Contractors best interested to identify any pre-existing contamination prior to the start of work.
 - Documented proof of contamination inspection(s) and site remediation of all applicable work sites and designated areas shall be provided to the Contract Administrator prior to contract closeout.
- Petroleum products shall be transported in accordance with the *Manitoba Dangerous Goods Handling and Transportation Act*.
- Construction, installation, and removal of petroleum storage tank systems shall occur under the supervision of a registered licenced petroleum technician.
- Prior to use or filling, all petroleum storage tanks shall be registered and properly permitted, as required, with the province of Manitoba or the government of Canada (on federal lands). All permits are to be kept current.
- 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 commencing fueling.

PROJECT ENVIRONMENTAL REQUIREMENTS

- Dedicated petroleum storage areas shall provide additional spill containment and facilitate clean up through measures such as:
 - Maximum separation from environmentally sensitive features
 - Clear identification of the materials present
 - Access restricted to authorized vehicles and employees
 - Impervious bermed storage areas
 - Dedicated spill response equipment
- Only above ground storage tanks shall be used for the storage of bulk petroleum products. The tanks shall be equipped with overfill protection and spill containment consisting of perimeter dikes or secondary containment in the tank design.
- All designated areas used for petroleum product storage shall be a minimum distance of 100 m from any water body and shall have the topsoil stripped and be underlain with at least 30 cm of impermeable soil or approved alternate and diked in such a manner as to contain any leakage or spillage. The dikes shall be designed, constructed, and maintained to retain not less than 100% of the capacity of the total number containers or 110% of the largest container, whichever is greatest. If dikes are used, the containment areas shall be dewatered after a rainfall event and the containment water disposed of as approved by the Contract Administrator and clean topsoil shall be stored and used in the restoration of the site.
- Concrete barriers shall be installed around all petroleum storage tanks to prevent collisions (as per Technical Bulletin PSF-004, March 2015: Impact Protection Requirements for Above Ground Storage Tanks Systems).
- All mobile equipment that is not in use shall be parked within a designated area.
- All employees involved in the handling and storage of fuels shall have Workplace Hazardous Materials Information System (WHMIS) and spill response training.
- All internal-combustion engines (regardless of fuel type) shall be shut down during fueling.
- There shall be no smoking and no open flames at the petroleum storage area at any time.
- Fueling procedures shall be posted where fueling occurs.
- Storage sites for petroleum products shall be secured and signs including but not limited to; hazard warnings, who to contact in case of a spill, access restrictions and under whose authority the access is restricted shall be posted.
- All petroleum storage tanks with a capacity greater than 5,000 L shall be registered with Manitoba Environment Climate and Parks (MECP). New tanks shall be registered before installation. Tanks shall be designed, installed, and operated in accordance with the *Manitoba Dangerous Goods Handling and Transportation Act* and the *Federal Transportation of Dangerous Goods Act*. Smaller stationary tanks shall adhere to requirements of the *Manitoba Fire Code*. A copy of the petroleum license shall be posted at the fueling site.
- Bulk waste oil shall be stored in aboveground oil tanks, which shall have secondary containment and a weatherproof cover. Waste oil shall be recycled by a reputable recycling agency.
- 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.

- The Contractor shall prevent fuel, lubricants, or compounds from being released. All empty containers from equipment refueling and servicing shall be removed to a licenced disposal site. The Contractor shall be thoroughly familiar with provincial/federal spill response compliance procedures.
- Materials required for spill containment and clean-up shall be available at all work sites and designated areas. All vehicles shall carry materials and equipment for emergency spill containment.
- 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

