



MANITOBA-MINNESOTA TRANSMISSION PROJECT

Executive Volume

Letter of Submission
Executive Summary
List of Key Personnel
Concordance Table
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Final Preferred Route Map Folio

September 2015

September 2015

Client File No. 5750.00

Ms. Tracey Braun
Director
Environmental Approvals
Manitoba Conservation
Suite 160, 123 Main Street
Winnipeg, MB R3C 1A5

Dear Ms. Braun:

RE: Manitoba-Minnesota Transmission Project – Letter of Submission

Please find enclosed the Environmental Impact Assessment (EIS) for the Manitoba-Minnesota Transmission Project (MMTP). This EIS was prepared in response to the MMTP Final Scoping Document, issued on June 24, 2015 by Manitoba Conservation and Water Stewardship's Environmental Approvals Branch.

In addition to an Executive Volume, this EIS is organized into four volumes:

- Volume 1: Project Description, Public Engagement and Assessment Methods
- Volume 2: Biophysical Effects Assessment
- Volume 3: Socio-economic Effects Assessment
- Volume 4: Effects, Monitoring and Conclusions

Following these volumes are Biophysical and Socio-Economic Technical Data Reports.

Should you have any questions regarding this material please do not hesitate to contact me at 204-360-4394.

Regards,



Shannon Johnson
Manager
Licensing and Environmental Assessment Department
Manitoba Hydro
820 Taylor Ave (3)
Winnipeg, Manitoba
R3M 3T1

MANITOBA-MINNESOTA TRANSMISSION PROJECT

Environmental Impact Statement - Executive Summary



Project Overview

Manitoba Hydro is proposing to construct and operate the Manitoba-Minnesota Transmission Project (the Project). This Environmental Impact Statement (EIS) is being submitted as a component of the regulatory approvals required under *The Environment Act* (Manitoba), as well as relevant filing requirements under the *National Energy Board Act* and the *Canadian Environmental Assessment Act*, 2012. This assessment is based on more than five years of planning and design work, involving extensive field studies and the outcome of several rounds of engagement that provided opportunities for First Nations and Metis, local landowners, local municipalities, stakeholder groups and government departments to participate. As a result, it describes a Project that balances the concerns and sensitivities of the environment and potentially affected people with the goals of ensuring a cost-effective and reliable supply of electricity to meet the growing needs of Manitobans.

The Project includes the construction and operation of a new high-voltage transmission line and modifications to three existing stations, so that the transmission line can be operated as an integrated component of Manitoba Hydro's Transmission System. In addition to permanent infrastructure, the Project will require temporary facilities during construction, including marshalling yards, temporary access roads, bypass trails and borrow pits.

The transmission line will consist of a 213 km-long, 500 kilovolt (kV) alternating current (AC) international power line (IPL), in southeastern Manitoba (Figure 1). The proposed route would originate at the Dorsey Converter Station located near Rosser, northwest of Winnipeg. From Dorsey it would travel south around Winnipeg, passing near the Riel Converter Station located east of Winnipeg along what is known as the Southern Loop Transmission Corridor, and then east along the Riel to Vivian Transmission Corridor. These two corridors are existing, dedicated transmission corridors that allow for multiple transmission lines necessary for system reliability, therefore reducing the number of independent rights-of-way on the landscape. Over forty per cent of the route, or 92 km, would be located in these existing

transmission line corridors. Near Anola, the proposed route exits the existing corridor and continues south-southeast to the Manitoba-Minnesota border, near Piney.

At the Manitoba-Minnesota border, the Project will connect to the Great Northern Transmission Line. The Great Northern Transmission Line will terminate at a new 500 kV substation adjacent to the existing Blackberry substation in Minnesota, located approximately 100 km northwest of Duluth, Minnesota. The approximate total length of the transmission line between the Dorsey and Iron Range stations is 600 km. The Project consists only of the Canadian portion of the transmission line. Minnesota Power is the proponent for the Great Northern Transmission Project, and this separate project will undergo its own regulatory approvals process.

For the transmission line to be compatible with the existing system, modifications to both Riel and Dorsey converter stations will be undertaken. In addition, although distant from the proposed transmission line, modifications to Glenboro South Station near Glenboro Manitoba will also be required to manage the flow of new power added to the U.S. grid from coming back into the Manitoba Hydro electrical system. Several towers on existing lines, including the Glenboro IPL, will be relocated to accommodate the station expansion. To avoid crossing another 500 kV transmission line and potentially jeopardizing reliability, modifications to the Riel-Forbes IPL, located between Riel Converter Station and Vivian will also be made. Subject to regulatory approvals, the projected in-service date of the Project is mid-2020. The estimated cost of the Project is \$350 million.

Additional information can be found on the Project website: www.hydro.mb.ca/mmtp

Project Overview

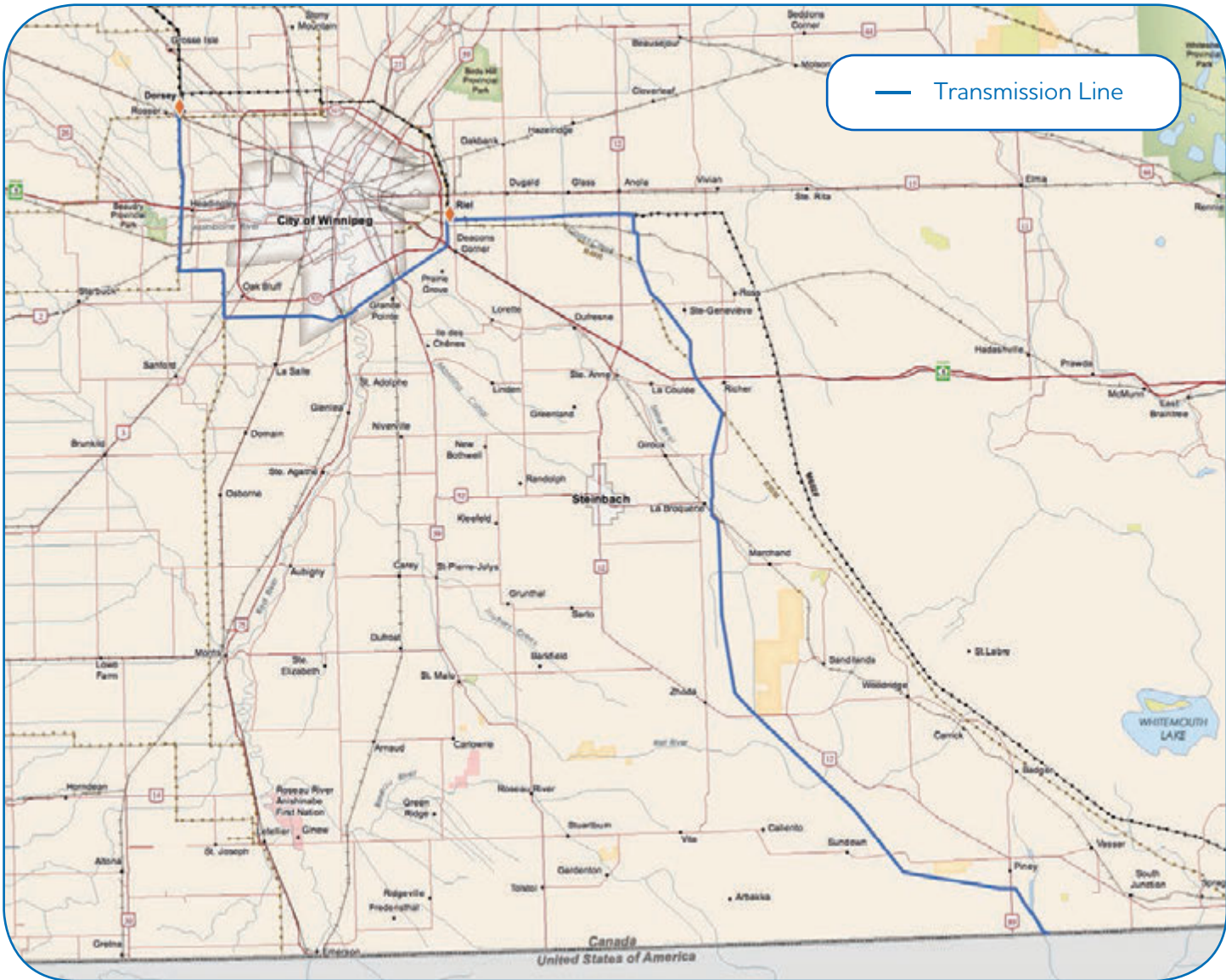


Figure 1



Manitoba Hydro's Mission Statement is
"To provide for the continuance of a supply of energy to meet the needs of the province and to promote economy and efficiency in the development, generation, transmission, distribution, supply and end-use of energy".

Manitoba Hydro

The Project is being proposed by Manitoba Hydro, a Crown Corporation headquartered in Winnipeg. Manitoba Hydro is the province's major energy utility and serves 561,000 electric customers and 274,000 natural gas customers in various communities throughout southern Manitoba. As one of the largest integrated electricity and natural gas distribution utilities in Canada, Manitoba Hydro employs more than 6,400 people, has assets approaching \$17 billion and annual revenues of more than \$2.8 billion (Manitoba Hydro 2014-2015 Annual Report).

Manitoba Hydro is administered by the Manitoba Hydro-Electric Board, appointed by the Lieutenant-Governor in Council. The Board is responsible to the designated Minister and Lieutenant-Governor in Council pursuant to the Manitoba Hydro Act.

For more than 50 years, Manitoba Hydro's projects have played a major role in the development of the provincial economy and the Province as a whole.



Manitoba Hydro's Corporate Vision is

"To be the best utility in North America with respect to safety, rates, reliability, customer satisfaction and environmental leadership; and to always be considerate of the needs of customers, employees, and stakeholders".

Project Need and Purpose

**Revenue Sources - Electricity
2004/05 - 2013/14**



Electricity use in Manitoba is projected to grow over the next two decades, with new sources of electricity needed to support this growth by 2023. To meet this need, Manitoba Hydro is continuing to invest in hydroelectric generation. Manitoba Hydro has identified a development plan that provides an adequate supply of electricity that meets all firm domestic load requirements. In addition, the recently approved Keeyask Generation Project will result in an initial surplus of power being available for export. The Project



will increase transmission capacity between Manitoba and The U.S., creating sales revenue and enhancing reliability of supply. The Project will therefore support future export-power sales and current electricity sale commitments. The Project is required to:

- Export power to the United States based on current sales agreements;
- Improve reliability and import capacity in emergency and drought situations; and
- Increase access to markets in the United States.

The Public Utilities Board conducted a 'Needs For and Alternatives To (NFAT)' review of a preferred development plan proposed by Manitoba Hydro. The development plan included the construction of a 500-kV international power line. During the proceedings, the need for the Project was evaluated in comparison with alternative plans. The PUB's report was accepted by the Province in June 2014. Based on the PUB's recommendations, Manitoba Hydro is proceeding with the Project.

Regulatory Requirements



The EIS is prepared in response to the Project Final Scoping Document, issued on June 24 2015 by Manitoba Conservation and Water Stewardship's Environmental Approvals Branch. This Final Scoping Document represents the Guidelines for the EIS, based on public/regulatory review. The EIS is intended to meet the requirements of *The Environment Act* (Manitoba) (C.C.S.M. c. E125), as well as relevant filing requirements under the *National Energy Board Act* (NEB Act) (R.S.C., 1985, c. N-7) and the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) (S.C. 2012, c. 19, s. 52). In light of this, the Scoping Document integrated the requirements of the Environment Act Proposal Report Guidelines, National Energy Board Electricity Regulations and guidance for environmental and socio-economic elements in the NEB Electricity Filing Manual (Chapter 6), and CEAA 2012 its applicable regulations and guidelines.

Environmental Planning and Assessment Process



Planning and initial design work for this Project began as early as 2010, with engagement activities initiated in June 2013 and the public notification occurring in August of that year. In general, the process began with a study area characterization through research and field studies, and Aboriginal and public engagement to obtain feedback and input into the route selection and

the environmental assessment. This facilitated the identification and assessment of potential environmental and socio-economic effects, mitigation measures, and the development of an environmental protection program that is intended to implement mitigation measures, and monitor the effectiveness of their application.

Public Engagement Process

Engaging with the public is an important aspect of Manitoba Hydro transmission line projects. The public engagement process informs individuals of Manitoba Hydro's projects and allows them to become involved in the transmission line routing and environmental assessment processes being undertaken. Throughout the Project, Manitoba Hydro sought feedback from local municipalities, stakeholder groups, government departments and members of the general public.

Public notification of the Project began in June 2013. At this time Manitoba Hydro made initial contact to determine stakeholder groups' and the public's interest in participating, as well as the preferred mechanisms to become engaged. The process involved public advertisements using social media, a Project website and postcard notifications to more than 25,000 individuals. Manitoba Hydro set up a dedicated toll free information line and email address to discuss the Project with interested individuals. Round 1 of the public engagement process began in October 2013 and concluded in February 2014, and gathered feedback that assisted in the evaluation of the alternative routes and the identification of a preferred border crossing for the Project. Round 2 began in March 2014 and concluded in December of that same year.

The public engagement process involved more than 1,500 participants at 37 Public Open Houses and Landowner Information Centres hosted for the Project, more than 70 meetings, and responses to more than 850 phone calls and emails with stakeholders and landowners.

In Round 2, Manitoba Hydro presented the preferred border crossing with alternative routes and solicited feedback to assist in determining a preferred route for the Project. During Round 3, which occurred throughout 2015, Manitoba Hydro presented a preferred route for the transmission line based on the environmental assessment work and input received to-date to assist in determining the final placement of the transmission line.

First Nation and Metis Engagement Process

Information shared through the First Nations and Metis engagement process is important for Manitoba Hydro to better understand traditional and local knowledge and so that appropriate consideration is given to important issues such as sensitive sites and traditional practices. Notification of the Project began in June of 2013. Manitoba Hydro sent introductory letters to First Nations, the Manitoba Metis Federation (MMF) and Aboriginal Organizations in August 2013. The First Nation and Metis engagement process for the Project involved multiple rounds at various phases of Project design and planning. Throughout the process, Manitoba Hydro created opportunities to share Project information and sought to understand concerns and listen to feedback. This involved sharing information with 11 First Nations, the MMF and four Aboriginal organizations, and facilitating more than 90 leadership meetings, community open houses/information sessions, workshops, and field visits. The process was adapted to suit the specific needs of each First Nation, with options to enter or re-enter the process, as required, and an effort was made to make it inclusive, adaptive, comprehensive and responsive.



In addition to engagement through meetings and workshops, Manitoba Hydro funded several Aboriginal Traditional Knowledge studies. These included a study for three First Nations who chose to collaborate in identifying common issues and concerns (Black River First

Nation, Long Plain First Nation and Swan Lake First Nation), and separate studies for the Dakota Plains Wahpeton First Nation, Dakota Tipi First Nation, Peguis First Nation, Roseau River Anishinabe First Nation and Sagkeeng First Nation. Manitoba Hydro continues to discuss funding the MMF and currently the parties are working towards an agreement related to work to confirm Metis interests in the area, a land use study and related discussions regarding mitigation.

The engagement process and outputs from the Aboriginal Traditional Knowledge studies facilitated an understanding of perspectives and the development of mutually acceptable approaches to address concerns. As indicated below, the output of the process assisted Manitoba Hydro in gaining a better understanding of the various needs, concerns and priorities regarding the route selection and environmental processes, and was an important factor in shaping a Project that minimizes potential effects on people and the environment. Relationships developed through the process will be maintained through ongoing communication and continual follow up with First Nations, the MMF and Aboriginal organizations during the regulatory, construction and operations phases for the Project.





Manitoba Hydro is committed to continue engaging with the First Nations, Metis and the public throughout the regulatory process, as well as the construction and operation phases of the Project. Engagement was an important component in planning, design and environmental assessment of the Project. The process under-

taken provided opportunities to share information on the Project, the assessment process, as well as developing an understanding of the knowledge and concerns from participants that fed into the various aspects of the environmental assessment and route determination processes.

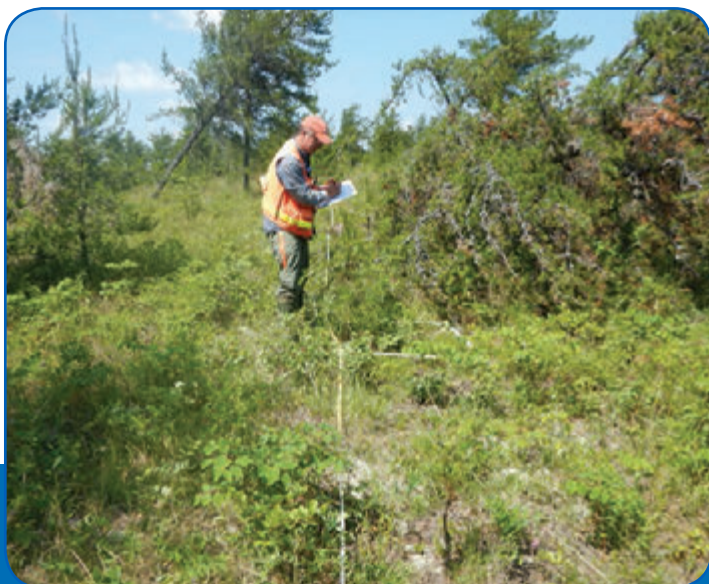
Transmission Line Routing

Transmission line routing was the primary mechanism used to minimize and mitigate potential negative Project effects as it facilitated the avoidance of effects of greatest concern and the balancing of various inputs and concerns during various rounds of the process. The final preferred route for the transmission line was determined using a quantitative, computer-based (geographic information system) methodology developed specifically to evaluate the suitability of an area for locating new overhead transmission lines.



The process involved the gradual refinement of a large route planning area, where different corridors were considered and then alternative routes within the corridors were examined with increasing levels of analysis as the number of possible routes was reduced. Using detailed data from field studies and feedback during the rounds of engagement, the methodology allowed Manitoba Hydro to take into consideration large amounts of information and to consider and quantify stakeholder input during Project development. The routing process began with more than 700,000 alternatives for comparison. This was

the use of private or Crown lands, and the relative impact to natural habitat versus farmland or residences. The majority of land (157 km, or almost 74 %) that would be crossed by the Project is privately owned, but it should be noted that a large portion of this (74 %) consists of land either under easement or owned by Manitoba Hydro. Routing concerns and preferences were gathered across all rounds of the public and First Nations and Metis engagement processes. The predominant routing preference from public participants was to use unoccupied Crown lands to avoid agricultural or residential areas and privately held landholdings. Public participants noted that the effects to agricultural areas included the economic value of these areas, and challenges in working around the tower structures (e.g., aerial spraying). Participants in rural residential areas expressed concerns regarding potential increases in the number of hunters and off road vehicles that would access the right-of-way and could trespass onto private property. The concerns expressed during the First Nation and Metis Engagement Process focused mainly on the potential environmental degradation of natural areas and reduced opportunities for hunting, trapping and gathering of plants. Input included concerns about potential impacts to culturally sensitive



reduced to 550,000 in the second round, and in the last round of Final Preferred Route determination, nearly 4,000 alternatives were compared. During the routing process, input was organized into themes or 'perspectives': the Natural Environment (forest, wetlands, stream crossings), the Built Environment (residences, agricultural land use, historic resources), and Technical (cost, accessibility). These included criteria that brought consideration of specific key features such as proximity to residential areas, major developments, conservation lands, crown lands, resource uses, ecologically sensitive sites, riparian areas, and existing rights-of-way. The main concerns raised by participants related to property and health, but a number of other issues were also raised and dealt with through the routing process. Two of the central issues raised and evaluated throughout the routing process were the competing values between

areas. Participants indicated a preference to route the line in previously developed lands to prevent further fragmentation of the intact natural forested area in the south-eastern portion of the route planning area.

