

LAKE MANITOBA LAKE ST. MARTIN

OUTLET CHANNELS PROJECT

MANITOBA INFRASTRUCTURE

Environmental Management Program Framework

November 10, 2020

TABLE OF CONTENTS

DISCLAIMER	I
PREFACE	III
GLOSSARY OF TERMS AND ACRONYMS	V
1.0 INTRODUCTION	1
1.1 Project Overview.....	1
1.2 Regulatory Framework	2
1.3 Environmental Management.....	2
1.4 Report Structure	3
2.0 ENVIRONMENTAL MANAGEMENT PROGRAM	4
2.1 EMP Overview.....	4
2.2 Organization.....	5
2.3 Roles and Responsibilities.....	6
2.4 Engagement and Indigenous Consultation	7
2.5 Reporting and Review Function.....	7
2.6 Schedule.....	8
3.0 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAM .	9
3.1 Environmental Protection Plans	10
3.2 Project Environmental Requirements.....	11
3.3 Access Management Plans	11
3.4 Quarry Management Plan.....	12
3.5 Sediment Management Plan	12
3.6 Surface Water Management Plan.....	12
3.7 Groundwater Management Plan	12
3.8 Revegetation Plan	13
3.9 Agricultural Biosecurity Management Plan	13
3.10 Dust Control Plan	14

3.11 Waste Management Plan	14
3.12 Hazardous Materials Management Plan	14
3.13 Emergency Response Plan	14
3.14 Heritage Resources Protection Plan	15
3.15 Construction Decommissioning Plan	15
4.0 OPERATION ENVIRONMENTAL MANAGEMENT PROGRAM	16
4.1 Debris Management Plan	17
4.2 Ice Management Plan	17
5.0 FOLLOW-UP AND MONITORING PROGRAM	18
5.1 Environmental Assessment Verification Monitoring	18
5.1.1 Aquatic Effects Monitoring Plan	19
5.1.2 Groundwater Monitoring Plan	19
5.1.3 Vegetation Monitoring Plan	19
5.1.4 Wetland Monitoring Plan	20
5.1.5 Wildlife Monitoring Plan	20
5.2 Compliance Monitoring	20
APPENDIX 1	22
APPENDIX 2	23
APPENDIX 3	24

List of Figures

Figure 1: Environmental Management Program Process

Figure 2: Project Organization Structure

List of Appendices

Appendix 1: Project Schedule (to be developed during detailed design)

Appendix 2: *The Environment Act Licence & Canadian Environmental Assessment Act, 2012 Decision Statement and Conditions* (to be obtained)

Appendix 3: Project Environmental Requirements

DRAFT

DISCLAIMER

This document was developed to support the Lake Manitoba and Lake St. Martin Outlet Channel Environmental Management and Monitoring Program. This document has been prepared by Manitoba Infrastructure as a way to share information and have discussion with Indigenous Communities and Groups and the public. This document has been prepared using existing environmental and preliminary engineering information, 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 and will not be considered complete until further engagement and consultation is complete. The plans may be further revised based on information and direction received from provincial and federal environmental regulators. This draft report be read as a whole, and sections or parts should not be read out of context.

DRAFT

DRAFT

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 PR 239, and other ancillary infrastructure.

Manitoba Infrastructure (MI) is the proponent for the proposed Project. After receipt of the required regulatory approvals, MI will develop, manage and operate the Project. This Environmental Management Program (EMP) framework describes the environmental management processes that will be followed during the construction and operation phases of the Project. The goal of the EMP is to ensure that the environmental protection measures committed to in the Environmental Impact Statement (EIS) and the requirements of the Environment Act Licence and Federal Decision Statement Conditions are undertaken in a timely and effective manner. This includes the verification that environmental commitments are executed, monitored, evaluated for effectiveness, and that information is reported back in a timely manner to the Project management team for adjustment if required.

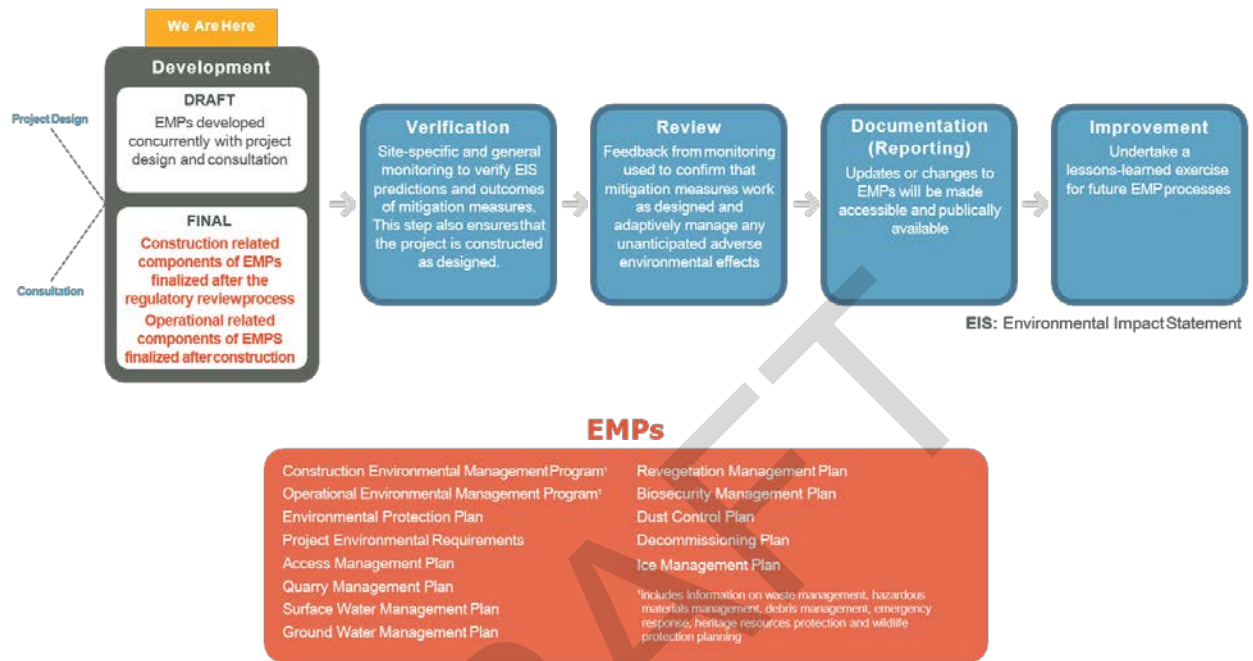
Manitoba Infrastructure remains committed to ongoing engagement and consultation with Indigenous groups and other stakeholders that are potentially impacted by the Project. Detailed EMP review discussions have been incorporated into community-specific consultation work plans and additional engagement opportunities will be provided prior to EMP finalization. Engagement opportunities include virtual open house events and EMP-specific questionnaires. EMP-specific questionnaires will be provided to Indigenous groups and stakeholders to obtain feedback and views on the draft plans, in addition to exploring opportunities for Indigenous participation in follow-up monitoring. Feedback and recommendations will be used to inform the completion of the plans.