2.6.2 Spill Response and Remediation

- Due care and caution shall be taken to prevent spills, leaks, and releases of hazardous products at all times.
- An up-to-date list of key contacts and telephone numbers for reporting spills shall be kept on-site at all times.
- 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 (MSD) shall be available on-site for all hazardous materials to be used. An updated spill response and containment plan for each dangerous good/hazardous waste shall be maintained in the work area at all times.
- **The Contractor** shall, within 24 hours of any reportable spills (Table 1), by contact the Emergency Response Program Reporting Line at (204) 944-4888 pursuant to *Manitoba Regulation 439/87*, respecting Environmental Accident Reporting.
- All spills shall be reported to the Contract Administrator within 24 hours whether it was necessary to report the spill to MNRND or not. The spill report shall include the following:
 - personnel responding to the spill
 - material spilled
 - cause of spill
 - estimated amount of material spilled
 - estimated area and volume of soil affected by the spill
 - cleanup action undertaken
 - means used to contain, transport, and dispose of the materials involved
- All spills of quantities less than those set out in Table 1 and without a potential impact to the environment shall be contained and cleaned up immediately by on-site personnel in accordance with the approved on-site emergency response and containment plan and reported to the Contract Administrator.
- In the event that there is a spill, leak, or release onto the ground surface from any piece of equipment (e.g., broken hydraulic hose) the entire affected area shall be cleaned up and all contaminated soil shall be appropriately disposed of at a licenced soil recycling facility. If contaminated soil is to be stored on site for any time a designated storage area is to be identified and prepared to prevent secondary contamination.

Table 1: Manitoba's Environmental Accident Reporting Regulation – Reportable Quantities

Classification	Hazard	Reportable Quantity
1	Explosives	All
2.1	Compressed Gas (Flammable)	100 L*
2.2	Compressed Gas	100 L*
2.3	Compressed Gas (Toxic)	All
2.4	Compressed Gas (Corrosive)	All
3	Flammable Liquids	100 L
4	Flammable Solids	1 kg
5.1 PG I, II, III	Oxidizer	1 kb or 1 L
	Oxidizer	50 Kg or 50 L
5.2	Organic Peroxide	1 Kg or 1 L
6.1 PG I	Acute Toxic	1 Kg or 1 L
PG II & III	Acute Toxic	5 Kg or 5 L
6.2	Infectious	All
7	Radioactive	Any discharge or radiation level exceeding 10 m Sv/h at the package surface and 200 uSv/h at 1 m from the package
8	Corrosive	5 Kg or 5L
9.1	Miscellaneous (Except PCB Mixtures)	50 Kg
9.1	PCB Mixtures	500 grams
9.2	Aquatic Toxic	1 Kg or 1 L
9.3	Wastes (Chronic Toxic)	5 Kg or 5 L

Notes:

*Container Capacity (refers to container water capacity)

- A spill kit or sufficient supply of materials for clean-up or spill containment (i.e., absorbent material, high density polyethylene groundsheets and absorbent oil booms when working near water) shall always be available on site and replenished as needed. If necessary, additional material shall be made available on short notice.
- The Contractor shall designate a qualified supervisor(s) as the onsite 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.
- The designated emergency response coordinator shall periodically review and if necessary, revise the on-site emergency spill response plan.
- As dangerous goods/hazardous waste storage areas are taken out of service remediation shall be conducted, including the appropriate disposal of the contaminated material to the satisfaction of the Contract Administrator.
- The Contractor shall provide documentation (e.g., disposal weigh bills) of all disposed contaminated materials to the Contract Administrator and/or Manitoba Transportation and Infrastructure.

2.6.3 Materials Handling & Storage

- All construction areas shall be kept clean and orderly at all times during and after completion of work or activities.
- Waste material shall be recycled to a degree that is economically and practically feasible.
- There shall be no indiscriminate dumping of waste and litter on or off work sites or designated areas.
- All waste materials shall be collected and contained in a designated waste storage area and in containers appropriate to the waste classification until removed from the site for recycling or disposal at an approved facility.
- Waste storage sites shall be designated for each worksite and camp as approved by the Contract Administrator.
- Different waste streams shall not be mixed.
- Contaminated runoff or water shall be contained and prevented from entering any waterbody. The collected contaminated runoff or water shall be hauled off site for disposal at an approved disposal facility.
- No on-site burning of waste or any other material is allowed unless approved by the Contract Administrator. When required, the Contractor shall be responsible for obtaining a burning permit from MNRND for burning between April 1 and November 15.