The main health concern raised during the routing process was the potential effect from exposure to this type of transmission line and associated electric and magnetic fields (EMF). Informational sources including Health Canada, the World Health Organization and other international health entities state that no scientific evidence suggests that exposure to EMF will cause any negative health effects on humans, vegetation, and wild or domestic animals. Manitoba Hydro will design and maintain exposure levels from the transmission lines within the guidelines set forth by the International Commission on Non-Ionizing Radiation Protection, which have been adopted by the World Health Organization and Health Canada. This information was shared with participants during the process.

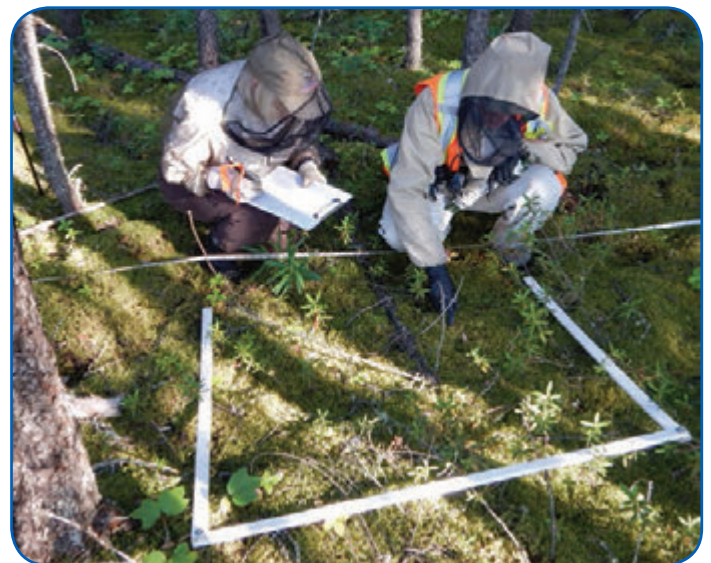
Throughout the transmission line routing process, particular consideration was given to high-value natural areas, as well as residences, urban centres and high quality agricultural lands. The decision was made to use self-supporting towers with a smaller footprint in agricultural areas, wherever possible. Existing trails, roads and cut lines will be used as access routes whenever possible, and Manitoba Hydro will work with local authorities to manage access along the right-of-way and will work with landowners, First Nation and Metis to manage access issues where necessary. A land compensation policy has been developed for land required for the transmission line right-of-way. The policy offers landowners 150 percent of the current market value for the easement and additional structure payments for agricultural lands.

The resulting 213 km long Final Preferred Route represents a balancing of perspectives and values, incorporating mitigation proposed during the public and First Nations and Metis engagement processes. By making use of 92 km of existing Manitoba Hydro owned/eased lands in the existing transmission corridors, only 121 km of new right-of-way is required for the transmission line. Of this new right-of-way, approximately 26% is Crown owned land, and 74% is privately owned.

Effects Assessment

Manitoba Hydro conducted a comprehensive environmental assessment that began with the identification of potential Project effects, focused fieldwork, technical studies of the Project area, and a robust engagement program aimed at understanding key issues and areas of importance. With this baseline understanding, and the knowledge gained from previous assessments, valued components (VCs) were identified and assessed. VCs are aspects of the biophysical and socio-economic environment that could be affected by the Project and are of particular value to regulators or other interested parties. The establishment of VCs allowed the assessment to focus on the issues important to people, and changes to these VCs would represent changes to the broader biophysical and socioeconomic environment. The VCs selected for the assessment are Fish and Fish Habitat, Vegetation and Wetlands, Wildlife and Wildlife Habitat, Traditional Land and Resource Use, Heritage Resources, Infrastructure and Services, Employment and Economy, Agriculture, Land and Resource Use, Visual Quality, Community Health and Well-being, and Human Health Risk.

After selecting the VCs, the process involved mapping out the interactions between the Project and the VCs with a focus on clarifying the mechanism of effect through detailed pathway diagrams and descriptions. In addition to examining Project effects, the process involved the identification of potential cumulative effects resulting from



the residual effects of past, present, and reasonably foreseeable future projects and activities combined with the contribution of the Project's residual effects. Mitigation measures were developed to avoid or reduce negative effects or enhance positive effects and then any remaining (residual) negative effects were examined to determine if they were significant. A monitoring and follow-up program was developed to verify both the accuracy of the environmental assessment and the effectiveness of any mitigation measures, and to monitor the implementation of mitigation measures.

The most effective mitigation measure for this Project, as with most transmission lines, was through careful transmission line routing.

The transmission line routing process reduced effects to fish and fish habitat by spanning watercourses and avoiding sensitive sites. Effects to vegetation and wetlands were mitigated by avoiding areas of large intact native vegetation patches where possible, particularly any areas of tall grass prairie and Protected Areas and proposed Ecological Reserves. The majority of potential negative effects on wildlife and wildlife habitat were mitigated by considering sensitive wildlife habitat and movement areas, including protected areas and large tracts of intact forests and wetlands. Known heritage sites and those identified during the First Nation and Metis engagement process were also considered and avoided where possible. The transmission line routing process reduced interference with existing transportation, utility and communication infrastructure to the extent possible. Effects to agriculture were also considered, with effects reduced by routing a substantive portion of the Project transmission line within existing transmission corridors. Routing considered visual effects such as proximity of the Project to residences, communities, parks, cultural sites, and other such locations whenever possible. Routing also considered the proximity to potential human health receptors such as houses, schools, daycares, recreational centers, sites of worship such as churches, campgrounds, and picnic areas.



Where potential effects could not be avoided by routing, construction schedules were planned to further reduce potential effects. This includes being sensitive to life cycle periods such as fish spawning and moose calving periods and by conducting most clearing work in the winter, when many wildlife species have migrated away

from the area and frozen ground conditions reduce effects on soil, vegetation, and waterways. Finally, as described below, several monitoring and management plans will be developed to verify predictions and prescribe environmental protection measures to be followed.

Accidents and Malfunctions

Accidents, malfunctions and unplanned events associated with the Project could include power outages, tower collapse, electrocution, failure of erosion protection and sediment control measures, spill of hazardous materials, release of insulating gas, interconnection of aquifers, fire, and collisions. Although these events are rare, the protective measures in place to address unplanned events are considered and the resulting effects are assessed.

Manitoba Hydro has been successfully constructing and operating transmission lines in the province for more than 50 years, and has developed an environmental protection program that includes specific environmental protection, management and monitoring plans for each project. These plans reduce the likelihood of environmental effects of the project and include measures to prevent accidents and malfunctions. In the event of an accident, malfunction or unplanned event, Manitoba Hydro has developed corporate protocols for addressing such events.



Effects of Environment on the Project

In addition to assessing the effects of the Project on the environment, the EIS documents an assessment of the primary environmental conditions and hazards that could affect the Project. These include extreme weather or climate conditions such as high winds/tornados, extreme temperatures, severe precipitation, ice storms, and lightning, extreme hydrological conditions, such as droughts and flooding, climate change, regional geotechnical and geophysical hazards, vegetation and high fire hazards.

To account for unforeseen conditions and events such as ice storms, floods, and future climate change, transmission lines are designed to resist or prevent failure events. To limit the effect of failure events on the line, structural components are designed as part of a system, where failure of one component will not necessarily result in the failure of another. conductors or towers. While this can result in socioeconomic effects and potential public safety hazards, any potential effects on the biophysical environment would be limited. The biophysical environment; however, will be more

vulnerable to an increased risk of an accidental release of hydrocarbons at a station in the event of a flood or fire. Through monitoring and with protection plans in place these relatively rare events can be prevented or managed, reducing the likelihood of effects to the Project.

A historic and future climate analysis study was prepared for Manitoba Hydro, which indicated that failure events caused by climate change could come in the form of tornados or increased icing on lines. Despite the design measures noted above, it is likely that extreme weather events can still result in outages and the requirement for repair of lines, conductors or towers. While this can result in socioeconomic effects and potential public safety hazards, the potential climate-related effects to the biophysical environment are generally expected to be limited. However, events such as floods or wildfires may increase the vulnerability to increased risks of accidents such as releases of hydrocarbons. Through monitoring and with protection plans in place these relatively rare events can be prevented or managed, reducing the likelihood of effects to the Project.

Sustainable Development

In 1993, the Corporation adopted a Sustainable Development Policy and 13 Sustainable Development Principles, based on the Principles and Guidelines of Sustainable Development adopted by the Manitoba Round Table on Environment and Economy and subsequently to *The Sustainable Development Act*. Manitoba Hydro's Sustainable Development Policy states that

“Manitoba Hydro will apply the principles of sustainable development in all aspects of its operations to achieve environmentally sound and sustainable economic development. Through its decisions and actions to provide electrical services, the Corporation will endeavour to meet the needs of the present without compromising the ability of future generations to meet their needs.”

The underlying principles of environmental protection, social acceptability, and economic viability have been integral into the development of the Project, from concept and design to routing and mitigation. The route selection process balances the three perspectives – natural environment, built environment and technical issues – intrinsic to sustainable development. Input received during the public and First Nation and Metis engagement process was a key part of the Project's alignment with sustainable development.

The Project was assessed as being consistent with each of Manitoba Hydro's Sustainable Development Policy and Principles, the Principles and Guidelines of Sustainable Development that form part of *The Sustainable Development Act*, and the various Federal Sustainable Development Themes from the Federal Sustainable Development Strategy that reference the *Federal Sustainable Development Act*. In general, Manitoba Hydro's commitment to environmental sustainability in the Project is demonstrated through considering all aspects of the environment in route selection and assessment process, resulting in avoidance or prescribed measures for protection. The Project will also make an important contribution to sustainable development through reduction in Green House Gas (GHG) emissions from US buyers who would otherwise generate power by burning fossil fuels (coal or natural gas). When both the generation and non-generation impacts of the Project are considered, the life cycle assessment indicates that the Project is expected to produce a net reduction in global GHG emissions.

An additional important social dimension of the Project is additional electrical reliability for Manitobans. The ability to import power on this line in times of extreme domestic demand, extended drought, or emergencies reduces the potential for interruptions in power supply. Secure electrical power is an essential service that can have major consequences when not available.

Follow-up and Monitoring

Manitoba Hydro's follow-up and monitoring program demonstrates a commitment to examine and report Project effects and mitigation management beyond the regulatory approvals phase. This is part of its corporate environmental policy to address the need to protect and preserve natural environments, social, economic and heritage resources affected by its projects and facilities and it does so through the following practices:

Manitoba Hydro is committed to protecting and preserving the natural environments, social, economic and heritage resources affected by its projects and facilities;

- Continually improving its Environmental Management System;
- Meeting regulatory, contractual and voluntary requirements;
- Considering the interests and utilizing the knowledge of its customers, employees, communities, and stakeholders who may be affected by our actions;
- Reviewing its environment objectives and targets annually to ensure improvement in our environmental performance; and
- Documenting and reporting its activities and environmental performance.

In addition to Project-specific measures, Manitoba Hydro has voluntarily developed and implemented a corporate environmental management system and has registered the system to the International Organization for Standardization 14001 EMS standard.

Manitoba Hydro has developed an Environmental Protection Program (EPP) that provides the framework for the delivery, management and monitoring of environmental and socio-economic protection measures that satisfy corporate policies and commitments, regulatory requirements, environmental protection guidelines and best practices, as well as input received during the public and First Nation and Metis engagement process. The EPP describes how Manitoba Hydro is organized and functions to deliver timely, effective, and comprehensive solutions and mitigation measures to address potential environmental effects. Roles and responsibilities for Manitoba



Hydro employees and contractors are defined, and management, communication and reporting structures are outlined. The EPP includes the “what, where and how” aspects of protecting the environment during the pre-construction, construction, operation and decommissioning of the Project.

As a component of the EPP, a draft Construction Environmental Protection Plan for the Project has been prepared as a practical and direct response to the implementation of Manitoba Hydro's commitment to responsible environmental stewardship. A variety of other management and protection plans to address issues such as access, cultural and heritage resource protection, waste, erosion and sediment control and emergency response during the construction phase will also be developed for the Project as part of the Environmental Protection Program.

Assessment Conclusions

The Project will facilitate the conveyance of clean, renewable energy to southern markets, build reliability within the Manitoba transmission system and contribute to Manitoba's economic future. The EIS for this Project is the result of several years of planning, environmental studies and engagement with a broad range of interests. After considering Project residual effects, and the overlap with past, present and future projects, Manitoba Hydro concludes that the Project will not result in significant effects to the biophysical or socio-economic environment. Manitoba Hydro is committed to continue sharing information with the public and working with interested parties through ongoing monitoring and the Environmental Protection Program. Manitoba Hydro continues to benefit from the knowledge gained through decades of routing, building and managing transmission lines and will continue to do so in the future.

The following section summarizes how this conclusion was made through a summary of each VC assessment, including potential effects, mitigation measures and assessment conclusions. Details on how these conclusions were arrived at can be found in the complete assessment presented in four volumes as follows:

EXECUTIVE VOLUME:

- an executive volume that includes the letter of submission, an executive summary of the environmental assessment, a list of key personnel, a concordance table, the master table of contents, and a Final Preferred Route map folio

VOLUME 1:

- an introductory volume that presents a description of the Project, both the public and First Nation and Metis engagement processes, transmission line routing, assessment methods and describes the environmental setting of the Project area

VOLUME 2:

- the biophysical effects assessment

VOLUME 3:

- the socio-economic effects assessment

VOLUME 4:

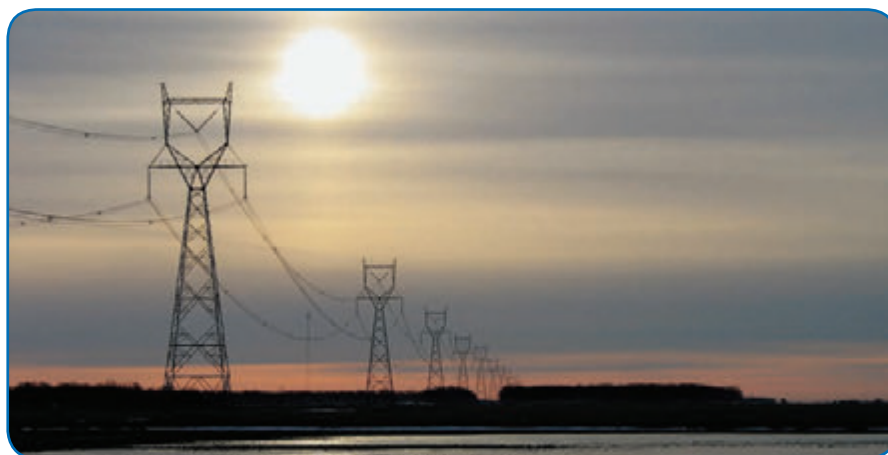
- a concluding volume that presents effects of the environment on the project, accidents, malfunctions and unplanned events, the sustainability assessment, and the environmental protection, follow-up and monitoring program for the Project

Biophysical Technical Data Reports

- A compilation of all Biophysical Technical Data Reports

Socio-Economic Technical Data Reports


- A compilation of all Socio-Economic Technical Data Reports



Fish and Fish Habitat

Fish and Fish Habitat was selected as a VC because of its economic and recreational importance to Canadians, and its fundamental role in the functioning of natural ecosystems with fish as key indicators of aquatic health.

SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECT ON VC	KEY MITIGATION MEASURES
Change in Fish Habitat	<ul style="list-style-type: none">• Within 30 m of watercourse crossings, removal of riparian vegetation in the right-of-way will be limited to select plants required to accommodate overhead lines, and uprooting of plants will be limited.• Shrub and herbaceous understory vegetation along with tree root systems will be retained to the greatest extent possible in order to enhance bank stability.• Riparian buffers will be re-established, and vegetation will be allowed to regenerate naturally (with the exception of trees that could exceed guidelines and encounter the transmission lines.)• Use of standard mitigation practices regarding activities such as herbicide application and the use of machinery near watercourses.• Construction activities surrounding watercourses will take place within Reduced Risk Timing Windows.• Implementation of a no fishing policy for construction and maintenance personnel on the Project, and where necessary, machine free zones will be established in sensitive areas.
Change in Fish Mortality/Health	
	

Of the 75 watercourses surveyed for the Project, 29 were determined to be potentially fish-bearing. Eight of the those 29 potentially fish-bearing watercourses were considered to be highly sensitive, including the Assiniboine River, La Salle River, Red River, Cooks Creek (at two locations), Seine River, Seine River tributary (Site 16), and the Rat River. Although vegetation will be selectively removed within 30 m of a watercourse, with mitigation measures in place effects to fish habitat are not anticipated.

With the implementation of standard mitigation, effects on fish health and mortality are expected to be low, localized, short in duration for construction activities and permanent (for life of the Project) for maintenance activities and reversible for the population.

Both Project and cumulative environmental effects on fish and fish habitat are considered to be not significant.

Vegetation and Wetlands

'Vegetation and Wetlands' was selected as a VC due to its importance to the function of natural ecosystems, role in maintaining biodiversity, providing ecosystem services such as wildlife habitat and carbon storage, and supporting valued human activities such as recreational activities (e.g., hunting, hiking) and collection of traditional use plants.



The Existing Corridor is located predominantly on agricultural land, which is characterized by few wetlands and few large intact patches of native vegetation. Changes to vegetation intactness, wetland function and native cover are expected to be minimal along this portion of the Project.

The new right-of-way is located in an area characterized by a mosaic of developed lands and undeveloped upland and wetland vegetation cover types. In this portion of the right-of-way the Project will intersect large intact patches of vegetation and some large wetlands, including the Caliento, Sundown and Piney bog complexes. All three wetland complexes are large intact patches, which extend beyond the right-of-way. The function of these wetlands is not measurably reduced due to their large size, and because routing largely skirts their edge and is

located mainly in the surrounding upland vegetation. In addition, construction in these wetlands will occur under frozen ground conditions, which will reduce potential effects on wetland function.

Clearing of the right-of-way will result in the loss of tree and shrub habitat, which will change vegetation structure in the cleared areas. This will result in a change in native vegetative cover class, but this change is anticipated to be reversible as the right-of-way regenerates over time.

Pre-construction surveys will be conducted to protect rare plants that have not been identified to date. Risks associated with the invasion of noxious non-native species will be reduced with measures in place for all equipment arriving on site to be clean and free of soil or vegetation debris.

Project residual effects on vegetation and wetlands are predicted to be adverse and range from low to moderate magnitude. The geographic extent of effects are expected to be limited mainly to the right-of-way and the local assessment area. Patch intactness will be altered in the region as a result of fragmentation of large patches extending beyond the local area. The frequency and duration of effects will range from medium term to permanent and a single event to multiple irregular events, depending on the vegetation or wetland feature. With the exception of possible effects on invasive plant species and rare plants, Project effects on vegetation and wetlands are predicted to be reversible.

Both Project and cumulative environmental effects on vegetation and wetlands are considered to be not significant.



SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECT ON VC	KEY MITIGATION MEASURES
Change in Vegetation Landscape Intactness	<ul style="list-style-type: none"> Transmission line routing took into consideration areas of large intact native vegetation patches; particularly any areas of tall grass prairie, protected areas or areas designated as being important.
Change in Native Vegetation/Wetland Cover Class, Abundance and Distribution Structure and Function	<ul style="list-style-type: none"> Scheduling activities in sensitive areas such as wetlands to occur under frozen ground conditions.
Change in Invasive Species Abundance and Distribution	<ul style="list-style-type: none"> Applying buffers and setbacks during clearing activities for species at risk, and to riparian habitats in which shrub and herbaceous vegetation will be retained.
Change in Rare/Traditional Use Plant Species Abundance and Distribution	<ul style="list-style-type: none"> Establishing machine-free zones where necessary, where only low disturbance clearing methods are permitted. Project equipment will be cleaned prior to coming to the worksite to remove any vegetative material and to reduce the risk of spreading noxious and invasive plant seeds

Wildlife and Wildlife Habitat

Wildlife and Wildlife Habitat was selected as a VC because it is a critical part of a functioning ecosystem and plays an important role in ecological and biological processes, is important for recreational and social reasons, and First Nations and Metis value wildlife as a key part of cultural identity.

The Existing Corridor is located predominantly on modified wildlife habitat, which is characterized by few wetlands and few large intact patches of habitat. Changes to habitat intactness and sensitive wildlife habitat is expected to be minimal along this portion of the Project.

The New Right-of-Way is located in an area characterized by a mosaic of modified wildlife habitat and both upland and wetland natural wildlife habitats. In this portion of the right-of-way the Project has avoided the core range of the Vita elk herd and only has a small contribution to existing levels of habitat fragmentation, along with minimal loss of natural wildlife habitat availability within the local area, an area that includes the right-of-way and a one kilometre buffer surrounding each Project component, has resulted in a low magnitude of effect on wildlife habitat availability.



The local area supports few areas, such as lakes and open water wetlands, having potential to concentrate birds. Where sensitive areas occur, mitigation measures (i.e., bird flight diverters) will be implemented to reduce collision risk to birds.

Change in hunter and predator access resulting from the Project is anticipated to be low as the Project will make minimal contributions to the existing level of fragmentation in the regional assessment area, in combination with an Access Management Plan that maximizes the use of the existing roads and trails, the resulting effects on mortality risk is low.

Project residual effects on wildlife and wildlife habitat are predicted to be adverse, low in magnitude and are predicted to be limited mainly to the right-of-way and the local assessment area. The frequency is expected to range from a single event to continuous. The duration of effects will range from short term to permanent. Possible effects are expected to be reversible.

Both Project and cumulative environmental effects on wildlife and wildlife habitat are considered not significant.

SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECT ON VC	KEY MITIGATION MEASURES
Change in Habitat Availability	<ul style="list-style-type: none">• During operation, vegetation will be allowed to regenerate along parts of the right-of-way, providing habitat for some wildlife species.• Changes in mortality risk to wildlife were reduced by avoiding protected areas, proposed ecological sites and areas of natural wildlife habitat through Project routing - the majority of the preferred route traverses modified low quality wildlife habitat such as agricultural lands.• Pre-construction surveys will be undertaken to identify important sites such as stick nests and mineral licks to identify areas for setbacks and buffers.• Project activities scheduled will consider periods of the year when wildlife species are within a sensitive lifecycle activity such as calving, nesting, and hibernation.• Bird flight diverters used on skywires in areas that concentrate birds is planned to reduce wildlife mortality risks.
Change in Mortality Risk	



Traditional Land and Resource Use

Traditional Land and Resource Use was selected as a VC because the Project potentially affects valued traditional activities, practices, sites, areas and resources that are of cultural importance to First Nation and Metis.



The transmission line routing process considered cultural and heritage sites, and that the disturbance of cultural sites or alteration to the experience of traditional cultural practices may impair the ability to use that site.

Through the First Nation and Metis Engagement Process, First Nations voiced concerns about potential effects on culturally important archeological sites and that provincially defined heritage sites may not adequately define what constitutes a heritage site from their perspective. Through the heritage resources assessment it was determined that no designated

church, school, centennial farms or cemeteries are located in the right-of-way or local assessment area. There is one archaeological site in the right-of-way and four previously recorded sites in the Existing Corridor.

The Project is not expected to affect the ability to use or access trails and travelways outside the right-of-way. Although the Project is unlikely to have a measurable effect on wildlife abundance in the local area, the effect on hunting and trapping may be measureable if a hunting or trapping site is located within the Project footprint.

Project residual effects on traditional land and resource use will be adverse and range from low to moderate in magnitude. The geographic extent of effects will be limited mainly to the right-of-way and the local assessment area. The frequency will be regular or continuous and the duration of effects will be permanent. Possible effects are irreversible.

Both Project and cumulative environmental effects on traditional land and resource use are considered not significant.

SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECT ON VC	KEY MITIGATION MEASURES
Change in Land and Resources Used for Plant Harvesting/ Hunting and Trapping	<ul style="list-style-type: none"> Reduced to the extent feasible by transmission line routing and by taking concerns and recommendations from engagement into account during the Project planning process.
Change in Land and Resources Used for Travel/Change in Cultural Sites	<ul style="list-style-type: none"> The establishment of Project environmental protection measures to mitigate potential effects on fish, vegetation, and wildlife. The establishment of a Cultural and Heritage Resources Protection Plan, describing the commitment to safeguard cultural and heritage resources and describes how to appropriately handle human remains or cultural and heritage resources discovered or disturbed during the construction of the Project.



Heritage Resources

Heritage Resources were selected as a VC based on legislated requirements, scientific relevance and interest communicated through the Public and First Nation and Metis Engagement Processes.

SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECT ON VC	KEY MITIGATION MEASURES
Change in number of known Heritage Resource Sites and change in sites inadvertently exposed.	<ul style="list-style-type: none"> Negative effects to known sites with high priority heritage resources and cemeteries/burials were avoided during transmission line routing. Implementation of the Cultural and Heritage Resource Protection Plan which includes a protocol to stop all activity in an area if a previously unidentified heritage resources is discovered until the regulator has been informed, a qualified archaeologist has examined the objects and site context, and clearance from the regulator has been granted. Education of construction contractors for the appropriate protocol in the event that heritage resources, or objects thought to be heritage resources, are uncovered. Pre-construction monitoring by a professional archaeologist in areas in close proximity to known heritage resource sites or sites identified as being culturally sensitive by First Nation or Metis. This includes extant buildings or building foundations, stone features, burial sites and any other heritage resources. 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. Where avoidance of identified sites is not possible there will be a controlled surface collection or salvage excavation undertaken.
Project components requiring subsurface disturbance could disturb artifacts.	
Change in cemeteries and burials	

There are no anticipated changes to the number or integrity of known heritage resources or cemeteries as all previously recorded heritage resource sites within the local area have been previously disturbed as a result of past land use activities. The potential for previously unrecorded heritage resource sites to be encountered during construction and operation is low because of past land use activities having disturbed a major portion of the area to be affected by the Project.

After determining that the Ridgeland Cemetery north of Sundown was within the local area, the Final Preferred Route was setback so that a distance of approximately 100 m from the east boundary of the cemetery was maintained. A schedule of activities at the cemetery will be acquired by Manitoba Hydro and relayed to the construction manager so that construction activities do not coincide with events. Because of these avoidance measures, and because there are no cemeteries within the right-of-way, there are no residual environmental effects anticipated.

Project residual effects on heritage resource sites and cemeteries are predicted to be adverse and range from low to moderate in magnitude. The geographic extent of effects will be limited mainly to the right-of-way and the local assessment area. The frequency will be a single event (construction) and the duration of effects will be permanent. Possible effects are irreversible.

Both Project and cumulative environmental effects on heritage resources are considered not significant.

Infrastructure and Services

Infrastructure and Services was selected as a VC because the Project could increase demand for, or interfere with, local and regional infrastructure and services, and was identified as being important through the Public and First Nation and Metis Engagement Processes.



Due to the size of the Project, a relatively small work-force size is anticipated. The Project will be located in relative close proximity to large service centers (eg Winnipeg, Steinbach) such that demands of the Project on accommodations and community infrastructure and services will be short-term and will extend only throughout the construction phase. Fire and police services, as well as water, wastewater, and solid waste facilities are within available capacity to meet Project demands.

Most roads currently operate at an acceptable level of service and therefore have available capacity to meet this increase in volume.

Cumulative road traffic volumes will be of low to moderate magnitude, and distributed throughout the region, and will likely only overlap for a few months at a time, and are not anticipated to substantially decrease the level of service of any segment on an ongoing basis.

In all cases, the predicted levels of radio noise with the Project do not exceed Industry Canada's threshold, and therefore, interference with communications and radio signals is not significant. Car AM radios may experience some radio interference while driving under the transmission lines at road crossings, but the level of radio interference will drop off rapidly with distance.

SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECT ON VC	KEY MITIGATION MEASURES
Change in Accommodations	<ul style="list-style-type: none">Manitoba Hydro will continue to engage with and share Project information with local governments, service providers, and/or businesses.An Emergency Response Plan (ERP) will be developed. As part of the development and implementation of the ERP, MH will work with local emergency responders to maintain appropriate emergency response times.Project personnel will be made aware of the ERP and designated staff will receive ERP training.Emergency response equipment and trained personnel will be present at construction sites and camp(s).
Change in Community Infrastructure and Services	
Change in Road Traffic Interference with Transportation and Utility Infrastructure	
Interference with Communication and Radio Signals	
	<ul style="list-style-type: none">Transmission line routing considered interference with existing transportation, utility and communication infrastructure to the extent possible.
	<ul style="list-style-type: none">Locations of marshalling yards and camps will be communicated to relevant RMs to advise of increased truck movements in the vicinity of the yards, the timing of activity, and the additional noise or light levels that could be expected from the site.
	<ul style="list-style-type: none">Group transportation (e.g., buses, crew vans) will be utilized to transport workers between camp(s) and the worksites, and between temporary accommodations in nearby communities and the worksites. MH will work with local authorities to address any damages to roads that occur as a result of the Project.

Project residual effects on accommodations, community infrastructure and services, transportation and utility infrastructure and communications and radio signals are predicted to be adverse and range from low to moderate in magnitude. The geographic extent of effects will be limited mainly to the right-of-way and the local assessment area. The frequency will be multiple irregular events or continuous and the duration of effects will range from short to medium term. Possible effects are predicted to be reversible.

Both Project and cumulative environmental effects on infrastructure and services are considered not significant.

Employment and Economy

Employment and Economy was selected as a VC because of its importance to local and provincial residents, business owners, communities and governments, and interest in employment and business opportunities related to the Project and past projects expressed through the public engagement process and First Nation and Metis engagement process.



Project purchasing will create employment, result in business opportunities via the purchase of goods and services, contribute to the provincial and federal gross domestic product (GDP), and additionally generate local, provincial, and federal revenue. Most of these expenditure-related economic effects will occur during the construction phase, while during operations expenditure-related economic effects will be minor.

It is expected that the Manitoba economy will benefit from approximately \$101 million in direct construction spending, 504 person-years of employment (direct, indirect, and induced); and 49.8 million in additional GDP. The Project will seek to hire locally and procure from local businesses; however, due to the nature of labour and equipment needed to build the Project, most procurement will occur outside the local assessment area, and to an extent, outside the province.

SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECT ON VC	KEY MITIGATION MEASURES
Change in Local Employment and Labour	<ul style="list-style-type: none">As effects are anticipated to be positive, no mitigation measures are planned for this VC
Change in Goods and Services (Commercial Sector)	
Change in GDP/Government Revenue	



Project residual effects on local employment, goods and services, GDP, and Government revenue are predicted to be positive and range from low to moderate in magnitude. The geographic extent of effects could extend to the regional assessment area. The frequency will be continuous. The duration of effects will be short to medium term.


Both Project and cumulative environmental effects on employment and economy are considered not significant.

Agriculture

Agriculture was selected as a VC because it is a key driver of productivity and prosperity in Manitoba, with its diversity in the province playing an important role in maintaining economic strength and generating socio-economic stability, in part because of the many linkages agriculture has with other industries, and because of its contribution to the local and provincial economies. The area of land that will be removed from agriculture will be a small proportion of the total land available for agriculture in both the LAA and RAA. The Project is not anticipated to result in a loss of agricultural land or degradation of soil quality such that existing agricultural production cannot continue at current levels for extended periods of time (beyond the construction phase) or cannot be adequately compensated.

Interference/disruption of agricultural activities are not anticipated to occur at levels that would restrict agricultural operations such that existing agricultural production cannot continue within the area traversed by the Project at current levels for extended periods (beyond construction).

SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECT ON VC	KEY MITIGATION MEASURES
Loss or Degradation of Agricultural Land	<ul style="list-style-type: none">• Considered during the routing process, which included the routing of a substantive portion of the Project transmission line within existing transmission corridors.• Existing transmission corridors will be used for 43% of the line, which reduces the extent of permanent loss of agricultural land.• The use of self-supporting steel lattice towers in agricultural land to reduce the extent of permanent land loss.• The Manitoba Hydro Agricultural Biosecurity Policy will prevent the introduction and spread of disease, pests and invasive plant species in agricultural land and livestock operations.• Opportunities have been provided to discuss and identify areas of concern and potential tower spotting preferences with potentially affected landowners.• Manitoba Hydro's land compensation policy for affected landowners for permanent and temporary loss of agricultural land.
Conflict with Agricultural Activities	
	

Project residual effects on agricultural land and activities are predicted to be adverse and range from low to moderate in magnitude. The geographic extent of effects will be limited mainly to the right-of-way and the local assessment area. The frequency will range from a single event to regular and continuous. The duration of effects will range from short term for some to permanent. All possible effects are reversible.

Both Project and cumulative environmental effects on agriculture are considered not significant.

Land and Resource Use

Land and Resource Use was selected as a VC because of its importance to communities, property owners, resource users (e.g., hunters and trappers, commercial operators and the general public), and other stakeholders.

The effects assessed for this VC included change in property, change in forested areas, change in mining/aggregate extraction, change in groundwater use, change in hunting and trapping, change in designated lands, protected areas and recreation.

Because federally and provincially protected lands were avoided through transmission line routing, the Project will not affect any federal-ly or provincially protected lands, and will likely have a low disturbance effect on recreational areas and activities. Disturbance or disruption will be temporary and short term during the construction period.

Physical Project disturbance effects on hunting (i.e., GHAs) and open trapping (i.e., OTAs) represents approximately 0.4% each of the total area for hunting and trapping activities respectively, in the regional assessment area.

No residual effect is anticipated for groundwater resources as a result of Project activities. Given the low number of mineral dispositions and aggregate deposits affected by the



Final Preferred Route, the effect is anticipated to be low in magnitude and limited to the extent of the Project footprint. The effect of the Project is not expected to degrade the quality of mining/aggregate extraction activities in the regional assessment area as the Project overlap with mining activities and dispositions represents only approximately 0.3% of the total area of actual or potential mining activities in the regional assessment area.

The loss of commercial forest area and reduction of Annual Allowable Cut levels is predicted to only have a small effect on productive forestland. The reduction in area related to the change in value and quality of affected woodlots represents a small area. The removal of shelterbelts is also small but may be of higher importance to the individual landowner. The loss of private and municipal productive forestland is small and the overall land use functionality of the remaining forested areas will be unchanged.

The Project is predicted to affect a very small proportion of the developable land within the regional assessment area and will not substantially alter land development patterns overall. Project effects on property values though mixed are expected to be low, small or non-existent, and if present, are anticipated to decrease with distance from the transmission line and decrease or disappear over time, and will vary depending on the location and visibility of transmission towers to properties.

SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECT ON VC	KEY MITIGATION MEASURES
Change in Property	<ul style="list-style-type: none"> • The use of existing transmission corridors for routing of a large portion of the line. • Notifying resource users as early as possible in the construction process regarding the schedule for clearing and construction, and operations and maintenance. • Using existing access roads and trails to the extent possible, • Maintaining a buffer of trees between a site/trail and the transmission line right-of-way in areas where site-specific issues of concern have been identified. • Implementing the Manitoba Hydro compensation policy for the purchase of privately-owned land required for the transmission line right-of-way, which offers landowners 150 percent of the current market value for the easement. • Hunting and harvesting of wildlife, or possession of firearms by Project staff will not be permitted while working on project sites.
Change in Forested Areas (Commercial Forest Land and High Value Forest Sites)	
Change in Mining/Aggregate Extraction	
Change in Commercial/Recreational Hunting and Trapping	
Change in Groundwater Use	



Project residual effects on agricultural land and activities are predicted to be adverse and range from low to moderate in magnitude. The geographic extent of effects will be limited mainly to the right-of-way and the local assessment area. The frequency will range from a single event to regular and continuous. The duration of effects will range from short term for some to permanent. All possible effects are reversible.

Both Project and cumulative environmental effects on agriculture are considered not significant.

Visual Quality

Visual Quality was selected as a VC because of the importance of visual quality of the landscape from viewpoints for local residents, First Nations and Metis, recreationalists, tourists and other stakeholders, Visual quality is related to several socio-economic conditions, such as: community identity, property values, quality of life, and recreation and tourism.

Approximately 40% of the final preferred route (92 km of 213 km) is located within an existing Right-of-Way and within a landscape that includes other extensive landscape changes.

The overall residual cumulative visual quality effects attributable to projects acting cumulatively within the RAA are assessed as not significant. Cumulative visual quality effects of past, present or reasonably foreseeable future projects are not anticipated to result in the exceedance of an average baseline character class of rural/pastoral with distinguishable development.



SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECT ON VC	KEY MITIGATION MEASURES
A change in visual quality	<ul style="list-style-type: none">Proximity of the Project to residences, communities, parks, cultural sites, and other such locations were considered during transmission line routing.Measures to reduce the visual prominence of the project include tower spotting to reduce visual interference where possible, the use of non-reflective galvanized materials and paralleling of existing transmission lines.

Project residual effects on visual quality will be adverse, moderate in magnitude and extend to the local assessment area. The frequency will be continuous and the duration of effects will be permanent. Possible effects are reversible.

Both Project and cumulative environmental effects on visual quality are considered not significant.

Community Health and Well-Being

Community Health and Well-Being was selected as a VC because social and economic changes resulting from the Project may have health effects to residents within the local area that may be manifested as increased stress or annoyance, or as changes in the physical health of some local area residents, potentially resulting in an increased demand for health services.



Due to the relatively small size of the construction workforce relative to the population within the local area, and with the application of mitigation measures, the Project was assessed as not adversely affecting socio-economic determinants of health or physical and mental outcomes in a manner that cannot be managed by existing healthcare services and infrastructure. Project-provided first aid services will be able to address the majority of work-place related health issues.

Cumulative effects associated with construction related effects, such as stress and annoyance related to noise, dust, and workforce presence, will be short term, and generally confined to the respective sites where construction occurs.

Some cumulative effects on stress and annoyance related to the continual presence of visible infrastructure could be expected to persist throughout the life of the projects; however, these effects are expected to be localized, and some concerns (e.g. due to change in property values) tend to diminish with time and are not expected to cause irreversible physical or mental health outcomes detectable at the population level.

SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECT ON VC	KEY MITIGATION MEASURES
Changes in Health Resulting From Socio-economic change	<ul style="list-style-type: none"> Proximity of the Project to residences, communities, parks, cultural sites, and other such locations were considered during routing.
Employment and income opportunities generated by the Project can influence mental health and well-being	<ul style="list-style-type: none"> Manitoba Hydro will enter into easement agreements with private landowners whose land is crossed by the transmission line. The information provided to landowners during this process is expected to alleviate concerns related to Project uncertainty.
Change in Health associated with Mobile Workforce	<ul style="list-style-type: none"> Continuing to address concerns related to EMF and providing factual, science-based information to concerned individuals and organizations.
Change in Levels of Stress and Annoyance	<ul style="list-style-type: none"> Manitoba Hydro will consider non-chemical vegetation management in clearly identified sensitive sites that contain plants that are of importance to Aboriginal harvesters.
Change in Aboriginal Health	<ul style="list-style-type: none"> Share Project information, including workforce information and accommodation requirements, with local governments, service providers, and businesses, as appropriate, so they are aware of anticipated Project-related demands, allowing them to identify and address potential service gaps or issues.
Change in capacity of or demand on Health Care Services and Infrastructure	<ul style="list-style-type: none"> Project personnel will be made aware of the Emergency Response Plan and designated staff will receive Emergency Response Plan training.

Project residual effects on Community Health associated with socio-economic change will be mixed, where some aspects will be positive (increased employment brings healthier communities) and some aspects will be adverse (more people in the area could bring higher pressure on health care resources). These potential effects will be localized and short term.

Project residual effects on Health associated with the mobile work force, Aboriginal health, stress and annoyance and health care services and infrastructure are predicted to be adverse, neutral to moderate in magnitude, and will be limited mainly to the right-of-way and the local assessment area. The frequency will range from multiple irregular events to continuous. The duration of effects will range from short term to permanent. Possible effects are reversible for all but possible effects to Aboriginal health.

Both Project and cumulative environmental effects on community health and well being are considered not significant.

Human Health Risk

Human Health Risk was selected as a VC because there is a potential for the Project to change the environmental conditions that influence the health risk to people.

Sources of air emissions for the Project are primarily limited to the construction and right-of-way areas for short periods of time, as not all machinery and vehicles will be in service simultaneously.

There are no anticipated effects associated with country food quality since all herbicides used are approved by Health Canada and Manitoba Hydro will follow label requirements for right-of-way application, and will not use herbicides in clearly identified sensitive sites that contain plants of importance to country food harvesters.

Residual human health risk effects associated with changes in Project-related noise are assessed as negative but negligible in magnitude, and limited to the local area.

Project-related electric and magnetic fields (EMF) are only associated with the operation and maintenance phase. Numerous reviews of research literature on exposure to extremely low frequency EMF and possible



adverse health effects have been conducted by international and national scientific and governmental agencies, including Health Canada and the World Health Organization. None of these agencies has concluded that exposure to extremely low frequency EMF is a demonstrated cause of any long-term adverse health effect.

SUMMARY OF POTENTIAL EFFECTS AND MITIGATION MEASURES

POTENTIAL EFFECT ON VC	KEY MITIGATION MEASURES
Change to air quality	<ul style="list-style-type: none"> Proximity to potential human health receptors such as houses, schools, daycares, recreational centers, sites of worship such as churches, campgrounds, and picnic areas were considered in transmission line routing.
Change to country food quality	<ul style="list-style-type: none"> An environmental protection plan includes standard mitigation measures to be followed to address aspects such as Project-related combustion and dust emissions, and the use of herbicides is well regulated.
Change to noise levels	<ul style="list-style-type: none"> Measures will include notifying landowners about vegetation management activities, establishing a buffer for aquatic environments, not treating any sensitive areas and limiting frequency of use, where necessary.
Change to electric and magnetic fields	<ul style="list-style-type: none"> Conducting construction activities as per applicable noise bylaws. Although EMF levels within and outside the Project right-of-way are anticipated to be below limits recommended by national and international agencies, Manitoba Hydro understands there is a perceived concern of potential health effects from EMFs. Manitoba Hydro therefore continues to monitor and/or support research and actively communicating with interested parties and providing information and/or taking measurements of magnetic fields upon request.

Project residual effects on air quality, country food quality, noise levels and change to electric and magnetic fields are predicted to range from neutral to adverse and be negligible in magnitude. The geographic extent of effects will be limited mainly to the right-of-way and the local area. The frequency will be irregular events or continuous and the duration of effects will range from short term to permanent. Possible effects are predicted to be reversible.

Residual cumulative effects of the Project on human health risk, associated with air quality, country food quality, noise, and EMFs, are predicted to be not significant.

Both Project and cumulative environmental effects on Human Health Risks are considered not significant.



MANITOBA – MINNESOTA TRANSMISSION PROJECT
Environmental Impact Statement

LIST OF KEY PERSONNEL

SEPTEMBER 2015

LIST OF KEY PERSONNEL

Manitoba Hydro

Project Team and Contributors

Shannon Johnson, B.Comm., CMA
Maggie Tisdale, B.Sc., MNRM
Patrick Allan, P.Eng.
Brett Andronak, B.Env.Sc., EPt
Trevor Barker
Nick Barnes, M.Sc.
Doug Bedford, LLB
David Block
Anitha Brar, M.Sc.
Eryn Brown, P.Eng.
Judy Clendenan, P.Eng.
Sarah Coughlin, M.Sc.
Monica Dominguez, B.A., MPA
Ken Ducheminsky, P.Eng.
Sophia Garrick
Mark Gervais, M.Sc., A.Sc.T.
Robin Gislason, M.Env.
David Jacobson, Ph.D., P.Eng.
Trevor Joyal, EP
Rob Kalichuk, C.E.T.
Jim Keil, P.Eng.
Jon Kell, P.Eng.
Tim Klaas, EIT
Krista Koenig, M.Sc., P.Eng.
Amna Mackin, P.Eng.
James Matthewson, H.B.Sc.F.
Janet Mayor, LLB
Brett McGurk, MNRM
Curtis McLeod, SR/WA
Alex Menjivar
Maria M'Lot, B.Sc., MNRM
Jennifer Moroz, LLB
Michael Shaw, P.Eng.
Lindsay Thompson, MNRM
Michael Vieira, P.Eng.
Marc Wankling, B.A.
Kris Watts, B.Sc.

Larry Wiebe, C.E.T.

Jonathan Wiens, M.Sc., CWB®

Deidre Zebrowski, B.Sc., M.Sc.

Stantec

Project Management

Stephen Biswanger, P.Eng.

David Whetter, M.Sc., P.Ag.

General Assessment

Carmen Anseeuw, M.Env.

George Hegmann, B.Eng., M.E.Des., P.Eng.

Jim Howell, B.Sc., M.Sc., P.Geol.

Gail MacCrimmon, B.Sc., M.A.

Mark Shrimpton, M.A.

George Rempel, P.Eng.

Physical Environment

Karen Mathers B.Sc., M.Sc., P.Geo., PMP

Mike Murphy Ph.D., P.Eng.

Roger Rempel B.Sc., FEC, P.Eng.

Daniel Saurette M.Sc., P.Ag.

Fish and Fish Habitat

Vince Palace, Ph.D., M.Sc.

Lisa Peters, M.Sc.

Kathleen Todd, M.Sc.

Wildlife and Wildlife Habitat

Marcel Gahbauer, B.Sc., Ph.D.

Cole Moszynski, B.Env. Sc.

Daniel Routhier, M.Sc.

Leane Wyenberg, M.Sc.

Vegetation and Wetlands

Nick De Carlo, B.Sc., P.Biol.

T. Ross Eccles, B.Sc., M.Sc., P. Biol.

Nicole Kearns, B.Sc., M.Sc., A.Ag.

Jody Oliver, B.Sc., P.Ag.

Glenda Samuelson, Ph.D.

Socio-Economics

Frank Bohlken, B.Sc., M.R.M.
Crista Gladstone, B.A., MNRM
Bill Krawchuk, MNRM, MCIP
Marlaina Rhymer, B.Sc., M.Eng.
Marla Ornstein (Habitat Health), B.A., M.Sc.
Kelly Sims, B.A., MPLAN

Traditional Land and Resource Use/Heritage Resources

Butch Amundson, M.A., RPA
David McLeod, B.A., M.A.
Lindsay Stokalko, M.A.
Aurora Van Buren, B.Sc.

Traffic

Bob Kurylko, P.Eng., CIM, MITE

Agriculture

Wara Chiyoka, M.Sc., P.Ag.
David Whetter, M.Sc., P.Ag.

Visual Quality

Frank Bohlken, B.Sc., M.R.M.
Sairah Tyler, MCIP, RPP

Human Health Risk

Kelsey Delisle, M.Sc., R.P.Bio.
Bryan Leece, Ph.D.

AECOM

Public Engagement

Natalie Henault, EPt
Donald Hester, ML Arch., FCSLA, MCIP

AMEC

Biophysical Monitoring

Al Arsenault, MSc, CWB®, P. Biol.
Matthew Evans, Ph.D.
Kerri-Lyn Swazluk M.Sc., P.Ag.

Exponent

Noise & EMF

William H. Bailey, Ph.D., Noise & EMF

Maskwa

Forestry

Vince Keenan

MMM Group

Land Use

Dave Jopling, MCIP
Bryan Ward, M.PL.

North-South Consultants

Biophysical Monitoring

Katarzyna Dyszy, B.Sc.
Kurt Mazur, M.Sc.

P. McGarry Environmental Consulting

General Assessment

Pat McGarry, B.Sc., MNRM

PAMI

Land Use

Harvey Chorney, P.Eng.

Pembina Institute

Greenhouse gas

Binnu Jeyakumar
Ryan Kilpatrick

Prairie Research Associates, Inc.

Land Use

Greg Mason, Ph.D., CMC, CE

Quantum Spatial

Routing

Jesse Glasgow, PMP, GISP, PLS

RAS Consulting

Sustainable Development

Richard A. (Dick) Stephens, B.A.

RLB Consulting

Land Use

Robert L. Brown, B.A.

Szwaluk Environmental Consulting

Biophysical Monitoring

Kevin Swzaluk, B.Sc., M.Sc



MANITOBA – MINNESOTA TRANSMISSION PROJECT
Environmental Impact Statement

CONCORDANCE TABLE

SEPTEMBER 2015

1 Concordance Tables

Table C-1 provides the concordance between the environmental impact statement (EIS) and the Manitoba-Minnesota Transmission Project Scoping Document (Manitoba Hydro 2015). Table C-2 provides the concordance between the EIS and the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), *The Environment Act* (Manitoba) and Licensing Procedures Regulation 163/88 and *Information Bulletin - Environment Act Proposal Report Guidelines* (Manitoba Conservation and Water Stewardship 2015). Table C-3 provides the concordance between the EIS and the National Energy Board (NEB) Electricity Filing Manual (2015-05) (2015a) and NEB Filing Manual (2015-01) (2015b) requirements for biophysical and socio-economic elements. .

Table C-1 Concordance with MMTP Scoping Document Requirements

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
REGULATORY AND POLICY FRAMEWORK	
List all federal, provincial and municipal licenses and permits that will be required to carry out the Project.	EIS 2.3
PROJECT DESCRIPTION	
A single-line diagram identifying the facilities that constitute the Project	EIS 2.4, Map 2-1
Maps of the preferred route and international border crossing point, and approximate sites of proposed ancillary facilities and related undertakings, where possible, including conductors, station components, access roads (including temporary and permanent bridges, if any), construction camps, if any, temporary workspaces and any temporary or permanent facilities to be constructed by others which are required to accommodate the Project.	EIS 2.4, Map 2-1; Chapter 22, Appendix B – Access Management Plan
Description of Project component locations including a general description of the route and facility locations.	EIS 2.4, 2.6
Description of Project activities and stages of development.	EIS 2.12, 2.13, 2.14, 2.15, 2.18, 2.19
Description of the land acquisition/easement process.	EIS 2.20
Description of the expected in-service date.	EIS 2.12.1
Description of construction and operation schedules.	EIS 2.12.1
Description of expected actions and activities associated with site investigation and preparation for Project components (i.e., transmission lines and station modifications), including:	
Activities required to prepare project footprint sites, including transmission line rights-of-way, station upgrade and expansion sites and temporary work areas, such as marshalling yards;	EIS 2.12.2, 2.12.3, 2.12.4, 2.12.6, 2.12.7, 2.12.8
Activities included in site preparation include establishing access routes, surveying, lands to be cleared for the transmission line rights-of-way and infrastructure, and stripping and grading activities for expanded station sites, where required; and	EIS 2.12.2, 2.12.3, 2.12.4, 2.15.1.2, 2.16.1.1, 2.17.1.1

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
Additional items requiring management during site preparation include site drainage for station expansions and disposal of cleared vegetation from ROW clearing.	EIS 2.10.1, Chapter 22
Description of the anticipated construction approach, methods, materials, locations and schedule, based on the most current information available, including:	
Identification and description of the final preferred transmission line route and transmission line preliminary design details, including foundation and anchor types, conductor types, structure types, right-of-way widths and locations where it varies;	EIS 2.6, 2.9.2, 2.9.3, 2.9.4, 2.9.5, 2.9.6, 2.9.7
Methods and equipment to be used for clearing transmission line right-of-way and access roads, and debris disposal methods for cleared vegetation;	EIS 2.12.4.1
Materials and equipment to be used in the construction of the transmission lines and station modifications;	EIS 2.9.2, 2.9.3, 2.9.4, 2.9.5
Installation, operation and removal of any temporary structures or facilities, including fuel storage facilities;	EIS 2.12.6, 2.12.7, 2.12.8; Chapter 22, Appendix A
Nature and estimated volume of hazardous materials including fuels proposed for use during construction of the Project, including: transportation, storage and dispensing methods associated with spill prevention plans, containment and clean-up plans, and equipment and personnel involved;	EIS 2.10.1.2, 2.15.1.3, 2.16.1.2, 2.17.1.2, 2.18.1; Chapter 22, Appendix 22A
Location of waterbody crossings and description of crossing methods, if applicable;	EIS 2.12.3, 2.12.4.1, 8.4.1
Estimation and disposition of the volume of wood (merchantable and non-merchantable) requiring clearing within the right-of-way, including clearing methods;	EIS 16.5.4, 16.5.6.2, Appendix 16C
Estimation of the amount of greenhouse gases (GHGs), and common air contaminants that could be released as a result of Project construction;	Air Technical Data Report 5.0; Greenhouse Gas Lifecycle Technical Data Report 5.2, Appendix 3
Identification of waste disposal and recycling site locations and capacities for domestic and construction waste management;	EIS 2.10.1.2; Chapter 22, Appendix I -1 of Appendix A
Estimation of the construction workforce numbers and composition, proposed work schedule and any accommodations required;	EIS 2.12.8
Measures to protect the health and safety of workers and the general public in and around construction areas;	EIS 2.10.1.1

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
Description of construction decommissioning methods for temporary construction facilities and/or end use of temporary access infrastructure and site reclamation plans; and	EIS 2.12.9
Proposed construction schedule including sequencing of each major Project component.	EIS 2.12.1
Description of maintenance practices for transmission lines and permanent access roads (e.g., vegetation management, dust control, de-icing).	EIS 2.13.1, 2.13.2, 2.13.3, 18.5.2.2, 22.2.6.7; Chapter 22, Appendix B
Description of electromagnetic fields and noise associated with transmission line and station operation.	EIS 2.13.4, 18.5.4, 18.5.5; Noise Technical Data Report 5.2
Estimation of the operation and maintenance workforce size and general schedule of activities.	EIS 2.13.1, 2.13.2, 2.13.3
Measures proposed to protect the health and safety of workers and the general public in and around construction areas.	EIS 2.10.1.1
Types of equipment and materials proposed for use during operation and maintenance activities.	EIS 2.13
Waste materials (type, management, disposal methods) produced by operation and maintenance activities.	EIS 2.18.1.3
Estimation of the amount of GHGs, and common air contaminants that could be released as a result of Project operation and maintenance.	Greenhouse Gas Life Cycle Assessment Technical Data Report 5.2
Description of plans for decommissioning temporary infrastructure or facilities related to the construction of the Project.	EIS 2.12.9
SCOPE OF THE ASSESSMENT	
A comprehensive list of legislation, regulations and guidelines the EIS has been prepared , including proposed changes to the NEB Electricity Regulations and any forthcoming changes to the NEB Electricity Filing Manual.	EIS 2.3.2, 2.3.3
Review of the environmental and socio-economic setting.	EIS Chapter 6
The rationale used to identify environmental and socio-economic issues.	EIS 7.3.2.1

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
The justification for whether or not an assessment of the effects of upstream (e.g. generation and transmission) and/or downstream (e.g. transmission and end-use) facilities and activities are included in the EIS, including reference to the NEB's past approaches to upstream and downstream effects.	EIS 2.1, 2.3.2.2, 5.3. Details to be provided in NEB application process
The methodology used for effects analysis.	EIS Chapter 7
Other alternative routes that were examined and the rationale for selecting the preferred route.	EIS 5.4.2, 5.5.2, 5.6.2, 5.6.4
Traditional and local knowledge.	Appendix A: Aboriginal Traditional Knowledge Studies
Potential effects on biophysical elements.	EIS Chapters 8-10
Potential effects on socio-economic elements.	EIS Chapters 11-19
Potential effects on land and resource use.	EIS Chapter 16
Potential effects on heritage resources.	EIS Chapter 12
Potential effects of the Project on First Nation and Métis and their traditional land uses.	EIS Chapter 11
Potential effects to human health and safety including potential effects from the release of pollutants, if any.	EIS Chapter 18
Accidents and malfunctions that may occur, including their potential environmental effects.	EIS Chapter 21
Mitigation measures and risk mitigation practices that are technically and economically feasible that would mitigate any significant adverse environmental effects of the Project, including mitigation incorporated into Project planning and design.	EIS 24.2; Chapter 22, Appendix A
Identification and quantification (where possible) of residual environmental effects remaining after mitigation including the significance of the residual effects.	EIS 24.4
The follow-up program for the Project including inspection and monitoring.	EIS 22.3.2, 22.3.3; Chapter 22, Appendix A
Any residual cumulative environmental effects that are likely to result from the Project in combination with other projects and physical activities that have been or will be carried out.	EIS 24.4
Any change to the Project that may be caused by the environment.	EIS Chapter 20

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
ENVIRONMENTAL ASSESSMENT PUBLIC ENGAGEMENT PROCESS (PEP)	
Description of the PEP developed for the Project, including:	EIS Chapter 3
Plans for future post-licensing engagement and follow-up throughout the construction and operation of the Project;	EIS 3.11
Results of the PEP;	EIS 3.5, 3.7.2, 3.8.2, 3.9.2, 3.10.2; Public Engagement Process Technical Data Report
Documenting comments received from the public or any interested party and any formal response provided as part of the program;	EIS 3.4.5, 3.5
Description of how the information obtained from the PEP was used in identification of issues and the routing and assessment processes; and	EIS 3.4.7, 3.4.9, 3.5, 3.7.1, 3.8.2, 3.10.2, 3.10.3
Description of efforts and methods undertaken to engage First Nation and Manitoba Metis who are located in the vicinity of the Project or who have indicated an interest in the Project.	EIS 4.3, 4.3.1, 4.3.2
FIRST NATION AND METIS ENGAGEMENT	EIS Chapter 4 and appendices
TRADITIONAL LAND AND RESOURCE USE	
Characterize the traditional setting and baseline of current First Nations and Metis land and resource use from primary (e.g., self-directed TK studies) and secondary sources, where available.	EIS 11.4
A description of engagement of the Metis and individual First Nations, as well as a record of and the rationale for, those who have been included in the engagement process.	EIS 4.3, 4.3.1, 4.3.2
Confirmation that First Nations and Metis who participated in collecting traditional use information have had the opportunity to review the information and proposed mitigation.	EIS 4.5
A description of how traditional knowledge was employed throughout the assessment.	EIS 4.5, 7.1.1
ROUTE SELECTION	
A description of the overall process and methodology including a description of the three perspectives used in route comparisons (built, natural and engineering).	EIS 5.1, 5.2