The EMP provides the overarching framework for the Construction Environmental Management Program (CEMP) and an Operation Environmental Management Program (OEMP), which will be finalized as separate documents prior to Project construction and ideally operation, respectively. Their finalization will consider applicable conditions of the Environment Act Licence and associated approvals, any other pertinent findings through the design and regulatory review processes and key relevant outcomes of the ongoing Indigenous and public engagement and Consultation processes.

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 (e.g. surface water, groundwater, sediment, etc.), as shown in the Figure below, that will guide MI’s development of the Project’s contract documents and subsequently, the Contractor(s) activities, in constructing the Project in an environmentally responsible manner. The OEMP will likely include 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.

Environmental Management Program Process and Associated Environmental Management Plans

Environmental Management Program (EMP) Process



**LAKE MANITOBA
LAKE ST. MARTIN**
OUTLET CHANNELS PROJECT

GLOSSARY OF TERMS AND ACRONYMS

Acronyms

AMP	Access Management Plan
CEMP	Construction Environmental Management Program
EIS	Environmental Impact Statement
EMP	Environmental Management Program
EPP	Environmental Protection Plans
GWMP	Groundwater Management Plan
HRPP	Heritage Resources Protection Plan
LMOC	Lake Manitoba Outlet Channel
LSMOC	Lake St. Martin Outlet Channel
MI	Manitoba Infrastructure
OEMP	Operation Environmental Management Program
PERs	Project Environmental Requirements
Project	The Lake Manitoba and Lake St. Martin Permanent Outlet Channels Project
SAR	Species at Risk
SMP	Sediment Management Plan
SWMP	Surface Water Management Plan
VMP	Vegetation Monitoring Plan
WMP	Wildlife Monitoring Plan

Glossary of Terms

Aquatic ecosystem: All living organisms in an area of a lake, river, wetland or other waters and the non-living components of the environment upon which they depend, as well as all their interactions, both among living and non-living components.

Aquifer: A body of rock or sediment that is sufficiently porous and permeable to store, transmit, and yield significant or economic quantities of groundwater to wells and springs.

Baseline: Initial environmental conditions, prior to construction or anthropogenic actions.

Bed load: The part of the sediment in a water body that moves by rolling or sliding along the bottom.

Casual Quarry Permit: An annual permit issued for the production of a specified quantity of Crown quarry mineral (Quarry Minerals Regulation 1992).

Critical habitat: The resources and environmental conditions required for persistence of local populations of listed wildlife species throughout their current distribution in Canada.

Conservation concern: Species that are either federally or provincially tracked by SARA, COSEWIC, or the MBCDC and are considered rare or at risk of extinction are species of conservation concern.

Depressurization: Action of decreasing hydrostatic pressure. Active depressurization involves the use of pumps. Passive depressurization does not involve the use of pumps, but rather uses a relation between hydrostatic pressure elevation and topographic elevation.

Dewatering: Removal or draining groundwater or surface water from a riverbed, construction site, caisson, or mine shaft, by pumping or evaporation.

Discharge: Rate of outflow; volume of water flowing down a river, from a lake outlet, or man-made structure.

Groundwater: Water that occurs beneath the land surface and fills the pore spaces of soil or rock below saturated zone.

Groundwater quality: Refers to the chemical composition of groundwater and its suitability for various uses and also varies widely depending upon the local geologic setting, hydrogeological conditions, and past/current land use practices that may contribute anthropogenic effects.

Groundwater quantity: Refers to the availability of groundwater at a given rate for production and use, and it varies widely depending upon the local geologic setting, hydrogeological conditions and past/current groundwater use.

Hydrogeology: The study of the interrelationships of geologic materials and processes with water, especially groundwater.

Invasive plant species: Plants that are growing outside the country or region of origin and outcompeting or replacing native plant species.

Private quarry permit: Refers to a permit for private aggregate or quarry operations in Manitoba.

Quarry: An open excavation or pit from which stone, gravel or sand is obtained by digging, cutting or blasting.

Suspended sediment: Particulate matter that is held in the water column due to movement of the water.

Wetland: Land that is saturated with water long enough to promote wetland or aquatic processes as indicated by the formation of water altered soils, growth of water tolerant vegetation, and various kinds of biological activity that are adapted to wet environments (National Wetlands Working Group 1988).

DRAFT

1.0 INTRODUCTION

1.1 Project Overview

The Lake Manitoba and Lake St. Martin Permanent Outlet Channels Project (the “Project”) is proposed as a permanent flood control management system for Lake Manitoba and Lake St. Martin to alleviate flooding in the Lake St. Martin region of Manitoba. It will involve the construction 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. The presence of the new channels will facilitate better management and control of the water levels on these lakes by working concurrently with the existing Fairford River Water Control Structure in conveying water from Lake Manitoba, through Lake St. Martin to Lake Winnipeg in a manner that reduces or completely avoids overland inundation during high water events such as the 2011 and 2014 floods.

The proposed Project will comprise the following Main Works:

- LMOC:
 - a 24.1 km long, 100 m wide diversion channel in a 400 m right-of-way
 - a channel inlet positioned at Watchorn Bay on Lake Manitoba and outlet at Birch Bay on Lake St. Martin
 - a combined bridge and water control structure
 - realignment and/or construction of PR 239 and related municipal roads
 - three road bridge structures
- LSMOC:
 - a 23.8 km long, 120 m wide diversion channel in a 400 m right-of-way
 - a channel inlet positioned at the east end of Lake St. Martin and outlet near Willow Point in Sturgeon Bay of Lake Winnipeg
 - a combined bridge and water control structure
 - several drop structures

Associated Works of the Project include rock quarries and borrow areas, work camps, staging areas, fuel and waste storage, explosives storage, temporary access routes and realignment of existing drainage, as well as an electrical power distribution line that will be constructed and operated by Manitoba Hydro.

The Project is organized into three phases: site preparation and construction; operation and maintenance; and decommissioning and abandonment.

- **Site Preparation and Construction** – Site preparation for the Project will require vegetation clearing and grubbing of the final alignment right-of-way and excavating the channel to designed depths. In addition to constructing the above list of components, the construction phase for the Project includes preparation of equipment marshalling areas, construction camps and staging areas as well as transporting equipment, machinery, vehicles, construction materials and supplies to the Project construction and staging areas. Construction is currently anticipated to occur over a three to five-year

period (Appendix 1) and is contingent on receiving the necessary environmental licenses and approvals. Temporary facilities and work areas, including quarries, laydown areas and construction camps, that will not be needed for future maintenance activities will be decommissioned and reclaimed at the end of the construction phase.

