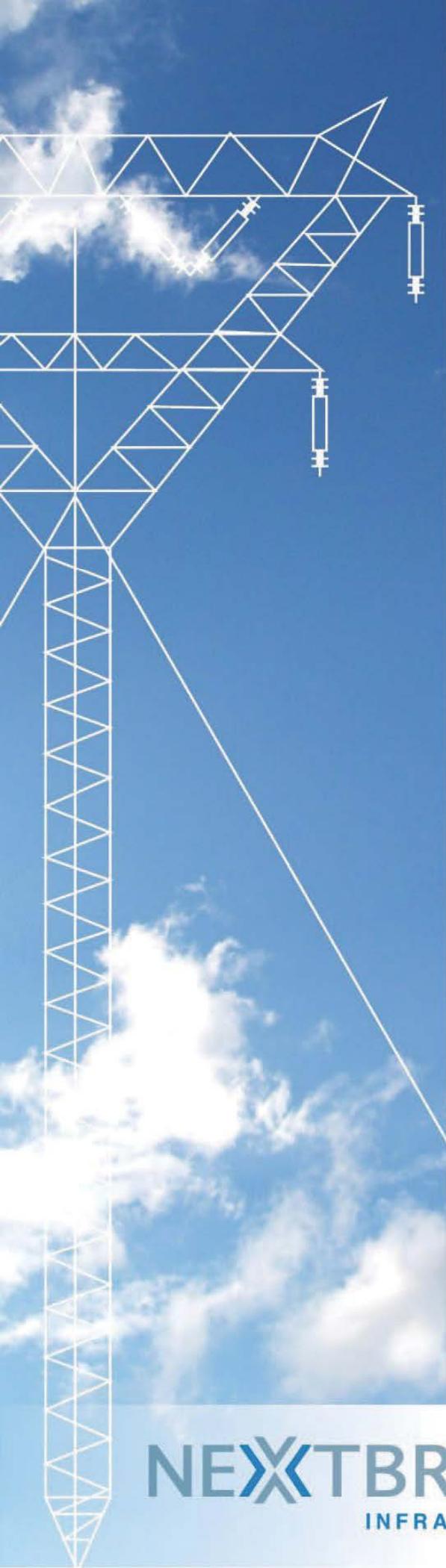


APPENDIX 3-II

Alternative Route Assessment Around Provincial Parks and Conservation Reserves for the East-West Tie Transmission Project



February 2018

NEXTBRIDGE INFRASTRUCTURE LP

Alternative Route Assessment Around Provincial Parks and Conservation Reserves for the East-West Tie Transmission Project

Project Number: 1536607/2000/2219

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ACRONYMS AND ABBREVIATIONS

ANSI	Areas of Natural and Scientific Interest
ATRIS	Aboriginal and Treaty Rights Information System
CLVA	critical landform/vegetation type
CP	Canadian Pacific
EA	Environmental Assessment
GIS	geographic information systems
IESO	Independent Electricity System Operator
INAC	Indian and Northern Affairs Canada
MNRF	Ministry of Natural Resources and Forestry
MOECC	Ministry of the Environment and Climate Change
NextBridge	NextBridge Infrastructure LP
OEB	Ontario Energy Board
OPA	Ontario Power Authority
POR	point of reception
ROW	right-of-way
SWH	significant wildlife habitat
the Project	East-West Tie Transmission Project
ToR	Terms of Reference
TS	Transformer Station

1. INTRODUCTION

NextBridge Infrastructure LP (NextBridge) is proposing to construct, own, and maintain the East-West Tie Transmission Project (the Project or undertaking). The Project is a new, approximately 450-kilometre (km)-long double-circuit 230-kilovolt (kV) transmission line that connects the Lakehead Transformer Station (TS) in the Municipality of Shuniah near the City of Thunder Bay to the Wawa TS located east of the Municipality of Wawa (with a connection at the Marathon TS, in the Town of Marathon) (Figure 3-III-1 in Appendix 3-III to the amended EA Report).

The Project has been identified as a priority project by the Province of Ontario, and a needed project by the Independent Electricity System Operator (IESO, formerly the Ontario Power Authority [OPA; On January 1, 2015, the OPA merged with the IESO to create a new organization that combines the OPA and IESO mandates.]) to meet future electricity demand in northwestern Ontario.

The Project is subject to Ontario's Individual Environmental Assessment (EA) process based on the voltage and length. A Terms of Reference (ToR) for the Individual EA was submitted to the Ministry of the Environment and Climate Change (MOECC) in February 2014 and approved in August 2014. Subsequently, an EA Report has been prepared in accordance with the approved ToR.

Approximately 19.8 km (4.4% of the total length of the preferred route ROW) is proposed to cross provincial parks and conservation reserves. As part of previous work completed for the Project, an assessment of alternative route segments that avoided provincial parks and conservation reserves was completed by NextBridge. The resulting *Draft Alternative Route Assessment for the East-West Tie Transmission Project* (NextBridge 2015) was submitted to the Ministry of Natural Resources and Forestry (MNR) for review in December 2015. In March 2016, the MNR provided review comments on the alternative route report.

NextBridge has subsequently reviewed the routing adjacent to and through provincial parks and conservation reserves with respect to MNR comments and has developed additional criteria, identified additional alternative route segments, and undertaken an updated comparative analysis (this analysis). The overall objective of this analysis is to address the MNR comments and confirm that the preferred route is the option with the best balance of environmental, socio-economic, and technical advantages over other alternatives.

This report is intended to supersede and replace Sections 3.5 and 3.6 of the alternative route report (NextBridge 2015), specifically for the evaluation of alternative route segments around provincial parks and conservation reserves.

2. BACKGROUND

2.1 Previous Evaluation of Alternatives

The Reference Route (as defined in the amended EA Report), and three alternative routes to avoid federal lands (two First Nation reserves and Pukaskwa National Park) were identified by NextBridge as part of a screening process completed during the bid process organized by the Ontario Energy Board (OEB). The Reference Route, which generally parallels the existing East-West Tie line, is consistent with the *2014 Provincial Policy Statement* (Government of Ontario 2014), which recommends making the best use of existing infrastructure and corridors, and that infrastructure be provided in a coordinated, efficient, and cost-effective manner before proposing new greenfield (i.e., a parcel of land that has not been previously developed [Heid 2004]) developments

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that do not parallel existing developments. This was one of the OPA's considerations in selecting the Reference Route (also referred to as the Reference Option by the OPA) and is consistent with the direction to other electricity transmitters in the past from provincial agencies and ministries to make use of existing rights-of-way (ROWs) and corridors before seeking approvals for greenfield routes (i.e., not adjacent to existing infrastructure). The Reference Route was identified based on the following:

- The IESO and OEB have identified and acknowledged the Reference Route.
- The bidding process to select a designated transmitter focused on the Reference Route.
- NextBridge examined the Reference Route during the bidding process.
- The Reference Route is the shortest distance to connect the Lakehead TS and Wawa TS with a connection at Marathon TS (following existing transmission facilities).
- The use of the Reference Route is consistent with provincial policy as it is generally adjacent to the existing East-West Tie line ROW.

It was determined that additional alternative route segments should be identified and assessed as potential alternatives to the Reference Route. In December 2015, NextBridge produced the alternative route report (NextBridge 2015), which included an evaluation of alternative route segments around provincial parks and conservation reserves. The Reference Route was assessed in each area in comparison to alternative route segments representing other route options. At a minimum for each area, one alternative route segment avoided or bypassed the entire provincial park or conservation reserve. The following summarizes the provincial parks and conservation reserves that were previously considered, and the number of alternatives assessed:

- **Black Sturgeon River Provincial Park:** four alternative route segments in addition to the Reference Route;
- **Ruby Lake Provincial Park:** two alternative route segments in addition to the Reference Route;
- **Kama Hills Provincial Nature Reserve (Provincial Park) and Kama Cliffs Conservation Reserve:** three alternative route segments in addition to the Reference Route;
- **Gravel River Provincial Nature Reserve (Provincial Park) and Conservation Reserve:** two alternative route segments in addition to the Reference Route;
- **Kwinkwaga Ground Moraine Uplands Conservation Reserve and Forest Reserve:** two alternative route segments in addition to the Reference Route; and
- **Nimoosh Provincial Park:** two alternative route segments in addition to the Reference Route.

The preliminary preferred route was identified by comparing the routes that were originally proposed by NextBridge during the OEB's competitive bid process (i.e., the Reference Route that generally parallels the existing East-West Tie line) to other alternatives around between Lakehead TS and Wawa TS, alternative route segments around certain federal lands, and alternative route segments around provincial parks and conservation reserves. The assessment determined that, with two exceptions, the preliminary preferred route is generally adjacent to the existing East-West Tie line ROW, and it has more advantages and fewer disadvantages than the alternative route segments. The first exception relates to the avoidance of Pukaskwa National Park and the second relates to routing to the west of Ouimet Canyon Provincial Park. Subsequently, based on consultations for the preliminary preferred route with residents and landowners at Loon Lake, an alternative route segment to the north of Loon Lake was identified (refer to Section 3.3.1.8 and Appendix 3-I of the amended EA Report). Together, these revisions to the preliminary preferred route (avoidance of Pukaskwa National Park, avoidance of Ouimet Canyon Provincial Park and the alternative north of Loon Lake) became the preferred route.

2.2 Comments on the Previous Assessment of Alternatives

In March 2016, the MNRF provided review comments on the alternative route report (NextBridge 2015) and noted the following regarding the assessment of alternatives:

- 1) Critical Landform/Vegetation Associations (also referred to as “critical landform/vegetation types” or “CLVAs”) should be included as an alternatives assessment criterion.
- 2) Earth science values, life science values, and recreational values should be included as alternatives assessment criteria.
- 3) Alternative route segments for individual provincial parks and conservation reserves need to be evaluated distinctly.
- 4) Additional, reasonable alternative route segments that avoid provincial parks and conservation reserves should be evaluated.

During a follow-up meeting on May 10, 2016, the following request was also made by the MNRF:

- 5) Incorporate the screening criteria from the *MNRF Class EA for Provincial Parks and Conservation Reserves* (MNRF Class EA; MNRF 2015) into the alternatives assessment criteria.

MNRF provided comments on the draft EA Report in March 2017 and there was a follow-up meeting with MNRF and NextBridge on May 15, 2017. The majority of the comments and the discussion was with respect to additional mitigation suggested by MNRF. In response to this discussion NextBridge has provided additional information on the design and proposed mitigation for the Project footprint located in the provincial parks and conservation reserves in Appendix 19-IV of the EA Report.

3. APPROACH FOR THE SELECTION AND EVALUATION OF ALTERNATIVE ROUTE SEGMENTS

The following sections summarize the method used for the identification, evaluation, and selection of alternative route segments around provincial parks (and conservation reserves). Specifically, the proposed alternatives assessment criteria and indicators presented in Section 3.2 are intended to address comments #1, 2, and 5 listed in Section 2.2. The evaluation of alternative route segments, presented in Section 3.3, is intended to address comments #3 and 4 listed in Section 2.2.

