Parameter	Barrie WPCC (Station ID: 6110557)
Days with maximum temperature >35°C	0.08
Days with minimum temperature <-30°C	0.77
Days with rainfall ≥ 25 mm	4.2
Days with snowfall ≥ 25 mm	0.43
Days with precipitation ≥ 25 mm	4.7

4.6.2.2 Temperature

The mean annual temperature range for the Lake Simcoe – Rideau ecoregion is 4.9 to 7.8°C (Mackey et al. 1996a, b). The climate normal mean annual temperature recorded at the Barrie WPCC Station is 6.9°C (Government of Canada 2024). The climate normal daily average temperature varies between 1.9°C and 12°C. The climate normal frost-free period is from May 7 to October 9 (153 days) (Government of Canada 2024).

4.6.2.3 Precipitation

The mean annual precipitation is 759 to 1,087 mm, and the mean summer rainfall is 198 to 281 mm (Mackey et al. 1996a, b). Climate normal days with precipitation (equal to or over 0.2 mm) is approximately 114.4 days per year for the Barrie WCPP meteorological station (Government of Canada 2024).

The climate normal total annual precipitation is 932.9 mm, where 223 mm is associated with snowfall and 709.9 mm occurs as rainfall.

4.6.2.4 Wind

In Barrie, winds are primarily blowing west-southwest with an average hourly speed of 5 km per hour with average gusts of up to 10 km per hour (Windfinder 2024). Wind data was not provided in the climate normal data set for the Barrie WCPP meteorological station.

4.6.2.5 Air Quality

In Ontario, air quality is monitored through a network of air quality monitoring stations operated by the MECP and Environment and Climate Change Canada (ECCC). The MECP monitors air quality throughout Ontario as part of the Air Quality Monitoring System. The nearest station (83 Perry Street, Barrie) is located approximately 6.6 km north of the Project. Through hourly monitoring, an Air Quality Health Index (AQHI) reading summarizes background air quality levels for ozone (O_3), nitrogen dioxide (NO_2), and particulate matter ($PM_{2.5}$).

The AQHI creates a score (i.e. 1 - 10+) totalling the overall risk associated with levels recorded for the parameters measured. A score of 1-3 indicates a low risk, a score of 4-6 indicates a moderate risk, while a score of 7+ indicates a high risk to ambient air quality. Air monitoring data summarized to provide AQHI

scores from the Barrie station represents the combined effect of emissions from nearby sources, as well as the effect of emissions transported into the region. AQHI readings are recorded hourly. Based on averaged daily AQHI readings recorded over 2023 and 2024, a low score (1-3) and, therefore a low risk to air quality, are indicated for the Barrie area.

4.6.2.6 Noise and Vibration

At the Saunders Road Site InnPower TS alternative, the proposed TS is located in an area classified as Class 1 (i.e., an acoustical environment that is dominated by activities of people such as traffic and industry during the day and nighttime periods) as per the “Environmental Activity and Sector Registry – Limits and Other Requirements” (MECP 2021). An acoustic assessment was additionally performed to assess the potential noise impacts at the proposed TS on nearby noise sensitive receptors. Two points of receptions were identified in the LSA and considered in the assessment, namely the closest vacant lot to the southeast and a daycare centre to the northwest. These identified points of receptions are located at varying distances from the Highway 400 where background noise levels are considered to be dominated by road traffic and/or industrial activities. No existing residential units were identified in the area for the assessment.

The McKay Road East Site InnPower TS alternative is located in an agricultural land zone in the City of Barrie. Surrounded with mixed land uses mainly industrial and agricultural land use with dwellings, approximately 10 existing noise-sensitive receptors (dwellings) and one vacant lot receptor were identified within 500 m of the site. High background sound levels are expected at some of the receptors due to their proximity to Highway 400. Hence, properties closer to the highway can be classified as Class 1 or 2 while the rest are Class 3 in accordance with MECP guidelines (i.e., Class 3 is in a rural area with an acoustical environment dominated by natural sounds having little or no road traffic) (MECP 2021).

The Sideroad 10 Site InnPower TS alternative is located in an agricultural land zone, at the intersection between Sideroad 10 and 7th Line in the Town of Innisfil. The site surrounded by a dog park, agricultural land with residential dwellings and forested areas, with approximately eight noise-sensitive receptors and two vacant lot receptors identified within 500 m of this site. This site is classified as Class 3 as per the MECP guidelines (MECP 2021).

The Project does not have any significant sources of vibration. Therefore, vibration was not assessed.

4.6.3 Surface and Groundwater Resources

A total of 15 mapped watercourses or drainage features are present within the Terrestrial and Aquatic Ecosystems Assessment Area (MNR 2023c). Summary of available background information for each feature is available in Table 4.3.

