

**Table 1: Wataynikaneyap Transmission Project Phase 1 New Transmission Line to Pickle Lake
Draft Environmental Assessment Criteria and Indicators**

Criteria	Rationale for Selection	Indicators
<i>Air Quality</i>		
Air Quality	<ul style="list-style-type: none"> Sensitivity of human health to air quality Sensitivity of the environment (soils, plants, animals) to air quality 	<ul style="list-style-type: none"> Predicted ambient concentrations of Total Suspended Particulate (TSP), Particulate Matter (PM₁₀ and PM_{2.5}), carbon monoxide (CO), nitrogen dioxide (NO₂) and sulfur dioxide (SO₂) – Quantitative assessment of predicted changes in ambient concentrations
<i>Greenhouses Gases</i>		
Greenhouse Gases (GHG)	<ul style="list-style-type: none"> Greenhouse gases (GHG) contribute to climate change National and provincial concerns with greenhouse gas emissions and climate change 	<ul style="list-style-type: none"> GHG emissions estimate – Quantitative assessment of predicted emissions of CO₂, N₂O and CH₄ expressed in in units of equivalent CO₂
<i>Noise</i>		
Noise	<ul style="list-style-type: none"> Sensitivity of humans and wildlife to the noise environment Noise effects through annoyance to communities 	<ul style="list-style-type: none"> Predicted Noise levels –Quantitative assessment of modelled noise levels calculated as A-weighted sound pressures emissions in decibels (dBA) for 1 hour Leq emissions.
<i>Surface Water</i>		
Surface Water	<ul style="list-style-type: none"> Surface water is the freshwater habitat for fish, aquatic organisms and aquatic vegetation Important to aquatic species (fish and others), recreational use and aesthetics Important to fauna and flora abundance and diversity Important to human use (drinking water or other consumption) 	<ul style="list-style-type: none"> Surface water flow – Quantitative assessment of change to surface water flow and erosion-sedimentation processes based on the proportion of the catchment area for a given watercourse or water feature that will be disturbed or influenced by a specific Project activity, recognizing that this approach considers drainage area as a proxy or analog for streamflow and, to a lesser extent, the potential for sediment erosion and transport. Surface water quality – Qualitative assessment of changes to surface water quality.
<i>Groundwater</i>		
Groundwater	<ul style="list-style-type: none"> Important in the hydrologic cycle Important to human use (drinking water or other consumption) 	<ul style="list-style-type: none"> Groundwater flow – Qualitative assessment of changes to groundwater flow Groundwater quality – Qualitative assessment of changes to groundwater quality



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<i>Fish and Fish Habitat</i>		
Brook Trout	<ul style="list-style-type: none"> This fish species has stringent habitat requirements and is sensitive to disturbance (coldwater streams) Representative recreational species for coldwater stream fish and fish habitat Important harvested species 	<ul style="list-style-type: none"> Habitat quantity – Quantitative assessment of changes to total area of habitat present. This will be calculated and presented as absolute (i.e., area) and relative (e.g., % change). Habitat quality – Qualitative assessment of changes to habitat quality. Abundance – Qualitative assessment of changes to abundance will be described as direct and indirect mortality of individuals.
Lake Trout	<ul style="list-style-type: none"> This fish species has stringent habitat requirements and is sensitive to disturbance (coldwater lakes) Representative recreational species for coldwater lake fish and fish habitat Important harvested species 	<ul style="list-style-type: none"> Habitat quantity – Quantitative assessment of changes to total area of habitat present. This will be calculated and presented as absolute (i.e., area) and relative (e.g., % change). Habitat quality – Qualitative assessment of changes to habitat quality. Abundance – Qualitative assessment of changes to abundance will be described as direct and indirect mortality of individuals.
Walleye	<ul style="list-style-type: none"> Representative recreational species for cool and warm water lake and large river fish and fish habitat Important harvested species 	<ul style="list-style-type: none"> Habitat quantity – Quantitative assessment of changes to total area of habitat present. This will be calculated and presented as absolute (i.e., area) and relative (e.g., % change). Habitat quality – Qualitative assessment of changes to habitat quality. Abundance – Qualitative assessment of changes to abundance will be described as direct and indirect mortality of individuals.
Lake Sturgeon	<ul style="list-style-type: none"> Listed as 'Endangered' under the federal <i>Species At Risk Act</i> and 'Threatened' under the provincial <i>Endangered Species Act, 2007</i> within the Winnipeg/English River watershed 	<ul style="list-style-type: none"> Habitat quantity – Quantitative assessment of changes to total area of habitat present. This will be calculated and presented as absolute (i.e., area) and relative (e.g., % change). Habitat quality – Qualitative assessment of changes to habitat quality. Abundance – Qualitative assessment of changes to abundance will be described as direct and indirect mortality of individuals.
<i>Vegetation and Wetlands</i>		
Upland Ecosystems	<ul style="list-style-type: none"> Main component of the naturally-occurring vegetation in the study areas Basis for many local biological processes Habitat for wildlife Assessment is applicable to most wildlife species (including upland breeding water birds) First Nation current community use of vegetation associated with this ecosystem 	<ul style="list-style-type: none"> Ecosystem Availability – Quantitative assessment of changes to total area of upland ecosystems present. This will be calculated and presented as absolute (i.e., area) and relative (e.g., % change) Ecosystem Distribution – Changes in the location, configuration and connectivity of upland ecosystems. This will be assessed quantitatively (e.g., km of linear disturbance), and qualitatively using ecosystem maps Ecosystem Composition – Changes in the integrity of upland ecosystems on the landscape, which will include a qualitative evaluation of changes in presence of invasive species, structural attributes (e.g., structural stage, wildlife trees), or ecological processes.