3.1 Overall Method

A similar method to that applied by NextBridge (2015) was used for this analysis. The general routing criteria (Table 1 from NextBridge 2015) were considered, taking into account the preference for existing linear ROWs with consideration of the limitations associated with paralleling certain types of existing infrastructure (e.g., minimum separation distances), and the two-step process for comparison using assessment criteria and indicators as well as screening criteria (MOECC 2014) were applied in identifying and assessing additional route segments.

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Each alternative had to meet the screening criteria listed in the MOECC (2014) *Code of Practice: Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario* to be carried forward.

The differences from the 2015 method are as follows:

- 1) Additional criteria and indicators to address MNRF feedback have been applied (refer to Appendix 3-III of the amended EA Report).
- 2) Additional route segments have been evaluated.
- 3) Each evaluated route segment has been refined to have a common start and end point along the preferred route (such that each alternative is directly comparable).

Data for the comparative evaluation presented in Section 4 were derived from available Geographic Information Systems (GIS) databases and were supplemented by air photo interpretation where possible. For some linear feature types (e.g., rail lines, roads, trails, and water bodies) that are crossed multiple times, the feature is only reported (in Appendix 3-III) as a single crossing per alternative. The GIS-based information pertaining to the preferred route ROW used for this assessment may not be as detailed as that presented in the amended EA Report.

For most of the criteria and indicators, there are considerably more data available for the preferred route compared to the alternative route segments because of the nature and timing of this refinement to the evaluation of alternative route segments. Efforts have been made to contextualize the data, as appropriate, in the comparative evaluation. In addition, where there was insufficient information (e.g., areas of archaeological potential), conservative assumptions have been made (e.g., the assumption that the entire length of the ROW could have archaeological potential).

The preferred route alternative ROW has a higher area to length ratio than the alternative segments as the ROW area includes wider portions of the ROW to accommodate construction and the alternative segments are consistently 60 m wide.

3.2 Alternatives Assessment Criteria and Indicators

The alternatives assessment criteria and indicators that were used in the alternative route report (NextBridge 2015) were augmented to include those presented in Table 3-1. Each of the previous and newly proposed alternative route segments listed in Section 3.3 of the amended EA Report were then re-evaluated with consideration of these new criteria and indicators (refer to Appendix 3-III for the criteria and indicators associated with all segments assessed). The segments that crossed or otherwise affected conservation reserves and provincial parks are discussed further in this appendix.

To address comment #1, CLVAs and recreational values were evaluated based on the area of overlap with the ROW, calculated using GIS and readily available information based on a 60 m ROW width for the alternative segments.

To address comment #2, earth science and life science values were used to represent the key natural heritage values for which each park is recognized. These values are specific to each provincial park and conservation reserve, which posed a challenge for the identification of indicators that could be applied consistently across the entire Project. A conservative approach was used to capture a broader range of features that could be considered important within each provincial park and conservation reserve.

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Table 3-1: Additional Alternatives Assessment Criteria and Indicators to Address Feedback from the Ministry of Natural Resources and Forestry

Factor	Criteria	Indicator	Data
Socio-economic	Tourism and recreation	Area of potential impact to aquatic-based recreational opportunities (such as canoeing and fishing) in the ROW (ha)	There were insufficient consistent data available for each of the alternative route segments; therefore, this was conservatively calculated as the entire area of the ROW that overlaps mapped water bodies
		Area of potential impact to land-based recreational opportunities (such as snowmobiling, hunting, harvesting, backpacking, horseback riding, photography, or camping) in the ROW (ha)	There were insufficient consistent data available for each of the alternative route segments; therefore, this was conservatively calculated as the entire area of the ROW that does not overlap mapped water bodies
	Land use	Distance to the nearest POR (km)	This was conservatively measured as the closest distance to a building
	Indigenous archaeology, cultural heritage, traditional land and resource use	Area of established treaties in the ROW (ha)	This was calculated as the total area of the ROW that overlaps an established treaty based on information available in the ATRIS (INAC 2016)
		Identification of known or potential comprehensive or specific claims that could be crossed by the ROW	This was identified based on a review of publicly listed claims available in ATRIS
Natural	Earth science values	Area of potential impact to representative important geological formations (specifically cliffs, talus slopes, rock barren and seeps) in the ROW (ha)	This was calculated based on available data, compiled as part of previous studies (NextBridge 2015)
	Life science values	Area of important representative ecological areas in the ROW (ha)	This was calculated based on important ecological areas data available through Land Information Ontario (MNR 2016a)
		Area of important supportive environments for plants or animals (such as nesting, wintering, calving, feeding, or staging areas) in the ROW (ha)	This was calculated based on available data compiled as part of previous studies (NextBridge 2015)
	Landform vegetation associations	Area of potential impact to identified CLVAs in the ROW (ha)	This was calculated based on CLVA data received from the MNR for the provincial parks and conservation reserves (MNR 2016b, 2017)
	Water bodies	Number of potential water bodies that could support fish crossed by the ROW	There were insufficient consistent data available for each of the alternative route segments; therefore, this was conservatively calculated as the total number of water bodies crossed by the ROW
Technical	Constructability	Presence of an existing infrastructure corridor parallel or adjacent to the ROW	This was qualitatively evaluated through air photo interpretation

ATRIS = Aboriginal and Treaty Rights Information System; CLVA = critical landform/vegetation association; POR = point of reception; ROW = right-of-way; ha = hectare; km = kilometre.

To address comment #5, a review and comparison of the MNR Class EA (MNR 2015) screening criteria against the alternatives assessment criteria was completed and a concordance exercise was undertaken to identify how each criterion would be captured in the updated alternatives analysis. The concordance exercise, which was based on the criteria outlined in the Appendix 4: Screening Table in the MNR Class EA (MNR 2015), is summarized in Table 3-2. With the incorporation of the new alternative assessment criteria identified in Table 3-1 (above), each of the MNR Class EA screening criteria is now reflected and, therefore, considered as part of the evaluation of alternative route segments adjacent to and through provincial parks and conservation reserves.

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Table 3-2: Concordance between the Ministry of Natural Resources and Forestry Screening Criteria and the Alternative Route Segments Assessment Criteria

MNRF Screening Considerations (MNRF 2015)	MNRF Screening Criteria (MNRF 2015)	Applicable Alternatives Assessment Criteria
General	Ability to achieve the vision for the protected area	Land use
Ecological integrity	Important earth or life science values	<ul style="list-style-type: none"> ■ earth science values; ■ life science values; and ■ areas of natural and scientific interest.
	Ecological system, functions, and processes	Life science values
	Terrestrial or aquatic vegetation	<ul style="list-style-type: none"> ■ forest resources; ■ wetlands; and ■ water bodies.
	Specific wildlife species, communities, or their habitat	Wildlife habitat
	Alien or invasive species	Land use
	Species at risk	Species at risk
	Ecosystems or species under a special management program	Landform vegetation associations
	Air quality	<ul style="list-style-type: none"> ■ size; ■ constructability; and ■ land use.
	Drainage, flooding, sedimentation or erosion	Water bodies and Watercourses
	Water quantity or quality	Water bodies and Watercourses
	Soils and sediment quality	Soils
	Permafrost	Not applicable
	Land use, resource management	Navigation
Lands or waters subject to natural or human-made hazards		Constructability
Other projects within a protected area		Land use
Uses, persons, or property outside a protected area		<ul style="list-style-type: none"> ■ land use; and ■ private property.
Internal traffic patterns or infrastructure		Community infrastructure
Access to or egress from a protected area		Constructability
Recreational opportunities		Tourism and recreation
Recycling or waste management		Community services
Non-renewable resources		<ul style="list-style-type: none"> ■ soil; and ■ land use
Noise and/or light levels		Land use
Cultural heritage resources	Land archaeological resource, site, or area	Non-Indigenous archaeology, cultural heritage, traditional land and resource use
	Marine archaeological resource, site, or area	Non-Indigenous archaeology, cultural heritage, traditional land and resource use
	Built heritage resource	Non-Indigenous archaeology, cultural heritage, traditional land and resource use
	Cultural heritage landscape	Non-Indigenous archaeology, cultural heritage, traditional land and resource use

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Table 3-2: Concordance between the Ministry of Natural Resources and Forestry Screening Criteria and the Alternative Route Segments Assessment Criteria

MNRF Screening Considerations (MNRF 2015)	MNRF Screening Criteria (MNRF 2015)	Applicable Alternatives Assessment Criteria
Social and economic	Remoteness	Constructability
	Views or aesthetics	Aesthetics
	People and institutions	<ul style="list-style-type: none"> ■ community services; and ■ land use.
	Community character, enjoyment of property	<ul style="list-style-type: none"> ■ aesthetics; ■ land use; and ■ private property.
	Government services, public facilities	Community services
	Public health and safety	Community services
	Local, regional, or provincial economies	Constructability
	Tourism values	Tourism and recreation
	Traditional use sites	Non-Indigenous archaeology, cultural heritage, traditional land and resource use
Indigenous	First Nation reserves or Indigenous communities	Indigenous archaeology, cultural heritage, traditional land and resource use
	Sacred, spiritual, or ceremonial sites	<ul style="list-style-type: none"> ■ Indigenous archaeology, cultural heritage, traditional land and resource use; and ■ way of life.
	Traditional or resource uses or economic activities	<ul style="list-style-type: none"> ■ Indigenous archaeology, cultural heritage, traditional land and resource use; and ■ harvesting.
	Established or asserted Indigenous rights or treaty rights	<ul style="list-style-type: none"> ■ Indigenous archaeology, cultural heritage, traditional land and resource use; ■ way of life; and ■ harvesting.
	Lands or waters subject to land claims	Indigenous archaeology, cultural heritage, traditional land and resource use

3.3 Alternative Route Segments

There are two distinct comments to be addressed through a re-assessment of alternative route segments adjacent to and through provincial parks and conservation reserves. Comment #3 relates to the exercise of considering provincial parks and conservation reserves separately (as some were previously considered together). Specifically, within the alternative route report (NextBridge 2015), the Kama Hills Provincial Nature Reserve (Provincial Park) and Kama Cliffs Conservation Reserve were considered together, and the Gravel River Provincial Nature Reserve (Provincial Park) and Conservation Reserve were considered together. Based on a previous assessment of alternative route segments around Pukaskwa National Park and the subsequent change to the proposed route to avoid that park, there is now a new provincial park crossed by the ROW (Pukaskwa River Provincial Park). As a result, there are now 10 individual provincial park and conservation reserve areas to be considered in the assessment, whereas the previous assessment had considered seven groupings. For this updated assessment, these areas were each considered individually and additional alternative route segments that avoid each of these areas were evaluated, as discussed below.

Additional route segments were primarily considered where the areas were considered separately (comment #3), or where alternative route segments to avoid the areas were reasonable and appropriate. Where more than one alternative route segment avoided an area and had been previously assessed, no additional route segment was proposed.