Table 4.3 Summary of Background Information for Aquatic Features

Watercourse Name (Stantec ID)	Flow Regime (MNR 2023a)	Thermal Regime (MNR 2023c)	Fish Present (MNR 2023c)
Hotchkiss Creek (WC-1)	Permanent	Cold	Yes
Tributary to Hotchkiss Creek (WC-2)	Permanent	Unknown	Yes
Tributary to Hotchkiss Creek (WC-3a)	Permanent	Unknown	Yes
Tributary to Hotchkiss Creek (WC-3b)	Permanent	Unknown	Yes
Tributary to Hotchkiss Creek (WC-4)	Permanent	Unknown	Yes
Tributary to Hotchkiss Creek (WC-5)	Permanent	Unknown	Yes
Tributary to Lake Simcoe (WC-6)	Permanent	Unknown	No
Tributary to Lake Simcoe (WC-7)	Permanent	Cold	Yes
Tributary to Lake Simcoe (WC-8)	Permanent	Cold	Yes
Tributary to Lovers Creek[1] (WC-9)	Permanent	Unknown	Yes
Tributary to Lovers Creek (WC-10)	Permanent	Unknown	Yes
Unnamed Watercourse (WC-11)	Permanent	Unknown	Yes
Tributary to Lovers Creek (WC-12a)	Permanent	Unknown	Yes
Tributary to Lovers Creek (WC-12b)	Permanent	Unknown	Yes
Tributary to Lovers Creek (WC-12c)	Permanent	Unknown	Yes

[1]An unmapped segment of this feature is present within the Aquatic Ecosystems Study Area.

Field investigations were conducted on October 26 and 27, 2023 to verify the presence of aquatic features and their potential to support fish. The results of the visual assessment for each aquatic feature are summarized in Table 4.4.

Table 4.4 Summary of Field Investigations for Aquatic Features

Watercourse Name (Stantec ID)	Notes	Fish Habitat
Hotchkiss Creek (WC-1)	Permanent feature, average width 1.5 m, average depth 0.2 m	Direct fish habitat
Tributary to Hotchkiss Creek (WC-2)	Drainage ditch entering underground piped storm drainage prior to confluence with Hotchkiss Creek (WC-1)	Not fish habitat
Tributary to Hotchkiss Creek (WC-3a)	Drainage ditch lined with riprap, trickle flow	Potential seasonal fish habitat
Tributary to Hotchkiss Creek (WC-3b)	Dry swale, continues into WC-3a	Not fish habitat
Tributary to Hotchkiss Creek (WC-4)	No visible feature	Not fish habitat
Tributary to Hotchkiss Creek (WC-5)	No visible feature	Not fish habitat
Tributary to Lake Simcoe (WC-6)	Dry swale within project boundary	Not fish habitat
Tributary to Lake Simcoe (WC-7)	Poorly defined swale, dry during site assessment	Not fish habitat
Tributary to Lake Simcoe (WC-8)	Pool below culvert outfall with trickle flow into stormwater pond	Potential fish habitat
Tributary to Lovers Creek (WC-9)	Small defined channel with trickle flow into stormwater ponds	Potential fish habitat
Tributary to Lovers Creek (WC-10)	Stormwater conveyance from nearby commercial areas	Not fish habitat
Unnamed Watercourse (WC-11)	Multiple poorly defined drainage ditches, some isolated pools of standing water but no connectivity to other features	Not fish habitat
Tributary to Lovers Creek (WC-12a)	Permanent feature, average width 1 m, average depth 0.15 m	Fish habitat
Tributary to Lovers Creek (WC-12b)	Poorly defined drainage into WC-12a	Potential seasonal fish habitat
Tributary to Lovers Creek (WC-12c)	Poorly defined drainage into WC-12a	Potential seasonal fish habitat

4.6.4 Natural Heritage Features

As defined in the PPS (2024), natural heritage features and areas include “significant wetlands, significant coastal wetlands, fish habitat, significant woodlands, significant habitat of endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest”, which are important for their environmental and social values as a legacy of the natural landscapes of an area.

A variety of background documents and information sources were reviewed to obtain records of natural heritage features within the Terrestrial and Aquatic Ecosystems Assessment Area. Records of terrestrial and aquatic SAR and provincially rare species, occurrences of amphibians, reptiles, birds and mammals, PSWs, Areas of Natural and Scientific Interest (ANSIs), and fish and fish habitat data were obtained from the following sources:

- Natural Heritage Information Centre (NHIC), (MNR 2023a)
- Land Information Ontario, (MNR 2023b)
- Lake Simcoe Region Conservation Authority (LSRCA) (LSRCA 2016)
- Nottawasaga Valley Conservation Authority (NVCA) (NVCA 2020)
- Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature 2020)
- Ontario Mammal Atlas (OMA; Dobbyn 1994)
- Ontario Breeding Bird Atlas (OBBA; Cadman et al. 2007)
- Fisheries and Oceans Canada Aquatic SAR Map (DFO 2024)
- Ontario Butterfly Atlas (Toronto Entomologists’ Association 2023)
- eBird Online Database (eBird 2023)
- iNaturalist Online Observations (iNaturalist 2023)

Based on a review of background information, 12 species of conservation concern (SOCC) are known to occur in the vicinity of the Terrestrial and Aquatic Ecosystems Study Area, as shown in Table 4.5. The potential for SOCC to be present in the Terrestrial and Aquatic Ecosystems Assessment Area is limited by habitat suitability and availability; therefore, species listed in Table 4.5 may not occur in the Terrestrial and Aquatic Ecosystems Assessment Area.