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Riparian Ecosystems	<ul style="list-style-type: none"> • Conservation concern (limited distribution) • Social importance • Sensitive to development • Ecosystem and landscape level biodiversity • Performs hydrologic functions • Assessment is applicable to most wildlife species with respect to providing regional movement corridors • First Nation current community use of vegetation associated with this ecosystem 	<ul style="list-style-type: none"> • Ecosystem Availability – Quantitative assessment of changes to total area of riparian ecosystems present. This will be calculated and presented as absolute (i.e., area) and relative (e.g., % change) • Ecosystem Distribution – Changes in the location, configuration and connectivity of riparian ecosystems. This will be assessed quantitatively (e.g., km of linear disturbance), and qualitatively using ecosystem maps • Ecosystem Composition – Changes in the integrity of riparian ecosystems on the landscape, which will include a qualitative assessment of changes in the presence of invasive species, structural attributes (e.g., structural stage, wildlife trees), or ecological processes.
Wetlands	<ul style="list-style-type: none"> • Conservation concern and sensitivity to development. • High aesthetic value and social importance. • Ecosystem and landscape level biodiversity. • Performs hydrologic and biochemical cycling functions. • Assessment is applicable to wetland-dependent wildlife species (e.g., caribou, moose, beaver, marsh birds, amphibians and snapping turtle). • First Nation current community use of vegetation associated with this ecosystem. 	<ul style="list-style-type: none"> • Ecosystem Availability – Quantitative assessment of changes to total area of wetlands present. This will be calculated and presented as absolute (i.e., area) and relative (e.g., % change). • Ecosystem Distribution – Changes in the location, configuration and connectivity of wetlands. This will be assessed quantitatively (e.g., km of linear disturbance), and qualitatively using ecosystem maps. • Ecosystem Composition – Changes in the integrity of wetlands on the landscape, which will include a qualitative evaluation of changes in the presence of invasive species, structural attributes (e.g., structural stage, wildlife trees), or ecological processes.
Wildlife and Wildlife Habitat		
Forest-dwelling woodland caribou	<ul style="list-style-type: none"> • Listed as 'Threatened' under the federal <i>Species At Risk Act</i> and the provincial <i>Endangered Species Act, 2007</i> • Important ecological role • Social/cultural importance 	<ul style="list-style-type: none"> • Habitat availability (i.e., quantity and quality) – Quantitative assessment of changes to area of different habitat types presented in absolute (i.e., area) and relative (i.e., % change) terms. Habitat quality is captured through categorization of habitat types according to the relative value it provides to the wildlife criterion. Habitat quality can be influenced by land cover type and proximity to disturbance. • Habitat distribution (i.e., arrangement and connectivity) – Quantitative assessment of changes to habitat connectivity (e.g., km of linear disturbance). Habitat arrangement and connectivity will be evaluated qualitatively using habitat maps. • Survival and reproduction – Qualitative assessment of changes to survival and reproduction will be described as potential mortality from the Project (e.g., vehicle collisions, increased predation, and hunting pressure).