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3.3.1 Protected Areas Where No New Alternative Route Segments Were Assessed

A number of alternative route segments (NextBridge 2015), including a route alternative that avoided the entire provincial park or conservation reserve, was previously evaluated for the following protected areas. Subsequently, no new alternative route segments were proposed to be assessed. However, each alternative was re-evaluated with new start and end points along the preferred route and using the updated criteria and indicators.

- **Black Sturgeon River Provincial Park:** No additional alternative route segments were evaluated; however, the start and end points of each alternative along the preferred route were refined. In the previous evaluation, two routes crossed the provincial park, one ran adjacent to but outside the park boundary and the fourth was approximately 1.5 km from the edge of the park (Figure 3-III-2 in Appendix 3-III to the amended EA Report).
- **Kama Hills Nature Reserve (Provincial Park):** No additional alternative route segments were evaluated; however, the start and end points of each alternative along the preferred route were refined. In the previous evaluation, all three alternatives avoided the provincial park (Figure 3-III-3 in Appendix 3-III to the amended EA Report).

3.3.2 Protected Areas Where New Alternative Route Segments Were Assessed

Six new alternative route segments that avoid provincial parks and conservation reserves were identified and assessed as part of this exercise. Each of these new alternative route segments was mapped, the available spatial information was extracted, and then the comparative evaluation of alternatives was completed using the method described in the alternative route report (NextBridge 2015) and discussed in Section 3.1.

This analysis did not include a consideration of access roads, construction camps, laydown yards, or other non-ROW components of the Project footprint. It is anticipated that the siting of such ancillary features will be further refined during detailed design.

The following additional alternative route segments were evaluated as a result of the individual assessment of protected areas:

- **Kama Cliffs Conservation Reserve:** One additional alternative route segment was evaluated to avoid the conservation reserve. In the previous evaluation, two of the three alternatives avoided the reserve. One alternative was adjacent to the northern boundary of the reserve (Segment 2) and the other was adjacent to the southern edge of the reserve, along the Trans-Canada Highway (Segment 1). The third alternative crossed the southern portion of the reserve (Segment 3).

The new alternative route segment (Segment 4) avoids the conservation reserve using a more technically feasible route option. This route segment deviates from the preferred route to the west of the reserve, extends along a straight line up through greenfield for approximately 18 km to an inflection point at the northern edge of the reserve, and then runs south for approximately 16 km to the preferred route (Figure 3-III-4 in Appendix 3-III to the amended EA Report).

- **Gravel River Provincial Nature Reserve (Provincial Park):** One additional alternative route segment was considered; however, configurations were limited because the northern edge of the park borders the Gravel River Conservation Reserve and the southern edge is adjacent to Lake Superior. In the previous evaluation, one of the alternatives followed the Trans-Canada Highway through a corridor between the two park areas (Segment 1) and one alternative crossed the southern parcel, adjacent to the existing Canadian Pacific (CP) rail line (Segment 2).

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The new alternative route segment (Segment 3) departs from the preferred route to the west of the park, extends approximately 2 km south through greenfield, parallels the Trans-Canada Highway between the two park parcels, and then runs another 8 km through greenfield before reconnecting with the preferred route (Figure 3-III-4 in Appendix 3-III to the amended EA Report).

- **Gravel River Conservation Reserve:** One additional alternative route segment was considered to avoid the conservation reserve. In the previous evaluation, both alternatives (Segments 1 and 2) avoided the reserve either by crossing Gravel River Provincial Nature Reserve (Provincial Park) or passing through the Trans-Canada Highway corridor between the two park areas (Figure 3-III-4 in Appendix 3-III to the amended EA Report).

The new alternative route segment (Segment 3) avoids the conservation reserve to the north (which also avoids the Gravel River Provincial Nature Reserve (Provincial Park)). This alternative departs from the preferred route to the east of the Kama Cliffs Conservation Reserve, runs in a direct line northeast for approximately 53 km through greenfield to an inflection point at the northern edge of the reserve, then runs south with two bends for approximately 67 km through greenfield before reconnecting to the preferred route (Figure 3-III-5 in Appendix 3-III to the amended EA Report).

The following additional alternative route segments were proposed as a result of the refinement of the preferred route since the publishing of the alternative route report (NextBridge 2015). As a result of avoiding the Pukaskwa National Park, the preferred route now overlaps the Kwinkwaga Ground Moraine Uplands Conservation Reserve and Forest Reserve and crosses the Pukaskwa River Provincial Park. Alternative route segments that would avoid each of these protected areas were previously assessed in the context of the evaluation of alternatives around Pukaskwa National Park but were not previously evaluated in the context of the individual protected areas. Subsequently, the following alternative route segments were assessed:

- **Kwinkwaga Ground Moraine Uplands Conservation Reserve:** Two previous alternative route segments were evaluated as part of the assessment to avoid Pukaskwa National Park; however, they were not expressly evaluated as alternative route segments around the Kwinkwaga Ground Moraine Uplands Conservation Reserve. Subsequently, the start and end points of the two previous route segments were re-evaluated and one additional alternative was considered. In the previous evaluation, both alternatives (Segments C-1 and C-2) avoided the reserve to the south. Segment C-1 deviated from the preferred route to the east of the Town of Marathon, ran adjacent to the Trans-Canada Highway and reconnected to the preferred route to the west of the Township of White River. Segment C-2 deviated and returned to the preferred route at the same locations but was adjacent to the existing CP rail line. Both of these segments were revised (Segment C-1 modified and Segment C-2 modified) to locate the start and end points closer to the boundary of the conservation reserve.

The new alternative route segment (Segment 3) avoids the conservation reserve by running adjacent to the northern boundary of the reserve. This alternative departs from the preferred route to the east of the Pic Mobert First Nation Reserve, travels through greenfield for approximately 12 km adjacent to the perimeter of the reserve, then returns to the preferred route (Figure 3-III-6 in Appendix 3-III to the amended EA Report).

- **Kwinkwaga Ground Moraine Forest Reserve:** The same alternatives evaluated for the Kwinkwaga Ground Moraine Uplands Conservation Reserve were also evaluated in the context of the forest reserve. Since each of those alternatives also avoided the forest reserve, no additional alternatives were considered; however, they were evaluated in the context of this reserve, distinct from the other reserve (Figure 3-III-6 in Appendix 3-III to the amended EA Report).

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- **Pukaskwa River Provincial Park:** As part of the previous evaluation of alternative route segments around Pukaskwa National Park, two segments that avoided Pukaskwa River Provincial Park were evaluated (refer to Section 3.2.4 of NextBridge 2015; refer to Figure 3-III-7 in Appendix 3-III to the amended EA Report). Neither of these was specifically evaluated as an alternative route segment for the Pukaskwa River Provincial Park. Subsequently, the start and end points of these alternative route segments were modified to locate them closer to the park boundary and the routing of the previously evaluated Segment D-2 was optimized to avoid a lake to the north of the provincial park. These segments are now referred to as Segments 6 and 7 (Figure 3-III-7 in Appendix 3-III to the amended EA Report).

In addition to the above noted alternative route segments, in an effort to address comment #4, NextBridge considered what additional feasible alternatives could be further assessed. Two additional route segments were identified:

- **Ruby Lake Provincial Park:** One additional alternative route segment was considered to avoid the park. In the previous evaluation, both of the alternatives avoided the park. One ran adjacent to a logging road and then adjacent to the Trans-Canada Highway before reconnecting to the preferred route (Segment 1) and the other followed the same logging road and then returned to the preferred route adjacent to the CP rail line (Segment 2). The start and end points for these alternatives were modified for this assessment (Segment 1 modified and Segment 2 modified).

The new alternative route segment (Segment 3) avoids the park using a more technically feasible route option. This route segment deviates from the preferred route to the west of the park, extends along a straight line up through greenfield and through the Red Rock Indian Band expansion lands for approximately 3.5 km to an inflection point at the Trans-Canada Highway, then runs south through approximately 2.5 km of greenfield to reconnect with the preferred route (Figure 3-III-8 in Appendix 3-III to the amended EA Report).

- **Nimoosh Provincial Park:** One additional alternative route segment was considered to avoid the park. In the previous evaluation, both alternatives avoided the park. Both were adjacent to a low voltage transmission line to the east of the preferred route and then adjacent to a road ROW to the east of the park but Segment 2 had a longer route than Segment 1. The start and end points for these alternatives were modified for this assessment (Segment 1 modified and Segment 2 modified).

The new alternative route segment (Segment 3) avoids the park using a more technically feasible route option. This route segment deviates from the preferred route to the west of the park, extends along a straight line east through greenfield for approximately 5 km to an inflection point past the park, and then extends southeast approximately 6 km to the preferred route (Figure 3-III-9 in Appendix 3-III to the amended EA Report).

4. COMPARATIVE EVALUATION OF ALTERNATIVE ROUTE SEGMENTS

This section presents the comparative evaluation of the alternative route segments adjacent to, through and around provincial parks and conservation reserves. Criteria and indicator tables used to support the analysis are presented in Appendix 3-III to the amended EA Report. All the criteria and indicators were evaluated with the focus of the discussion on advantages and disadvantages and notable differences between route segments. The results are presented for each provincial park or conservation reserve, from west to east.

4.1 Black Sturgeon River Provincial Park (Waterway)

Black Sturgeon River Provincial Park is designated a “waterway” class park in recognition of its representative natural features and potential to provide high quality water-based recreational opportunities (e.g., canoeing; Ontario Parks 2003). In accordance with Section 10.6.2 of the Park Management Plan (Ontario Parks 2003), there are three transmission corridors that cross the park and while these will continue to be a permitted non-confirming use, new utility corridors require a plan amendment (NextBridge 2015).

The advantages and disadvantages of each route segment are presented in Table 4-1.

The advantages of the segment of the preferred route in Black Sturgeon River Provincial Park are that it is the shortest route, is farthest from existing communities, has the smallest area of overlap with existing developments and infrastructure (mining, roads and pipelines), has the smallest area of overlap with established treaties and areas with archaeological potential, and has the smallest area of impact on potential caribou habitat and other significant wildlife habitat (SWH). The preferred route is located in the provincial park; however, it is planned to be adjacent to existing infrastructure to reduce potential effects. The preferred route will be further refined during detailed design in an effort to avoid CLVAs and maximize the use of previously disturbed areas, where possible. The other four alternative route segments were previously identified to be non-viable solutions, as they were not technically feasible, practical, financially realistic, or economically viable (NextBridge 2015). For these reasons, the preferred route is considered the best alternative.