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
A description of how feedback from stakeholders informed route selection criteria.	EIS 3.4.9, 3.7.2, 3.8.2, 3.9.2, 3.10.2, 3.10.3, 5.4.3, 5.5.3, 5.6.3
A description of routing decisions made at each stage of routing and the criteria and weightings of criteria used in decision making.	EIS 5.4.4, 5.5.4, 5.6.4
Maps detailing the alternative route options considered in each stage of the route determination process.	EIS Chapter 5 Mapbook
ENVIRONMENTAL AND SOCIO-ECONOMIC SETTING	
Elements of the Biophysical Environment	
ATMOSPHERIC ENVIRONMENT	
The atmospheric environment will be described and may include the following:	
Prevailing climate and meteorological conditions, based on nearby climate monitoring stations;	EIS 6.2.1; Chapter 20; MMTP Historic and Future Climate Change Study
Extreme weather potential, including areas prone to flooding, wildfire, tornadoes, and ice storms;	EIS Chapter 20; MMTP Historic and Future Climate Change Study
Greenhouse gas (CO ₂ , CH ₄) emissions relative to applicable targets; and	Greenhouse Gas Life Cycle Assessment Technical Data Report
Ambient air quality and major existing emission sources.	Air Technical Data Report 4.1
GROUNDWATER RESOURCES	
Groundwater resources will be described which may include the following:	
Regional groundwater conditions;	EIS 16.5, 16.5.5; Groundwater Technical Data Report 4.2
Existing quantity and type of groundwater uses;	EIS 16.5, 16.5.5; Groundwater Technical Data Report 4.2, 4.3
Potential groundwater pollution hazard areas; and	EIS 16.5, 16.5.5
Potential areas of artesian conditions and springs.	EIS 16.5, 16.5.5; Groundwater Technical Data Report 4.2, 5.0

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
AQUATIC ENVIRONMENT	
The aquatic environment will be described which may include the following:	
Local and regional surface water bodies (lakes, rivers);	EIS 8.4; Fish and Fish Habitat Technical Data Report 1.1.2, 3.2
Fish and aquatic species, known or suspected to be located in the assessment area;	EIS 8.4; Fish and Fish Habitat Technical Data Report 3.4
Fish habitat classification at major stream crossings; and	EIS 8.4; Fish and Fish Habitat Technical Data Report 3.8
Aquatic species of conservation concern (SOCC) and their habitat if affected by the project.	EIS 8.4.3; Fish and Fish Habitat Technical Data Report 3.5
GEOLOGY AND TERRAIN	
The geology and terrain will be described which may include the following:	
Physiography including elevations, relief, unique terrain features, permafrost, etc.;	EIS 6.2.4.1; Soil and Terrain Technical Data Report
Bedrock geology;	EIS 6.2.2.1; Soil and Terrain Technical Data Report
Surficial geology and landforms; and	EIS 6.2.4.1; Soil and Terrain Technical Data Report
Soil and soil contamination.	EIS 6.2.4.2, 6.2.4.3; Soil and Terrain Technical Data Report
VEGETATION AND WETLANDS	
Vegetation and wetlands will be described which may include the following:	
Composition, distribution and abundance of vegetation species and communities (Land cover classification and ecological classification);	EIS 10.4, 10.4.1, 10.4.2, 10.4.3: 10.4.4, 10.4.5, 10.4.6, 10.4.7; Vegetation and Wetlands Technical Data Report

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
Wetland classification, community type, conservation status, abundance, and distribution;	EIS 10.4, 10.4.1, 10.4.2, 10.4.3, 10.4.4; Vegetation and Wetlands Technical Data Report
Consideration of invasive/weed species prevalence; and	EIS 10.4.5; Vegetation and Wetlands Technical Data Report
Species of Conservation Concern and their habitat, with a focus on S1 to S3 Provincial Rank, ESEA and SARA species or communities.	EIS 10.4.6; Vegetation and Wetlands Technical Data Report
WILDLIFE	
Wildlife will be described which may include the following:	
Wildlife species of ecological, economic or human importance known or suspected to be located in the assessment area and their habitat;	EIS 9.4; Wildlife and Wildlife Habitat Technical Data Report
Important and sensitive habitat types or areas, and corridors.	EIS 9.4.2; Wildlife and Wildlife Habitat Technical Data Report 3.0
Areas that support biological diversity, such as parks, bird sanctuaries, wildlife management areas, and ecological reserve;	EIS 9.4; Wildlife and Wildlife Habitat Technical Data Report
Existing level and patterns of habitat alteration (e.g., fragmentation); and	EIS 9.4.1; Wildlife and Wildlife Habitat Technical Data Report
Species of Conservation Concern and their habitat, with a focus on S1 to S3 Provincial Rank, or protected under provincial (ESEA) or federal (SARA) legislation.	EIS 9.4.2; Wildlife and Wildlife Habitat Technical Data Report
Elements of the Socio-economic Environment	
TRADITIONAL LAND AND RESOURCE USE	
Traditional land and resource use will be described which may include the following:	
A description of how lands and resources in the assessment area are currently used by First Nations and Metis for traditional purposes;	EIS 11.4
Identification of First Nations and Metis currently carrying out traditional land and resource use activities; and	EIS 11.1.3

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
Sacred or ceremonial sites identified by First Nations or Metis and as permitted for description in the EIS.	EIS 11.4.7, 11.5.6
HERITAGE RESOURCES	
Heritage resources will be described which may include the following:	
Cultural heritage sites;	EIS 12.4; Heritage Resources Technical Data Report
Historic and archaeological resources;	EIS 12.4; Heritage Resources Technical Data Report
Paleontological resources; and	EIS 12.4; Heritage Resources Technical Data Report
Summary of any previous heritage resource assessments completed in the assessment area, if available.	EIS 12.3.1.2; Heritage Resources Technical Data Report
AGRICULTURE	
The agricultural environment will be described which may include the following:	
General soil characteristics;	EIS 6.2.4.2 - Soils; Soil and Terrain Technical Data Report
Soil types in the Project vicinity that are highly susceptible to wind and water erosion; soil compaction; and loss of structure and tilth;	EIS 15.4.2; Soil and Terrain Technical Data Report
Soil classification, including soil agricultural capability rating, based on the Canada Land Inventory Soil Capability Classification for Agriculture;	EIS 15.4.2; Soil and Terrain Technical Data Report
Any known or suspected soil contamination in the Project vicinity that could be disturbed as a result of the Project;	EIS 6.2.4.3; Soil and Terrain Technical Data Report
Biosecurity measures for construction and operation; and	EIS 15.1.1.14.3, 15.5.3.1.1, 15.5.3.1.2, 15.5.3.2.2
Agricultural activities, including annual and perennial cropping, livestock production, pasture and specialty agricultural operations.	EIS 15.4; Socio-economic and Land Use Technical Data Report

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
LAND AND RESOURCE USE	
Land and resource use will be described which may include the following:	
Existing land use categories and characterization of required changes for the Project;	EIS 16.4, 16.4.6; Socio-economic and Land Use Technical Data Report
Present and potential timber resource harvest and utilization (commercial and domestic);	EIS 16.4, 16.4.9.1; Socio-economic and Land Use Technical Data Report
Existing and proposed commercial resource use, including lodges and outfitters, mining, quarrying and forestry;	EIS 16.4, 16.4.9; Socio-economic and Land Use Technical Data Report
Unique sites or special features, including any candidate sites for ecological or cultural heritage preservation and conservation;	EIS 16.4, 16.4.7; Socio-economic and Land Use Technical Data Report
Protected areas, including existing and proposed parks, ecological reserves, wildlife management areas, conservation agreement lands and habitat enhancement projects (e.g., prairie restoration areas);	EIS 16.4, 16.4.7; Socio-economic and Land Use Technical Data Report
Tourism and recreational areas, including campgrounds, trails (e.g., hiking, ATV, snowmobile) and day use areas;	EIS 16.4, 16.4.8; Socio-economic and Land Use Technical Data Report
Navigable waterways; and	EIS 16.4, 16.4.8.3; Socio-economic and Land Use Technical Data Report
Hunting, trapping and fishing areas.	EIS 16.4, 16.4.9.4; Socio-economic and Land Use Technical Data Report
INFRASTRUCTURE AND SERVICES	
Infrastructure and services will be described which may include the following:	
Community services, including accommodations (e.g., campgrounds), health care services, police, fire-fighting, ambulance, water and waste disposal; and	EIS 13.4.3, 13.4.4.1.1, 13.4.4.1.2, 13.4.4.3, 13.4.4.4, 13.4.4.5, 19.4.1.10, 19.4.1.10.3; Socio-economic and Land Use Technical Data Report
Infrastructure, including railways, roads, highways and their traffic usage levels; major pipelines; existing transmission lines; aviation facilities; communication infrastructure.	EIS 13.4.5, 13.4.6, 13.4.7; Socio-economic and Land Use Technical Data Report

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
EMPLOYMENT AND ECONOMY	
Employment and economy will be described which may include the following:	
Regional and local economy;	EIS 14.4.1; Socio-economic and Land Use Technical Data Report
Existing population distribution and demographics including labour force, employment, income, education, etc.; and	EIS 14.4.1; Socio-economic and Land Use Technical Data Report
Local business capacity.	EIS 14.4.1, 14.4.3, 14.4.6, 14.4.8, 14.4.10; Socio-economic and Land Use Technical Data Report
PROPERTY AND RESIDENTIAL DEVELOPMENT	
Property and residential development will be described which may include the following:	
Land tenure and property ownership patterns (i.e., types of land survey, Crown [including Crown lessees] versus private land holdings);	EIS 16.4, 16.4.2; Socio-economic and Land Use Technical Data Report
Existing rural residential and subdivision development and areas for potential future development; and	EIS 16.4, 16.4.3; Socio-economic and Land Use Technical Data Report
Development plan designation, zoning, subdivisions and development controls.	EIS 16.4, 16.4.6; Socio-economic and Land Use Technical Data Report
AESTHETICS, HUMAN HEALTH AND PUBLIC SAFETY	
Aesthetic, human health and public safety components will be described which may include the following:	
Current visual landscape (aesthetics) including existing transmission lines and communication infrastructure;	EIS 17.4.1; 17.4.1.2; Socio-economic and Land Use Technical Data Report
Consideration of the acoustic environment	EIS 18.4.1.3, 18.5.4, 18.6.4
Community health; and	EIS 19.4; Socio-economic and Land Use Technical Data Report
Existing public safety and human health risks.	EIS 18.4, 18.5, 18.6

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
ENVIRONMENTAL ASSESSMENT METHODS	
Justification for VC selections	EIS Chapter 8 to Chapter 19 - Introduction
A matrix identifying potential interactions between the environment (i.e., VCs) and project activities.	EIS 7.3.2.2
Use of Table A-1 in the NEB Filing Manual (Circumstances and Interactions Requiring Detailed Biophysical and Socio-economic Information) as a guide in determining if there is a likely interaction between the Project and biophysical or socioeconomic elements of the environment.	EIS 7.3.2.1
Definitions of spatial and temporal boundaries for each VC.	EIS Chapter 8 to Chapter 19 - Scope of Assessment
Description of the existing conditions for each VC including the following:	
The status and characteristics of the VC within its defined spatial and temporal boundaries for the assessment;	EIS Chapter 8 to Chapter 19 - Existing Conditions
Information from past research conducted in the region;	EIS Chapter 8 to Chapter 19 - Sources of Information
Traditional land and resource use as informed by traditional knowledge (to the extent available); and	EIS Chapter 8 to Chapter 19 - Existing Conditions
Knowledge gained from the collection of baseline data from data holders and through literature review, interviews, quantitative and qualitative analyses (where available), and field programs carried out as part of the EIS.	EIS Chapter 8 to Chapter 18 - Existing Conditions Methods
Description of mitigation measures that will avoid, reduce or eliminate an environmental effect.	EIS 24.2
Description of measures to reduce and mitigate the potential effects of the Project on First Nation, Metis communities, and other Aboriginal communities.	EIS 11.5.2.2, 11.5.3.2, 11.5.4.2, 11.5.5.2, 11.5.6.2, 11.6.3
Description of the residual environmental effects (i.e., the environmental effects that remain after mitigation has been applied, for each VC.	EIS 24.4

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
Assessment of the potential for residual adverse environmental effects to act cumulatively with the adverse effects of other projects and physical activities that have been or will be carried out.	EIS 24.5
Identification of the residual effects that are likely to interact cumulatively with effects of other projects and physical activities.	EIS 24.5
Identification of threshold criteria or standards for determining the significance of environmental effects for each VC quantitatively (where possible) or qualitatively, beyond which a residual environmental project effect or cumulative effect would be considered significant.	EIS Chapter 8 to Chapter 19 - Significance Thresholds
Determination of significance for the overall cumulative environmental effect and the contribution of the Project to the cumulative effect.	EIS 24.5, 24.6
Evaluation of the likelihood of occurrence, in cases where significant environmental effects are identified.	EIS 24.5, 24.6
Assessment of potential accidents, malfunctions and unplanned events.	EIS Chapter 21
Development of one or more representative worst-case scenarios for potential accidents, malfunctions or unplanned events and assessment of potential effects/consequences for the scenarios.	EIS Chapter 21
Assessment of environmental effects that may occur as a result of the environment acting on the Project.	EIS Chapter 20
Potential environmental changes and hazards may include wind, severe precipitation, ice storms, flooding, grass and forest fire, earthquakes and/or tornado.	EIS Chapter 20
Prediction and description of the influence that these environmental changes and hazards may have on the Project.	EIS Chapter 20, 20.8
SUSTAINABLE DEVELOPMENT	
Description of how principles of sustainable development have been incorporated into Project planning, design, construction and operation, with reference to the Principles and Guidelines of Sustainable Development (Schedules A and B) of The Sustainable Development Act, C.C.S.M. c. S270; Manitoba Hydro's Sustainable Development Policy; and Principles, and CEAA, 2012.	EIS 23.1, 23.4

Scoping Document Requirement	EIS Chapter/Section and Manner Addressed
FOLLOW-UP AND MONITORING	
Evaluation of the need for follow-up and monitoring programs to verify the accuracy of environmental effects predictions and to assess the effectiveness of mitigation measures.	EIS 22.1.2
Recommendations of follow-up and monitoring programs and associated reporting required at construction and operation stages of development.	EIS 22.2, 22.2.3.1, 22.2.4
Description of the requirements of proposed follow-up and monitoring programs for each VC or environmental effect, as appropriate, and may include monitoring, inspection or surveillance.	EIS Chapters 8 – 19 - Follow-up and Monitoring, 22.3.3; Chapter 22, Appendix C
A statement of Manitoba Hydro's approach to environmental inspection of the Project during construction and operation.	EIS 22.2.3, 22.3.2
Recommendations regarding independent third-party environmental auditing to assess whether commitments were met and to assess the accuracy of assumptions and predictions.	EIS 22.6.3
Description of public reporting plans related to follow-up and monitoring.	EIS 22.2.4, 22.3.1

Table C-2 (a) Concordance with CEAA 2012 Requirements

CEA Act Requirement	CEA Act Section	EIS Chapter/Section
The environmental effects of the Project, including:		
the environmental effect of malfunctions or accidents that may occur in connection with the designated project, and	s.19.1(a)	EIS Chapter 21
any cumulative effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out	s.19.1(a)	EIS 24.5
the significance of the effects referred to in paragraph (a)	s.19.1(b)	EIS 24.5, 24.6
comments from the public – or, with respect to a designated project that requires that a certificate be issued in accordance with an order made under section 54 of the <i>National Energy Board Act</i> , any interested party – that are received in accordance with this Act	s.19.1(c)	EIS Chapter 3; Public Engagement Process Technical Data Report
mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project	s.19.1(d)	EIS 2.11, 2.15.1.3, 24.2
the requirements of the follow up program in respect of the designated project	s.19.1(e)	EIS 22.3
the purpose of the designated project	s.19.1(f)	EIS 2.2
alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such means	s.19.1(g)	EIS 2.5, 2.9, 5.3.3, 5.4.4, 5.5.4, 5.6.4
any change to the designated project that may be caused by the environment	s.19.1(h)	EIS Chapter 20
the results of any relevant study conducted by a committee established under section 73 or 74	s.19.1(i)	N/A - The Project is not carried out in a region that is on federal lands
any other matter relevant to the environmental assessment that the responsible authority, or – if the environmental assessment is referred to a review panel – the Minister, requires to be taken into account	s.19.1(j)	Nothing raised to-date
a change that may be caused to the following components of the environment that are within the legislative authority of parliament:	s.5.1(a)	
i. fish as defined in s.2 of the <i>Fisheries Act</i> and fish habitat as defined in s. 2(1) of that Act,	s.5.1(a)(i)	EIS 8.3.2.2, 8.5.1, 8.5.3.1

CEA Act Requirement	CEA Act Section	EIS Chapter/Section
ii. aquatic species as defined in subsection 2(1) of the <i>Species at Risk Act</i> ,	s.5.1(a)(i)	EIS 8.3.2.2, 8.5.1, 8.5.3.1
iii. migratory birds as defined in subsection 2(1) of the <i>Migratory Birds Convention Act, 1994</i> , and,	s.5.1(a)(i)	EIS 9.5, 9.6
iv. any other component of the environment that is set out in Schedule 2	s.5.1(a)(i)	N/A
a change that may be caused to the environment that would occur:	s.5.1(b)	
i. on federal lands,	s.5.1(b)(i)	No federal lands are affected
ii. in a province other than the one in which the act or thing is done or where the physical activity, the designated project or the project is being carried out, or	s.5.1(b)(ii)	The Project is not anticipated to cause a change in a province other than Manitoba
iii. outside Canada	s.5(b)(iii)	Other than positive environmental effects through offsetting the use of hydrocarbons the Project is not anticipated to cause a change outside of Canada
with respect to aboriginal peoples, an effect occurring in Canada of any change that may be caused to the environment on:	s.5.1(c)	
i. health and socio-economic conditions,	s.5.1(c)(i)	EIS 13.5, 14.4 Chapter 16, 18, 18.5, 19
ii. physical and cultural heritage,	s.5.1(c)(ii)	EIS 12.5, 12.6
iii. the current use of lands and resources for traditional purposes, or	s.5.1(c)(iii)	EIS 11.4
iv. any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.	s.5.1(c)(iv)	EIS 12.5, 12.6

Table C-2 (b) Concordance with The (Manitoba) Environment Act, and Licensing Procedures Regulation 163/88