Table 4.5 Terrestrial Species of Conservation Concern

Common Name	Scientific Name	SRANK	Provincial Status (ESA)	Source
Amphibians				
Western Chorus Frog	*Pseudacris triseriata*	S4	NAR	ORAA 2020
Birds				
Barn Swallow	*Hirundo rustica*	S4B	SC	OBBA 2007
Common Nighthawk	*Chordeiles minor*	S4B	SC	OBBA 2007
Eastern Wood-pewee	*Contopus virens*	S4B	SC	NHIC 2023a
Grasshoppper sparrow	*Ammodramus savannarum*	S4B	SC	NHIC 2023a
Wood Thrush	*Hylocichla mustelina*	S4B	SC	NHIC 2023a
Insects				
Monarch	*Danaus plexippus*	S2N, S4B	SC	TEA 2023
Reptiles				
Common Five-lined Skink (Great Lakes/St. Lawrence population)	*Plestiodon fasciatus* pop. 2	S4	SC	ORAA 2020
Eastern Milksnake	*Lampropeltis triangulum*	S4	NAR	NHIC 2023a, ORAA 2020
Midland Painted Turtle	*Chrysemys picta marginata*	S5	NAR	NHIC 2023a
Northern Map Turtle	*Graptemys geographica*	S3	SC	ORAA 2020
Snapping Turtle	*Chelydra serpentina*	S3	SC	NHIC 2023a

Eleven SAR that have the potential to occur within the Terrestrial and Aquatic Ecosystems Assessment Area were identified during the background review. These species, their status and a brief habitat description is provided in Table 4.6.

Table 4.6 SAR Species with Potential to Occur within the TS Terrestrial and Aquatic Ecosystems Assessment Area

Species	SAR Legislation and Status		Habitat
	Ontario ESA, SARO List	Federal SARA, Schedule 1	
Birds			
Bank Swallow	THR (threatened)	THR	Nests in sandy embankments and aggregate pits.

Species	SAR Legislation and Status		Habitat
	Ontario ESA, SARO List	Federal SARA, Schedule 1	
Bobolink	THR	THR	Generally, prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands.
Chimney Swift	THR	THR	They are more likely to be found in and around urban settlements where they nest and roost (rest or sleep) in chimneys and other manmade structures.
Eastern Meadowlark	THR	THR	Generally, prefers grassy pastures, meadows and hay fields. Nests are always on the ground and usually hidden in or under grass clumps.
Eastern Whip-poor-will	THR	THR	The Eastern Whip-poor-will is usually found in areas with a mix of open and forested areas, such as savannahs, open woodlands, or openings in more mature, deciduous, coniferous and mixed forests. It forages in these open areas and uses forested areas for roosting (resting and sleeping) and nesting.
Red-headed Woodpecker	END (endangered)	END	The Red-headed Woodpecker lives in open woodland and woodland edges and is often found in parks, golf courses and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching.
Mammals			
Little Brown Myotis	END	END-END	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius; Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm diameter at breast height (dbh)).
Northern Myotis	END	END-END	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius; Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.)
Tri-colored Bat	END	END-END	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. The Tri-coloured Bat roosts in colonies in tree cavities in a wide variety of deciduous and coniferous forest stands. It is strongly associated with forest watercourses and streamside vegetation.
Plants			
Butternut	END	END	In Ontario, Butternut usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry rocky soil. This species does not do well in the shade, and often grows in sunny openings and near forest edges.

Species	SAR Legislation and Status		Habitat
	Ontario ESA, SARO List	Federal SARA, Schedule 1	
Reptiles			
Blandings Turtle	THR	END	Typically found in shallow water, usually in large wetlands.

There were no SAR or SOCC observed within the Hydro One ROW and Saunders Road property during the site visit on October 26 and 27, 2023, however the field visit was completed outside of the active season for wildlife. Based on the presence of suitable habitat, and results of the background records review, the following SAR/SOCC may occur in the Terrestrial and Aquatic Ecosystems Assessment Area:

- Chimney Swift – may nest/roost in chimneys of urban buildings and homes. Buildings will remain intact throughout the Terrestrial and Aquatic Ecosystems Assessment Area, so no impacts to Chimney Swift are anticipated.
- Bat SAR - A group of suitable bat maternity roost trees is present in the southern half of the Terrestrial and Aquatic Ecosystems Assessment Area in ELC community WODM4-3 (Figure 1 of Appendix C.3); bat SAR may use this forested community. Bat SAR may also be present in other forested habitat within the Terrestrial and Aquatic Ecosystems Assessment Area.
- Eastern Wood-pewee and Wood Thrush may occur within the forested habitat throughout the Terrestrial and Aquatic Ecosystems Assessment Area.
- Monarch may occur in the meadow and thicket habitat throughout the Terrestrial and Aquatic Ecosystems Assessment Area.