Table 4-1: Black Sturgeon River Provincial Park (Waterway) Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Preferred Route		
<ul style="list-style-type: none"> ■ shortest route; ■ least number of potential dwellings in the ROW; ■ least number of settlement areas crossed by the ROW; ■ farthest distance from a potential POR; ■ least number of trails crossed by the ROW; ■ smallest area of the ROW with potential for overlap with recreational activities; ■ smallest area of the ROW with archaeological potential; ■ smallest area of the ROW that overlaps with established treaties; ■ smallest area of the ROW that overlaps with potentially SWH; ■ smallest area of the ROW that overlaps with potential caribou habitat; and ■ least number of roads crossed by the ROW. 	<ul style="list-style-type: none"> ■ greatest number of water bodies with the potential to support fish species crossed by the ROW; ■ smallest area of the ROW with previous logging disturbance. 	Previously confirmed to meet the screening criteria (NextBridge 2015)

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Table 4-1: Black Sturgeon River Provincial Park (Waterway) Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Segment 1 (Highway 11/17)		
<ul style="list-style-type: none"> ■ ROW avoids the provincial park and CLVAs; ■ smallest area of the ROW that overlaps with wetlands; ■ least number of water bodies with the potential to support fish species crossed by the ROW. 	<ul style="list-style-type: none"> ■ greatest number of settlement areas crossed by the ROW; ■ ROW crosses waste management facilities; ■ greatest number of campgrounds crossed by the ROW; and ■ greatest number of roads crossed by the ROW. 	Previously excluded from further consideration (NextBridge 2015)
Segment 2 (Highway 11/17/Pipeline)		
<ul style="list-style-type: none"> ■ ROW avoids overlap with CLVAs; and ■ largest area of the ROW with previous logging disturbance. 	<ul style="list-style-type: none"> ■ ROW does not avoid the provincial park; ■ greatest number of settlement areas crossed by the ROW; ■ nearest distance to a potential POR; ■ greatest number of trails crossed by the ROW; and ■ greatest number of pipelines crossed by the ROW. 	Previously excluded from further consideration (NextBridge 2015)
Segment 3 (Highway 11/17/Southern 115 kV Transmission Line)		
ROW avoids overlap with the provincial park and CLVAs.	<ul style="list-style-type: none"> ■ longest route; ■ greatest number of potential dwelling in the ROW; ■ greatest number of settlement areas crossed by the ROW; largest area of the ROW that overlaps with a mining operation or claim; ■ nearest distance to a potential POR; ■ largest area of the ROW with potential for overlap with recreational activities; ■ largest area of the ROW with archaeological potential; ■ largest area of the ROW that overlaps with established treaties; ■ largest area of the ROW that overlaps with wetlands; ■ largest area of the ROW that overlaps with potentially significant wildlife habitat; and ■ largest area of the ROW that overlaps with potential caribou habitat. 	Previously excluded from further consideration (NextBridge 2015)
Segment 4 (Highway 11/17/Northern 115 kV Transmission Line)		
<ul style="list-style-type: none"> ■ smallest area of the ROW that overlaps with a mining operation or claim; ■ least number of pipelines crossed by the ROW. 	<ul style="list-style-type: none"> ■ largest area of the ROW in the provincial park; ■ greatest number of water bodies with the potential to support fish species crossed by the ROW. 	Previously excluded from further consideration (NextBridge 2015)

ANSI = Area of Natural and Scientific Interest; CLVA = critical landform/vegetation association; POR = point of reception; ROW = right-of-way; SWH = significant wildlife habitat.

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4.2 Ruby Lake Provincial Park (Natural Environment)

Ruby Lake Provincial Park is classified as a “natural environment” park as it incorporates outstanding recreational landscapes with representative natural features and cultural resources. Natural environment parks provided high quality recreational and educational experience (MNR 2009). In accordance with Section 9.4 of the Park Management Plan (MNR 2009), there is a small portion of the park that is bisected by a transmission corridor. New corridors should avoid the park where possible but may be permitted.

The advantages and disadvantages of each route segment are presented in Table 4-2.

The advantages of the segment of the preferred route in Ruby Lake Provincial Park are that it is the shortest route; parallels an existing utility corridor, avoids CLVAs; has the smallest area of the ROW with potential for overlap with recreational activities, areas with archaeological potential, and areas of established treaties; and has, the smallest areas of potential impact to important representative geological formations, supportive environments and SWH. The preferred route is located in the provincial park, but it is adjacent to existing infrastructure to reduce potential impacts and avoids CLVAs. The two formerly evaluated alternative route segments were previously identified to be non-viable solutions, as they were not technically feasible, practical, financially realistic, or economically viable (NextBridge 2015). The new alternative was not considered for further assessment as it crosses the expansion lands for the Red Rock Indian Band and greenfield areas. For these reasons, the preferred route is considered the best alternative.

Table 4-2: Ruby Lake Provincial Park Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Preferred Route		
<ul style="list-style-type: none"> ■ shortest route; ■ smallest area of the ROW with potential for overlap with recreational activities; ■ smallest area of the ROW with archaeological potential; ■ smallest area of the ROW that overlaps with established treaties; ■ ROW avoids overlap with CLVAs; ■ smallest area of the ROW that overlaps with potentially important geological formations; ■ smallest area of the ROW that overlaps with potentially important supportive environments; ■ smallest area of the ROW that overlaps with potentially SWH; ■ smallest area of the ROW that overlaps with potential caribou habitat; ■ least number of roads crossed by the ROW; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ largest area of the ROW in the provincial park; ■ largest area of the ROW that overlaps with First Nation reserves or expansion areas; and ■ greatest number of water bodies with the potential to support fish species crossed by the ROW. 	<p>Previously confirmed to meet the screening criteria (NextBridge 2015)</p>
Segment 1 (Logging Road / Highway 17)		
<ul style="list-style-type: none"> ■ least number of settlement areas crossed by the ROW; ■ ROW avoids overlap with the provincial park and CLVAs; ■ smallest area of the ROW that overlaps with wetlands; and 	<ul style="list-style-type: none"> ■ nearest distance to a potential POR ■ greatest number of roads crossed by the ROW; and ■ ROW is only partially adjacent to an existing infrastructure corridor. 	<p>Previously excluded from further consideration (NextBridge 2015)</p>

ALTERNATIVE ROUTE ASSESSMENT AROUND PROVINCIAL PARKS AND CONSERVATION RESERVES FOR THE EAST-WEST TIE TRANSMISSION PROJECT

Table 4-2: Ruby Lake Provincial Park Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
<ul style="list-style-type: none"> ■ least number of water bodies with the potential to support fish species crossed by the ROW. 		
Segment 2 (Logging Road / CP Rail Line)		
<ul style="list-style-type: none"> ■ ROW avoids overlap with the provincial park and CLVAs; ■ least number of water bodies with the potential to support fish species crossed by the ROW; ■ largest area of the ROW with previous logging disturbance; and ■ least number of roads crossed by the ROW. 	<ul style="list-style-type: none"> ■ longest route; ■ greatest number of settlement areas crossed by the ROW; ■ largest area of the ROW with potential for overlap with recreational activities; ■ largest area of the ROW with archaeological potential; ■ largest area of the ROW that overlaps with established treaties; ■ largest area of the ROW that overlaps with potentially important geological formations; ■ largest area of the ROW that overlaps with potentially important supportive environments; ■ largest area of the ROW that overlaps with potentially SWH; ■ largest area of the ROW that overlaps with potential caribou habitat; and ■ ROW is only partially adjacent to an existing infrastructure corridor. 	Previously excluded from further consideration (NextBridge 2015)
Segment 3 (New – Greenfield)		
<ul style="list-style-type: none"> ■ ROW avoids the provincial park ■ farthest distance from a potential POR; and ■ least number of water bodies with the potential to support fish species crossed by the ROW. 	<ul style="list-style-type: none"> ■ greatest number of settlement areas crossed by the ROW; ■ largest area of the ROW that overlaps with wetlands; ■ smallest area of the ROW with previous logging disturbance; ■ ROW is not adjacent to an existing infrastructure corridor; and ■ ROW crosses the Red Rock Indian Band Expansion Lands. 	Not feasible because it crosses the Red Rock Indian Band Expansion Lands

CLVA = critical landform/vegetation association; CP = Canadian Pacific; POR = point of reception; ROW = right-of-way; SWH = significant wildlife habitat.

4.3 Kama Hills Nature Reserve (Provincial Park)

Kama Hills Provincial Nature Reserve (Provincial Park) is designated a “nature reserve” class park due to its focus on protecting representative geological and biological features (MNR 2011). The Interim Management Statement (MNR 1991) neither references existing utility corridors within the park boundaries, nor precludes or prohibits the development of future corridors.

The park is not proposed to be crossed by the preferred route ROW or other infrastructure; however, approximately 100 m of temporary construction easement will cross the park. To decrease potential recreational and environmental impacts, NextBridge has committed to consider modifying the current footprint to completely avoid overlap of the temporary workspace with the park. The avoidance alternative would be chosen not due to the lower cost, but because it addresses MNRF concerns and avoids direct environmental impacts to the park.

The advantages and disadvantages of each route segment are presented in Table 4-3.

ALTERNATIVE ROUTE ASSESSMENT AROUND PROVINCIAL PARKS AND CONSERVATION RESERVES FOR THE EAST-WEST TIE TRANSMISSION PROJECT

The advantages of the segment of the preferred route in Kama Hills Provincial Nature Reserve (Provincial Park) are that it is the shortest route, is adjacent to an existing infrastructure corridor, has the smallest area of overlap with roads, and has the smallest area of the ROW with potential for overlap with recreational activities, areas of archaeological potential, and areas of established treaties. This alternative route segment avoids the nearby Area of Natural and Scientific Interest (ANSI), has the smallest areas of potential impact to important representative geological formations, supportive environments and SWH, as well as potential caribou habitat. The preferred route crosses the provincial park; however, it is adjacent to existing infrastructure to reduce potential impacts. The preferred route will be further refined during detailed design in an effort to avoid CLVAs, where possible. The three formerly evaluated alternative route segments were previously identified to be non-viable solutions, as they were not technically feasible, practical, financially realistic, or economically viable (NextBridge 2015). The new alternative was also not carried forward as it is entirely within greenfield areas with challenging terrain and limited access. For these reasons, the preferred route is considered the best alternative.