- **Operation and Maintenance** – This phase includes the periods when the control structures are managing flood and non-flood conditions, as well as any required maintenance. The LMOC and LSMOC will be operated by adjusting the gates on the respective water control structures, in response to monitoring and flood forecasting according to the operating guidelines. Operations and maintenance will adhere to Canadian Dam Safety Guidelines. A Project-specific Operation and Maintenance Manual will be developed for the Project structures to detail maintenance needs for the Project during the operation and maintenance phase.
- **Decommissioning and Abandonment** – There are no plans to decommission or abandon the proposed Project, as it will provide flood relief to communities and landowners in the Lake Manitoba and Lake St. Martin areas in perpetuity. Should portions of the Project require decommissioning in the future, these activities will be undertaken in accordance with applicable guidelines and regulations at that time.

1.2 Regulatory Framework

Manitoba Infrastructure (MI) is the proponent for the proposed Project and after the receipt of the required regulatory approvals (Appendix 2), it will develop, manage and operate the Project. An Environmental Impact Statement (EIS) was prepared to meet the requirements of *The Environment Act* (Manitoba), and the *Canadian Environmental Assessment Act, 2012*. The Project is a ‘Class 3’ development under the Classes of Development Regulation (164/88) of *The Environment Act* (Manitoba) and therefore requires an Environment Act Licence. The Project is also a ‘Designated Project’ that requires the Minister of Environment and Climate Change’s approval (via Decision Statement) pursuant to the *Canadian Environmental Assessment Act, 2012*. The EIS compares and describes the pre-development baseline conditions in relation to predicted conditions and identified environmental protection measures to minimize negative project effects. A comprehensive list of the relevant federal and provincial legislation for the Project is provided in Appendix 1A of the EIS.

1.3 Environmental Management

This Environmental Management Program (EMP) framework describes the environmental management processes that will be followed during the construction and operation of the Project. The goal of the EMP is to confirm that the environmental protection measures committed to in the EIS and the requirements of the Environment Act Licence and Decision Statement Conditions are undertaken in a timely and effective manner. An adaptive management approach to enable continuous improvement is an integral principle of this EMP. The EMP, as detailed in Section 2.0 provides an MI organization chart, describes the roles and responsibilities of the parties involved in implementing the Project, describes how information from consultation was integrated, outlines reporting and review requirements and provides a schedule of key activities.

1.4 Report Structure

This EMP Framework consists of the following sections:

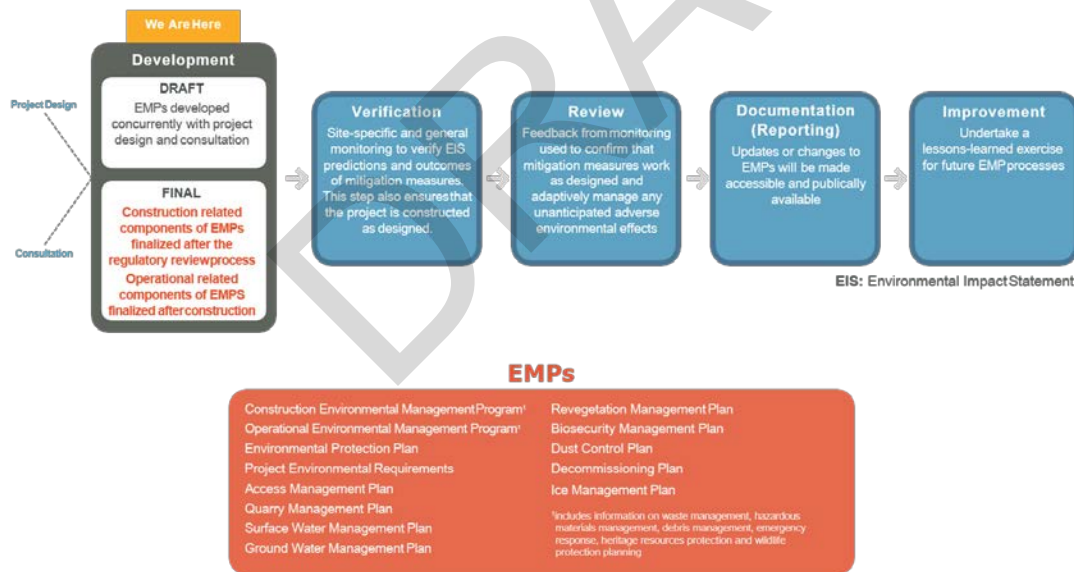
- **1.0 Introduction** – Provides an overview of the Project components and phases, the regulatory framework which the Project falls under and an overview of the EMP.
- **2.0 Environmental Management Program** – Provides an overview of the EMP and an MI organization chart, describes the roles and responsibilities of the parties involved in implementing the Project, describes how information from consultation was integrated, outlines reporting and review requirements and provides a schedule of key activities.
- **3.0 Construction Environmental Management Program** – Describes the development of an overall Construction Environmental Management Program (CEMP) and provides an overview of the project specific plans and procedures that will be developed to manage environmental concerns during the Project construction phase.
- **4.0 Operation Environmental Management Program** – Describes the development of an overall Operation Environmental Management Program (OEMP) and provides an overview of the project specific plans and procedures that will be developed to manage environmental concerns during the Project operation and maintenance phase.
- **5.0 Follow-Up and Monitoring Program** – Describes the Environmental Assessment Verification Monitoring and the Compliance Monitoring to be completed during the construction and operation phases of the Project.
- Supporting information includes lists of figures, appendices, and abbreviations and acronyms as well as a glossary of terms following the Table of Contents. The Appendices are provided at the end of the document.

2.0 ENVIRONMENTAL MANAGEMENT PROGRAM

2.1 EMP Overview

The EMP describes the environmental management processes that will be followed during construction and operation. One of the primary functions of the EMP is to demonstrate compliance with the various federal and provincial environmental regulatory requirements, including the verification that all environmental commitments are executed, monitored, evaluated for effectiveness, and that information is reported back in a timely manner to the Project management team for adjustment if required. The process of developing the EMP and associated topic specific management plans, verifying EIS commitments and mitigation, review of monitoring results, and updating and improving the EMP is shown in Figure 1. The CEMP and OEMP and the environmental plans which comprise them will be developed to a Draft stage, but purposely not finalized until input is obtained from potentially affected Indigenous groups and after the regulatory review process is complete and the necessary Environment Act licence and federal approvals are received. The EMP is a living document that will be reviewed and updated by MI on a regular basis, with continuous improvement being made so that the Project is constructed, operated and maintained in an environmentally responsible manner.