4.7 Recreational Resources

There are several outdoor recreation areas and trail networks serving the region, such as:

- Ardagh Bluffs Natural Area which is bounded by Ardagh Road and Mapleton Ave and located west of Highway 400. Ardagh Bluffs Natural Area is located in the regulated limits of LSRCA and is classified as Environmentally Protected
- Beacon Glen Trails which are located along Essa Road near the Beacon Road intersection, west of Highway 400
- Portion of the Trans Canada Trail which is connected to Springwater Township in the north and at Essa Township in the south. The Trans Canada Trail within the Study Area extends from north of the Study Area along Whiskey Creek (east of Huronia Road), to along Huronia Road after traversing a tributary of Lovers Creek
- Dyer forest tract along Townline Road, north of Mapleview Drive West

- Bloxham forest tract located at the intersection of Salem Road and Veteran's Drive
- Outdoor golf courses including Innisbrook Golf Course and the National Pines Golf Club, both of which are in the wooded area at the intersection of Huronia Road and McKay Road East
- Multiple municipal parks. The parks closest to the Saunders Road Site and McKay Road East Site InnPower TS alternatives are Shalom Park and J. Gibbins Park. Both parks are located east of Huronia Road and north of Lockhart Road. The municipal park associated with Knock Community Center, north of 9th Line, is located just outside the LSA of the Sideroad 10 Site InnPower TS alternative

The recreational resources identified above are all located outside of the LSAs of the InnPower TS alternatives.

4.8 Visual and Aesthetic Resources

This factor considers the change to physical appearances across the landscape and their susceptibility to change as a result of the Project.

The proposed TL extends across industrial areas, wooded lots with forest cover and flat agricultural lands across the PSA. Existing vertical elements in the PSA mainly includes the existing 115kV TL infrastructure (consisting of both wooden poles and steel structures) and standard traffic light and other light fixtures.

The majority of sensitive receptors for the Project are residences with wide views into the horizon. Many of the properties have existing tree lined wind breaks and hedgerows that offer localized privacy from adjacent visual elements. Residences have been identified at the peripheries of the proposed McKay Road East Site and Sideroad 10 InnPower TS alternatives. The proposed Saunders Road Site InnPower TS alternative is in an industrial park located in the south end of Barrie, currently surrounded by low-rise industrial buildings.

5 Identification and Evaluation of Alternative Methods

This section of the ESR describes the identification and evaluation of alternative methods for carrying out the proposed Project, namely the alternative sites considered for the proposed TS (Section 5.1.1) and TL (Section 5.1.2) portions of the Project respectively. The potential quantitative and qualitative effects associated with each of the alternatives identified are compared and evaluated based on the following criteria: biophysical environment, socio-economic environment, cultural heritage resources, technical and financial factors.