2.6.4 Dangerous Goods/Hazardous Waste Handling and Disposal

- Dangerous goods and hazardous wastes shall be identified and shall be handled in accordance with *The Dangerous Goods Handling and Transportation Act and Regulations and Health Canada's Workplace Hazardous Materials Information System*.
- The Contractor shall have staff, trained and certified in the handling of dangerous goods, present on-site whenever said dangerous goods are being utilized for the performance of the work.

PROJECT ENVIRONMENTAL REQUIREMENTS

- A WHMIS file shall be maintained on-site for all hazardous materials at the work area. Prior to commencement of the Work, a Project MSD sheet shall be submitted to the Contract Administrator. No material shall be brought to the site without prior submission of a Project MSD.
- Designated dangerous goods/hazardous waste storage areas shall have the topsoil stripped and be lined with at least 30 cm of impermeable material or approved equal. The dykes shall be designed, constructed and maintained to retain not less than 100% of the capacity of the total number of containers or 110% of the largest container, whichever is greatest. The topsoil shall be stored and used in the restoration of the site.
- Disposal of hazardous waste shall only be done at hazardous waste facilities licensed under *The Dangerous Goods Handling and Transportation Act*.
- All waste stored at designated hazardous waste storage areas shall be removed from the site at least once every seven (7) days.
- Hydrocarbons shall not be stored or disposed of in earthen pits.
- All pesticides shall be handled and applied by or under the direct supervision of a licensed commercial applicator, as defined in section 4.1 of the *Pesticides Regulation 94/88*, and further all pesticides shall be used in accordance with any terms and conditions of the permit.
- A pesticide use permit shall be obtained prior to the application of pesticides, if required. The Contractor shall ensure that all pesticides are applied by a licenced commercial applicator and adhere to all conditions specified in this permit. These conditions include submitting a properly completed post seasonal form to the Contract Administrator at the completion of the Contract or at the end of each calendar year confirming that any terms and conditions of the permit have been satisfied. The Contractor shall supply the following information to the Contract Administrator for this form:
 - The name of each pesticide used
 - The Pest Control Product number of each pesticide
 - Quantity in litres of each pesticide used
 - Total area treated in hectares
 - A map of the treated areas
 - Legal description of the land where practical
 - Color coded map to indicate where each type of pesticide was used

2.6.5 Domestic Solid Wastes, Demolition and Construction Waste

- Non-reusable demolition and construction debris shall be disposed of at a waste disposal ground operating under the authority of a permit pursuant to *Manitoba Regulation 150/91* respecting Waste Disposal Grounds. Provide proof of appropriate disposal.
- All domestic solid waste containers shall be clearly marked to identify the nature and type of material to be deposited (e.g., containers for recyclable material and containers for disposal).

2.6.6 Wastewater, Sewage and Manure

- All collected sewage shall be removed from the site at least once every seven days by a registered sewage hauler, as defined in section 21(1) of the *Onsite Wastewater Management Systems Regulation* No. 83/2003 and disposed of at a wastewater treatment facility licenced under *The Environment Act*.
- All wastewater and sewage shall be collected through the provision of an outside toilet facility in compliance with the *Onsite Wastewater Management Systems Regulation* No. 83/2003.
- Manure stockpiles should be relocated from the Project footprint prior to construction.
- A plan for treatment and/or disposal of impacted soils will be developed. This may include excavation and spreading of identified impacted soils onto agricultural lands outside of the LMOC construction area, as appropriate.

2.7 Dust Suppression

The following requirements apply to all dust suppression activities for all Project phases.