<i>The Environment Act (Manitoba) Requirements</i>	Act Section	EIS Chapter/Section
When considering a proposal, the director or minister must take into account — in addition to other potential environmental impacts of the proposed development — the amount of greenhouse gases to be generated by the proposed development and the energy efficiency of the proposed development.	12.0.2	EIS Chapter 23, Appendix 23B; Greenhouse Gas Life Cycle Assessment Technical Data Report
Licensing Procedures Regulation, M.R. 163/88	Regulation Section	EIS Chapter/Section
For the purposes of subsections 10(3), 11(7) and 12(3) of the Act, a proposal for a Class 1, Class 2 or Class 3 development shall contain the following information:	1(1)	
Where the location of the proposed development has been determined, a certificate of title showing the legal description, or in the case of highways, rail lines, electrical transmission lines, or pipelines, a map or maps at a scale no less than 1:50,000 showing the location of the proposed development;	1(1)(a)	EIS Chapter 1; Chapter 2, 2.6
i. The name of the proponent of the development;	1(1)(b)	EIS 1.1, 1.3
ii. The name of the owner of the land upon which the development is intended to be constructed;	1(1)(c)	EIS 16.4.2 (Specific names not available for EIS)
iii. The name of the owner of mineral rights beneath the land if not the same as that of the surface owner;	1(1)(d)	EIS 16.4.8.1.4 (Specific names not available for EIS)
iv. A description of the existing land use on the site and on land adjoining the site, as well as a description of changes that will be made in such land use for the purposes of the development	1(1)(e)	EIS 16.4; Socio-economic and Land Use Technical Data Report 4.6
i. The land use designation for the site and adjoining land as identified in a development plan adopted under The Planning Act or The City of Winnipeg Act and the zoning designation as identified in a zoning by-law, if applicable;	1(1)(f)	EIS 16.4.6; Socio-economic and Land Use Technical Report 4.6.2; Appendix A
ii. A description of the proposed development and the method of operation including hours of operation;	1(1)(g)	EIS 2.4, 2.12, 2.13

Licensing Procedures Regulation, M.R. 163/88	Regulation Section	EIS Chapter/Section
iii. The proposed date of commencement of construction, commencement of operation including staging of the development, and termination of operation, if known;	1(1)(h)	EIS 2.12.1
iv. A description of all previous studies and activities relating to feasibility, exploration, or project siting and prior authorization received from other government agencies;	1(1)(i)	EIS 2.5, 2.9, Chapter 5
v. A description of the potential impacts of the development on the environment, including, but not necessarily limited to the following:	1(1)(j)	
a. Type, quantity and concentration of pollutants to be released into the air, water or land	1(1)(j)(i)	EIS 2.18.1; Chapter 2, Appendix A; Air Technical Data Report 5.0
b. Impact on wildlife	1(1)(j)(ii)	EIS 9.5, 9.6
c. Impact on fisheries	1(1)(j)(iii)	EIS 8.5, 8.6
d. Impact on surface water and groundwater	1(1)(j)(iv)	EIS Chapter 8, 16.5, 16.5.5
e. Forestry related impacts	1(1)(j)(v)	EIS 16.5, 16.5.4
f. Impact on heritage resources	1(1)(j)(vi)	EIS 12.5
g. Socio-economic implications resulting from the environmental impacts	1(1)(j)(vii)	EIS Chapter 11 to Chapter 20; 13.5, 14.5, 15.5, 16.5, 17.5, 18.5, 19.5
i. A description of the proposed environmental management practices to be employed to prevent or mitigate adverse implications from the impacts identified in clause (j) having regard to, where applicable: containment, handling, monitoring, storage, treatment and final disposal of pollutants; conservation and protection of natural or heritage resources; environmental restoration and rehabilitation of the site upon decommissioning; and protection of environmental health; and	1(1)(k)	EIS 2.10; Chapter 22
ii. Any other information requested by the director	1(1)(l)	None requested to-date

Table C-2 (c) Information Bulletin – (Manitoba) Environment Act Proposal Report Guidelines

Filing Requirements	EIS Chapter/Section and Manner Addressed
INTRODUCTION AND BACKGROUND	
1. Need or rationale for the development, purpose, and alternatives; may include one or more of the following depending on the development:	EIS 2.3
a. products or services to be provided and process technologies to be used;	EIS 2.5, 2.12, 2.13
b. quantitative information on the volumes or amounts of products or services as applicable;	EIS 2.10.1.2, 2.15.1.3, 2.16.1.2, 2.17.1.2, 2.18.1; Chapter 2, Appendix A; Chapter 22, Appendix A
c. current population trends, if a specified population is to be served by the development; and	EIS 6.3.3, 13.4.2
d. reference to previous studies and activities relating to feasibility, exploration, or project siting and prior authorization received from other government agencies.	EIS 2.9
DESCRIPTION OF PROPOSED DEVELOPMENT	
1. Certificate of Title showing the owner(s) and legal description of the land upon which the development will be constructed; or, in the case of highways, rail lines, electrical transmission lines, or pipelines, a map or maps at a scale no less than 1:50,000 showing the location of the proposed development.	EIS 16.4.2 (Specific names not available for EIS)
2. Owner of land upon which the development is intended to be constructed, and of mineral rights beneath the land, if different from surface owner.	EIS 16.4.8.1.4 (Specific names not available for EIS)
3. Existing land use on the site and on land adjoining it, as well as changes that will be made in such land use for the purposes of the development.	EIS 16.4, 16.5
4. Land use designation for the site and adjoining land as identified in a development plan adopted under <i>The Planning Act</i> or <i>The City of Winnipeg Act</i> , and the zoning designation as identified in a zoning by-law, if applicable.	EIS 16.4, 16.4.6, 16.5, 16.5.2 (and subsections)
5. Description of proposed development and schedule for stages of the development, including proposed dates for planning, design, construction, commissioning, operation, and decommissioning and/or termination of operation (if known), identifying major components and activities of the development as applicable (e.g. access road, airstrip, processing facility, waste disposal area, etc.).	EIS 2.4, 2.6, 2.9, 2.12, 2.13

Filing Requirements	EIS Chapter/Section and Manner Addressed
6. Funding, including the name and address of any government agency or program (federal, provincial or otherwise) from which a grant or loan of capital funds have been requested (where applicable).	N/A
7. Other federal, provincial, or municipal approvals, licenses, permits, authorizations, etc. known to be required for the proposed development, and the status of the project's application or approval. (Information on federal approval requirements may be obtained from the Canadian Environmental Assessment Agency at http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=D75FB358-1 .)	EIS 2.3
8. Results of any public consultations undertaken or to be undertaken in conjunction with project planning.	EIS 2.7, 3.5, 3.7.2, 3.8.2, 3.9.2, 3.10.2; Public Engagement Process Technical Data Report
DESCRIPTION OF EXISTING ENVIRONMENT IN THE PROJECT AREA	
1. The biophysical environment as related to the development, including topographic and base maps and aerial photographs as necessary, as follows:	
a. description of the local area and regional setting including important terrain features such as hills, valleys, lakes, rivers, shorelines, etc.;	EIS 6.2.3, 6.2.4.1, 8.4.1, 16.4; Socio-economic and Land Use Technical Data Report, 1.2.2
b. description of the prevailing climate and meteorological conditions, and identification of any nearby climate monitoring stations;	EIS 6.2.1; MMTP Historic and Future Climate Study
c. identification and description of local and regional surface waterbodies (lakes, rivers, wetlands, etc.) and description of the regional groundwater conditions including aquifers, recharge areas, quality, wells, etc.;	EIS 6.2.3, 6.2.5, 6.2.2.2, 6.2.2.3, 6.3.7.6.6, 8.4.1, 16.4, 16.4.9, 16.4.9.2
d. description of the aquatic environment including fish resources, fish habitat, benthic invertebrates, aquatic macrophytes, etc. for each waterbody that could be affected by the proposed development;	EIS 8.4.1
e. description of the terrestrial environment including vegetation, wildlife (mammals, birds, amphibians, reptiles, etc.), wildlife habitat, etc. that could be affected by the proposed development;	EIS 9.4 (and subsections)

Filing Requirements	EIS Chapter/Section and Manner Addressed
f. identification and description of any rare, threatened or endangered species or any important or sensitive species and/or habitats, particularly if federally and/or provincially protected; and	EIS 8.4.3, 9.1, 9.3, (and subsections), 10.4.6
g. identification and description of the existing land and resource uses in the region including agriculture, forestry, mining, hydroelectric, oil and gas, recreation, tourism, etc.	EIS 15.4, 16.4 (and subsections)
2. The socioeconomic environment as related to the development, including topographic and base maps and aerial photographs as necessary, as follows:	
a. identification of any existing public safety and human health risks in the development area;	EIS 18.4 (and subsections)
b. identification and description of protected areas (e.g. national and provincial parks);	EIS 16.4, 16.4.7
c. heritage resources (e.g. archaeological and historic sites), etc.; and	EIS Chapter 12 Map Series 12-100
d. identification of First Nation communities in the vicinity of the proposed development.	EIS 6.3.1.1, 11.1.3
DESCRIPTION OF ENVIRONMENTAL AND HUMAN HEALTH EFFECTS OF THE PROPOSED DEVELOPMENT	
1. Potential impacts of the development on the environment, including, but not necessarily limited to:	
a. impact on biophysical environment, including wildlife, fisheries, surface water, groundwater, and forestry resources;	EIS 8.5, 9.5, 9.6, 16.5, 16.5.4, 16.5.5 (and subsections)
b. type, quantity and concentration of pollutants (emissions, effluents and solid wastes) to be released, and the technologies proposed to contain or treat the waste streams;	EIS 2.18.1; Air Technical Data Report 5.0; Chapter 22, Appendix A
c. information on the storage, transportation and disposal of any hazardous wastes that may be produced;	EIS 2.15.1.3, 2.16.1.2, 2.17.1.2, 2.18.1; Chapter 22, Appendix A
d. identification of any storage of gasoline or associated products (e.g. diesel fuel, used oil, heating oil, aviation gas, solvents, isopropanol, methanol, acetone, etc.);	EIS Chapter 22, Appendix A
e. impact on heritage resources;	EIS 12.1.1, 12.1.2, 12.5, 12.6
f. socio-economic implications resulting from environmental impact; and	EIS Chapter 11 to Chapter 20

Filing Requirements	EIS Chapter/Section and Manner Addressed
g. climate change implications including a greenhouse gas inventory calculated according to guidelines developed by Environment Canada (http://www.ghgreporting.gc.ca/GHGInfo/Pages/page15.aspx) and the United Nations (http://www.ipcc-nggip.iges.or.jp/public/index.html).	Greenhouse Gas Life Cycle Assessment Technical Data Report 5.0
2. Potential impacts of the development on human health and safety, including, but not necessarily limited to:	
a. potential impact on human health and safety resulting from any release of pollutants, including a human health risk assessment.	EIS 18.5 (and subsections)
3. Potential impacts of the development on Aboriginal and treaty rights, including, but not necessarily limited to:	
a. direct impacts on communities in the project area;	EIS 11.5
b. resource use, including hunting, fishing, trapping, gathering, etc.;	EIS 11.5
c. cultural or traditional activities in the project area.	EIS 11.5
MITIGATION MEASURES AND RESIDUAL ENVIRONMENTAL EFFECTS	
1. Proposed environmental management and risk mitigation practices to be employed to prevent or mitigate adverse implications from the impacts identified above, having regard to, where applicable:	
a. mitigation incorporated at the planning and design stages;	EIS 2.10; Chapter 5; 22.2.6.6, Chapter 22, Appendix A
b. containment, handling, monitoring, storage, treatment, and final disposal of pollutants;	EIS 2.9, 22.2.6.6; Chapter 22, Appendix A
c. conservation and protection of natural or heritage resources;	EIS 12.5.2.2, 12.5.3.2, 12.9, 22.2.5.4; Chapter 22, Appendix A
d. environmental restoration and rehabilitation of the site upon decommissioning; and	EIS 2.14, 2.19, 22.2.5.3; Chapter 22, Appendix A
e. protection of environment and human health.	EIS 18.5.2, 18.5.3, 18.5.4, 18.5.5; Chapter 22, Appendix A, Appendix B

Filing Requirements	EIS Chapter/Section and Manner Addressed
2. Residual environmental effects remaining after the application of mitigation measures, to the extent possible expressed in quantitative terms relative to baseline conditions.	EIS 24.1
3. Description of control technology as compared to best available control technology.	EIS Chapter 22; Appendix A
FOLLOW-UP PLANS, INCLUDING MONITORING AND REPORTING	
1. Proposed follow-up activities that will be required at any stage of development (e.g. monitoring, inspection, surveillance, audit, etc.)	EIS Chapter 22, Appendix A

Table C-3 Environmental and Socio-Economic Assessment's Concordance with NEB Filing Manuals (2015) Guidance

Manual Reference	EIS Chapter/Section and Manner Addressed
ENGAGEMENT	
1. Provide an overview of the company's consultation philosophy, which should include, but not be limited to:	
a. The corporate policy or vision with respect to consultation.	EIS 3.3.2
b. The principles and goals established for the applicant's Consultation Program.	EIS 3.2
c. A copy of the Aboriginal consultation policy, if established, along with any documented policies and principles for collecting traditional knowledge or traditional use information, if applicable.	EIS 4.1
2. Provide a description of the project-specific consultation activities and the factors that influenced its design.	EIS 3.3, 3.4.4, 3.6.3, 3.7.1.2, 3.8.1.2, 3.9.1.2, 3.10.1.2, 4.3.2, 4.4, 4.5
3. Provide confirmation that the information provided to potentially affected persons and groups described:	
a. The Applicant's intention to apply to the Board for approval of its project, and	EIS 3.4.3.8; Public Engagement Process Technical Data Report – Part C (Appendix C1 and Appendix C2), Public Engagement Process Technical Data Report - Engagement Materials (Public Open House Storyboards)
b. How they can contact the Board with outstanding application-related concerns before the Board makes its decision on the application.	EIS 3.4.3.8, 3.4.6, 3.11
4. Describe the outcomes of the consultation activities conducted for the project, including, but not be limited to:	
a. The persons or groups consulted;	EIS 3.4.2, 3.4.3, 3.6.2, 3.7.1.1., 3.8.1.1, 3.9.1.1, 3.10.1.1; Chapter 3, Appendix A
b. The methods, dates and locations of consultation activities;	EIS 3.4.4; Public Engagement Process Technical Data Report, Part A 3.0, 4.0; Part B, 2.0, 3.0; and Part C, 2.0, 3.0

Manual Reference	EIS Chapter/Section and Manner Addressed
c. The information that was distributed to persons or groups, which in most cases will include:	
i. the location, starting and ending points, route and main components of the project;	EIS 3.4.3.8, 3.4.6; Public Engagement Process Technical Data Report – Engagement Materials
ii. a map or maps at appropriate scale that show all major components of the project, the routing of the project, the workspace required, the location of proposed facilities such as pump and compressor stations, and the location of any major towns, roads, water bodies or other landmarks in the area of the project;	EIS 3.4.3.8, 3.4.6; Public Engagement Process Technical Data Report – Engagement Materials
iii. the proposed timing and duration of construction;	EIS 3.4.3.8, 3.4.6; Public Engagement Process Technical Data Report – Engagement Materials
iv. the potential environmental and socio-economic effects of the project and how those effects will be addressed;	EIS 3.4.3.8, 3.4.6; Public Engagement Process Technical Data Report – Engagement Materials (see “Valued Component Handouts” and “Socio-Economic Poster”)
v. how public safety will be addressed;	EIS 3.4.6, 3.11; Public Engagement Process Technical Data Report – Engagement Materials (see “Valued Component Handouts - Community”)
vi. the emergency response information;	EIS 3.4.6, 3.11; Public Engagement Process Technical Data Report – Engagement Materials (see “Valued Component Handouts – Community”)

Manual Reference	EIS Chapter/Section and Manner Addressed
vii. how comments or concerns raised by potentially affected persons or groups will be addressed throughout the consultation process;	EIS 3.4.6, 3.4.7, 3.4.8, 3.4.9, 3.6.3, 3.7.2, 3.8.2, 3.9.2, 3.10.2, 3.11; Public Engagement Process Technical Data Report – Engagement Materials (see “Valued Component Handouts – Public Engagement Process” and “Newsletters”)
viii. how interested persons can participate further in the consultation process;	EIS 3.4.4, 3.4.5, 3.11
ix. company contact information;	EIS 3.4.3.8, 3.4.5, 3.4.6, 3.11, Public Engagement Process Technical Data Report – Engagement Materials (see “Newsletters”, “Storyboards”, “Feedback Materials”, “Business Card”)
x. the proposed timing of filing the application with the Board; and	EIS 3.4.3.8; Public Engagement Process Technical Data Report – Engagement Materials (see “Newsletters”, “Storyboards”, “Feedback Materials”, “Business Card”)
xi. the NEB pamphlet (blue colour) Information for Proposed Pipeline or Power Line Projects that Do Not Involve a Hearing if the project is not subject to a hearing. (For hearings, provide the NEB pamphlet (yellow colour) Information for Proposed Pipeline or Power Line Projects that Involve a Hearing);	EIS 3.4.3.8, 3.4.6; Public Engagement Process Technical Data Report – Engagement Materials (see “Information for Proposed Pipeline Projects that Do Not Involve a Hearing”)
d. A summary of the comments and concerns expressed by potentially affected persons or groups;	EIS 3.5
e. A summary of the response made regarding each of the concerns or comments, including:	
i. The measures taken, or that will be taken to address those concerns or an explanation of why no further action is required to address the concerns or comments; and	EIS 3.5, 3.8.2.2, 3.10.2.2; Public Engagement Process Technical Data Report – Part A (Appendix E), Part B (Appendix E) and Part C (Appendix E6)

Manual Reference	EIS Chapter/Section and Manner Addressed
ii. The methods and dates that the response was made to the person(s) who raised the concern(s)	EIS 3.4.4; Public Engagement Process Technical Data Report – Part A (Section 3 – Stakeholder Group Workshops and Meetings, Section 4 – Public Open Houses, Section 5 – Manitoba Hydro Email and Telephone Line and subsections and Appendix E), Part B (Section 2 – Stakeholder Group and Landowner Meetings, Section 3 – Public Open Houses, Section 4 – Manitoba Hydro Email and Telephone Line, including subsections and Appendix E) and Part C (Section 4 – Round 3 Public Engagement Feedback and Appendices E2-E6)
f. How outstanding concerns will be addressed;	EIS 3.11
g. How input from persons or groups has influenced the design, construction or operation of the project;	EIS 3.4.9, 3.6.3, 3.7.2, 3.8.2, 3.9.2, 3.10.2, 3.10.3
h. Details regarding discussions with Aboriginal groups, which includes each of the items listed above and:	
i. the identity of all Aboriginal groups contacted, how they were identified, when and how they were contacted and who was contacted.	EIS 4.3, 4.3.1
ii. any relevant, non-confidential written documentation regarding consultations	EIS Chapter 4 – Appendices
iii. The details and results of the consultation undertaken with all persons who may be affected by any changes to the project.	EIS 3.4.3.2, 3.4.3.5, 3.8.4.5, 3.10
PHYSICAL AND METEOROLOGICAL ENVIRONMENT	
1. Describe the general topography of the project area and any particular physical features crossed by the project or which may affect the project.	EIS 6.2.4.1, 16.4, 16.4.1; Soil and Terrain Technical Data Report 4.1; Socio-economic and Land Use Technical Data Report 1.2.2