5.1 Alternative Methods Considered

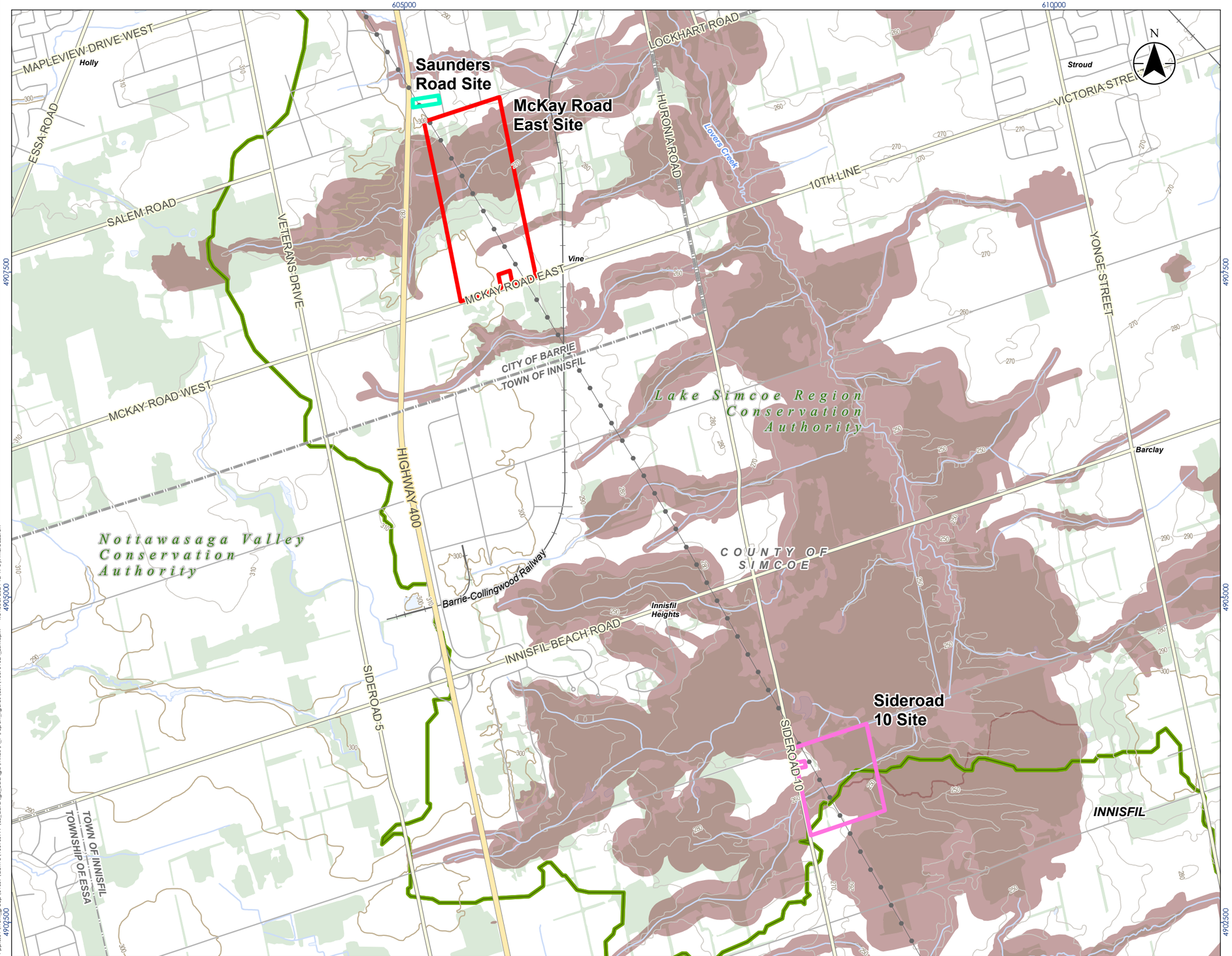
5.1.1 Site Alternatives for the Proposed InnPower TS

In March 2022, a site selection study for the proposed InnPower TS was completed (provided in Appendix C.1). Three Site Alternatives were considered in the study, listed in Table 5.1 and illustrated in Figure 5.1. The three Site Alternatives were identified based on their proximity to the existing TL, availability of land to accommodate the spatial requirements for the proposed TS, and ease of obtaining the land required for the Project (i.e., existing land owned by InnPower or through landowner agreements).

Table 5.1 Site Alternatives for the proposed InnPower TS and General Descriptions

Site Alternatives	Description
Saunders Road Site	The Saunders Site Alternative is located at 14 Saunders Road in the City of Barrie, Ontario. The site is approximately 1.9 hectares (ha) and is bounded by adjacent private properties to the north and south, Highway 400 to the west, and Saunders Road to the east. The property is accessible via Saunders Road. The site is private property currently owned by InnPower. An idle 115 kV transmission line intersects the property northwest to south-east.
McKay Road East Site	The McKay Road East Site Alternative is located east of the intersection of Highway 400 and McKay Road East in the City of Barrie. The site is approximately 84 ha and is bounded by Lockhart Road to the north, private properties to the east and west, and McKay Road East to the south. The site is privately-owned property and consists partially of plowed fields at the south end and forested area at the north end. A 230 kV transmission line intersects the property northwest to south-east.

Site Alternatives	Description
Sideroad 10 Site	The Sideroad 10 Site Alternative is located at 7169 10 Sideroad in Innisfil, Ontario, at the intersection between Sideroad 10 and 7th Line, which is immediately south of the City of Barrie. The site is approximately 40.3 ha and is bounded by 7th Line to the north, Sideroad 10 to the west, forested area to the east, and adjacent private property to the south. The site is primarily plowed fields with forested area to the east and northeast end of the property and is 40.3 ha in size. A 230 kV transmission line intersects the property northwest to south-east.



Stantec

Legend

- Saunders Road Site
- McKay Road East Site
- Sideroad 10 Site
- Topographic Contour (m ASML)
- Highway
- Major Road
- Minor Road
- Hydro Line
- Railway
- Watercourse
- Conservation Authority Administrative Boundary
- Regulation Limit (LSRCA, NVCA)
- Waterbody
- Wooded Area
- Municipal Boundary
- Municipal Boundary, Lower

0 1 2 km

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Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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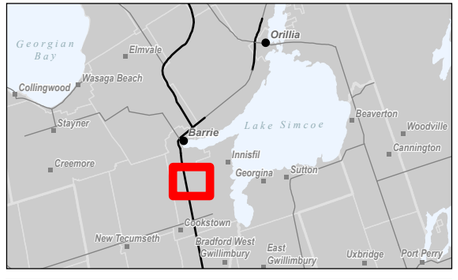