2.7.1 General

- Guidance on dust management is provided in the Dust Management Plan.
- All work shall be conducted in a manner that minimizes the raising of dust from construction or maintenance operations.
- Only water or approved dust suppressants shall be used for dust control. The use of waste petroleum or petroleum by-products as dust suppressants is not allowed.
- All vehicles used to haul materials to or from the work site shall have the load covered with a tarpaulin cover during transport to minimize dust and prevent material from falling out.
- All material stockpiles or spoil piles prone to wind erosion shall be maintained as to minimize release of particulate matter or dust. This may include, but is not limited to, covering or stabilization of material stockpiled at the work site as required.
- The application of dust suppressants shall be limited to the roadway, driveway, or designated area.
- The application rate of all dust suppressants shall be carefully monitored to facilitate adequate coverage without pooling or runoff of products.
- The amount of dust suppressant applied should not exceed the minimum amount required to effectively suppress dust. Avoid over-application or application beyond the road shoulder.
- The material must not migrate or run off the traveled portion of the roadway or designated area.
- Dust suppressants must conform to the manufacturer's specifications and must not contain concentrations of contaminants that would not normally be found in the suppressant.
- Dust suppressants shall not enter and contaminate waterbodies, including surface and groundwater. Do not allow the product to leave the roadway.
- Products shall not be applied to areas of roads that are subject to flooding.
- Products shall not be applied if precipitation is occurring or forecast to occur before the product sets or cures.

- Over-application or application beyond the road shoulder shall be avoided.
- Should there be a need for a water source for compaction or dust suppression or related activity, a temporary authorization for any withdrawal greater than 25,000 L or 550 gdp shall be required from MECP Water Use Licensing Section. Contact the Manager of Water Use Licensing Section, at (204) 945-3983 prior to the commencement of the work.

2.8 Concrete and Asphalt

The following requirements apply to all concrete and asphalt works during all Project phases.

2.8.1 General

- All concrete obtained and utilized for the Project must be sourced from a concrete batch plant licensed in accordance with *The Environment Act*.
- All contractor owned batch plants must be licenced under *The Environment Act* prior to development or use.
- Concrete wash out areas must be designated at the pre-construction meeting and approved by the Contract Administrator prior to development or use.
- Waste concrete from concrete pumps and concrete trucks, cleanout materials from concrete trucks, concrete pumps and other equipment shall be deposited only in the concrete washout designated area. All of this material shall be hauled off site, for disposal at an approved landfill or to a recycling facility, not later than at the closure of the designated area.
- Concrete washout areas should be located a minimum of 100 m away from the ordinary high-water mark of a waterbody or wetland and in a non-porous soil location. All concrete washout areas shall be remediated to the satisfaction of the Contract Administrator when no longer in use or when construction activities are complete, whichever is sooner. Concrete washout areas are not to be carried over from one contract to another unless approved by the Contract Administrator.
- Concrete works shall be conducted in a manner that does not allow direct entry of concrete, concrete fines or concrete washout into a waterbody or wetland. Appropriate sealed containment to isolate a structure will be required for concrete usage within water.
- The Contractor shall comply with all requirements as laid out in the *Water Rights Act*, including but not limited to:
 - The Contractor must not release any excess cement and/or wastewater to surface waters, including wetlands,
 - Any containment area must not be connected to or drain to any surface waters, including wetlands, and
 - Any wastewater generated on site must be contained within the construction site.
- The Contractor shall comply with all requirements as laid out in *The Environment Act* Licence for the batch plant regarding utilization, cleanup and disposal of water, waste and hazardous materials at the washout site.
- Barges or shrouding shall be used to trap and prevent concrete and other bridge materials from entering a waterbody.

2.9 Noise and Emissions

The following requirements apply to all Project-related works and during all Project phases. All activities shall be undertaken by means that do not result in violation of applicable noise by-laws, or other specified thresholds. The Contractor is responsible for ensuring compliance with contract specifications, environmental legislation, permits and authorizations.