Figure 1: Environmental Management Program Process



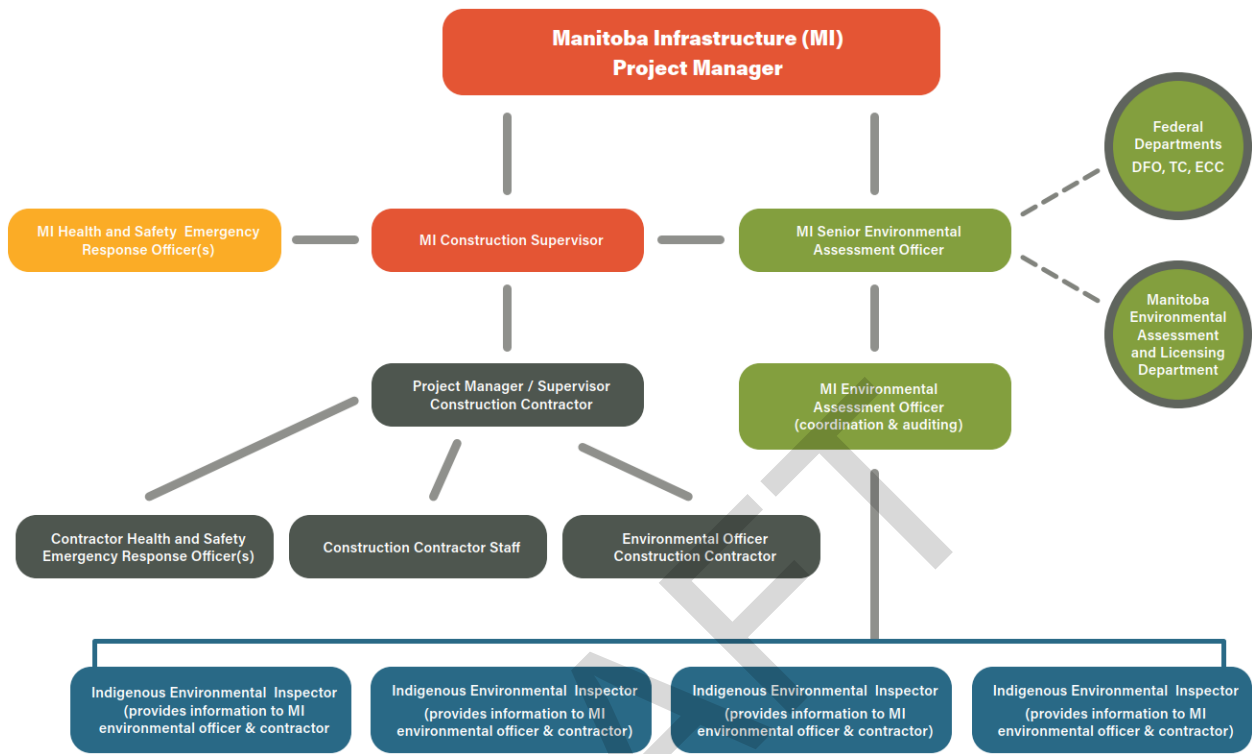
The EMP includes various environmental protection measures derived from MI's corporate, environmental and safety policies, which will be incorporated into relevant contract documents and inspection processes. The plans comprising the EMP will be finalized after input is obtained from potentially affected Indigenous groups and the regulatory review process is complete with the necessary approvals and associated conditions received.

This EMP document provides the overarching framework for the CEMP and an OEMP. To effectively address the specific issues involved with all phases of the project, this EMP Framework document provides an overview but not the details of the CEMP and OEMP, which will be finalized prior to Project construction and ideally operation, respectively. Their finalization will consider any conditions of the Environmental Act Licence and associated approvals, any other pertinent findings through the regulatory review process, as well as key relevant outcomes of the ongoing Indigenous and public engagement process.

2.2 Organization

MI, as the overall project manager and owner, is responsible for implementing, monitoring and amending the environmental aspects of the Project. The overall Project organization structure, outlining the communication between MI, the federal and provincial regulators, construction Contractor and Indigenous Environmental Inspectors is shown in Figure 2, with the roles and responsibilities outlined in Section 2.3. The Contract Administrator, while not shown in Figure 2, would work and communicate with the MI Project Manager. MI has several staff and an existing overall framework that would support the construction and operational phases of the Project. The Construction Contractor resources shown in the organization structure will be more relevant during the construction phase, however, there may be a need to hire Contractors during the operation phase.

Figure 2: Project Organization Structure



2.3 Roles and Responsibilities

The roles and responsibilities of MI, the Contract Administrator (Engineering Service Provider) and Contractor(s) involved in implementation of the Project will vary throughout the construction and operation phases. As such, the specific roles and responsibilities during these phases will be described in the respective CEMP and OEMP. However, a general description of the roles and responsibilities of the MI personnel identified in Figure 2 are as follows.

- MI Project Manager, or designated representative, is responsible for completing the project on time, on budget and ensuring overall compliance with applicable legislation, approvals and MI practices.
- MI Construction Supervisor, or designated representative, will provide daily on-site monitoring services for every contract and participate in weekly MI/Contractor meetings to ensure compliance with the construction contracts, approvals, legislation and best management practices.
- MI Environmental Assessment Officers, or designated representative, will monitor the Project construction through weekly inspections and participation in weekly Contractor meetings to ensure compliance with environmental aspects of the construction contracts, environmental commitments, approvals, legislation and best management practices.
- MI Health and Safety Emergency Response Officer, or designated representative, will monitor the Project construction through weekly inspections and participation in weekly MI/Contractor Project

Management meetings to ensure compliance with the health and safety aspects of the construction contracts, commitments, approvals, legislation and best management practices.

2.4 Engagement and Indigenous Consultation

The development of the EMP considers the comments, concerns and issues expressed through letters, emails, discussions with community elected officials, community meetings, open houses, Traditional Knowledge and Traditional Land and Resource Use studies, stakeholder meetings, questionnaires and the Project website, as documented in Chapter 5 of the EIS. This EMP also considers on-going involvement with the communities, through the Indigenous engagement and consultation process since the completion of the EIS.

MI will continue to engage with Indigenous peoples and communities, stakeholders and the public. Project updates will be discussed to solicit community feedback and collaboration on Project related items. MI is committed to considering community input provided regarding development and implementation of the EMP.

The CEMP and OEMP and the environmental plans which comprise them will be developed to a Draft stage, but purposely not finalized until input is obtained from potentially-affected Indigenous groups and the public. As demonstrated in the Indigenous Consultation Approach and Current Status report (EIS Appendix 5C), the contents and implementation of these plans will be discussed with potentially-affected Indigenous groups so they have an opportunity to provide input and feedback. Only once appropriate feedback has been received (if any) will the CEMP, OEMP and the associated environmental plans be finalized.

2.5 Reporting and Review Function

The objective of reporting is to provide regulatory authorities, local Indigenous communities, stakeholders and the general public with timely and accurate information, such that they have opportunities to provide comments, suggestions, and opinions on the Project, the environment protection measures and the monitoring programs. MI and the Contractor(s) will prepare reporting to document observations and findings from the Follow-up and Monitoring Program (described in Section 5.0). MI will ensure reporting and communication activities are conducted in accordance with requirements in the Licence, Decision Statement, other permits, authorizations and approvals, and through the established communication channels formed as a part of the delivery of the Indigenous engagement and consultation process. Regular contact will also be made with the local Conservation Officers and with the Manitoba Conservation and Climate's Integrated Resource Management Team to keep them informed of MI activities as it pertains to the Project. Specific reporting requirements will be described in the CEMP and OEMP, however, typical information that will be shared as part of the reporting includes:

- progress of the Project
- up-coming construction activities in local areas
- opportunities for community involvement and dates of community information meetings
- environmental monitoring plans and activities

- measures to protect heritage and archaeological resources
- records of actions taken to address environmental incidents such as accidents, spills, leaks, and releases, the reporting and clean-up procedures used
- other items of interest

The Follow-up and Monitoring Programs results will also be reported to MI's Project Manager and senior officers, who can implement corrective action as necessary. This management review will maintain continuous improvement by reviewing the adequacy, suitability and effectiveness of the environmental management practices associated with the Project and the accuracy of prediction of environmental effects as the construction activities proceed. MI management will meet regularly to monitor on-going progress as the Project proceeds and will periodically review the EMP at a strategic level to ensure its continuing suitability, adequacy and effectiveness. The review includes assessment of opportunities for improvement and the need for changes, including to environmental policies and objectives. On a strategic level, the MI management has the authority to make decisions about the environmental protection practices and to take action, including through allocation of resources. Changes to elements of the EMP will be communicated to Manitoba Conservation and Climate and the Impact Assessment Agency as an amendment to this document or its appendices.