Table 4-3: Kama Hills Provincial Nature Reserve (Provincial Park) Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Preferred Route		
<ul style="list-style-type: none"> ■ shortest route; ■ smallest area of the ROW with potential for overlap with recreational activities; ■ smallest area of the ROW with archaeological potential; ■ smallest area of the ROW that overlaps with established treaties; ■ ROW avoids overlap with ANSIs; ■ smallest area of the ROW that overlaps with potentially important geological formations; ■ smallest area of the ROW that overlaps with potentially important supportive environments; ■ smallest area of the ROW that overlaps with potentially SWH; ■ smallest area of the ROW that overlaps with potential caribou habitat; ■ least number of roads crossed by the ROW; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ ROW overlaps with CLVAs ■ greatest number of rail lines crossed by the ROW 	Previously confirmed to meet the screening criteria (NextBridge 2015)
Segment 1 (Highway 17 / 115 kV Transmission Line)		
<ul style="list-style-type: none"> ■ smallest area of the ROW in the conservation reserve ■ ROW avoids overlap with CLVAs; ■ ROW avoids overlap with ANSIs; ■ smallest area of the ROW that overlaps with wetlands; ■ least number of water bodies with the potential to support fish species crossed by the ROW; ■ least number of roads crossed by the ROW; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ greatest number of settlement areas crossed by the ROW; ■ Nearest distance to a potential POR; ■ smallest area of the ROW with previous logging disturbance; and ■ greatest number of rail lines crossed by the ROW. 	Previously excluded from further consideration (NextBridge 2015)

ALTERNATIVE ROUTE ASSESSMENT AROUND PROVINCIAL PARKS AND CONSERVATION RESERVES FOR THE EAST-WEST TIE TRANSMISSION PROJECT

Table 4-3: Kama Hills Provincial Nature Reserve (Provincial Park) Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Segment 2 (115 kV Transmission Line)		
<ul style="list-style-type: none"> ■ smallest area of the ROW that overlaps with wetlands; ■ ROW avoids overlap with CLVAs; ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ greatest number of trails crossed by the ROW; ■ largest area of the ROW that overlaps with ANSIs; and ■ greatest number of rail lines crossed by the ROW. 	Previously excluded from further consideration (NextBridge 2015)
Segment 3 (Road ROW / Greenfield)		
<ul style="list-style-type: none"> ■ least number of trails crossed by the ROW; ■ ROW avoids overlaps with ANSIs. 	<ul style="list-style-type: none"> ■ longest route; ■ largest area of the ROW in the conservation reserve ■ largest area of the ROW with potential for overlap with recreational activities; ■ largest area of the ROW with archaeological potential; ■ largest area of the ROW that overlaps with established treaties; ■ largest area of the ROW that overlaps with CLVAs; ■ largest area of the ROW that overlaps with potentially important geological formations; ■ largest area of the ROW that overlaps with potentially important supportive environments; ■ largest area of the ROW that overlaps with potentially SWH; ■ largest area of the ROW that overlaps with potential caribou habitat; ■ greatest number of roads crossed by the ROW; ■ greatest number of rail lines crossed by the ROW; and ■ ROW partially parallels an existing infrastructure corridor. 	Previously excluded from further consideration (NextBridge 2015)
Segment 4 (New – Greenfield)		
<ul style="list-style-type: none"> ■ least number of settlement areas crossed by the ROW; ■ farthest distance from a potential POR; ■ least number of trails crossed by the ROW; ■ ROW avoids ANSIs; ■ largest area of the ROW with previous logging disturbance; ■ ROW avoids overlap with CLVAs; and ■ least number of rail lines crossed by the ROW. 	<ul style="list-style-type: none"> ■ largest area of the ROW that overlaps with wetlands; ■ greatest number of water bodies with the potential to support fish species crossed by the ROW; and ■ ROW is not adjacent to an existing infrastructure corridor. 	Excluded because it is not adjacent to an existing infrastructure corridor, which makes it less technically feasible and has a higher potential for environmental effects

ANSI = Area of Natural and Scientific Interest; CLVA = critical landform/vegetation association; POR = point of reception; ROW = right-of-way; SWH = significant wildlife habitat; kV = kilovolt.

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4.4 Kama Cliffs Conservation Reserve

Section 6.4 of the Kama Cliffs Conservation Reserve Statement of Conservation Interest (MNR 2001) recognizes that there are two existing transmission lines that bisect the reserve and that no new utility corridors will be permitted.

The advantages and disadvantages of each route segment are presented in Table 4-4.

The advantages of the segment of the preferred route in Kama Cliffs Conservation Reserve are that it is the shortest route, is adjacent to an infrastructure corridor, has the smallest area of overlap with roads, and has the smallest area of the ROW with potential for overlap with recreational activities, and areas of archaeological potential. This alternative route segment avoids the nearby ANSI and has the smallest areas of potential impact to important representative geological formations, supportive environments and SWH, as well as potential caribou habitat. The preferred route is in the conservation reserve; however, it is adjacent to existing infrastructure within the corridor in an effort to reduce potential impacts. The preferred route will be further refined during detailed design in an effort to avoid CLVAs, where possible. The three formerly evaluated alternative route segments were previously identified to be non-viable solutions, as they were not technically feasible, practical, financially realistic, or economically viable (NextBridge 2015). The new alternative was also not carried forward as it is entirely located within greenfield areas with challenging terrain and limited access. For these reasons, the preferred route is considered the best alternative.

Table 4-4: Kama Cliffs Conservation Reserve Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Preferred Route		
<ul style="list-style-type: none"> ■ shortest route; ■ smallest area of the ROW with potential for overlap with recreational activities; ■ smallest area of the ROW with archaeological potential; ■ ROW avoids overlap with ANSIs; ■ smallest area of the ROW that overlaps with potentially important geological formations; ■ smallest area of the ROW that overlaps with potentially important supportive environments; ■ smallest area of the ROW that overlaps with potentially SWH; ■ smallest area of the ROW that overlaps with potential caribou habitat; ■ least number of roads crossed by the ROW; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ ROW overlaps with CLVAs; and ■ greatest number of rail lines crossed by the ROW. 	<p>Previously confirmed to meet the screening criteria (NextBridge 2015)</p>

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Table 4-4: Kama Cliffs Conservation Reserve Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Segment 1 (Highway 17 / 115 kV Transmission Line)		
<ul style="list-style-type: none"> ■ smallest area of the ROW in the conservation reserve ■ ROW avoids overlap with ANSIs; ■ ROW avoids overlap with CLVAs; ■ smallest area of the ROW that overlaps with wetlands; ■ least number of water bodies with the potential to support fish species crossed by the ROW; ■ least number of roads crossed by the ROW; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ greatest number of settlement areas crossed by the ROW; ■ Nearest distance to a potential POR; ■ smallest area of the ROW with previous logging disturbance; and ■ greatest number of rail lines crossed by the ROW. 	Previously excluded from further consideration (NextBridge 2015)
Segment 2 (115 kV Transmission Line)		
<ul style="list-style-type: none"> ■ smallest area of the ROW that overlaps with wetlands; ■ ROW avoids overlap with CLVAs; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ greatest number of trails crossed by the ROW; ■ largest area of the ROW that overlaps with ANSIs; and ■ greatest number of rail lines crossed by the ROW. 	Previously excluded from further consideration (NextBridge 2015)
Segment 3 (Road ROW / Greenfield)		
<ul style="list-style-type: none"> ■ least number of trails crossed by the ROW; and ■ ROW avoids overlap with ANSIs. 	<ul style="list-style-type: none"> ■ longest route; ■ largest area of ROW in the conservation reserve ■ largest area of the ROW with potential for overlap with recreational activities; ■ largest area of the ROW with archaeological potential; ■ largest area of the ROW that overlaps with established treaties; ■ largest area of the ROW that overlaps with CLVAs; ■ largest area of the ROW that overlaps with potentially important geological formations; ■ largest area of the ROW that overlaps with potentially important supportive environments; ■ largest area of the ROW that overlaps with potentially SWH; ■ largest area of the ROW that overlaps with potential caribou habitat; ■ greatest number of roads crossed by the ROW; ■ greatest number of rail lines crossed by the ROW; and ■ ROW partially adjacent to an existing infrastructure corridor. 	Previously excluded from further consideration (NextBridge 2015)

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Table 4-4: Kama Cliffs Conservation Reserve Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Segment 4 (New - Greenfield)		
<ul style="list-style-type: none"> ■ least number of settlement areas crossed by the ROW; ■ farthest distance from a potential POR; ■ least number of trails crossed by the ROW; ■ ROW avoids overlap with ANSIs; ■ largest area of the ROW with previous logging disturbance; ■ ROW avoids overlap with CLVAs; and ■ least number of rail lines crossed by the ROW. 	<ul style="list-style-type: none"> ■ largest area of the ROW that overlaps with wetlands; ■ greatest number of water bodies with the potential to support fish species crossed by the ROW; and ■ ROW is not adjacent to an existing infrastructure corridor. 	Excluded because it is not adjacent to an existing infrastructure corridor, which makes it less technically feasible and has a higher potential for environmental effects

ANSI = Area of Natural and Scientific Interest; CLVA = critical landform/vegetation association; POR = point of reception; ROW = right-of-way; SWH = significant wildlife habitat; kV = kilovolt.

4.5 Gravel River Provincial Nature Reserve (Provincial Park)

Gravel River Provincial Nature Reserve (Provincial Park) is a “nature reserve” park. The Interim Management Statement (MNR 2013) recognizes that there is an existing land use permit for a transmission line that crosses the park but does not preclude or prohibit the development of future corridors.

The advantages and disadvantages of each route segment are presented in Table 4-5.

The advantages of the segment of the preferred route in Gravel River Provincial Nature Reserve (Provincial Park) are that it is the shortest route, is adjacent to an existing infrastructure corridor, crosses the least amount of infrastructure (roads and rail lines), crosses the least number of settlements, and is farthest away from potential point of receptions (PORs). This alternative also has the smallest area of the ROW with potential for overlap with recreational activities, areas with archaeological potential, and established treaties, and has the least number of archaeological sites. It also has the smallest areas of potential impact to important representative geological formations, supportive environments and SWH, and potential caribou habitat. The preferred route crosses the provincial park; however, it is adjacent to existing infrastructure to reduce potential impacts. The preferred route will be further refined during detailed design in an effort to avoid CLVAs, where possible. The two formerly evaluated alternative route segments were previously identified to be non-viable solutions, as they were not technically feasible, practical, financially realistic, or economically viable (NextBridge 2015). The new alternative was also not carried forward as it is entirely located within greenfield areas with challenging terrain and limited access. For these reasons, the preferred route is considered the best alternative.