2.9.1 General

- The Complaint Resolution Process will be implemented to address Project-related construction and operation complaints related to air quality and noise.
- All plant and equipment supplied for use on the Project shall be effectively “sound-reduced” by means of proper silencers, mufflers, acoustic linings, acoustic shields or acoustic sheds.
- Noise by-laws of the adjacent communities and municipal authorities shall be complied with.
- Residents near construction noise-generating activities will proactively be notified as required.
- Any operation of plant or equipment beyond dates or times as specified or regulated by applicable by-laws or adjacent communities or municipal authorities shall require an exemption in writing.
- Project off-road construction equipment will comply with emission standards in the Canadian Off-Road Compression-Ignition Engine Emission Regulations.
- Engines and exhaust systems will be properly maintained.
- Construction vehicle idling times will be reduced to the extent possible in order to reduce emissions, as a best management practice. Cold starts will be limited to the extent possible to reduce emissions.
- Machinery and factory supplied noise-abatement equipment (e.g., mufflers) will be maintained in good working order.

2.10 Light

The following requirements apply to all Project-related works and during all Project phases.

- Lighting will be located so that the lights are not directed toward oncoming traffic on nearby roads on or off-site.
- Lights will be turned off when they are not required.
- There will be adherence to lighting design guidelines and the lighting requirements for workspaces as enforced by Labour Canada.
- Full cut-off luminaire will be used wherever possible to reduce glare, light trespass, and sky glow.
- As much as is possible, lighting will be located such that it does not impact receptors outside of the work limits.

2.11 Wildlife and Species of Conservation Concern

Wildlife includes a broad range of terrestrial, aquatic, or avian 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.

2.11.1 General

- Construction camps and worksites shall be kept clean and tidy. All food, garbage or waste that may attract wildlife shall be stored in an appropriate manner and be disposed of at an area which has been designated as an appropriate waste disposal site.
- Nuisance wildlife shall be immediately reported to the Natural Resources Officer and the Contract Administrator.
- Employees, workers and other staff shall not hunt, trap or harass wildlife.
- The Contractor shall not remove, destroy or disturb species pursuant to Manitoba Regulation 25/98 of *The Endangered Species and Ecosystems Act*, or any future amendment thereof, respecting Threatened, Endangered and Extirpated Species, or species listed in the federal *Species at Risk Act*.
- Wildlife habitat shall not be destroyed or damaged, except pursuant to a licence, permit or other authorization issued for the Project.
- No person shall take or be in possession of or willfully destroy the nest or eggs of birds.
- 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.
- No blasting shall be permitted within close proximity to known sensitive wildlife habitat during critical lifecycle periods.
- 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.
- Terrestrial buffers, as identified by the Manitoba Conservation Data Centre's *Recommended Development Setback Distances from Birds and/or Manitoba Sustainable Development's Forest Management Guidelines for Terrestrial Buffers* (MB CDC 2021) shall be adhered to for all applicable sites.
- 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.
- 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 Contract Administrator will be contacted for further advice.
- Prior to removing temporary structures, an inspection shall be conducted to determine the presence or absence of nesting birds. If nests are discovered, work shall be suspended, and the Contract Administrator will be contacted for further advice.

- Excavation within wetlands will be completed during dry or frozen conditions whenever feasible.
- Exclusionary fencing will be installed around open excavations near wetlands when and where there is potential for entrapment of amphibians or other wildlife species, or as directed by the Contract Administrator.

2.12 Wildfires

Wildfires can be a threat to people, property, and activities. Advance planning, preparation and the implementation of safety measures is required to effectively respond to wildfires when they do occur.

2.12.1 General

- An evacuation and emergency preparedness plan addressing wildfires shall be implemented and submitted to the Contract Administrator prior to commencing construction.
- No fires shall be started without first taking sufficient precautions so that the fire can be kept under control.
- Open fires are prohibited from April 1st to November 15th annually. In the event that burning is required during that period, an application for a burning permit shall be submitted for approval to Manitoba Natural Resources and Northern Development, where applicable. All conditions imposed by the burning permit shall be adhered to.
- 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.
- 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.
- 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.
- In the event that a wildfire occurs, it shall be immediately reported to the Contract Administrator and to MNRND at 1-800-782-0076.
- All reasonable steps shall be taken to prevent a fire from burning out of control or spreading from land owned or occupied for construction purposes.
- In the event that a wildfire is identified where construction activities are taking place, all reasonable attempts shall be made 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.
- 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.

2.13 Heritage Resources

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.