2.6 Schedule

A schedule outlining the physical activities required for completion of the Project leading up to Operation is being developed as part of the Detailed Design stage and will be provided in Appendix 1 when available. Construction is currently anticipated to occur over approximately two and half to three years followed by an additional one to two years for site clean-up, surveying and environmental offset works following the major construction works. After this, operation and maintenance will begin and continue indefinitely.

In view of the complexity and the number of individual actions required for successful completion of the Project a project management system will be modified during detail design and updated throughout the Project. MI, the Contract Administrator and Contractor(s) will develop and update the scheduling and tracking for the project contracts. Included in the project management system schedule will be critical environmental management events such as authorization submissions and reporting requirements. This will facilitate the timely, efficient and effective planning, approval and successful implementation of construction, studies, environmental submittal requirements and Project commitments.

3.0 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAM

The purpose of the CEMP is to guide the Contractor(s) on how environmental issues will be addressed during construction and how adverse effects of activities will be mitigated. The CEMP is supported by several specific or targeted plans (Figure 1) that guide MI's development of the Project's contract documents and subsequently, the Contractor(s) activities, in constructing the Project in an environmentally responsible manner. These targeted plans are described in Sections 3.1 to 3.16 and will be embedded within the CEMP or provided separately as supporting documents.

Development of the CEMP is proceeding concurrently with Project design and will be updated as design for the Project and project components advances. As previously stated, the CEMP and the environmental plans which comprise it are developed to a Draft stage, but purposely not finalized until input is obtained from potentially affected Indigenous groups. Once finalized, the CEMP will form part of the contract documents used by Contractors and will act as guidance and/or requirements to implement and enforce environmental best management practices as well as precautionary avoidance and/or mitigation measures.

MI is responsible for incorporating the appropriate environmental protection measures, including best management practices, into the design of Project components. Construction contract specifications will detail the technical design as well as Project-specific restrictions respecting how the work is to be completed. Worksite-specific environmental contract documents will be prepared and added to MI's standard specifications. The environmental plans and other plans (e.g., Health and Safety Plan) that are pertinent to Project construction will be identified and accompany the tender documents to be provided to the Contractor(s).

The CEMP addresses many of the site-specific requirements of the Contractor(s) and those that are conducting inspections to facilitate compliance with MI's Project-specific commitments. The plans associated with the CEMP will guide the Contractor(s) work in a manner that promotes best management practices for environmental protection for the Project components being developed.

The CEMP addresses each phase of work and incorporates specific environmental protection measures during construction at the individual work sites. The Contractor will also be responsible to provide site-specific planning (e.g., location of laydown areas) to MI and identify quarry and borrow areas, which will go through the required review and approval process. This information will be described in detail and thereby augment the Environmental Protection Plans (EPPs) and other plans that collectively describe how to build the Project, with information on sites to avoid or provide specific measures. MI is responsible for confirming that the proposed steps outlined by the Contractor are appropriate and environmentally responsible.

As indicated, the CEMP will integrate all relevant environmental regulatory approvals conditions to accompany contract documents. In other cases, MI requires Contractors to obtain relevant permits to conduct their work (e.g., Crown Lands work permits, casual or private quarry permits, etc.). Environmental

permits or approvals obtained by the Contractor and any amendments will be identified and submitted to MI for compliance and record keeping purposes.

MI is responsible to conduct site inspections to confirm construction contract compliance with environmental specifications and legislated health and safety requirements. MI will also conduct an environmental audit of the construction work being done. The results of these inspections will be documented and, along with other pertinent information, contain regular progress reports to be provided to the designated regulator(s) throughout the construction phase.

MI will frequently meet with the Contractor(s) and require that regular updates be provided regarding progress on the environmental components of the work. Early and ongoing communication between MI and the Contractor is expected. In cases where a Contractor suggests methods to achieve a particular goal or objective that differ from their original site plan (i.e., component of the work such as managing erosion and sedimentation), approval will first be obtained through MI before any modification is allowed, based on discussions with regulators, as appropriate.

The environmental protection measures also incorporate best practices for compliance monitoring. The CEMP provides the framework for follow-up and monitoring, as described further in Section 5. The purpose of follow-up and monitoring is to:

- verify predictions of environmental effects identified in the environmental assessment
- determine the effectiveness of mitigation measures in order to modify or implement new measures where required
- support the implementation of adaptive management measures to address unanticipated adverse environmental effects
- provide information on environmental effects and mitigation that can be used to improve and/or support future environmental assessments including cumulative effects assessments
- support environmental management systems used to manage the environmental effects of projects

MI will ensure effective environmental oversight of Project development through a compliance monitoring process. MI will provide ongoing oversight of the Project during the construction phase and coordinate with the Contractor.

3.1 Environmental Protection Plans

EPPs form part of the Project's EMP framework and describe the suite of environmental protection measures for key individual environmental areas. The purpose of the EPPs is to support project planning and reduce the potential for environmental effects during construction. The EPPs are focused on describing the project activities and the associated potential effects, mitigation measures, and plans. A Construction Environmental Protection Plan mapbook is being developed to supplement the EPP by providing site-specific mitigation measures and considerations at environmentally sensitive locations. Together, these documents are intended to facilitate the operationalization of mitigation measures outlined in the EIS and be used for tendering purposes. These plans will guide the Contractor(s) and are supplemented with standard specifications

included in each construction contract's Project Environmental Requirements (PERs) and other plans. For example, Contractors will be required to provide details relating to:

- explosive storage facilities, in independent magazines, if required for the Project
- location and spatial extent of construction camps and associated facilities
- the number, location and size of construction laydown areas to be established along the right-of-ways for the outlet channels
- sources and quantities of borrow material
- lists of the materials that will be stored including construction vehicles, machinery, construction materials, geotextile rolls, explosives, erosion control supplies and other construction materials for the Project

3.2 Project Environmental Requirements

PERs are environmentally focused requirements and commitments for construction contracts that are fundamental to MI's regulatory compliance. PERs contain site-specific or point-source requirements for dealing with issues (i.e. access, sediment management, quarries, etc.). They are specific and applicable to all construction and maintenance operations under the authority of any and all licences, permits, authorizations or approvals obtained for the Project. Requirements listed within the 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. A copy of the Lake Manitoba and Lake St. Martin Outlet Channels PER was submitted with the EIS (Appendix 3F).