Manual Reference	EIS Chapter/Section and Manner Addressed
2. Identify any areas of ground instability.	EIS 6.2.4.1; Soil and Terrain Technical Data Report 4.10
3. Identify areas of potential wind or water erosion.	EIS 8.4.1; Soil and Terrain Technical Data Report 4.8, 4.9
4. Describe the local and regional climate. Also identify the potential for extreme weather events such as wind, precipitation and temperature extremes.	EIS 6.2.1, 20.7.2.2, 20.7.2.3; MMTP Historic and Future Climate Study
5. Identify any areas with potential for acid- generating rock and describe the effects if exposed as a result of the project.	EIS 6.2.2.1; Groundwater Technical Data Report 4.1.1
6. Identify and describe any areas with permafrost conditions.	The Project does not traverse any areas where permafrost is known to occur
7. Describe how local or regional physical and meteorological conditions could affect the project, including how changing conditions may affect the project over the lifetime of the project.	EIS 20.7
SOIL AND SOIL PRODUCTIVITY	
1. Describe general soil characteristics and the current level of disturbance associated with soils.	EIS 6.2.4.2, 15.4.1, 15.4.2; Soil and Terrain Technical Data Report 4.2
2. For agricultural lands or forested lands with agricultural capability, describe:	
a. The soil classification, including the order, group, family, series and type of soil prior to construction, and quantify the soil classification;	Soil and Terrain Technical Data Report 4.3
b. The productivity of land and the type of agricultural resource;	EIS 15.4.2; Soil and Terrain Technical Data Report 4.6; Socio-economic and Land Use Technical Data Report 4.5
c. The soil types in the study area that are highly susceptible to:	
i. Wind and water erosion;	EIS 15.4.2; Soil and Terrain Technical Data Report 4.8, 4.9
ii. Soil compaction; and	EIS 15.4.2; Soil and Terrain Technical Data Report 4.7

Manual Reference	EIS Chapter/Section and Manner Addressed
iii. Loss of structure and tilth;	EIS 15.4.2; Soil and Terrain Technical Data Report 4.7
d. Any other soil types needing specific management or mitigation measures; and	Soil and Terrain Technical Data Report 5.0
e. Soil conservation and protection measures.	EIS 15.4.2
3. Describe any contaminants of concern potentially associated with the project that may affect soil.	EIS 2.18.1.3; Soil and Terrain Technical Data Report 4.11
4. Describe the historical land use and the potential for contamination of soils or sediments. Describe any known or suspected soil contamination within the study area that could be re-suspended, released or otherwise disturbed as a result of the project.	EIS 6.2.4.3; Soil and Terrain Technical Data Report 4.11; Socio-economic and Land Use Technical Data Report 4.5
5. If sediments or soils are contaminated, describe the applicable regulatory standards and all remediation, mitigation and monitoring measures that will be undertaken.	EIS 2.19, 6.2.4.3; Chapter 22, Appendix A, Appendix G “Guidance for Contaminated Soils or Groundwater Identification and Disposal
6. Describe the criteria for evaluating reclamation success. Explain how this evaluation would be undertaken and documented. Reclamation measures could include, where applicable:	
a. Erosion control, other than re-vegetation;	EIS 22.2.6.4; Chapter 22, Appendix A
b. Soil reclamation;	EIS 15.9; Chapter 22, Appendix A
c. Drainage tile repair;	EIS 15.9; Chapter 22, Appendix A
d. Soil compaction alleviation; and	EIS 15.9
e. Soil salinity reduction	EIS Chapter 22, Appendix A
7. Where residual effects have been predicted, identify whether those residual effects would be likely to act in combination with the effects of other physical facilities or activities and expand on the matters described above as appropriate.	EIS 15.5.4, 15.6 (and subsections)

Manual Reference	EIS Chapter/Section and Manner Addressed
VEGETATION	
1. For lands where vegetation may be affected by the project, describe:	
a. The pre-project diversity, relative abundance and distribution of vegetation species and communities of ecological, economic or human importance (e.g., traditional use, tame pasture, native prairie, wetland or old growth), prior to construction;	EIS 10.4, 10.4.1, 10.4.2, 10.4.3, 10.4.4, 10.4.5, 10.4.6, 10.4.7; Vegetation and Wetlands Technical Data Report 1.1. 2, 2.1, 2.2, 2.3, 2.4, 2.6, 2.7, Appendix A and B
b. The conservation status applicable to any particular species or communities;	EIS 10.4.6; Vegetation and Wetlands Technical Data Report 2.6
c. The current level of disturbance associated with vegetation; and	EIS 10.4.1, 10.4.2, 10.4.3, 10.4.4, 10.4.5; Vegetation and Wetlands Technical Data Report 2.1, 2.2, 2.3, 2.5
d. The amount, merchantability and location of any merchantable timber to be removed during project construction.	EIS 16.5.4 (and subsections); 16.5.6.2 and Appendix 16C
2. Describe any weed infestations and other invasive and introduced species of concern.	Vegetation and Wetlands Technical Data Report 2.5 (and subsections); Appendix A and B
3. Describe re-vegetation procedures to be implemented as part of the project, including:	
a. Re-vegetation techniques and the locations where they would be implemented;	EIS 2.13.3, 10.5.5.2, 10.5.7.2, 22.2.6.5; Chapter 22, Appendix A
b. Seed mixes to be used, their application rates, and the locations for their application, or the criteria for determining these specifications, and a discussion of the use of seed certificates;	EIS 10.5.7.2, 22.2.6.5; Chapter 22, Appendix A
c. Any fertilizers to be used, their application rates and locations, or the criteria for determining these specifications;	EIS 2.13.3, 22.2.6.5; Chapter 22, Appendix A
d. Contingency planting and seeding plans that include a description of any species of vegetation to be replanted, the locations for replanting, or the criteria for determining these specifications	EIS 10.5.3.2, 10.5.5.2, 10.5.7.2, 22.2.6.5; Chapter 22, Appendix A

Manual Reference	EIS Chapter/Section and Manner Addressed
4. Describe the condition(s) to which the ROW and temporary work space will be reclaimed and maintained once construction has been completed. Explain the extent to which the ROW needs to be kept cleared or could be left to grow and provide the criteria relied on to determine this.	EIS 2.13.3, 10.5.2.2, 10.5.3.2, 10.5.3.3, 10.5.3.3.1, 10.5.3.3.2, 10.5.3.4, 10.5.2.2, 10.5.3.2, 10.5.7.2
5. Describe the vegetation standards and controls to be implemented while constructing and operating the project. Describe any integrated vegetation management program, including:	EIS 2.11.3, 10.5.3.2, 10.5.5.2, 10.5.6.2, 10.5.6.3.1, 10.5.6.4, 22.2.6.7; Chapter 22, Appendix A
a. The criteria and circumstances for applying chemical, biological or mechanical control methods	EIS 2.13.3, 10.5.3.2, 10.5.5.2, 10.5.6.2, 10.5.6.3.1, 10.5.6.4
b. The selection of plant species to be kept and planted to promote naturally low growing plant communities	EIS 10.5.3.2, 10.5.5.2, 10.5.6.2, 10.5.6.3.1, 10.5.6.4
c. The use of herbicides, tree growth regulators or other chemicals, their application rates and protocols	EIS 2.13.3, 10.5.3.2, 10.5.5.2, 10.5.6.2, 10.5.6.3.1, 10.5.6.4
6. Describe the condition(s) to which the ROW and temporary work space will be reclaimed and maintained once construction has been completed. Explain the extent to which the ROW needs to be kept cleared or could be left to grow and provide the criteria relied on to determine this.	EIS 2.13.3, 10.5.2.2, 10.5.3.2, 10.5.3.3, 10.5.3.3.1, 10.5.3.3.2, 10.5.3.4, 10.5.2.2, 10.5.3.2, 10.5.7.2
7. Describe criteria for evaluating reclamation success related to vegetation and how this evaluation would be undertaken and documented.	EIS 10.9, 10.10; Chapter 22, Appendix A
WATER QUALITY AND QUANTITY	
1. Provide a project-specific water use assessment identifying and describing the water resources and the quality of those resources potentially affected by the project, including: any need for water withdrawn from local waterbodies, the purpose, the quantities required, the waterbodies used as a supply source, the flow rate or volume of water available in the waterbody and how and where waste water would be discharged.	EIS 16.4, 16.4.8.3.2
2. Describe any interactions between the project and groundwater. Where there is an interaction:	EIS 16.5.7 (and subsections)
a. Describe any potential changes in groundwater flows and any subsequent effects from the changes; and	EIS 16.5.7 (and subsections)

Manual Reference	EIS Chapter/Section and Manner Addressed
b. Identify any wells nearby, providing criteria for the spatial boundary considered, and describe the potential for well water quantity and quality to be affected	EIS 16.5.7 (and subsections)
3. Describe any contaminants potentially associated with the project that may affect water quality.	EIS 8.5.2.1.2, 8.5.3.1.1, 8.5.3.1.2, 16.5.7 (and subsections)
4. Describe mitigation for any potential effects on surface-, ground- or well-water quantity and quality, including the need for any specific pre- and post-construction monitoring.	EIS 8.5.2.2, 8.5.3.2, 8.9, 8.10.1, 16.5.7 (and subsections)
5. Describe any applicable water management plans.	EIS 16.4, 16.4.8.3.2
6. Where residual effects have been predicted, identify whether those residual effects would be likely to act in combination with the effects of other physical facilities or activities and expand on the matters described above as appropriate.	EIS 8.6
FISH AND FISH HABITAT	
1. Identify fish species and their life stages in the study area, as well as their contribution to local fisheries or to ecological importance.	EIS 8.4.2, 8.4.3; Fish and Fish Habitat Technical Data Report 3.4
2. Describe the seasonal ranges, seasonal sensitive periods, habitat use, movements, and general population status of fish species identified above.	EIS 8.4.4, 8.4.3, 8.4.5, 8.4.4; Fish and Fish Habitat Technical Data Report 3.4
3. Identify any fisheries avoidance measures, mitigation, or other measures to protect and enhance fish and fish habitat, including protected areas in and near the study area.	EIS 8.1.1, 8.1.2, 8.4, 8.4.3, 8.5.2.2, 8.5.3.2
4. Identify the need for an Authorization under paragraph 35(2)(b) of the <i>Fisheries Act</i> for a serious harm to fish that are part of a commercial, recreational or aboriginal fishery, or to fish that support such a fishery and discuss any applicable DFO guidance documents.	EIS 8.1.1
5. Describe, in detail, sensitive areas and sensitive habitats, including wetlands and riparian habitat.	EIS 8.4, 10.4, 10.4.1, 10.4.2, 10.4.4, 10.5.2.2, 10.5.2.3.1, 10.5.4.2, 10.5.4.3.1, 10.5.8, 10.6, 10.6.1, 10.6.3, 10.7, 10.9, 10.10; Fish and Fish Habitat Technical Data Report 3.7
6. Where fish-bearing watercourses would not be crossed by trenchless methods, either describe and justify watercourse-crossing techniques to be used or the criteria for determining the techniques proposed for each watercourse crossing.	EIS 2.9.2, 2.12.3; Chapter 22, Appendix B, 4.4

Manual Reference	EIS Chapter/Section and Manner Addressed
7. Describe the timing of any instream work, including restricted activity periods and windows.	EIS 8.4.4; Fish and Fish Habitat Technical Data Report 2.4
8. Describe the conditions to which the watercrossings and riparian zones would be reclaimed and maintained once construction has been completed.	EIS 8.5.2.1.1, 8.5.2.2.1; Chapter 22, Appendix B, 4.8
9. Describe criteria for evaluating success of reclamation of fish-bearing water bodies and their banks, as well as riparian areas. Describe how and when this evaluation would be undertaken and documented.	EIS 8.9, 8.10.1
10. Where residual effects have been predicted, identify whether those residual effects would be likely to act in combination with the effects of other physical facilities or activities and expand on the matters described above as appropriate.	EIS 8.6
WETLANDS	
1. Quantify, delineate and describe wetlands in the context of:	
a. Wetland class, ecological community type and conservation status	EIS 10.4, 10.4.1, 10.4.2, 10.4.3, 10.4.4; Vegetation and Wetlands Technical Data Report 2.4, Appendix A
b. Abundance at local, regional and provincial scales	EIS 10.4, 10.4.1, 10.4.2, 10.4.3, 10.4.4; Vegetation and Wetlands Technical Data Report 2.3.2, 2.4, Appendix A
c. Distribution	EIS 10.4, 10.4.1, 10.4.2, 10.4.3, 10.4.4; Vegetation and Wetlands Technical Data Report 1.1.2, 2.2, 2.3, 2.4, Appendix A
d. Current level of disturbance	EIS 10.4, 10.4.1, 10.4.2, 10.4.4; Vegetation and Wetlands Technical Data Report 2.2, 2.3: 2.4, Appendix A
2. Identify and describe wetland capacities to perform hydrological, water quality, habitat or other ecological functions.	EIS 10.1, 10.3, 10.4, 10.4.1, 10.4.4; Vegetation and Wetlands Technical Data Report 1.2, 2.1, 2.2, 2.3, 2.4

Manual Reference	EIS Chapter/Section and Manner Addressed
3. Identify a regional study area of sufficient size to capture effects on wetlands within the larger drainage area. Include wetlands located outside of the local study area that may be affected by hydrological changes as a result of cumulative effects.	EIS 10.2, 10.2.1, 10.3 , 10.4, 10.5.1 and all sub-sections; Appendix A; Vegetation and Wetlands Technical Data Report 1.1.2, 1.2: , 2.1, 2.2, 2.3, 2.4
4. Detail the efforts to be taken to avoid impacting wetlands, mitigation, monitoring and any applicable compensation measures, for potentially affected wetlands.	EIS 10.1, 10.1.1, 10.5.1, 10.5.4 (and subsections), 10.9, 10.10
5. Where residual effects have been predicted, identify whether those residual effects would be likely to act in combination with the effects of other physical facilities or activities and expand on the matters described above as appropriate.	EIS 10.5.1 (and subsections), 10.5.4 (and subsections), 10.5.5 (and subsections), 10.6 (and subsections)
WILDLIFE AND WILDLIFE HABITAT	
1. Identify wildlife species of ecological, economic or human importance in the study area. Also describe the:	
a. Diversity, distribution and location	EIS 9.4.2, 9.4.3, 9.4.4, 9.4.5; Wildlife and Wildlife Habitat Technical Data Report 2.3.4, 2.4.4, 2.5.4
b. Abundance and population status	EIS 9.4.2, 9.4.3, 9.4.4, 9.4.5; Wildlife and Wildlife Habitat Technical Data Report 2.3.4, 2.4.4, 2.5.4
c. Life cycle	EIS 9.4.2, 9.4.3, 9.4.4, 9.4.5; Wildlife and Wildlife Habitat Technical Data Report 2.3.4, 2.4.4, 2.5.4
d. Seasonal ranges (e.g., migration)	EIS 9.4.2, 9.4.3, 9.4.4, 9.4.5; Wildlife and Wildlife Habitat Technical Data Report 2.3.4, 2.4.4, 2.5.4
e. Habitat requirements	EIS 9.4.2, 9.4.3, 9.4.4, 9.4.5; Wildlife and Wildlife Habitat Technical Data Report 2.3.4, 2.4.4, 2.5.4
f. Movements (e.g., wildlife corridors)	EIS 9.4.2, 9.4.3, 9.4.4, 9.4.5; Wildlife and Wildlife Habitat Technical Data Report 2.3.4, 2.4.4, 2.5.4

Manual Reference	EIS Chapter/Section and Manner Addressed
g. Sensitive periods (e.g., seasonal, diurnal and nocturnal)	EIS 9.4.2, 9.4.3, 9.4.4, 9.4.5; Wildlife and Wildlife Habitat Technical Data Report 2.3.4, 2.4.4, 2.5.4
2. With respect to birds in the area, describe:	
a. The species' vulnerability to collisions with overhead conductors	EIS 9.1, 9.5.3
b. Any monitoring of bird strikes with existing nearby powerlines and the findings from this;	EIS 9.1, 9.3, 9.5, 9.9; Wildlife and Wildlife Habitat Technical Data Report 2.4.3.7
c. The findings from studies on the effectiveness of diverters or other proposed mitigations for the particular birds of relevance;	EIS 9.5.3.3.2
d. The design with respect to the risk of electrocution of birds;	EIS 9.5.3.1.2
e. Any proposed mitigation and monitoring, and the rationale for these; and	EIS 9.5.2.2, 9.5.3.2, 9.9
f. Any comments received from the Canadian Wildlife Service and any local birding group.	EIS 9.1.2, 9.3.1.4.2, 9.4.2, 9.5.3.1
3. For the wildlife identified, describe and quantify the habitat type, including its:	
a. Function	EIS 9.4.1; Wildlife and Wildlife Habitat Technical Data Report 2.2.1.2
b. Location	EIS 9.4.1; Wildlife and Wildlife Habitat Technical Data Report 2.2.1.2
c. Suitability	EIS 9.4.1; Wildlife and Wildlife Habitat Technical Data Report 2.2.1.2
d. Structure	EIS 9.4.2, 9.4.3, 9.4.4, 9.4.5; Wildlife and Wildlife Habitat Technical Data Report 2.2.1.2
e. Diversity	EIS 9.4.2, 9.4.3, 9.4.4, 9.4.5; Wildlife and Wildlife Habitat Technical Data Report 2.2.1.2

Manual Reference	EIS Chapter/Section and Manner Addressed
f. Relative use	EIS 9.4.2, 9.4.3, 9.4.4, 9.4.5; Wildlife and Wildlife Habitat Technical Data Report 2.2.1.2
g. Abundance as it exists prior to project construction	EIS 9.4.1, 9.4.2, 9.4.3, 9.4.4, 9.4.5; Wildlife and Wildlife Habitat Technical Data Report 2.2.1.2
4. Describe any lands in the study area that might constitute sensitive areas and habitat for wildlife, or nearby environmentally-significant areas, such as National Parks, areas of natural or scientific interest, Migratory Bird Sanctuaries or other important bird areas or sanctuaries, National Wildlife Areas, or World Biosphere Reserves.	EIS 9.4.1; Wildlife and Wildlife Habitat Technical Data Report 3.0
5. Identify wildlife management areas and established or proposed sanctuaries or other areas in or near the study area.	EIS 9.4.1; Wildlife and Wildlife Habitat Technical Data Report 2.2.1.2
6. Describe the levels of disturbance currently affecting wildlife and habitat, such as habitat fragmentation and the extent of human access and use.	EIS 9.4.1; Wildlife and Wildlife Habitat Technical Data Report 2.2.1.3
7. Where residual effects have been predicted, identify whether those residual effects would be likely to act in combination with the effects of other physical facilities or activities and expand on the matters described above as appropriate.	EIS 9.6
Further, with respect to cumulative effects:	
1. Describe the cumulative disturbance footprint of proposed and future physical facilities and activities within known key habitats (e.g., migration corridors, denning or calving areas, feeding areas) and distribution of that footprint, quantitatively where possible. Describe the effects on the connectivity of key habitats.	EIS 9.6.1, 9.6.2
2. Describe the cumulative effects on wildlife that could occur as a result of the timing of the proposed project in combination with other physical facilities or activities.	EIS 9.6.2.1
3. Describe how cumulative changes in access would affect wildlife mortality risk or habitat quantity and quality.	EIS 9.6.2, 9.6.3
4. Compare the cumulative effect on each species assessed to any available species-specific thresholds or policies, and indicate to what degree a threshold is approached or exceeded.	EIS 9.6