2.13.1 General

- Additional information on mitigation measures can be found in the Heritage Resources Protection Plan
- Areas of heritage or cultural resources of interest will be identified in the EPP mapbooks and Special Provisions and/or construction drawings and shall be inspected prior to the start of construction.
- The Contractor will report encountered heritage resource materials immediately to the Contract Administrator.
- Work at the location shall be suspended until a Historic Resource Consultant can assess the archaeological or historic artifacts encountered, and mitigation measures are confirmed with the Manitoba Historic Resources Branch.
- All heritage resources discovered during site preparation and construction will be left in their original position until the Historic Resource Consultant is contacted and provides instruction.
- If deemed necessary by the Historic Resource Consultant or required by legislation, the Historic Resources Branch (HRB) will be informed of heritage resources, or objects thought to be heritage resources, are discovered during site preparation and construction who will determine whether additional measures are required.
- If deemed necessary by the Historic Resource Consultant or required by the HRB, protective barriers will be placed around heritage resource sites that are inadvertently found during construction so that the area can be protected while work proceeds. These barriers may be stakes or fences and will remain in place until any additional measures required by HRB are completed to the satisfaction of HRB. At that time, the barriers will be removed, and construction will proceed.
- The Historic Resource Consultant will carry out additional measures as required by the HRB.
- If human remains are encountered, the measures described above will be enacted plus informing the Royal Canadian Mounted Police for determination of jurisdiction (forensic or archaeological). If forensic, Royal Canadian Mounted Police has custody of and is responsible for recovery of remains. If archaeological, HRB has custody of and is responsible for removal of remains.
- The Heritage Resources Protection Plan will be adhered to during construction and operation phases of the Project.

2.14 Quarries and Borrow

The following requirements apply to all quarry and borrow related works during all Project phases.

2.14.1 Quarry Site Selection

- Rock, aggregate and limestone will be obtained from existing quarries where possible.
- No operator of a quarry is to establish or mine a quarry closer than 400 m from a residence unless the operator has established a vegetated berm or tree screen sufficient to shield the quarry from view from the residence.
- With the exception of quarries that are contiguous with the road ROW, all quarry operations shall maintain a 100 m buffer from the proposed road ROW. If no vegetated buffer or screen exists this distance shall be at least 150 m.
- Habitat occupied by protected species shall be avoided.
- Quarry site selection shall consider the proximity of sensitive sites including waterbodies, wildlife, heritage resources and culturally important sites (see EPP mapbooks). Setbacks will vary depending on circumstances however selected areas are to be a minimum of:
 - 100 m from a water course or waterbody
 - 100 m buffer from any large stick nest, eagle nest, heron rookery, or any other sensitive wildlife area
 - 30 m from heritage resources or identified cultural sites
 - 400 m from any residence
 - 15 m from any property boundary adjoining, private, municipal, or Crown leased land
 - Other setbacks as required
- Prior to developing quarry sites, the potential for acid rock generation will be determined. Sites found to contain acid generating rock shall not be developed or used.

2.14.2 Quarry Development

- Guidelines for quarry development are described in the Quarry Management Plan (QMP).
- The Contractor shall comply with all legislations, licenses, authorizations, and permits respecting the Project and quarry.
- 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 (if required).
- Should a Contractor develop a new quarry, the Contractor would be 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 as accepted by the Contract Administrator.