3.3 Access Management Plan

An Access Management Plan (AMP) identifies specific measures that will be undertaken to manage access to the Project site during the construction phase. The AMP addresses access-related issues of concern expressed by stakeholders, the public, and Indigenous groups during the Indigenous engagement and consultation process. It also integrates technical access-related effects on the environment. The AMP describes the access control measures that relate to protection of natural resources, public and worker safety and site security. The plan includes maps that show the locations of potential safety hazards that will be present as a result of the project and mitigation measures (signage and fencing) that have been designed to reduce the risk posed by the hazards. The objectives of the AMP are to:

- Provide safe, coordinated access to the Project site.
- Protect the area's natural resources for sustainable use by members of the local Indigenous communities.
- Preserve and respect the socio-economic, cultural and heritage values of the lands around the Project.
- Allow Project staff and Contractors to construct, operate and maintain the Project year-round.
- Provide security for Project personnel and property.
- Prescribe measures to minimize potential negative direct and indirect effects on Project access.
- Protect land users from hazards resulting from construction and operation of the project.
- Minimize land user conflicts.

3.4 Quarry Management Plan

A Quarry Management Plan describes how quarries are selected, developed, operated and decommissioned (where applicable). This plan specifies best management practices for the selection of quarry sites and quarry development that builds upon the requirements listed in the PERs. This will confirm that quarrying activities are conducted in accordance with all applicable permitting requirements and commitments made in the Project's EIS. The plan also includes details on the transport and storage of explosives and measures to ensure advanced planning and notice for blasting activities, such as requirements for Contractor submissions.

3.5 Sediment Management Plan

Sedimentation from the erosion of exposed soils can negatively influence fish and fish habitat. A Sediment Management Plan (SMP) describes measures to minimize the impacts of in-stream sediment from construction activities in or near water, river management, shoreline erosion, and commissioning of the LMOC and LSMOC. These measures include temporary construction management practices, as well as permanent mitigations measures built into the channel design, to minimize the potential for erosion and to minimize and mitigate the transport and deposition of sediment beyond construction areas or into off-site receiving water bodies. The objectives of the SMP are to:

- Define guidelines and procedures for construction to minimize the potential for erosion and sedimentation.
- Develop site-specific control measures to manage potential drainage issues (e.g., run-off).
- Develop site-specific erosion and sediment control measures to minimize adverse, sediment related, effects to the receiving waterbody.
- Develop emergency response practices to mitigate extreme design conditions, respond to unforeseen events and accidents, and minimize potential environmental impacts.
- Ensure that Contractors maintain the expectations of the SMP.

3.6 Surface Water Management Plan

A Surface Water Management Plan (SWMP) describes measures to be employed to mitigate or avoid impacts to surface water during and post construction. These include methods to be used for the temporary diversions of surface water (including but not limited to ditches and drains, dewatering or deposition), management of water resulting from precipitation events (e.g., winter snow accumulation in excavated channel or heavy rainfall event), and management of natural watershed flows during construction. Measures identified in this plan shall minimize impacts to the environment (e.g., fisheries) and people (e.g., consideration given to avoid localized flooding due to surface water management activities).

3.7 Groundwater Management Plan

A Groundwater Management Plan (GWMP) describes measures to take to avoid or minimize adverse effects to groundwater or from groundwater during the construction and operation of the Project. These effects may include changes in groundwater quality and quantity in the vicinity of the Project, effects on construction

from groundwater or changes in the relationship of the groundwater aquifer discharge to the surface water system. The GWMP outlines measures to manage groundwater which is brought to the surface because of depressurization activities, as well as measures to prevent/mitigate groundwater impacts to local well users. It also identifies adaptive measures to take if the outlined monitoring reveals the need for additional steps.

3.8 Revegetation Plan

A Revegetation Plan identifies the locations and methods of providing new or restoring existing vegetation cover following construction activities. The establishment of site appropriate, non-invasive perennial vegetation can serve to stabilize surface soils and protect against accelerated soil loss and erosion while limiting the establishment of non-native weedy plant species. Given the large scope and scale of the Project and the natural setting around LSMOC, if site restoration and revegetation is not planned and implemented in a considerate and responsible fashion, it can have disproportionately high impact on the local and interconnected environments. The Revegetation Plans for Project components such as the LMOC, LSMOC and associated works describe:

- Areas affected by construction of the Project.
- Areas designated for revegetation treatments, such as sites along the side slopes of the channels and temporary works decommissioned after construction.
- The approach for determining rehabilitation treatments for specific disturbed areas.
- The rehabilitation treatment options for regenerating vegetation in disturbed areas, including methods for site preparation that will contribute to revegetation success.
- How the rehabilitation will be implemented.
- How the rehabilitated areas will be monitored, the process for how improvements, if required, will be made, and how and to whom the results will be reported.

3.9 Agricultural Biosecurity Management Plan

An Agricultural Biosecurity Management Plan identifies biosecurity issues, risk sites and risk types as well as specific mitigation requirements such as landowner communication, notification, and equipment cleaning and disinfection requirements. The objective of this plan is to mitigate adverse effects or changes in agricultural land use. The plan pertains to the LMOC and PR239 realignment portions of the Project, as these portions of the Project traverse agricultural land use, including cropland, grazing land and livestock operations. Through this plan, MI will address biosecurity concerns related to Project activities. This Plan includes:

- Background information including a summary of agricultural land use in the Project area, regulatory context and industry guidelines and related Project management plans.
- Summary of biosecurity risk issues, mechanisms and levels and issues related to construction and operation activities.
- Required actions by MI and Contractor(s) to protect agricultural biosecurity.
- Identification of specific biosecurity risk areas and controlled access points.

- Implementation plan to guide MI in implementation of the Agricultural Biosecurity Management Plan for Project construction and operation, including roles and responsibilities, planning and preparation, facilities and equipment, worker requirements, record keeping and reporting, worker training, communication, monitoring, and implementation schedule.

3.10 Dust Control Plan

A Dust Control Plan describes the products to use and the methods of their application on PR 239, other access roads used and material stockpiles to minimize and mitigate effects from increased dust levels during the Project construction and operation. The plan also identifies the certification and submission requirements for products to be used.

3.11 Waste Management Plan

A Waste Management Plan describes how solid and non-hazardous liquid waste will be stored, managed and disposed of during construction. The plan commits to keeping the construction area clean and orderly during and at completion of construction with waste materials and refuse removed and disposed of promptly in a manner that will not contaminate the surrounding area. Waste materials shall be recycled to a degree that is economically and practically feasible or disposed of at a Waste Disposal Ground operating under the authority of a permit issued pursuant to Manitoba Waste Disposal Grounds Regulation 150/91. All sewage and seepage from on-site sanitary facilities will be disposed of at a local licensed facility and in accordance with the Manitoba Onsite Wastewater Management Systems Regulation 83/2003.