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Table 4-5: Gravel River Provincial Nature Reserve (Provincial Park) Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Preferred Route		
<ul style="list-style-type: none"> ■ shortest route; ■ least number of settlement areas crossed by the ROW; ■ farthest distance from a potential POR; ■ smallest area of the ROW with potential for overlap with recreational activities; ■ smallest area of the ROW with archaeological potential; ■ least number of archaeological sites crossed by the ROW; ■ smallest area of the ROW that overlaps with established treaties; ■ smallest area of the ROW that overlaps with traditional land uses/harvest areas identified in the ROW; ■ smallest area of the ROW that overlaps with potentially important geological formations; ■ smallest area of the ROW that overlaps with potentially important supportive environments; ■ smallest area of the ROW that overlaps with potentially SWH; ■ smallest area of the ROW that overlaps with potential caribou habitat; ■ least number of roads crossed by the ROW; ■ least number of rail lines crossed by the ROW; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ largest area of the ROW in the conservation reserve; ■ largest area of the ROW in the provincial park; ■ greatest number of trails crossed by the ROW; ■ largest area of the ROW overlaps with wetlands; ■ greatest number of water bodies with the potential to support fish species crossed by the ROW; and ■ largest area of the ROW that overlaps with CLVAs. 	Previously confirmed to meet the screening criteria (NextBridge 2015)
Segment 1 (Highway 17)		
<ul style="list-style-type: none"> ■ smallest area of the ROW in the conservation reserve ■ least number of trails crossed by the ROW; ■ least number of identified archaeological sites crossed by the ROW; ■ smallest area of the ROW overlaps with wetlands; ■ least number of water bodies with the potential to support fish species crossed by the ROW; ■ smallest area of the ROW that overlaps with CLVAs; ■ least number of rail lines crossed by the ROW; and ■ ROW is adjacent to an existing infrastructure corridor. 	Greatest number of roads crossed by the ROW	Previously excluded from further consideration (NextBridge 2015)

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Table 4-5: Gravel River Provincial Nature Reserve (Provincial Park) Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Segment 2 (Highway 17 / CP Rail Line)		
<ul style="list-style-type: none"> ■ smallest area of the ROW in the conservation reserve ■ ROW avoids overlap with the provincial park ■ least number of trails crossed by the ROW; ■ smallest area of the ROW that overlaps with wetlands; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ longest route; ■ greatest number of settlement areas crossed by the ROW; ■ largest area of the ROW with potential for overlap with recreational activities; ■ largest area of the ROW with archaeological potential; ■ largest area of the ROW that overlaps with traditional land uses/harvest areas identified in the ROW; ■ greatest number of identified archaeological sites crossed by the ROW; ■ largest area of the ROW that overlaps with established treaties; ■ largest area of the ROW that overlaps with potentially important geological formations; ■ largest area of the ROW that overlaps with potentially important supportive environments; ■ largest area of the ROW that overlaps with potentially SWH; ■ smallest area of the ROW with previous logging disturbance; ■ ROW overlaps CLVAs; ■ largest area of the ROW that overlaps with potential caribou habitat; and ■ greatest number of rail lines crossed by the ROW. 	Previously excluded from further consideration (NextBridge 2015)
Segment 3 (New - Greenfield)		
<ul style="list-style-type: none"> ■ least number of identified; archaeological sites crossed by the ROW ■ largest area of the ROW with previous logging disturbance; and ■ least number of rail lines crossed by the ROW. 	<ul style="list-style-type: none"> ■ ROW does not avoid the provincial park or the conservation reserve ■ Nearest distance to a potential POR; ■ greatest number of trails crossed by the ROW; ■ ROW overlaps with CLVAs; and ■ ROW is not adjacent to an existing infrastructure corridor. 	Excluded because it is not adjacent to an existing infrastructure corridor, which makes it less technically feasible and has a higher potential for environmental effects

ANSI = Area of Natural and Scientific Interest; CLVA = critical landform/vegetation association; CP = Canadian Pacific; POR = point of reception; ROW = right-of-way; SWH = significant wildlife habitat.

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4.6 Gravel River Conservation Reserve

Section 6.4.2 of the Gravel River Conservation Reserve’s Management Statement (MNR 2003) does not identify existing utility corridors within the reserve and indicates that no new utility corridors will be permitted.

The advantages and disadvantages of each route segment are presented in Table 4-6.

The advantages of the segment of the preferred route in Gravel River Conservation Reserve are that it is the shortest route, is adjacent to an existing infrastructure corridor, crosses the least number of roads, and crosses the least number of settlements. It has the smallest area of the ROW with potential for overlap with recreational activities, areas of archaeological potential, and areas with established treaties, and has the least number of identified archaeological sites. It also has the smallest areas of potential impact to important representative geological formations, supportive environments and SWH, as well as potential caribou habitat. Although it is located within the conservation reserve, it is adjacent to existing infrastructure to reduce potential effects. The preferred route will be further refined during detailed design in an effort to avoid CLVAs and First Nation reserves, where possible. The two formerly evaluated alternative route segments were previously identified to be non-viable solutions, as they were not technically feasible, practical, financially realistic, or economically viable (NextBridge 2015). The new alternative was also not carried forward as it is entirely located in greenfield areas with challenging terrain and limited access. For these reasons, the preferred route is considered the best alternative.

Table 4-6: Gravel River Conservation Reserve Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Preferred Route		
<ul style="list-style-type: none"> ■ shortest route; ■ least number of settlement areas crossed by the ROW; ■ smallest area of the ROW with potential for overlap with recreational activities; ■ smallest area of the ROW with archaeological potential; ■ least number of identified archaeological sites crossed by the ROW; ■ smallest area of the ROW that overlaps with established treaties; ■ smallest area of the ROW that overlaps with traditional land uses/harvest areas identified in the ROW; ■ smallest area of the ROW that overlaps with potentially important geological formations; ■ smallest area of the ROW that overlaps with potentially important supportive environments; ■ smallest area of the ROW that overlaps with potentially SWH; ■ smallest area of the ROW that overlaps with potential caribou habitat; ■ least number of roads crossed by the ROW; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ largest area of the ROW in the conservation reserve ■ largest area of the ROW in the provincial park ■ largest area of the ROW that overlaps with a mining operation or claim; ■ Most number of trails crossed by the ROW ■ largest area of the ROW that overlaps with wetlands; ■ largest area of the ROW that overlaps with CLVAs; and ■ largest area of ROW that overlaps with aggregate pits. 	<p>Previously confirmed to meet the screening criteria (NextBridge 2015)</p>

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Table 4-6: Gravel River Conservation Reserve Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Segment 1 (Highway 17)		
<ul style="list-style-type: none"> ■ smallest area of the ROW within the conservation reserve ■ least number of identified archaeological sites crossed by the ROW; ■ smallest area of the ROW that overlaps with wetlands; ■ least number of water bodies with the potential to support fish species crossed by the ROW; ■ smallest area of the ROW that overlaps with CLVAs; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ largest area of the ROW that overlaps with a mining operation or claim; ■ largest area of the ROW that overlaps with First Nation reserves or expansion areas; ■ smallest area of the ROW with previous logging disturbance; and ■ greatest number of roads crossed by the ROW. 	Previously excluded from further consideration (NextBridge 2015)
Segment 2 (Highway 17 / CP Rail Line)		
<ul style="list-style-type: none"> ■ smallest area of the ROW within the conservation reserve ■ ROW avoids overlap with the provincial park ■ smallest area of the ROW that overlaps with wetlands; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ greatest number of settlement areas crossed by the ROW; ■ largest area of the ROW that overlaps with a mining operation or claim; ■ greatest number of identified archaeological sites crossed by the ROW; ■ largest area of the ROW that overlaps with First Nation reserves or expansion areas; ■ largest area of the ROW that overlaps with traditional land uses/harvest areas identified in the ROW; ■ smallest area of the ROW with previous logging disturbance; and ■ greatest number of rail lines crossed by the ROW. 	Previously excluded from further consideration (NextBridge 2015)
Segment 3 (New - Greenfield)		
<ul style="list-style-type: none"> ■ least number of settlement areas crossed by the ROW; ■ ROW avoids overlap with the provincial park; ■ smallest area of the ROW that overlaps with a mining operation or claim; ■ least number of trails crossed by the ROW; ■ ROW avoids overlap with First Nation reserves or expansion areas; ■ largest area of the ROW with previous logging disturbance; and ■ least number of rail lines crossed by the ROW. 	<ul style="list-style-type: none"> ■ longest route; ■ ROW does not avoid the conservation reserve ■ greatest number of settlement areas crossed by the ROW; ■ largest area of the ROW with potential for overlap with recreational activities; ■ largest area of the ROW with archaeological potential; ■ largest area of the ROW that overlaps with established treaties; ■ largest area of the ROW that overlaps with potentially important geological formations; ■ largest area of the ROW that overlaps with potentially important supportive environments; ■ largest area of the ROW that overlaps with potentially SWH; ■ greatest number of water bodies with the potential to support fish species crossed by the ROW; ■ largest area of the ROW that overlaps with potential caribou habitat; and ■ ROW is not adjacent to an existing infrastructure corridor. 	Excluded because it is not adjacent to an existing infrastructure corridor, which makes it less technically feasible and has a higher potential for environmental effects

ANSI = Area of Natural and Scientific Interest; CLVA = critical landform/vegetation association; CP = Canadian Pacific; POR = point of reception; ROW = right-of-way; SWH = significant wildlife habitat.

4.7 Kwinkwaga Ground Moraine Uplands Conservation Reserve

Section 6.1.1 of the Kwinkwaga Ground Moraine Uplands Conservation Reserve Statement of Conservation Interest (MNR 2004) indicates that the park is crossed by one existing utility corridor and while new corridors should avoid the park where possible, they may be permitted in extenuating circumstances.

The advantages and disadvantages of each route segment are presented in Table 4-7.

The advantages of the segment of the preferred route in Kwinkwaga Ground Moraine Uplands Conservation Reserve are that the route is adjacent to an existing infrastructure corridor, is farthest separated from existing communities, is farthest away from potential PORs, avoids the greatest number of potential dwellings, and avoids the First Nation reserve and First Nation reserve expansion lands. It has the smallest area of the ROW with archaeological potential, and has the least number of rail line crossings. It also has the smallest areas of potential impact to supportive environments and SWH. The preferred route is in the conservation reserve; however, it avoids CLVAs and is adjacent to existing infrastructure to reduce potential impacts. The two formerly evaluated alternative route segments were previously identified to be non-viable solutions, as they were not technically feasible, practical, financially realistic, or economically viable (NextBridge 2015). The new alternative was also not carried forward as it is substantially longer, requires the crossing of the existing 115 kV transmission line, and is entirely located in greenfield areas with limited access. For these reasons, the preferred route is considered to be the best alternative.

