

**LAKE MANITOBA AND LAKE ST. MARTIN OUTLET CHANNELS PROJECT
RESPONSE TO IAAC TECHNICAL INFORMATION REQUESTS**

Question IAAC-63

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ABBREVIATIONS AND ACRONYMSII

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Abbreviations and Acronyms

EIS	environmental impact statement
m	metre

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EIS Guideline Reference: 7.6.1 Effects of potential accidents or malfunctions

EIS Reference: 14.3 Spills of Hazardous Materials, Table 14.6-1; 14.2 Outlet Channel Breach/ Control Structure Failure

Context and Rationale

EIS Guidelines state that the proponent will “conduct an analysis of the risks of accidents and malfunctions, determine their effects, and present preliminary emergency response measures” and that EIS should include “safeguards that have been established to protect against such occurrences”.

Section 14.3 Spills of Hazardous Materials does not discuss sediment as a hazardous material even though sediment can be considered a deleterious substance under the Fisheries Act and even though Table 14.6-1 lists fine aggregate as a contaminant under spills. The EIS contains some information on potential effects due to sediment entering surface waters through outlet channel breach or control structure failure but no specific mitigation measures are provided to address this.

Information Requests

- a) For all phases of the project, provide an assessment of risks for accident and malfunction scenarios involving sediment, including impacts to surface waters and aquatic species. Include mitigation measures that will be put in place to help prevent the scenario(s) from occurring and/or to address effects, including an assessment of the effectiveness of the measures.

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- a) As stated in Volume 5, Section 14.2, sediment has the potential to enter water bodies due to slope failure associated with channel outlet breach or control structure failure. Although listed in Volume 1, Appendix 3, Table 3A-3, Typical Fuels and Hazardous Materials, fine aggregates (fines from backfill materials and/or drill cuttings if pile foundations for structures are cored into bedrock) were not discussed in Volume 5, Section 14.3, Spills of Hazardous Materials. With respect to spills of fine aggregates, prevention and mitigation measures would be the same as those discussed for any introduction of sediment and deleterious substances. Prevention and mitigation measures are presented in Volume 1, Appendix 3F, the Project Environmental Requirements (Volume 1, Section 2.3, Erosion and Sediment Control; Section 2.4.13, Debris and Sedimentation Removal); and in the environmental impact statement (EIS) (Volume 2, Section 6.3.4.3, Change in Soil Quantity and Quality; and Volume 3, Section 7.2.4, Fish and Fish Habitat). Mitigation will also be presented in the Sediment Management Plan, Hazardous Materials Management Plan and Emergency Response Plan, which are being developed concurrently with Project design and will be completed prior to construction.

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The proposed prevention and mitigation measures to prevent sediment from affecting surface waters and aquatic species and address effects are listed below. All are industry best management practices.

- Removal of debris (i.e., branches, stumps, other woody materials, garbage, etc.) will be limited to the area within the culvert, immediately upstream of the culvert and to that which is necessary.
- Accumulated debris will be removed slowly to allow clean water to pass, to prevent downstream flooding and reduce the amount of sediment-laden water going downstream. Whenever possible, debris will be removed by hand.
- Accumulated sediment removal will be limited to within the culvert and to the level of the waterbody bed, to maintain embedment of the culvert.
- Effective erosion and sediment control measures will be properly installed before starting construction work to prevent undesirable soil movement or the entry of sediment into any waterbody or wetland.
- The installation of erosion and sediment control measures will be completed in accordance with the Contract Documents, or as approved by the Engineer. Final erosion protection measures will be installed progressively during all phases of the project.
- During construction, erosion and sediment control measures will 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. Necessary repairs and adjustments will be made to ensure that measures are effective in controlling erosion and sedimentation.
- Erosion and sediment control measures will be maintained in disturbed sites until soils have stabilized and complete revegetation of disturbed areas is achieved.
- Efforts will be made to minimize the duration of soil exposure and run-off shall be diverted away from exposed soils.
- Construction and maintenance activities will be halted during heavy rains with the exception of those works pertaining to erosion and sediment control.
- Spoil piles, overburden and topsoil will not be placed within 100 m of any waterbody's ordinary high-water mark. Spoil piles will be positioned and maintained in a manner that prevents direct or indirect sediment releases into a waterbody.
- A 100 m set-back will be provided from work areas and waterbodies or a buffer zone of undisturbed vegetation between the work area and waterbody of at least 10 m plus 1.5 times the slope gradient or 30 m, whichever is greater.
- Silt curtains will be installed around excavation areas.

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- Machine fording will be limited to onetime events, if possible.
- Instream work will be limited to low flow periods when waterbodies or watercourses are dry or frozen, where possible.
- Excavations will be conducted within dewatering cofferdams, wherever possible, so that excavations can be conducted “in-the-dry”. Work that cannot be done “in-the-dry” (e.g., inlet/outlet excavation) will be isolated and work conducted outside the fish window, to the extent possible.
- Channels will only be connected to upstream and downstream lakes once in-channel erosion and sediment control measures are in place.
- Department of Fisheries and Oceans timing windows will be followed to the extent possible for instream work.
- Sides of channels will be rip-rapped where necessary and bottom sediments compacted to the maximum extent possible to minimize erosion and sediment suspension.
- Channel slopes will be revegetated with native vegetation.
- Groundwater pumped from channels will be directed through settling ponds to minimize erosion and sediment suspension.
- Total Suspended Solids guidelines for water quality will be monitored during construction and additional mitigation measures implemented if exceedances are noted.
- Materials and equipment for the containment and recovery of accidental hazardous material spills will be available at construction sites.

With the implementation of these mitigation measures, the risks for accidents and malfunctions involving sediment, including impacts to surface waters and aquatic species are assessed as not significant for all phases of the Project.