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Moose	<ul style="list-style-type: none"> • Social/cultural importance • Prey species for large carnivores in boreal environments • Increase in moose density could negatively affect woodland caribou populations by increasing carnivore density 	<ul style="list-style-type: none"> • Habitat availability (i.e., quantity and quality) – Quantitative assessment of changes to area of different habitat types presented in absolute (i.e., area) and relative (i.e., % change) terms. Habitat quality is captured through categorization of habitat types according to the relative value it provides to the wildlife criterion. Habitat quality can be influenced by land cover type and proximity to disturbance. • Habitat distribution (i.e., arrangement and connectivity) – Quantitative assessment of changes to habitat connectivity (e.g., km of linear disturbance). Habitat arrangement and connectivity will be evaluated qualitatively using habitat maps. • Survival and reproduction – Qualitative assessment of changes to survival and reproduction will be described as potential mortality from the Project (e.g., vehicle collisions, increased predation, and hunting pressure).
Wolverine	<ul style="list-style-type: none"> • Listed as ‘Threatened’ provincially (<i>Endangered Species Act, 2007</i>) and as ‘Special Concern’ by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) • Can be attracted to human disturbance and negatively influenced by human-caused mortality • Wide-ranging carnivore species in boreal environments • Surrogate species for effects to other furbearers (marten and lynx) 	<ul style="list-style-type: none"> • Habitat availability (i.e., quantity and quality) – Quantitative assessment of changes to area of different habitat types presented in absolute (i.e., area) and relative (i.e., % change) terms. Habitat quality is captured through categorization of habitat types according to the relative value it provides to the wildlife criterion. Habitat quality can be influenced by land cover type and proximity to disturbance. • Habitat distribution (i.e., arrangement and connectivity) – Quantitative assessment of changes to habitat connectivity (e.g., km of linear disturbance). Habitat arrangement and connectivity will be evaluated qualitatively using habitat maps. • Survival and reproduction – Qualitative assessment of changes to survival and reproduction will be described as potential mortality from the Project (e.g., vehicle collisions, increased predation, and hunting pressure).
Little brown myotis	<ul style="list-style-type: none"> • Listed as ‘Endangered’ provincially (<i>Endangered Species Act, 2007</i>) and federally (<i>Species at Risk Act</i>) • Surrogate species for effects to northern myotis 	<ul style="list-style-type: none"> • Habitat availability (i.e., quantity and quality) – Quantitative assessment of changes to area of different habitat types presented in absolute (i.e., area) and relative (i.e., % change) terms. Habitat quality is captured through categorization of habitat types according to the relative value it provides to the wildlife criterion. Habitat quality can be influenced by land cover type and proximity to disturbance. • Habitat distribution (i.e., arrangement and connectivity) – Quantitative assessment of changes to habitat connectivity (e.g., km of linear disturbance). Habitat arrangement and connectivity will be evaluated qualitatively using habitat maps. • Survival and reproduction – Qualitative assessment of changes to survival and reproduction will be described as potential mortality from the Project (e.g., collision with transmission line).