3.12 Hazardous Materials Management Plan

A Hazardous Materials Management Plan describes safe practices for transporting, storing, managing and disposing of hazardous materials to protect the health and safety of employees, the public and the environment. The plan includes spill response guidelines and hazardous waste management guidelines for managing specific hazardous materials. The plan also identifies the applicable federal and provincial acts and regulations for the transportation, storage, handling and disposal of dangerous goods and hazardous wastes.

3.13 Emergency Response Plan

An Emergency Response Plan identifies how the Contractor(s) will respond to environmental emergencies in a manner that protects people and the environment during Project construction. The plan outlines emergency spill response and reporting procedures and fire prevention and response procedures. Procedures to respond to spills, accidents, or malfunctions involving the release of fuels, dangerous goods or hazardous materials/waste are described. The plan identifies who is responsible for and methods of containment, clean-up and reporting. The plan also outlines fire prevention measures to be implemented and response and evacuation procedures to follow in the event of a fire. A Health and Safety Plan, separately addresses security, responses to medical incidents, transport to hospital and emergency contacts and notification.

3.14 Heritage Resources Protection Plan

A Heritage Resources Protection Plan (HRPP) outlines measures to mitigate effects to cultural and heritage resources that can occur from ground-disturbing Project activities, such as vegetation clearing and excavation and development of temporary construction camps, staging areas and access roads. The HRPP is being developed based on the findings of a Heritage Resource Impact Assessment conducted prior to the start of construction. The HRPP when issued Final will at a minimum:

- Include general information about the Project.
- Outline the heritage resources procedures and protection measures to be implemented during Project construction.
- Outline specific measures required for any heritage sites located within the Project Development Area and any adjacent site that may be affected by Project construction or operation.
- Identify and characterize any additional heritage resource protection measures.
- Outline the steps for reporting and follow-up related to any heritage resources unintentionally disturbed during construction.

3.15 Construction Decommissioning Plan

Construction Decommissioning Plan describes the process and environmental requirements for closure and reclamation of temporary construction facilities and borrow pits.

4.0 OPERATION ENVIRONMENTAL MANAGEMENT PROGRAM

The purpose of the OEMP is to guide how environmental issues will be addressed and adverse effects of operation and maintenance activities will be mitigated. The OEMP demonstrates MI's commitment to protection of the environment and compliance with the various federal and provincial environmental regulatory requirements. Standard operating procedures and environmental best management practices will be implemented during operation to promote the protection of environmental values potentially affected by the Project. The OEMP is a tool to ensure that the environmental management measures are executed, monitored, evaluated for effectiveness and that any required information is reported to MI for adjustments. The OEMP outlines the responsibilities of the various parties involved, provides a summary of potential activities related to Project operation and the subsequent potential environmental effects, and discusses the applicable environmental management measures, monitoring and reporting procedures.

An OEMP is being developed for operation of the LMOC and LSMOC and will be finalized prior to completion of the construction phase. It is currently anticipated that a separate OEMP is not required for development of the PR 239 realignment. The road will be operated and maintained in a manner consistent with MI's practice for the current PR 239 and other public roads throughout the Province of Manitoba.

The OEMP describes the environmental protection measures to be implemented after construction is complete to address potential effects associated with the long-term operation and maintenance activities. As detailed for the CEMP, the OEMP and the environmental plans which comprise it are developed to a Draft stage, but purposely not finalized until input is obtained from potentially affected Indigenous groups. The contents and implementation of the OEMP and its environmental plans will be discussed in detail with potentially affected Indigenous groups so they have an opportunity to provide input and feedback. Only once appropriate feedback has been received (if any) will the OEMP and its environmental plans be finalized.

The OEMP is supported by the same targeted plans developed to manage issues during construction, as described in Sections 3.1 to 3.16, but prior to construction completion they would be revised and adapted to suit the specific needs during the operation phase. The objectives of the supporting OEMP plans is similar to those described with respect to construction activities, with a focus on operational conditions. For example, the Sediment Management Plan would focus on minimizing the impacts of in-stream sediment from operation of the LMOC and LSMOC, particularly after a flood. These plans are embedded within the OEMP or provided as separate supporting documents. Additional Project operation-specific plans including a Debris Management Plan and Ice Management Plan, as described in Section 4.1 and 4.2, are developed for implementation during the operations phase.

As with the CEMP, the OEMP outlines the recommended best practices for compliance monitoring (inspections). Ongoing monitoring regarding the functionality of the outlet channels and associated infrastructure will occur regularly during non-flood periods. The frequency and type of compliance monitoring is expected to increase immediately before, during and after the flood operation of control structures in the LMOC and LSMOC. As such, MI has a role in ongoing environmental inspections of the

Project infrastructure and components. MI will generate documentation related to the findings of these investigations, including Project functionality.

As with the CEMP, the OEMP provides the framework for the follow-up and monitoring program during the operation phase, as described further in Section 5. This includes continued monitoring to verify key predictions of the EIS, with a focus on the effectiveness of key mitigation measures that are proposed to be implemented. Reports generated through this process will be made available to regulators for review as required.

The Debris Management Plan and Ice Management Plan, which are Project operation-specific plans developed for implementation during the operations phase are described in the following sections.

4.1 Debris Management Plan

A Debris Management Plan describes measures to be employed to mitigate or avoid impacts to the environment or public and worker safety post construction. It focuses on any material that may affect safe travel and navigation on waterbodies that may be affected by the LMOC and LSMOC during operations. The plan also addresses any material entering, within or exiting the LMOC and LSMOC, including floating or submerged (e.g., driftwood, plants), suspended sediment or bed load moved by flowing water.

4.2 Ice Management Plan

An Ice Management Plan describes measures to be employed to mitigate or avoid changes in regional and/or local ice processes and impacts to the environment or public and worker safety post construction associated with changes in ice processes. The LMOC and LSMOC will be operated in accordance with the Operating Rules developed for the Project, which includes considerations for ice management. The plan describes the location of signs indicating potential areas of thin ice at the LMOC and LSMOC inlet and outlet to provide public and worker safety.

5.0 FOLLOW-UP AND MONITORING PROGRAM

The follow-up and monitoring program for the Project includes Environmental Assessment Verification Monitoring and Compliance Monitoring to be completed during both the construction and operation phases of the Project, as described in the following sections and shown as the Verification box in Figure 1. This program and the associated topic specific monitoring plans are developed in accordance with the requirements described in both federal and provincial guidance documents for the Project. As results become available from the monitoring and follow up program, they will be provided to regulators, posted to the Project website and shared during any meetings or open houses. MI and its consultants will consider the results from the follow-up and monitoring programs and input received from Indigenous communities, regulators and others in its review of the status of the environmental protection activities on an on-going basis, and amend programs as necessary. As the proponent/owner of the Project, MI will make final decisions on adjustments to environmental activities.