Table 4-7: Kwinkwaga Ground Moraine Uplands Conservation Reserve Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Preferred Route		
<ul style="list-style-type: none"> ■ least number of potential dwellings in the ROW; ■ farthest distance from a potential POR; ■ ROW avoids overlap with CLVAs; ■ smallest area of the ROW that overlaps with potential aggregate resources; ■ smallest area of the ROW with archaeological potential; ■ ROW avoids overlap with First Nation reserves or expansion areas; ■ smallest area of the ROW that overlaps with potentially important supportive environments; ■ smallest area of the ROW that overlaps with potentially SWH; ■ least number of rail lines crossed by the ROW; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ greatest number of settlement areas crossed by the ROW; ■ largest area of the ROW in the conservation reserve; and ■ greatest number of water bodies with the potential to support fish species crossed by the ROW. 	<p>Previously confirmed to meet the screening criteria (NextBridge 2015)</p>

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Table 4-7: Kwinkwaga Ground Moraine Uplands Conservation Reserve Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Segment C-1 (Highway 17)		
<ul style="list-style-type: none"> ■ shortest route; ■ ROW avoids the conservation reserve; ■ smallest area of the ROW that overlaps with potential aggregate resources; ■ smallest area of the ROW with potential for overlap with recreational activities; ■ smallest area of the ROW that overlaps with established treaties; ■ smallest area of the ROW that overlaps with wetlands; ■ least number of water bodies with the potential to support fish species crossed by the ROW; ■ smallest area of the ROW that overlaps with potential caribou habitat; and ■ least number of rail lines crossed by the ROW. 	<ul style="list-style-type: none"> ■ greatest number of dwellings in the ROW; ■ greatest number of settlement areas crossed by the ROW; ■ Nearest distance to a potential POR; ■ greatest number of campgrounds crossed by the ROW; ■ ROW does not avoid overlap with First Nation reserves or expansion areas; ■ smallest area of the ROW with previous logging disturbance; ■ greatest number of roads crossed by the ROW; and ■ ROW is only partially adjacent to an existing infrastructure corridor. 	Previously excluded from further consideration (NextBridge 2015)
Segment C-2 (CP Rail Line)		
<ul style="list-style-type: none"> ■ least number of dwellings in the ROW ■ ROW avoids the conservation reserve; ■ smallest area of the ROW that overlaps with potential aggregate resources; and ■ least number of roads crossed by the ROW. 	<ul style="list-style-type: none"> ■ greatest number of settlement areas crossed by the ROW; ■ largest area of the ROW that overlaps with a mining operation or claim; ■ greatest number of trails crossed by the ROW; ■ greatest number of campgrounds crossed by the ROW; ■ largest area of the ROW that overlaps with First Nation reserves or expansion areas; ■ greatest number of rail lines crossed by the ROW; and ■ ROW is only partially adjacent to an existing infrastructure corridor. 	Previously excluded from further consideration (NextBridge 2015)
Segment 3 (New - Greenfield)		
<ul style="list-style-type: none"> ■ least number of dwellings in the ROW; ■ least number of settlement areas crossed by the ROW; ■ ROW avoids the conservation reserve ■ smallest area of the ROW that overlaps with a mining operation or claim; ■ farthest distance from a potential POR; ■ least number of trails crossed by the ROW; ■ least number of campgrounds crossed by the ROW; ■ ROW avoids overlap with First Nation reserves or expansion areas; ■ largest area of the ROW with previous logging disturbance; and ■ least number of rail lines crossed by the ROW. 	<ul style="list-style-type: none"> ■ longest route; ■ largest area of the ROW that overlaps with potential aggregate resources; ■ largest area of the ROW with potential for overlap with recreational activities; ■ largest area of the ROW with archaeological potential; ■ largest area of the ROW that overlaps with established treaties; ■ largest area of the ROW that overlaps with wetlands; ■ largest area of the ROW that overlaps with potentially important supportive environments; ■ largest area of the ROW that overlaps with potentially SWH; ■ largest area of the ROW that overlaps with potential caribou habitat; and ■ ROW is not adjacent to an existing infrastructure corridor. 	Excluded because it is not adjacent to an existing infrastructure corridor, which makes it less technically feasible and has a higher potential for environmental effects

CLVA = critical landform/vegetation association; CP = Canadian Pacific; POR = point of reception; ROW = right-of-way; SWH = significant wildlife habitat.

4.8 Kwinkwaga Ground Moraine Forest Reserve

Kwinkwaga Ground Moraine Forest Reserve represents two mining claims which have been designated as “forest reserve”, which is a land use designation applied to areas that were initially identified for inclusion in the Kwinkwaga Ground Moraine Uplands Conservation Reserve but where subsequent detailed examination determined that there were existing mining claims or leases. In accordance with Section 5.7 of the Statement of Conservation Interest (MNR 2004), the intention is for this area to be added to the Kwinkwaga Ground Moraine Uplands Conservation Reserve if the claim or lease is retired. According to the Statement of Conservation Interest, the larger Conservation Reserve is crossed by one existing utility corridor and while new corridors should avoid the park where possible, they may be permitted in extenuating circumstances.

The advantages and disadvantages of each route segment are presented in Table 4-8.

The advantages of the segment of the preferred route in the Kwinkwaga Ground Moraine Forest Reserve are that the route is adjacent to an existing infrastructure corridor, is farthest separated from existing communities, is farthest separated from potential PORs, crosses the least number of potential dwellings, and avoids First Nation reserves and First Nation reserve expansion lands. It has the least number of campground crossings, has the smallest area of the ROW with archaeological potential, and has the least number of rail line crossings. It also has the smallest areas of potential impact to important supportive environments and SWH. The preferred route is in the forest reserve; however, it avoids CLVAs and is adjacent to existing infrastructure to reduce potential effects. The two formerly evaluated alternative route segments were previously identified to be non-viable solutions, as they were not technically feasible, practical, financially realistic, or economically viable (NextBridge 2015). The new alternative was also not carried forward as it is longer, requires the crossing of the existing 115-kV transmission line, and is entirely located within greenfield areas with limited access. For these reasons, the preferred route is considered the best alternative.

Table 4-8: Kwinkwaga Ground Moraine Forest Reserve Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Preferred Route		
<ul style="list-style-type: none"> ■ least number of dwellings in the ROW; ■ farthest distance from a potential POR; ■ ROW avoids overlap with CLVAs; ■ smallest area of the ROW that overlaps with potential aggregate resources; ■ least number of campgrounds crossed by the ROW; ■ smallest area of the ROW with archaeological potential; ■ ROW avoids overlap with First Nation reserves or expansion areas; ■ smallest area of the ROW that overlaps with potentially important supportive environments; ■ smallest area of the ROW that overlaps with potentially SWH; ■ least number of rail lines crossed by the ROW; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ greatest number of settlement areas crossed by the ROW; ■ largest area of the ROW within the conservation reserve; and ■ greatest number of water bodies with the potential to support fish species crossed by the ROW. 	<p>Previously confirmed to meet the screening criteria (NextBridge 2015)</p>

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Table 4-8: Kwinkwaga Ground Moraine Forest Reserve Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Segment C-1 (Highway 17)		
<ul style="list-style-type: none"> ■ shortest route; ■ ROW avoids the conservation reserve ■ smallest area of the ROW that overlaps with potential aggregate resources; ■ smallest area of the ROW with potential for overlap with recreational activities; ■ smallest area of the ROW that overlaps with established treaties; ■ smallest area of the ROW that overlaps with wetlands; ■ least number of water bodies with the potential to support fish species crossed by the ROW; ■ smallest area of the ROW that overlaps with potential caribou habitat; and ■ least number of rail lines crossed by the ROW. 	<ul style="list-style-type: none"> ■ greatest number of dwellings in the ROW; ■ greatest number of settlement areas crossed by the ROW; ■ Nearest distance to a potential POR; ■ greatest number of campgrounds crossed by the ROW; ■ ROW does not avoid overlap with First Nation reserves or expansion areas; ■ smallest area of the ROW with previous logging disturbance; ■ greatest number of roads crossed by the ROW; and ■ ROW is only partially adjacent to an existing infrastructure corridor. 	Previously excluded from further consideration (NextBridge 2015)
Segment C-2 (CP Rail Line)		
<ul style="list-style-type: none"> ■ least number of dwellings in the ROW; ■ ROW avoids the conservation reserve ■ smallest area of the ROW that overlaps with potential aggregate resources; and ■ least number of roads crossed by the ROW. 	<ul style="list-style-type: none"> ■ greatest number of settlement areas crossed by the ROW; ■ largest area of the ROW that overlaps with a mining operation or claim; ■ greatest number of trails crossed by the ROW; ■ greatest number of campgrounds crossed by the ROW; ■ largest area of the ROW that overlaps with First Nation reserves or expansion areas; ■ greatest number of rail lines crossed by the ROW; and ■ ROW is only partially adjacent to an existing infrastructure corridor. 	Previously excluded from further consideration (NextBridge 2015)
Segment 3 (New - Greenfield)		
<ul style="list-style-type: none"> ■ least number of dwellings in the ROW; ■ least number of settlement areas crossed by the ROW; ■ ROW avoids the conservation reserve ■ smallest area of the ROW that overlaps with a mining operation or claim; ■ farthest distance from a potential POR; ■ least number of trails crossed by the ROW; ■ least number of campgrounds crossed by the ROW; ■ ROW avoids overlap with First Nation reserves or expansion areas; ■ largest area of the ROW with previous logging disturbance; and ■ least number of rail lines crossed. 	<ul style="list-style-type: none"> ■ longest route; ■ largest area of the ROW that overlaps with potential aggregate resources; ■ largest area of the ROW with potential for overlap with recreational activities; ■ largest area of the ROW with archaeological potential; ■ largest area of the ROW that overlaps with established treaties; ■ largest area of the ROW that overlaps with wetlands; ■ largest area of the ROW that overlaps with potentially important supportive environments; ■ largest area of the ROW that overlaps with potentially SWH; ■ largest area of the ROW that overlaps with potential caribou habitat; and ■ ROW is not adjacent to an existing infrastructure corridor. 	Excluded because it is not adjacent to an existing infrastructure corridor, which makes it less technically feasible and has a higher potential for environmental effects

CLVA = critical landform/vegetation association; CP = Canadian Pacific; POR = point of reception; ROW = right-of-way; SWH = significant wildlife habitat.

4.9 Pukaskwa River Provincial Park (Waterway)

Pukaskwa River Provincial Park is a “waterway reserve” park. Section 5.1.4 of the Interim Management Statement (Ontario Parks 2006) indicates that the park is crossed by one existing utility corridor and while new corridors should avoid the park where possible, they may be permitted.

The advantages and disadvantages of each route segment are presented in Table 4-9.

The modified version of previously evaluated alternative route around Pukaskwa National Park is not part of the preferred route. This segment appears to have more advantages compared to the preferred route; however, in the previous comparison of the longer segments (NextBridge 2015), this alternative route segment was identified to be less preferred as it did not follow existing logging roads and cutover areas as much as the preferred alternative (which poses access challenges) and required more greenfield clearing (NextBridge 2015). For these reasons, the preferred route is considered the best alternative.