Manual Reference	EIS Chapter/Section and Manner Addressed
SPECIES AT RISK OR SPECIES OF SPECIAL STATUS	
1. For effects related to wildlife, fish, and plant species at risk or species of special status:	
a. Identify the species and their status;	EIS 8.4.3, 9.1, 9.4.2, 10.3.1.2.3, 10.3.1.2.4, 10.4.6, 10.4.7; Vegetation and Wetlands Technical Data Report 2.6, 2.7, Appendix A and B; Wildlife and Wildlife Habitat Technical Data Report 2.1, Appendix A.5
b. Provide the appropriate references to the SARA Schedules, or Committee on the Status of Endangered Wildlife in Canada (COSEWIC), provincial or territorial listing;	EIS 8.4.3, 9.1.1, 10.1, 10.1.1.2, 10.2, 10.3.1, 10.4 (and subsections), Vegetation and Wetlands Technical Data Report 2.6, 2.7, Appendix A and B; Wildlife and Wildlife Habitat Technical Data Report 2.1, Appendix A.5
c. Identify their habitat(s), including any critical habitat(s) identified in a Recovery Strategy or an Action Plan listed on the SARA public registry;	EIS 8.4.3, 9.4.2; Wildlife and Wildlife Habitat Technical Data Report 2.2, 2.2.1.2
d. Determine whether the species, its critical habitat, or the residences of those species could be affected by project activities;	EIS 9.4.2, 10.5.6.2, 10.5.6.3.1, 10.5.6.4, 10.9, 10.10; Vegetation and Wetlands Technical Data Report 2.6, 2.7, Appendix A and B
i. If not, explain why not;	EIS 8.4.3, 8.5.2.1, 9.4.2, 10.5.6.2, 10.5.6.3.1, 10.5.6.4, 10.9, 10.10; Vegetation and Wetlands Technical Data Report 2.6, 2.7, Appendix A and B
ii. If yes, describe any potential effects;	EIS 8.4.3, 8.5.2.1, 9.5.2 (and subsections), 9.5.3 (and subsections), 10.5.6.3.1, 10.5.6.4, 10.9, 10.10; Vegetation and Wetlands Technical Data Report 2.6, 2.7, Appendix A and B

Manual Reference	EIS Chapter/Section and Manner Addressed
iii. Identify any critical timing windows (e.g., denning, rutting or spawning), setback distances, or restrictions;	EIS 8.4.4, 8.5.2.2 (and subsections), 8.5.3.2, 9.5.2.2, 9.5.3.2, 9.5.3.3, 9.6.3.2, 9.9; No SAR found to occur in Project area but if found pre construction: 10.5.6.2, 10.5.6.3.1, 10.5.6.4, 10.9, 10.10; Vegetation and Wetlands Technical Data Report 2.6, 2.7, Appendix A and B
iv. Identify if a provincial, territorial or federal (e.g., SARA) permit will be required; and	EIS 9.5.2.1, 10.1.1.3
v. Identify any proposed mitigative measures (e.g., improved project design or construction timing or comprehensive plan).	EIS 8.4.4, 8.5.2.2 (and subsections), 8.5.3.2, 9.1.2, 9.5.2.2, 9.5.3.2, 9.6.2.2, 9.6.3.2, 10.5.6.2, 10.5.6.3.1, 10.9, 10.10; Vegetation and Wetlands Technical Data Report 2.6, 2.7
2. Where the project may result in the destruction of any part of the critical habitat of a wildlife species listed on Schedule 1 of SARA, describe:	No SAR found to occur in Project area but if found to occur pre construction: 10.5.6.2, 10.5.6.3.1, 10.9, 10.10
a. Any discussions with the appropriate Federal Authority (Environment Canada, Fisheries and Oceans Canada, Parks Canada) on obtaining a permit under section 73 of the SARA;	EIS 9.5.2.1
b. All reasonable alternatives to the project that would avoid the effect on the species' critical habitat; and	EIS 2.2, 2.3.2.2, 2.5; Chapter 5
c. All feasible measures that will be taken to eliminate the effect of the work or activity on the species' critical habitat.	EIS 8.5.2.2, 8.9, 9.5.2.2, 9.5.3.2, 9.10.1, No SAR found to occur in Project area but if found pre construction: 10.5.6.2, 10.5.6.3.1, 10.9, 10.10; Vegetation and Wetlands Technical Data Report 2.6, 2.7
3. Where residual effects have been predicted, identify whether those residual effects would be likely to act in combination with the effects of other physical works or activities and expand on the matters described above as appropriate.	EIS 9.6, 10.5.1 (and subsections), 10.5.6, 10.5.6.3 (and subsections), 10.6 (and subsections)

Manual Reference	EIS Chapter/Section and Manner Addressed
AIR QUALITY	
1. For effects, or public concerns, associated with dust or emissions from construction activities:	
a. Provide an overview of concern; and	EIS 18.1.2
b. Provide a qualitative assessment.	EIS 18.5.2, 18.6.2; Air Technical Data Report 5.2
ACOUSTIC ENVIRONMENT	
1. Where there is a public concern associated with an increase in noise levels during construction, provide a noise impact assessment, including an overview of the concerns.	EIS 18.1.2; Noise Technical Data Report
2. For projects that result or may result in an increase in noise emissions during operations or maintenance:	
a. Describe existing ambient noise levels in the area, including the methods and data sources used to determine the ambient levels;	EIS 18.4.1.3, 18.3.1; Noise Technical Data Report 4.1
b. Identify the potentially affected receptors and permissible sound levels for each receptor;	Noise Technical Data Report 4.2, Appendix A
c. Quantify noise levels at appropriate distances from the facility (e.g., at edges of the ROW/facility and at the affected receptor) and describe the frequency, duration and character of noise;	EIS 18.5.4; Noise Technical Data Report 5.1, 5.2.1
d. Provide the predicted sound levels from the project alone and predicted cumulative sound levels in combination with other existing and future physical facilities and activities in the area, including an assessment of low frequency noise;	EIS 18.5.4, 18.6.4
e. Describe consultation with regulators, stakeholders, community groups, landowners and Aboriginal communities about potential effects of the project on the acoustic environment;	EIS 18.1.2
f. Identify and justify the applicable guidelines used to determine the significance of the effects of the predicted emissions associated with the project;	EIS 18.3.2.4

Manual Reference	EIS Chapter/Section and Manner Addressed
g. Provide a noise management plan, including identification of noise sources, an assessment of current noise mitigation measures, performance effectiveness of noise control devices, best practices programs and continuous improvement programs; and	Chapter 22, Appendix A, 2.2, 5.2 (EC-2.03); Noise Technical Data Report
h. Identify the need for follow-up monitoring for the purposes of validation of the model or as a result of any concerns raised by the public.	EIS 18.9
ELECTROMAGNETISM AND CORONA DISCHARGE	
1. For operating voltages above 240 kV, describe:	
a. The levels of noise,	EIS 18.5.4.3.2; Noise Technical Data Report 5.2.1
b. Ozone concentration,	N/A.
c. Electric field gradient and magnetic field strength expected at the edge of the right-of-way at maximum loading of the international power line,	EIS 18.5.5.1.1
d. The predicted electromagnetic field levels	EIS 18.5.5
e. Any relevant standards.	EIS 18.5.5
2. Identify the potential for any electromagnetic interference with radio and television signals and reception, under fair and foul weather conditions at maximum load. Describe the area potentially affected, the frequency and duration of occurrence, and any applicable standards.	EIS 13.4.7, 13.5.6 (and subsections)
3. Describe potential induction effects on other infrastructure operators. Where this could affect existing operations describe any authorizations required and consultations with potentially affected infrastructure operators and how any concerns raised will be addressed.	EIS 13.5.5 (and subsections)
HUMAN OCCUPANCY AND RESOURCE USE	
1. Describe the general patterns of human occupancy and resource use in the study area.	EIS 16.4 (and subsections)

Manual Reference	EIS Chapter/Section and Manner Addressed
2. Describe the potential interactions of the project with local and regional human occupancy and resource development activities. Include effects the project may have on the maintenance of those activities and on the livelihood of local workers, business owners and operators.	EIS 16.5 (and subsections), 16.5.1 (and subsections), 16.5.2 (and subsections); 16.5.3 (and subsections), 16.5.4 (and subsections); 16.5.5 (and subsections); 16.5.6 (and subsections); 16.5.7 (and subsections)
3. Describe the goals of any applicable local or regional land use plans or local or regional development plans and the extent to which the project is aligned with such plans.	EIS 16.1.1
4. Identify predicted impacts of the project on the quality and quantity of ground or surface water used for domestic, commercial, agricultural or recreational uses.	EIS 16.5.5 (and subsections)
5. Identify any predicted visual or other aesthetic effects of the project on existing land use in the study area.	EIS 17.5.2, 17.5.5, 17.6.2
6. Identify any predicted effects of the project on livestock health and productivity.	EIS 15.5.2, 15.5.3
7. Describe any site specific and project wide mitigation to address identified effects.	EIS 16.5.2.2, 16.5.3.2, 16.5.4.2, 16.5.5.2, 16.5.6.2, 16.5.7.2
8. Where residual effects have been predicted, identify whether those residual effects would be likely to act in combination with the effects of other physical facilities or activities and expand on the matters described above as appropriate.	EIS 16.5.2.3 (and subsections); 16.5.3.3 (and subsections); 16.5.4.3, 16.5.5.3, 16.5.6.3, 16.5.7.3, 16.5.8
HERITAGE RESOURCES	
1. Describe any known heritage resources in the study area.	EIS 12.3.1, 12.4; Heritage Resources Technical Data Report 6.1
2. Determine the potential for any undiscovered heritage resources in the study area.	EIS 12.3.2, 12.5.2.2, 12.5.3.2, 12.9; Heritage Resources Technical Data Report 4.2
3. Describe what contingency plans and field measures would be undertaken should a heritage resource be discovered during construction.	EIS 12.9; Heritage Resources Technical Data Report 8.0
4. Provide copies of correspondence from provincial or territorial authorities responsible for heritage resources with comments respecting any heritage resource impact assessment and proposed mitigation measures.	EIS 12.1.2

Manual Reference	EIS Chapter/Section and Manner Addressed
5. Indicate whether the applicant would implement the recommendations of the provincial or territorial heritage resource authorities.	EIS 12.9; Heritage Resources Technical Data Report 8.0
6. If a previous heritage resource assessment has been completed in the study area, a summary should be filed along with any additional mitigation measures specific to the applied for project.	EIS 12.3.1.1; Heritage Resources Technical Data Report 4.2.2
TRADITIONAL LAND AND RESOURCE USE	
1. Describe how lands and resources in the study area are currently used by Aboriginal persons or groups for traditional purposes.	EIS 11.4
2. Identify the Aboriginal persons or groups currently carrying out traditional land and resource use activities, the spatial and temporal extent of use and how the project would impact this use.	EIS 11.4, 11.5
3. Describe all reasonable alternatives to the project considered that would avoid the impact on the Aboriginal traditional land and resource use considered during project development.	EIS 11.1.3.1
4. Describe all feasible measures that would be taken to mitigate the impact of the activity on Aboriginal traditional land and resource use.	EIS 11.5.2.2, 11.5.3.2, 11.5.4.2, 11.5.5.2, 11.5.6.2
5. Describe the methodology used to collect the Aboriginal land and resource use information and provide a listing, and the rationale for the listing, of all Aboriginal persons and groups contacted.	EIS 11.1.3, 11.2.3.1, 11.3
6. Demonstrate that those Aboriginal persons and groups participating in collecting traditional use information have had the opportunity to review the information and proposed mitigation. Include any comments from the Aboriginal participants on the information and proposed mitigation.	EIS 4.3, 4.4, 4.5
7. Where residual effects have been predicted, identify whether those residual effects would be likely to act in combination with the effects of other physical facilities or activities and expand on the matters described above as appropriate.	EIS 11.6
SOCIAL AND CULTURAL WELL-BEING	
1. Describe the socio-cultural setting of the study area, indicating the:	
a. Predominant cultural and Aboriginal groups;	EIS 4.3.1, 6.3.3, 6.3.5, 11.1.3, 19.1.2

Manual Reference	EIS Chapter/Section and Manner Addressed
b. Demographic features of the local population and workforce; and	EIS 14.4, 19.4.2.8; Socio-Economic and Land Use Technical Data Report 4.2, 4.4
c. Prevalent socio-cultural concerns of residents, families and workers in the study area.	EIS 19.1.2
2. Provide an overview of the predicted socio- cultural effects on the local community from the project.	EIS 19.4, 19.5
3. Describe the predicted interactions of project construction, operations, and maintenance workforces with the local community, residents and businesses.	EIS 14.5.1, 14.5.2, 19.5.2, 19.5.3, 19.5.4, 19.5.5, 19.5.6
4. Describe any mitigative measures to address identified effects.	EIS 14.5.1.1, 19.5.2.2, 19.5.3.2, 19.5.4.2, 19.5.5.2, 19.5.6.2
5. Where residual effects have been predicted, identify whether those residual effects would be likely to act in combination with the effects of other physical facilities or activities and expand on the matters described above as appropriate.	EIS 19.6
HUMAN HEALTH	
1. Describe and quantify:	
a. The project-related activities, toxic components, nuisances and environmental changes that could potentially be sources of adverse human health effects; and	EIS 18.1, 18.5
b. The potential human receptors of these effects.	EIS 18.1, 18.5
2. Where the project could create air, water or noise emissions or effluent discharge levels that meet local, provincial, territorial or federal guidelines (e.g., CCME Guidelines, ERCB Directive 038, AUC Rule 012), yet public concerns regarding human health effects have been raised, provide a description of the public concerns and how they would be addressed.	EIS 18.1.2.1, 18.1.2.2, 18.3.2
3. Where the project could create health effects, summarize how these effects would be mitigated.	EIS 2.15.1.3, 18.5.2.2, 18.5.3.2, 18.5.4.2, 18.5.5.2

Manual Reference	EIS Chapter/Section and Manner Addressed
4. Where it is reasonable to assume there could be a potentially high or significant risk to human health from the project, provide a human health risk assessment.	As there are no anticipated significant human health risks associated with the Project, and quantitative data were not available for potential air quality effects, a quantitative human health risk assessment was not conducted
5. Provide a description of any predicted visual or other aesthetic effects of the project on residents or other potentially affected persons or users in the study area.	EIS 17.5.2; 17.6.2, 19.5.4
6. Where residual effects have been predicted, identify whether those residual effects would be likely to act in combination with the effects of other physical facilities or activities and expand on the matters described above as appropriate.	EIS 18.6.2, 18.6.3, 18.6.4, 18.6.5
INFRASTRUCTURE AND SERVICES	
1. Describe the existing local and regional infrastructure in the study area, including:	
a. Railways	EIS 13.4.5
b. Roads, highways and their traffic usage levels and patterns	EIS 13.4.6; Traffic Impact Study 2.0
c. Pipelines, water mains and sewage lines	EIS 13.4.6
d. Navigable waterways	EIS 16.4
e. Existing power lines	EIS 13.4.6
f. Any other potentially affected facilities	EIS 13.4.6, 13.4.4.2
2. Describe the existing local and regional services in the study area and the predicted effects on those services. Include an assessment of effects to:	
a. Accommodation, including camping facilities	EIS 13.4.3, 13.5.2 (and subsections)
b. Recreation	EIS 13.4.4.2
c. Waste disposal	EIS 13.4.4.5, 13.5.3
d. Police	EIS 13.4.4.1.1, 13.5.3
e. Fire-fighting	EIS 13.4.4.1.2, 13.5.3

Manual Reference	EIS Chapter/Section and Manner Addressed
f. Ambulance	EIS 19.4.1.10.3
g. Health care services	EIS 19.4.1.10
3. Describe potential induction effects on other infrastructure operators. Where this could affect existing operations describe any authorizations required and consultations with potentially affected infrastructure operators and how any concerns raised will be addressed.	EIS 13.5.5 (and subsections)
4. Describe any need for government and applicant expenditures for new or expanded services or infrastructure, arising out of project-related effects.	None required
5. Describe any mitigative measures, including applicable plans, to address identified effects.	EIS 13.5.2.3, 13.5.3.3 (and subsections), 13.5.4.3, 13.5.5.3, 13.5.6.3
6. Where residual effects have been predicted, identify whether those residual effects would be likely to act in combination with the effects of other physical facilities or activities and expand on the matters described above as appropriate.	EIS 13.6
NAVIGATION AND NAVIGATION SAFETY	
1. Provide a listing of navigable waterways that the proposed power line corridor will pass in, on, under, over, through or across and the proposed crossing methodology.	EIS 16.4, 16.4.8.3; Chapter 22, Appendix B, 4.4
2. Provide a listing of ancillary project components that will be constructed in, on, under, over, through, or across navigable waterways to support the power line project (e.g., temporary and permanent bridges).	EIS 2.9.2, 2.12.3; Chapter 22, Appendix B 4.4
3. Provide a listing of potentially affected waterway users and describe consultation conducted with waterway users and Aboriginal groups regarding navigational use, issues raised, and how issues have been addressed.	EIS 4.5.5.2, 4.5.9.2, 16.4, 16.4.8.3
4. Describe project effects on navigation and navigation safety.	EIS 16.5, 16.5.3 (and subsections)
5. Describe proposed mitigation measures to address project effects on navigation and navigation safety.	EIS 16.5.3.2
EMPLOYMENT AND ECONOMY	
1. Describe the local and regional employment situation in the study area.	EIS 14.4.1 (and subsections)

Manual Reference	EIS Chapter/Section and Manner Addressed
2. Describe any local or regional training and employment development plans.	EIS 14.1.1.1
3. Describe the ability of local and Aboriginal residents and businesses to provide labour services, equipment, supplies and other contracting needs during construction, operation and maintenance of the project.	EIS 14.4.6, 14.4.7, 14.4.8, 14.4.10, 14.5.3
4. Describe plans to encourage local and Aboriginal employment, procurement and contracting opportunities.	EIS 14.5.2
5. Describe any training programs the applicant is supporting to enhance employment opportunities for local and Aboriginal residents.	EIS 4.2.4
6. Provide an estimate of the anticipated levels of local and regional economic participation in the project in comparison to the total project requirements (e.g., number of workers and total dollar value of contracts).	EIS 14.4.10, 14.5.2
7. If the project has the potential to directly affect local, regional, provincial, territorial or federal government revenues from tax levies or other means during construction and operation, provide a quantitative assessment of the potential impacts.	EIS 14.5.4 (and subsections), 14.5.5 (and subsections)

1.1 References

- Manitoba Conservation and Water Stewardship. 2015. Environment Act Proposal Report Guidelines – Information Bulletin, July 2015 [online]. Available from: http://www.gov.mb.ca/conservation/eal/pubs/info_eap.pdf. Accessed July 16, 2015.
- Manitoba Hydro. 2015. Manitoba-Minnesota Transmission Project Scoping Document. June 11, 2015.
- National Energy Board. 2015a. Electricity Filing Manual, May 2015 [online]. Available from: <https://www.neb-one.gc.ca/bts/ctr/gnnb/lctrct/lctrctfngmnl/lctrctyfngmnl-eng.pdf>. Accessed June 10, 2015.
- National Energy Board. 2015b. Filing Manual, January 2015 [online]. Available from: <https://www.neb-one.gc.ca/bts/ctr/gnnb/fngmnl/fngmnl-eng.pdf>. Accessed July 16, 2015.



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