Project Location
City of Barrie/
Town of Innisfill

1609600977 REVA
Prepared by MDA on 2024-12-17

Client/Project
INNPOWER CORPORATION
INNPOWER HYDRO ONE ESR

Figure No.
5.1

Title
Alternative Sites for the TS

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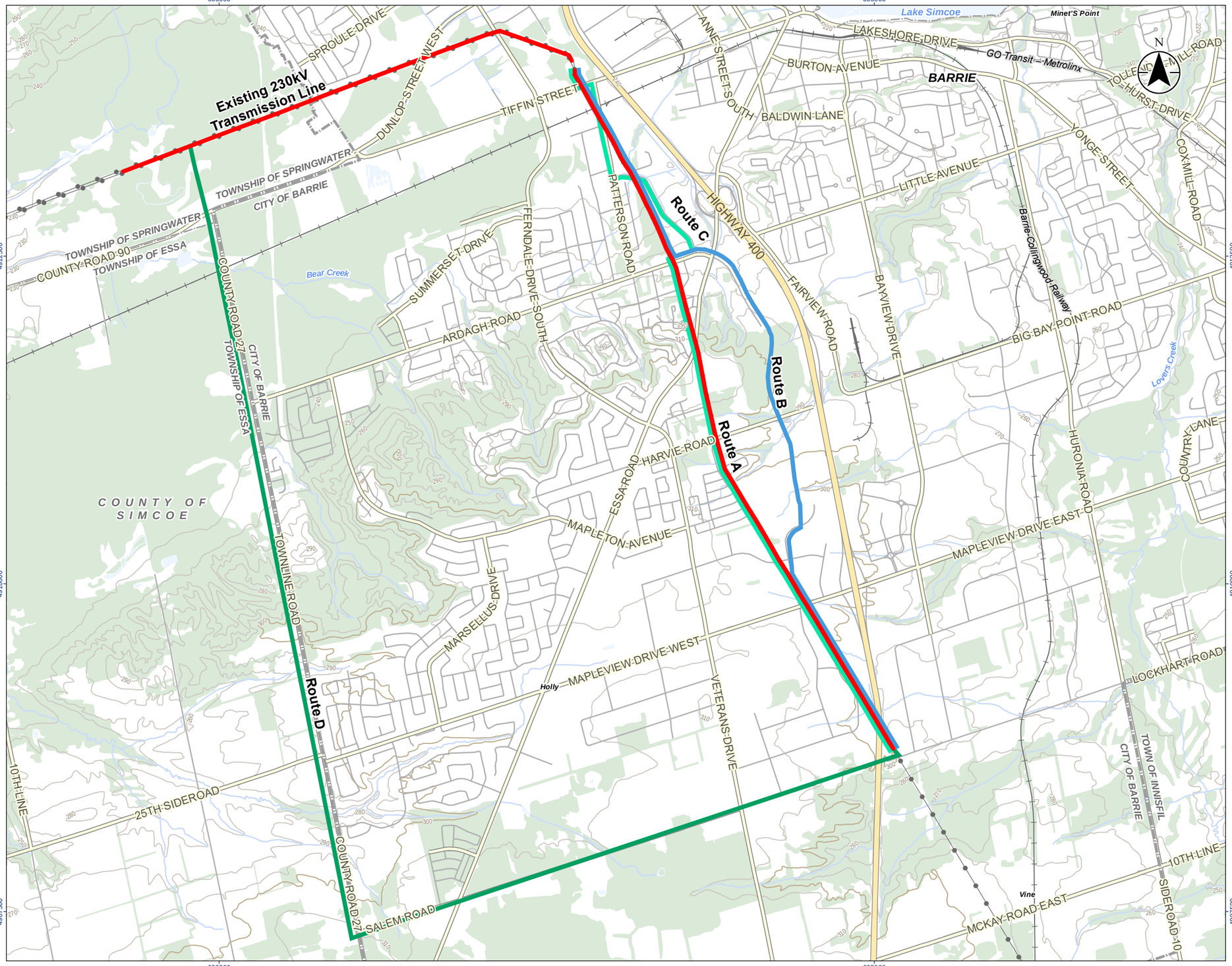
5.1.2 Route Alternatives for the Transmission Line

Based on the preliminary assessment, four feasible Route Alternatives were considered, listed in Table 5.2 and illustrated in Figure 5.2.

Table 5.2 Route Alternatives and General Descriptions

Alternative Routes	Description
Route A (Overhead)	Follows an existing 30 m wide transmission line corridor from the Barrie TS to the InnPower TS. The corridor is currently used by Hydro One for a 44kV distribution feeder.
Route B (Partially underground)	Follows an existing corridor to Ardagh Road, east along Bryne following future road extensions until return to the Hydro One corridor to InnPower TS.
Route C (Partially underground)	Follows an existing corridor to Tiffin Street. The corridor would continue south along Tiffin Street, Patterson Road and Morrow Road, and turn west on Ardagh Road until return to the Hydro One corridor to InnPower TS.
Route D (Overhead)	From the Barrie TS, follows an existing Hydro One 230 kV transmission line corridor east to Highway 27. The corridor would continue south on Highway 27 and turn east on Salem Road, terminating at the InnPower TS.