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Horned Grebe	<ul style="list-style-type: none"> Listed as 'Special Concern' federally (<i>Species at Risk Act</i>) Surrogate species for effects to black tern, which is listed as 'Special Concern' provincially, and other wetland nesting species (e.g., yellow rail) 	<ul style="list-style-type: none"> Habitat availability (i.e., quantity and quality) – Quantitative assessment of changes to area of different habitat types presented in absolute (i.e., area) and relative (i.e., % change) terms. Habitat quality is captured through categorization of habitat types according to the relative value it provides to the wildlife criterion. Habitat quality can be influenced by land cover type and proximity to disturbance. Habitat distribution (i.e., arrangement and connectivity) – Quantitative assessment of changes to habitat connectivity (e.g., km of linear disturbance). Habitat arrangement and connectivity will be evaluated qualitatively using habitat maps. Survival and reproduction – Qualitative assessment of changes to survival and reproduction will be described as direct potential mortality from the Project (e.g., collision with transmission line).
Other federal or provincial Species at Risk, including: <ul style="list-style-type: none"> bald eagle Canada warbler barn swallow whip-poor-will common nighthawk bobolink olive-sided flycatcher 	<ul style="list-style-type: none"> Conservation concern as federally (<i>Species At Risk Act</i>) or provincially (<i>Endangered Species Act, 2007</i>) listed species Important for continued ecological function of boreal ecosystems Social/cultural importance 	<ul style="list-style-type: none"> Habitat availability (i.e., quantity and quality) – Quantitative assessment of changes to area of different habitat types presented in absolute (i.e., area) and relative (i.e., % change) terms. Habitat quality is captured through categorization of habitat types according to the relative value it provides to the wildlife criterion. Habitat quality can be influenced by land cover type and proximity to disturbance. Habitat distribution (i.e., arrangement and connectivity) – Quantitative assessment of changes to habitat connectivity (e.g., km of linear disturbance). Habitat arrangement and connectivity will be evaluated qualitatively using habitat maps. Survival and reproduction – Qualitative assessment of changes to survival and reproduction will be described as potential mortality from the Project (e.g., collision with transmission line).
Socio-economic		
Labour Market	<ul style="list-style-type: none"> Project workforce hiring and procurement could affect employment, income, and training 	<ul style="list-style-type: none"> Employment – Quantitative assessment of changes in employment income – Quantitative assessment of changes in labour income Training opportunities – Qualitative assessment of training opportunities
Regional Economy	<ul style="list-style-type: none"> Project procurement of materials, goods, and services could affect business revenues 	<ul style="list-style-type: none"> Business revenues – Quantitative assessment of changes in direct and indirect business revenues
Government Finances	<ul style="list-style-type: none"> Project payment of taxes could affect local government and Provincial government revenues Utilization of services by the Project, and/or increase in service demand through project-induced in-migration may affect local government expenditures 	<ul style="list-style-type: none"> Local / Regional Government Expenditures – Qualitative assessment of changes to local / regional government expenditures on the Project Government taxation revenues – Quantitative assessment of changes to taxation revenues

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Housing and Temporary Accommodation	<ul style="list-style-type: none"> Project requirements for worker accommodation during the construction may result in temporary in-migration and increased demand for housing 	<ul style="list-style-type: none"> Population change - Quantitative assessment of change in population due to project-induced in-migration Housing Demand – Qualitative and quantitative assessment of change in demand for housing and temporary accommodation Housing Supply – Qualitative and quantitative assessment of change in housing and temporary accommodation availability (supply)
Services and Infrastructure Includes: <ul style="list-style-type: none"> emergency and health services water, waste, energy infrastructure transportation 	<ul style="list-style-type: none"> Project construction activities and/or induced in-migration may lead to a temporary increase in demand for services and infrastructure Access to and quality of services are important to quality of life health and wellbeing of residents and visitors 	<ul style="list-style-type: none"> Population change - Quantitative assessment of change in population due to project-induced in-migration Service and Infrastructure Demand – Quantitative and qualitative assessment of changes in demand for services and infrastructure Services and Infrastructure Capacity – Quantitative and qualitative change in service and infrastructure and capacity
Community Wellbeing	<ul style="list-style-type: none"> Well-being, inclusive of public safety, is a central value for nearby communities and land users Potential for nuisance effects on nearby receptors from Project-induced changes to noise and air quality Potential for Project activities to affect public safety 	<ul style="list-style-type: none"> Nuisance – Quantitative assessment of nuisance effects resulting from changes in noise and air quality and potential exceedance of recognized nuisance thresholds Public Safety – Qualitative assessment of change in public safety due to potential hazards associated with the Project
<i>Land and Resource Use</i>		
Parks and Protected Areas	<ul style="list-style-type: none"> Parks and protected areas have social, recreational, environmental and health and wellbeing value for nearby communities and park users 	<ul style="list-style-type: none"> Land use quantity – Quantitative assessment of change in area and access of land use Land use quality – Quantitative and qualitative assessment of change in environmental conditions (e.g. air quality, noise, water quality, visual aesthetics) and change in park users' experience (quantitative and qualitative) Resource availability – Quantitative and qualitative assessment of change in availability of resources (use assessment results from fish and fish habitat and wildlife and wildlife habitat).

