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Abbreviations and Acronyms

EIS	environmental impact statement
EOC	emergency outlet channel
km	kilometre
LAA	local assessment area
LCC	Land Classification Canada
LMOC	Lake Manitoba outlet channel
LSMOC	Lake St. Martin outlet channel
PDA	project development area
VC	valued component

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EIS Guideline Reference: 3.1.3 topography and soils; 3.3 terrestrial environment; 5.4 potential effects and mitigation; 5.5 residual effects

EIS Reference: Throughout; 6.4.4.3 Changes in Local Groundwater/Surface water Interactions, Page 6.167

Context and Rationale

The EIS Guidelines require the proponent to present existing conditions of topography, soils, and vegetation, including any anthropogenic conditions, as this baseline data informs the assessment of potential effects of the Project to the environment, including to surface water.

The EIS states that the LAA area of the LSMOC section was semi-remote with seasonal (winter) road access and not disturbed (EIS summary Section 2.1, Page 5) and also states that the LSMOC PDA area was previously disturbed by human activities and previous floods (Section 6.4.4.3, Page 6.167).

Information on existing disturbance levels is necessary to understanding baseline conditions and potential effects of the Project.

Information Requests

a) Clarify and describe the area (ha) and type of land disturbances existing in the LSMOC sections of the PDA and LAA. If the area (ha) and type of land disturbances differ from those described in the EIS, discuss implications for the assessment of effects to all relevant VCs, including surface water.

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a) Generally, in contrast to the area surrounding the Lake Manitoba Outlet Channel (LMOC) (which is primarily used for agriculture), the area associated with Lake St. Martin Outlet Channel (LSMOC) is generally considered undisturbed, owing to its semi-remote location and minimal impact from anthropogenic activities, as indicated in Volume 1, Section 2.1 (pg. 5). However, valued component (VC)-specific characterizations of ecological context, or the resilience of a VC to adapt to changes as a result of the Project, are also made throughout the environmental impact statement (EIS) using the terms “disturbed” and “undisturbed”. These determinations are made to support characterization of potential residual effects, where potential residual effects have been identified for a VC. Further, local assessment areas (LAAs) are VC-specific and vary relative to the anticipated spatial extent of potential environmental effects for each VC.

   In some cases, such as for soils and terrain presented in Volume 2, Section 6.3 of the EIS, the ecological context for LSMOC has been deemed undisturbed as the Project development area (PDA) and LAA have generally not been disturbed by human activities. The exception to this is a minor portion of the LAA previously disturbed by a portion (i.e., Reach 3) of the Lake St. Martin Emergency

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Outlet Channel (EOC). This is in contrast to the LMOC PDA and LAA, where soils have largely been disturbed by agricultural land use and associated activities. This is noted in the following text from the EIS Volume 2, Section 6.3.4.4 (for change in terrain conditions pg. 6.123 and for change in soil quantity and quality pg. 6.124), with the implication being that the LSMOC is considered undisturbed for the purposes of the assessment of soils and terrain:

> "The effects will occur in both disturbed, agricultural landscapes, and undisturbed areas of natural vegetation and wetlands".

In the case of geology, the ecological context was not presented as no potential residual effects were identified for this environmental component. However, for information purposes, within the LSMOC portion of the geology (and groundwater) LAAs (which are much larger than the soils and terrain and vegetation LAAs), it is estimated that approximately 0.11% (65 ha) of the LAA is considered developed (see Table IAAC-9-1, below). This estimate does not include the EOC or associated access road, as the land cover classification data is based on 2005 imagery, which does not account for the EOC which was constructed in 2011.

Project residual effects characterization for groundwater/surface water interactions states the following (Volume 2, Section 6.4.4.3, pg. 6.167):

> "the ecological and socio-economic context is disturbed for [the] LSMOC because the PDA has been previously disturbed by human activities and previous floods when water was diverted from Lake St. Martin through the EOC and into the Buffalo Creek system".

Primarily because flooding has a direct influence on the surface water and groundwater environmental components, it was deemed that the ecological context for the residual effects characterization for these VCs is disturbed.

The vegetation effects assessment considers the vegetation LAA as “relatively undisturbed.” The land cover within the LSMOC portion of the soils and terrain and the vegetation LAA (i.e., 1 km buffer around the LSMOC PDA) is characterized as over 99% natural land cover (native upland vegetation, wetland, water, bare ground) with <0.8% developed (50.1 hectares in industrial category, 0 hectares in other developed categories including roads, residential [note: the Lake St. Martin Access Road is not included in these values as it was included as part of the Lake St. Martin portion of the vegetation LAA, within which it occupies 1 ha of land.]) and 0% agriculture (Volume 3, Appendix 8A, Table 8.2A-3 Land Cover Classes in the LAA and Figure 8.2B-3 Land Cover in the Vegetation LAA). The wildlife effects assessment considers the wildlife LAA for the LSMOC to be undisturbed (Volume 3, Section 8.3.6.3, pg. 8.109), which is characterized as “relatively undisturbed or not adversely affected by human activity” (Volume 3, Table 8.3-2, pg. 8.76).

As demonstrated above, the areas (and % of areas) within the various LAAs defined within the EIS are variable and this is relative to the size of the LAAs, which are VC-specific. The characterizations of disturbance and consideration of disturbance levels within the PDA and LAA, while not the same across all VCs, is considered appropriate for the VCs assessed within the EIS. Therefore, there are

no implications to the assessment from this evaluation, and the areas and type of land disturbances do not differ from those described in the EIS.

Table IAAC-9-1 Summary of Approximate Areas by Land Cover Category for the LSMOC Portion of the Geology and Groundwater LAAs

Land Cover Category	Area[1]	
	hectares	% of LSMOC portion of LAA
Bare Ground	203	0.36%
Developed[2]	65	0.11%
Native Upland Vegetation	14,758	25.9%
Water	8,331	14.6%
Wetland	33,514	58.9%

Source: LCC (Land Classification Canada). 2005. Manitoba land initiative database. Conservation and Water Stewardship. Government of Manitoba.

Notes:

1. These areas were determined for the portion of the geology and groundwater LAA around the LSMOC to support IAAC-09. As sub-components of the overall LAAs for geology and groundwater were not presented in the EIS, these are considered approximations of areas within the LSMOC portion of the geology and groundwater LAAs.
2. This includes approximately 50 hectares of developed (industrial) area mapped as part of the vegetation assessment and presented for the LSMOC portion of the vegetation LAA in Table 8.2A-3, pg. 8A.7. Updated mapping within the LSMOC portion of the vegetation LAA accounts for the portion of the Lake St. Martin Emergency Outlet Channel which is within LAA boundaries (i.e., Reach 3), whereas outside of the vegetation LAA land cover classification mapping is based on 2005 imagery and does not account for the emergency channel or the Lake St. Martin Access Road. These components would comprise a very small area of disturbance relative to the total area of the LSMOC portion of the Geology and Groundwater LAAs and is estimated to constitute in the order of tenths of a percent of this portion of the LAA. The remaining approximately 15 hectares of developed area is associated with the highway in the extreme northwestern portion of the LAA and with developed areas in Dauphin River Northern Affairs Community.