Stantec

Legend

- Route A
- Route B
- Route C
- Route D
- Topographic Contour (m AMSL)
- Highway
- Major Road
- Minor Road
- Hydro Line
- Railway
- Watercourse
- Waterbody
- Wooded Area

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Notes
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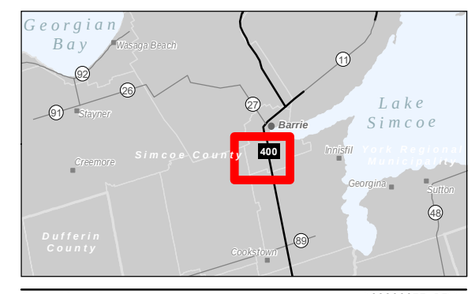

Project Location
City of Barrie/
Town of Innisfill

160900977 REVA
Prepared by MDA on 2023-11-28

Client/Project
INNPOWER CORPORATION
INNPOWER HYDRO ONE ESR

Figure No.
5.2

Title
Alternative Routes for the Transmission Line

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5.2 Evaluation Criteria and Selection of the Preferred Alternative

The three alternative TS sites (i.e., Saunders Road Site, McKay Road East Site, and Sideroad 10 Site), and four alternative TL routes (i.e., Route A to D) were assessed through comparative evaluations to select the preferred site/route. The comparative analysis serves to highlight the range of relative differences between the potential effects of each alternative site/route. This evaluation involved an assessment of the advantages and disadvantages related to Project-specific criteria. For each criterion, the alternative sites/routes were ranked qualitatively using a reasoned argument as:

- **Preferred** – alternative(s) with the most advantages and least disadvantages for that criterion
- **Less preferred** – alternative(s) with less advantages and/or more disadvantages, for that criterion, compared to the 'most preferred' alternative(s)
- **Least preferred** – alternative(s) with the least advantages and most disadvantages, for that criterion

These criteria were categorized within the following four groups:

- Biophysical environmental considerations
- Socio-economic environmental considerations
- Technical considerations
- Financial considerations

Table 5.3 presents the criteria categories and the corresponding key considerations and impacts to assess.

Table 5.3 Evaluation Criteria

Category	Criteria
Biophysical	• Changes to terrestrial environment • Changes to aquatic environment • Generation or importation of material (e.g., soil/ aggregate) • Changes to surface water • Changes to groundwater • Changes to air quality • Changes to existing noise levels

Category	Criteria
Socio-Economic	• Potential for construction to disrupt communities • Potential to disrupt vehicular traffic and transit • Potential to disrupt archaeological resources, built heritage resources, and cultural heritage landscapes • Health and safety considerations • Impacts to resources of Indigenous interest
Technical	• Potential for construction complexity • Potential need for property • Potential operation risks
Financial	• Construction cost • Operation and maintenance costs • Real estate acquisition costs

5.3 The Preferred Alternative

5.3.1 Preferred Site for Proposed InnPower TS

The site selection study found that the Saunders Road Site InnPower TS alternative, Figure 5.3, is in an existing industrial area and therefore there are no anticipated conflicts with land use designations and impacts to terrestrial and aquatic natural heritage, and cultural heritage, are expected to be negligible. While two points of receptions were identified in proximity to the site, the results of the acoustic assessment indicate that under the predictable worst-case noise emission scenario, the proposed TS is predicted to operate in compliance with the applicable noise limits for daytime, evening, and nighttime periods. Therefore, no noise mitigation is required for the Project. Refer to Appendix C.5 for the Acoustic Assessment Report. Furthermore, while the site is directly adjacent to Highway 400, it is expected that the transformer station can be constructed in compliance with the required setbacks.

With regards to McKay Road East Site InnPower TS alternative, this alternative comprises of both land designated as employment for industrial uses, and as natural heritage areas. Therefore, the anticipated conflicts with land use designations and predicted impacts to the biophysical environment, conservation authority (CA) regulated areas, agricultural areas, and noise receptors are dependent on the Project siting. There are an estimated 10 existing receptors that may be impacted from noise emissions, with additional potential vacant lot receptors (anticipated future residential area). Furthermore, the site was identified to have potential cultural heritage value.

With regards to Sideroad 10 Site, it was found that the impacts to the biophysical environment, CA regulated areas, agricultural areas, and noise receptors are dependent on the Project siting. There are an estimated eight existing receptors that may be impacted from noise emissions, and the site is expected to have the most impact on the noise-sensitive receptors. The site has existing potential cultural heritage value. The size of the parcel, and variability of the siting the TS in that parcel suggests that a plan of

subdivision, or land severance would likely be required. The anticipated lot severance would create an undersized agricultural lot which would require a minor variance application from the City of Barrie.