- Quarries shall be developed in accordance with the site plan submitted to the Contract Administrator prior to the beginning of construction and, where applicable, the immediate quarry area plan provided to MNRND as part of the work permit (if required).
 - The major components of the Work are as follows:
 - Access Road Construction
 - Clearing and Grubbing
 - Blasting
 - Gravel Crushing and Stockpiling of Aggregate
- Quarry operations shall not encroach within 15 m of any property boundary adjoining, private, municipal, or crown leased land.
- The Contractor may be subject to operational restrictions if in close proximity to sensitive receptors, including but not limited to wildlife, fish, residences, or communities as stipulated in applicable permits or by the Contract Administrator (see EPP mapbooks for locations).
- The Contractor shall maintain the quarry site in a tidy condition and free from the accumulation of debris.
- A Site Decommissioning Plan shall be developed in accordance with all applicable permits, legislation and regulations and as approved by the Contract Administrator.
- Reclamation of temporary construction areas and aggregate/quarry sites would occur following the completion of construction once the sites are no longer needed for operation and maintenance and would be expected to follow those measures in place at the time of remediation/decommissioning and in full compliance with legislation and regulatory standards.
- Borrow pits, if required, will be left in a manner which promotes natural re-vegetation of the site:
 - Guidance on rehabilitating borrow pits is described in the QMP, Revegetation Management Plan (RVMP), and Site Decommissioning Plan.
 - In cases where seeding is required, and when conditions permit, seeding shall commence immediately upon completion of capping and trimming operations. When conditions do not permit immediate seeding, the Contractor will endeavor to ensure seeding is completed within the next growing season, unless otherwise authorized by the Contract Administrator.
 - Seeding operations shall not be carried out under adverse conditions of high winds, frozen ground, or ground covered with snow, ice, or standing water.

2.15 Site Decommissioning

All work sites are to be fully decommissioned when no longer required. The following requirements apply to decommissioning of all sites developed or used for the Project.

2.15.1 General

- All designated areas shall be leveled to natural or pre-existing grade and slope as part of decommissioning. Stockpiled topsoil and other organic matter that had been removed from the site shall be spread to promote natural re-establishment of vegetation.

- Where seeding is not required, temporary site locations shall be left in a manner which promotes natural re-vegetation of the site.
- 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, the Contractor shall endeavor to ensure seeding is completed within the next growing season, unless otherwise authorized by the Contract Administrator.
- Seeding operations shall not be carried out under adverse conditions of high winds, or ground covered with snow, ice, or standing water.
- Refer to the Site Decommissioning Plan for additional details.

2.16 Revegetation and Vegetation Maintenance

The following requirements apply to all revegetation or vegetation maintenance works during all Project phases.

2.16.1 General

- Immediately following construction and decommissioning, all salvaged and stockpiled organics and soils which were set aside during site development shall be spread back over the area from which they originated and shall be seeded. If local soils are not available, other organic-based covers may be used to allow seed germination.
- A Revegetation Management Plan (RVMP) has been developed for the Project and should be referenced for planning purposes and prior to conducting reclamation or reseeding activities.
- Revegetation seed mixes shall adhere to those specified in the RVMP. Seeding will commence immediately upon completion of grading, capping, and trimming operations, as conditions permit. Utilization of ditches as a heavy-machinery transportation corridor shall be minimized to the greatest extent possible.
- Where possible, sites will be left in a manner which promotes natural re-vegetation.
- Should there be a need for a water source as part of revegetation efforts, a temporary authorization shall be required from the Water Use Licensing Section of MECP. Contact the Manager of Water Use Licensing Section, at (204) 945-6118 prior to the commencement of the work. Note any water withdrawal greater than 5500 gpd requires a permit.
- Guidance on the management of terrestrial invasive species are described in the AgBMP.
- To prevent the transfer of weeds and terrestrial invasive species, all equipment is to be cleaned to remove all earthen material and plant debris and inspected before being brought to site and before it is removed from site. Cleaning should be carried out with a pressure washer or scrub brush. If soap is used it shall be phosphate free.

2.17 Planned and Unplanned Shutdowns

The following requirements for planned and unplanned shutdowns apply to all temporary or permanent stoppages of work, including but not necessarily limited to staff rotations, holidays, public health orders, stop work orders or as part of contract closeout.

2.17.1 General

- The Contractor shall relocate all equipment, supplies, and any other items used during construction to designated areas for laydown and staging or taken off site prior to any shutdown period.
- 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.
- 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.
- 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.
- Should an unplanned shutdown occur as a result of an event which puts human safety at risk, The Contract Administrator shall notify applicable rights-holders, landowners, stakeholders, and other necessary contacts of the event at the earliest opportunity to ensure that proper precautions are taken.