Table 4-9: Pukaskwa River Provincial Park (Waterway) Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Preferred Route (Modified Version of Previously Evaluated Segment D-5)		
<ul style="list-style-type: none"> ■ farthest distance from a potential POR; ■ largest area of the ROW with previous logging disturbance; ■ smallest area of the ROW that overlaps with potentially important supportive environments; and ■ smallest area of the ROW that overlaps with potentially SWH. 	<ul style="list-style-type: none"> ■ longest route; ■ largest area of the ROW in the provincial park ■ largest area of the ROW that overlaps with a mining operation or claim; ■ largest area of the ROW that overlaps with potential aggregate resources; ■ largest area of the ROW with potential for overlap with recreational activities; ■ largest area of the ROW that overlaps with established treaties; ■ largest area of the ROW that overlaps with wetlands; ■ greatest number of water bodies with the potential to support fish species crossed by the ROW; ■ largest area of the ROW that overlaps with potential caribou habitat; ■ greatest number of roads crossed by the ROW; and ■ ROW is only partially adjacent to an existing infrastructure corridor. 	<p>Previously confirmed to meet the screening criteria (NextBridge 2015)</p> <p>Segment more closely follows existing logging roads as well as cutover areas, which offers better access for construction and provides for more favourable terrain (NextBridge 2015)</p>

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Table 4-9: Pukaskwa River Provincial Park (Waterway) Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Segment 6 (Modified Version of Previously Evaluated Alternative Route Around Pukaskwa National Park - Greenfield / 230 kV Transmission Line)		
<ul style="list-style-type: none"> ■ shortest route; ■ ROW avoids the provincial park ■ smallest area of the ROW that overlaps with a mining operation or claim; ■ smallest area of the ROW that overlaps with potential aggregate resources; ■ smallest area of the ROW with potential for overlap with recreational activities; ■ smallest area of the ROW with archaeological potential; ■ smallest area of the ROW that overlaps with established treaties; ■ smallest area of the ROW that overlaps with wetlands; ■ least number of water bodies with the potential to support fish species crossed by the ROW; ■ smallest area of the ROW that overlaps with potential caribou habitat; and ■ least number of roads crossed by the ROW. 	<ul style="list-style-type: none"> ■ nearest distance to a potential POR; ■ smallest area of the ROW with previous logging disturbance; and ■ ROW is only partially adjacent to an existing infrastructure corridor. 	<p>Previously evaluated as less preferred because less of the length was adjacent to an existing infrastructure corridor and had less favourable terrain compared to the preferred route (previously evaluated as Segment D-5). For these reasons, it was excluded from further consideration (NextBridge 2015)</p>
Segment 7 (Modified Version of Previously Evaluated Segment D-2 – Logging Roads / Greenfield)		
<ul style="list-style-type: none"> ■ ROW avoids the provincial park; and ■ smallest area of the ROW that overlaps with a mining operation or claim. 	<ul style="list-style-type: none"> ■ largest area of the ROW with archaeological potential; ■ largest area of the ROW that overlaps with potentially important supportive environments; ■ largest area of the ROW that overlaps with potentially SWH; and ■ ROW is only partially adjacent to an existing infrastructure corridor. 	<p>Previously evaluated as less preferred because less of the length was adjacent to an existing infrastructure corridor and had less favourable terrain compared to the preferred route (previously evaluated as Segment D-5). For these reasons, it was excluded from further consideration (NextBridge 2015)</p>

POR = point of reception; ROW = right-of-way; SWH = significant wildlife habitat; kV = kilovolt.

4.10 Nimoosh Provincial Park (Waterway)

The Nimoosh Provincial Park is a “waterway” park. Section 4.1.4 of the Interim Management Statement (MNR 2006) acknowledges that the park is transected by three utility corridors and while new corridors should avoid the park where possible, they may be permitted.

The advantages and disadvantages of each route segment are presented in Table 4-10.

The advantages of the segment of the preferred route in the Nimoosh Provincial Park are that the route is adjacent to an existing infrastructure corridor, is farthest separated from potential PORs, and has the smallest area of overlap with potential aggregate resources. It has the smallest area of the ROW with potential for overlap with recreational activities, areas of archaeological potential, and areas with established treaties. It also has the smallest areas of potential impact to important supportive environments and SWH, crosses the least amount of wetlands, avoids CLVAs, and has the smallest area of overlap with potential caribou habitat. The preferred route is in the provincial park; however, it is adjacent to existing infrastructure to reduce potential impacts and avoids CLVAs. The two formerly evaluated alternative route segments were previously identified to be non-viable solutions, as they were not technically feasible, practical, financially realistic, or economically viable

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(NextBridge 2015). The new alternative was also not carried forward as it is entirely located within greenfield areas with limited access. For these reasons, the preferred route is considered the best alternative.

Table 4-10: Nimoosh Provincial Park Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Preferred Route		
<ul style="list-style-type: none"> ■ shortest route; ■ smallest area of the ROW that overlaps with potential aggregate resources; ■ farthest distance from a potential POR; ■ smallest area of the ROW with potential for overlap with recreational activities; ■ smallest area of the ROW with archaeological potential; ■ smallest area of the ROW that overlaps with established treaties; ■ smallest area of the ROW that overlaps with potentially important supportive environments; ■ smallest area of the ROW that overlaps with potentially SWH; ■ smallest area of the ROW that overlaps with wetlands; ■ ROW avoids overlap with CLVAs; ■ smallest area of the ROW that overlaps with potential caribou habitat; and ■ ROW is adjacent to an existing infrastructure corridor. 	<ul style="list-style-type: none"> ■ largest area of the ROW in the provincial park; and ■ smallest area of the ROW with previous logging disturbance. 	Previously confirmed to meet the screening criteria (NextBridge 2015)
Segment 1 (Low Voltage Transmission Line / Road ROW)		
<ul style="list-style-type: none"> ■ ROW avoids the provincial park; ■ least number of water bodies with the potential to support fish species crossed by the ROW; and ■ largest area of the ROW with previous logging disturbance. 	<ul style="list-style-type: none"> ■ longest route; ■ largest area of the ROW that overlaps with potential aggregate resources; ■ Nearest distance to a potential POR; ■ largest area of the ROW with potential for overlap with recreational activities; ■ largest area of the ROW with archaeological potential; ■ largest area of the ROW that overlaps with established treaties; ■ largest area of the ROW that overlaps with wetlands; ■ largest area of the ROW that overlaps with potentially important supportive environments; ■ largest area of the ROW that overlaps with potentially SWH; ■ largest area of the ROW that overlaps with potential caribou habitat; and ■ ROW is only partially adjacent to an existing infrastructure corridor. 	Previously excluded from further consideration (NextBridge 2015)
Segment 2 (Low Voltage Line / Road ROW)		
<ul style="list-style-type: none"> ■ ROW avoids the provincial park; and ■ farthest distance from a potential POR. 	ROW is only partially adjacent to an existing infrastructure corridor.	Previously excluded from further consideration (NextBridge 2015)

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Table 4-10: Nimoosh Provincial Park Advantages and Disadvantages

Advantages	Disadvantages	Screening Criteria
Segment 3 (New - Greenfield)		
<ul style="list-style-type: none"> ■ ROW avoids the provincial park; and ■ farthest distance from a potential POR. 	<ul style="list-style-type: none"> ■ greatest number of water bodies with the potential to support fish species crossed by the ROW; and ■ ROW is not adjacent to an existing infrastructure corridor. 	Excluded because it is not adjacent to an existing infrastructure corridor, which makes it less technically feasible and has a higher potential for environmental effects

CLVA = critical landform/vegetation association; POR = point of reception; ROW = right-of-way; SWH = significant wildlife habitat.

5. CONCLUSION

A supplementary analysis of additional alternative route segments, with enhanced consideration of new criteria and indicators, was completed for alternative route segments in, through, and adjacent to provincial parks and conservation reserves. The preferred route ROW crosses six provincial parks and four conservation reserves, representing approximately 4.4% of the total route length; however, the preferred route ROW has been sited or designed to be adjacent to existing linear infrastructure in these areas rather than designed as a greenfield route (i.e., not adjacent to existing infrastructure). This siting approach aligns with provincial direction to locate the Project adjacent to the existing East-West Tie line. Siting of the preferred route in and adjacent to provincial parks and conservation reserves considered different alternative route segments in an effort to identify a route option that provided the best alternative (most advantages) for the criteria assessed. The results of this assessment confirm that the preferred route generally has the most advantages when compared to the other alternatives and is considered the best alternative. These results are consistent with the previous alternatives assessment (NextBridge 2015). The similarity of the results from the previous assessment (NextBridge 2015) and this report, with the preferred route considered the best alternative, reflects the limitations to the practical, financially realistic, and economically viable options available for the development of a large-scale transmission line project in these remote areas and the need to site transmission lines adjacent to existing infrastructure to the extent feasible to minimize adverse effects to the natural and social environment.

REFERENCES

- Government of Ontario. 2014. Provincial Policy Statement. [Accessed 28 September 2016]. <http://www.mah.gov.on.ca/AssetFactory.aspx?did=10463>.
- Heid J. 2004. Greenfield Development Without Sprawl: The Role of Planned Communities. http://www.uli.org/wp-content/uploads/2012/07/GreenfieldDev.ashx_.pdf. Last accessed in 2015.
- INAC (Indigenous and Northern Affairs Canada). 2016. Aboriginal and Treaty Rights Information System (ATRIS). <https://www.aadnc-aandc.gc.ca/eng/1100100014686/1100100014687>. Last accessed Nov 4, 2016.
- MNR (Ontario Ministry of Natural Resources). 1991. Kama Hills Provincial Nature Reserve Interim Management Statement. Government of Ontario. 8 pp.

ALTERNATIVE ROUTE ASSESSMENT AROUND PROVINCIAL PARKS AND CONSERVATION RESERVES FOR THE EAST-WEST TIE TRANSMISSION PROJECT

- MNR. 2001. Kama Cliffs Conservation Reserve C2234 Statement of Conservation Interest. Government of Ontario. 43 pp.
- MNR. 2003. Gravel River Conservation Reserve Management Statement. <https://www.ontario.ca/page/gravel-river-conservation-reserve-management-statement>. Last accessed: October 14, 2016.
- MNR. 2004. Enhanced Statement of Conservation Interest for the Kwinkwaga Ground Moraine Uplands Conservation Reserve. Government of Ontario. 25 pp.
- MNR. 2006. Nimoosh Provincial Park Interim Management Statement. <https://www.ontario.ca/page/nimoosh-provincial-park-management-statement>. Last accessed: October 14, 2016.
- MNR. 2009. Ruby Lake Provincial Park Management Plan. <https://www.ontario.ca/page/ruby-lake-provincial-park-management-plan>. Last accessed: October 14, 2016.
- MNR. 2011. State of Ontario's Protected Areas Report. Queen's Printer for Ontario. 92 pp.
- MNR. 2013. Administrative Update to Gravel River Provincial Park (P2660) Interim Management Statement (updated 1991). <https://www.ontario.ca/page/gravel-river-provincial-park-management-statement>. Last accessed: October 14, 2016.
- MNRF (Ministry of Natural Resources and Forestry). 2015. Class EA for Provincial Parks and Conservation Reserves. 2015 Amendment. <https://www.ontario.ca/page/class-ea-provincial-parks-and-conservation-reserves>. Last accessed: October 26, 2016.
- MNRF. 2016a. Land Information Ontario. Data layers obtained in 2016. <https://www.ontario.ca/page/land-information-ontario>
- MNRF. 2016b. Critical Landform Vegetation Associations. Data layers received May 6, 2016.
- MNRF. 2017. Critical Landform Vegetation Associations. Data layers received May 31, 2017.
- MOECC (Ministry of Environment and Climate Change). 2014. Code of Practice: Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario. Revision 2. Queen's Printer for Ontario. 97 pp.
- NextBridge (NextBridge Infrastructure LP). 2015. NextBridge Infrastructure LP Draft Alternative Route Assessment for the East-West Tie Transmission Project. December 2015.
- Ontario Parks. 2003. Black Sturgeon River Provincial Park Management Plan. <https://www.ontario.ca/page/black-sturgeon-river-provincial-park-management-plan>. Last accessed: October 14, 2016.
- Ontario Parks. 2006. Pukaskwa River Interim Management Statement. Government of Ontario. 21 pp.

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