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<p>Commercial Land and Resource Use including:</p> <ul style="list-style-type: none"> • consumptive commercial land and resource use, such as trapping, hunting, fishing, guide outfitting • non-consumptive outdoor commercial recreation and tourism, such as ATV tours, eco tours, snowmobiling and skiing tours, canoe trips • commercial industry land and resource uses, such as mining and aggregate, forestry, agriculture 	<ul style="list-style-type: none"> • Consumptive land and resource use, non-consumptive commercial recreation, and commercial industry are an important part of the local economy and source of economic livelihoods for local businesses • Commercial land and resource use have socio-economic importance to the local residents, businesses, communities and government. 	<ul style="list-style-type: none"> • Land use quantity – Quantitative assessment of change in area and access to land uses • Land use quality - Quantitative and qualitative assessment of change in environmental conditions (e.g. air quality, noise, water quality, visual aesthetics) and changes to consumptive and change in non-consumptive users' experience (qualitative and quantitative) • Resource availability – Quantitative and qualitative assessment of change in availability of resources (e.g., fish and fish habitat and wildlife and wildlife habitat).
<p>Non-commercial Recreation Land and Resource Use including:</p> <ul style="list-style-type: none"> • consumptive recreational land and resource use such as hunting and fishing • non-consumptive outdoor recreational land use such as snowmobiling, hiking, boating, etc. 	<ul style="list-style-type: none"> • Outdoor recreation and recreational amenities are valued aspects of the region, and contribute to health and wellbeing • Recreational land and resource uses have socio-economic importance to the local residents, businesses, communities and government 	<ul style="list-style-type: none"> • Land use quantity – Quantitative assessment of change in area and access to land uses • Land use quality – Quantitative and qualitative assessment of change in environmental conditions (e.g. air quality, noise, water quality, visual aesthetics) and changes to consumptive and non-consumptive users' experience (qualitative and quantitative) • Resource availability – Quantitative and qualitative assessment of change in availability of resources (fish and fish habitat and wildlife and wildlife habitat).
Archaeological Resources		
<p>Archaeological Resources</p>	<ul style="list-style-type: none"> • Archaeological remains are a non-renewable resource that could be affected by Project activities • Archaeological resources may have spiritual and/or cultural importance to Canadians, most notably, the Aboriginal peoples of Canada • Archaeological sites are protected under the <i>Ontario Heritage Act</i> 	<ul style="list-style-type: none"> • Number, type and location of known archaeological resources (Stage 1 archaeological assessment in accordance with the MTCS 2011 <i>Standards and Guidelines for Consultant Archaeologists</i>) • Area of archaeological potential (Stage 1 archaeological assessment in accordance with the MTCS 2011 <i>Standards and Guidelines for Consultant Archaeologists</i>)

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<i>Cultural and Built Heritage Resources</i>		
Built Heritage and Cultural Heritage Landscapes	<ul style="list-style-type: none"> Built heritage remains are a non-renewable resource that could be affected by Project activities Cultural heritage landscapes are a non-renewable resource that could be affected by Project activities Cultural heritage resources and landscapes may have spiritual and symbolic meaning for Canadians, most notably the Aboriginal peoples of Canada Cultural heritage resources and landscapes are protected under the <i>Ontario Heritage Act</i> 	<ul style="list-style-type: none"> Number, type and location of built heritage resources and cultural heritage landscapes
<i>Landscape and Visual Resources</i>		
Landscape and Visual Resources	<ul style="list-style-type: none"> Landscape and visual resources provide a setting for land and resource use activities (i.e., outdoor tourism and recreation) and are important to the quality of experience that are involved in these activities. Landscape and visual resources are important to the identification of community character and to community well-being. 	<ul style="list-style-type: none"> Visibility of the Project from key viewpoints (area of visibility in hectares) to determine the visual prominence of Project components and activities. Compatibility of the Project with the existing landscape (qualitative description of contrast) to determine the level of change to landscape character and visual quality.
<i>Human Health</i>		
Human Health	<ul style="list-style-type: none"> The health of individuals is important to the well-being of families and communities Different members of communities may have different characteristics (e.g., occupancy, use of land and consumption of resources) which may result in different exposures and health risks 	<ul style="list-style-type: none"> Hazard quotients (measure of non-carcinogenic risk) Incremental Lifetime Cancer Risks (measure of carcinogenic risk)
<i>Aboriginal Rights, Treaty Rights and Interests</i>		
Aboriginal Rights, Treaty Rights and Interests (as identified through engagement, Treaties, and other methods)	<ul style="list-style-type: none"> Aboriginal Rights, Treaty Rights, and Interests and current use of lands and resources for cultural purposes (e.g., fishing, agriculture, horticulture and use of plants) are important for Aboriginal communities and individuals to provide sustenance 	<ul style="list-style-type: none"> Quantitative changes in preferred harvested species Qualitative review of changes in, or restrictions on, preferred identified harvesting methods Quantity and quality of identified cultural use locations and access routes where use of or access to those locations is changed Qualitative changes in the experience of lands and resources for cultural purposes