This adaptive management approach will be followed whereby lessons learned and improvements identified during the inspection, follow-up and monitoring programs will be applied to continually improve subsequent environmental protection activities. MI will also monitor the application of action plans and emergency response procedures for environmental protection and human health and safety.

5.1 Environmental Assessment Verification Monitoring

The follow-up and monitoring program, as described in EIS Chapter 12, will verify the accuracy of the environmental assessment and determine the effectiveness of any measures taken to mitigate the adverse environmental effects of the Project, through the following:

- Verify predictions of environmental effects identified in the environmental assessment.
- Determine the effectiveness of mitigation measures in order to modify or implement new measures where required.
- Support the implementation of adaptive management measures to address unanticipated adverse environmental effects.
- Provide information on environmental effects and mitigation that can be used to improve and/or support future environmental assessments including cumulative effects assessments.
- Support environmental management systems used to manage the environmental effects of projects.

Various topic specific monitoring plans have been developed for the Project, as described in the following sub-sections. MI will engage in-house environmental staff and potentially contract specialized environmental consultants to conduct monitoring of specific components of the environment in accordance with these monitoring plans and as required with assistance from local indigenous people. These plans are developed to a Draft stage to meet regulatory requirements, but purposely not finalized until input is obtained from potentially affected Indigenous groups and appropriate federal and provincial authorities. Additional monitoring or adjustments to the plans will be made in consideration of the responses received.

5.1.1 Aquatic Effects Monitoring Plan

As part of EA Verification, this includes any ongoing surface water quality monitoring as well as fish-related sampling. The plan provides information on the methodologies to address monitoring requirements outlined in the EIS. Monitoring study design is described in terms of the frequency of monitoring, field methods, parameters to be measured, data analysis and how benchmarks will be used to guide follow-up management actions. The AEMP describes monitoring activities that will commence during and following construction and which of these will be repeated for at least two periods after the channels have been operated. The specific objectives of the AEMP are to:

- Determine if the effects assessment predictions in the aquatic environment sections of the EIS (including surface water quality and fish and fish habitat) are correct.
- Determine the effectiveness of mitigation measures.
- Assess the need for additional mitigation measures if initial measures are not adequate.
- Determine the effectiveness of any additional/adapted measures.
- Confirm compliance with regulatory requirements relevant to surface water quality and fish and fish habitat set out in the Project approvals (compliance monitoring).

5.1.2 Groundwater Monitoring Plan

Groundwater monitoring will be conducted to assess whether there are changes to the volume and accessibility or quality of the groundwater in the Local Assessment Area as a result of construction or operations. Groundwater elevations and quality will be monitored in proximity to the Project prior to construction (baseline), during construction, and following construction (for a period of two years). Recommendations will also be provided for long term groundwater monitoring based on the project monitoring data and an assessment of project effects. This will help to identify if the management measures implemented as part of the GWMP are effective at mitigating impacts to groundwater. Groundwater discharged to surface water during construction will be monitored to ensure it complies with applicable Canadian Council of Ministers of the Environment and Manitoba Water Quality Standards, Objectives and Guidelines criteria for the Protection of Freshwater Aquatic Life. Finalization of groundwater quality monitoring objectives will be undertaken at Detailed Design with consideration for the other environmental management and monitoring plans.

5.1.3 Vegetation Monitoring Plan

As part of pre-construction sampling being completed in 2020, rare plant surveys are being completed along the final channel alignment and a Vegetation Monitoring Plan (VMP) is being developed. Pre-construction monitoring work involves an evaluation of species of conservation concern present. The VMP provides detailed methods on how predicted changes to vegetation species diversity will be verified and how the effectiveness of mitigation strategies (e.g., revegetation) will be evaluated. The VMP also includes assessing revegetation success shortly after construction and for several years following construction. Monitoring will be focused on assessing the rate of establishment of a healthy vegetation cover, and the quick recognition and mitigation of soil erosion. Areas of poor vegetation growth will also be identified for additional seeding.

To avoid growth and establishment of regulated weeds, soil piles will be monitored for weed growth during construction.

5.1.4 Wetland Monitoring Plan

As part of pre-construction sampling being completed in 2020 wetland mapping is being completed along the final channel alignment to evaluate the wetlands present. Depending on the outcome of the wetland mapping there may be a requirement for ongoing wetland monitoring with preparation of a Wetland Monitoring Plan as well as wetland compensation. The Wetland Monitoring Plan will provide detailed methods on how predicted changes to wetlands will be verified and how the effectiveness of mitigation strategies will be evaluated. The plan may also include assessing wetland compensation success, if any is required, shortly after construction and for several years following construction.

5.1.5 Wildlife Monitoring Plan

A Wildlife Monitoring Plan (WMP) provides detailed methods on how predicted changes to wildlife habitat availability and wildlife mortality risk and movement will be verified and how the effectiveness of mitigation strategies will be evaluated. The WMP provides details on methods, and schedule for all mammal, bird, and amphibian survey and monitoring programs. Species at Risk (SAR) monitoring focuses primarily on ground-based point count surveys for species most likely to be affected by the Project (red-headed woodpecker and eastern whip-poor-will). Surveys during the construction and post-construction phases will focus on previously occupied habitats, identified during pre-construction surveys, to assess the effectiveness of mitigation measures and reclamation and/or restoration efforts. The WMP also includes development of a Red-headed Woodpecker and/or Eastern Whip-poor-will Mitigation and Offset Plan to mitigate a change in habitat for SAR whose critical habitat may be affected by the Project.

5.2 Compliance Monitoring

MI will ensure effective environmental oversight of Project development through a compliance monitoring process. This compliance monitoring verifies whether the plans (including the PERs) are being followed during construction and operation and whether required mitigation measures are being effectively implemented. The compliance monitoring also confirms compliance with the regulatory requirements and authorizations for the Project.

MI will provide ongoing oversight of the Project during the construction and operation phases and coordinate with the Contract Administrator and Contractor(s). The specific roles and responsibilities for MI, the Contract Administrator and Contractor(s) in relation to monitoring are identified in the CEMP and OEMP. The compliance monitoring developed during the construction phase may evolve and be adapted into the operation phase in response to varying conditions between construction and operation. The environmental protection measures also incorporate best practices for compliance monitoring.

MI standards for monitoring dams and flood control channels will be implemented during operation to ensure it is operated and maintained in a safe manner consistent with the Canadian Dam Association Dam Safety Guidelines. Ice conditions within the channel be monitored, particularly when the channel is operated

FOLLOW-UP AND MONITORING PROGRAM

at higher winter discharges, to ensure that adequate freeboard remains on the channel dikes to prevent a winter overtopping breach. A Project-specific Operation and Maintenance Manual will be developed for the Project structures to detail monitoring and maintenance needs for the Project during the operation and maintenance phase.

DRAFT

APPENDIX 1

Project Schedule

DRAFT

APPENDIX 2

The Environment Act Licence & Canadian Environmental Assessment Act, 2012
Decision Statement and Conditions

DRAFT

APPENDIX 3

Project Environmental Requirements

DRAFT