As such, the Site Selection Study determined that the Saunders Road Site was the **preferred** alternative, Site 1 was **less preferred**, and Site 2 was **least preferred**. The site assessment results are summarized in Table 5.4. Refer to Appendix C.1 for the Site Selection Study.

Table 5.4 Preferred Site Assessment Summary

Saunders Road Site	McKay Road East Site	Sideroad 10 Site
Biophysical • Located in an existing industrial area. Therefore, impacts to terrestrial and aquatic natural heritage, are expected to be negligible. • Changes to surface water, groundwater and air quality, and impacts due to generation/importation of material are expected to be mainly limited to the construction phase. Potential impacts are expected to be negligible with implementation of standard mitigation measures during construction as the location provides a land buffer from neighbouring natural heritage areas. • Noise levels at the two existing noise receptors identified are expected to be in compliance for daytime, evening and nighttime periods, hence no noise mitigation is required.	Biophysical • Impacts to the biophysical environment, CA regulated areas, agricultural areas, and noise receptors are dependent on the Project siting. • Changes to surface water, groundwater and air quality, and impacts due to generation/importation of material are expected to be mainly limited to the construction phase. Potential impacts are dependent on Project siting. If sited in industrial area, potential impacts are expected to be negligible with implementation of standard mitigation measures during construction as the location would provide a land buffer from neighbouring natural heritage areas. If sited in existing natural heritage area, potential impacts might be non-negligible and permanent. • There are an estimated 10 existing receptors that may be impacted from noise emissions, with additional potential vacant lot receptors (anticipated future residential area).	Biophysical • Impacts to the biophysical environment, CA regulated areas, agricultural areas, and noise receptors are dependent on the Project siting. • Changes to surface water, groundwater and air quality, and impacts due to generation/importation of material are expected to be mainly limited to the construction phase. Potential impacts are dependent on Project siting. If sited in industrial area, potential impacts are expected to be negligible with implementation of standard mitigation measures during construction as the location would provide a land buffer from neighbouring natural heritage areas. If sited in existing natural heritage area, potential impacts might be non-negligible and permanent. • There are an estimated eight existing receptors that may be impacted from noise emissions, and the site is expected to have the most impact on the noise-sensitive receptors. Additional noise mitigation may be required for noise compliance.

Saunders Road Site	McKay Road East Site	Sideroad 10 Site
Socio-Economic • No anticipated conflicts with land use designations. Cultural heritage value was also not identified for this site. • Potential to disrupt archaeological resources, built resources, and cultural heritage landscapes is therefore negligible.	Socio-Economic • Anticipated conflicts with land use designations are dependent on the Project siting. The site has potential cultural heritage value. • There is therefore some potential to disrupt archaeological resources, built resources, and cultural heritage landscapes.	Socio-Economic • The site has existing potential cultural heritage value. • There is therefore some potential to disrupt archaeological resources, built resources, and cultural heritage landscapes.
Technical • Site is currently owned by InnPower, with no anticipated conflicts with land use designations. • While the site is directly adjacent to Highway 400, it is expected that the TS can be constructed in compliance with the required setbacks. However, due to the size of the property, on-site laydown and staging may be limited and may require further assessment. • Project siting, size and design were not available at the time of writing. Operation risks are hence assumed to be similar for all 3 site alternatives.	Technical • The site is currently not owned by InnPower. Therefore, acquisition is required. • The site is large enough to accommodate the transformer station, lay-down and staging areas (positioning could limit impacts to natural features). • Project siting, size and design were not available at the time of writing. Operation risks are hence assumed to be similar for all 3 site alternatives.	Technical • The site is currently not owned by InnPower. Therefore, acquisition is required. • The size of the parcel, and variability of the siting the transformer station in that parcel suggests that a plan of subdivision, or land severance would likely be required. The anticipated lot severance would create an undersized agricultural lot which would require a variance. • Site is large enough to accommodate the TS, laydown and staging areas (positioning in the site could also limit impacts to natural features). • Project siting, size and design were not available at the time of writing. Operation risks are hence assumed to be similar for all 3 site alternatives.
Financial • Construction, operation and maintenance costs were not evaluated for this report as Project siting, size and design were not available at the time of writing. Costs are assumed to be similar for all 3 site alternatives.	Financial • Construction, operation and maintenance costs were not evaluated for this report as Project siting, size and design were not available at the time of writing. Costs are assumed to be similar for all 3 site alternatives.	Financial • Construction, operation and maintenance costs were not evaluated for this report as Project siting, size and design were not available at the time of writing. Costs are assumed to be similar for all 3 site alternatives.
• The Saunders Road Site is therefore the most preferred.	• The McKay Road East Site is therefore the less preferred.	• The Sideroad 10 Site is therefore the least preferred.

5.3.2 Preferred Route for Proposed Transmission Line

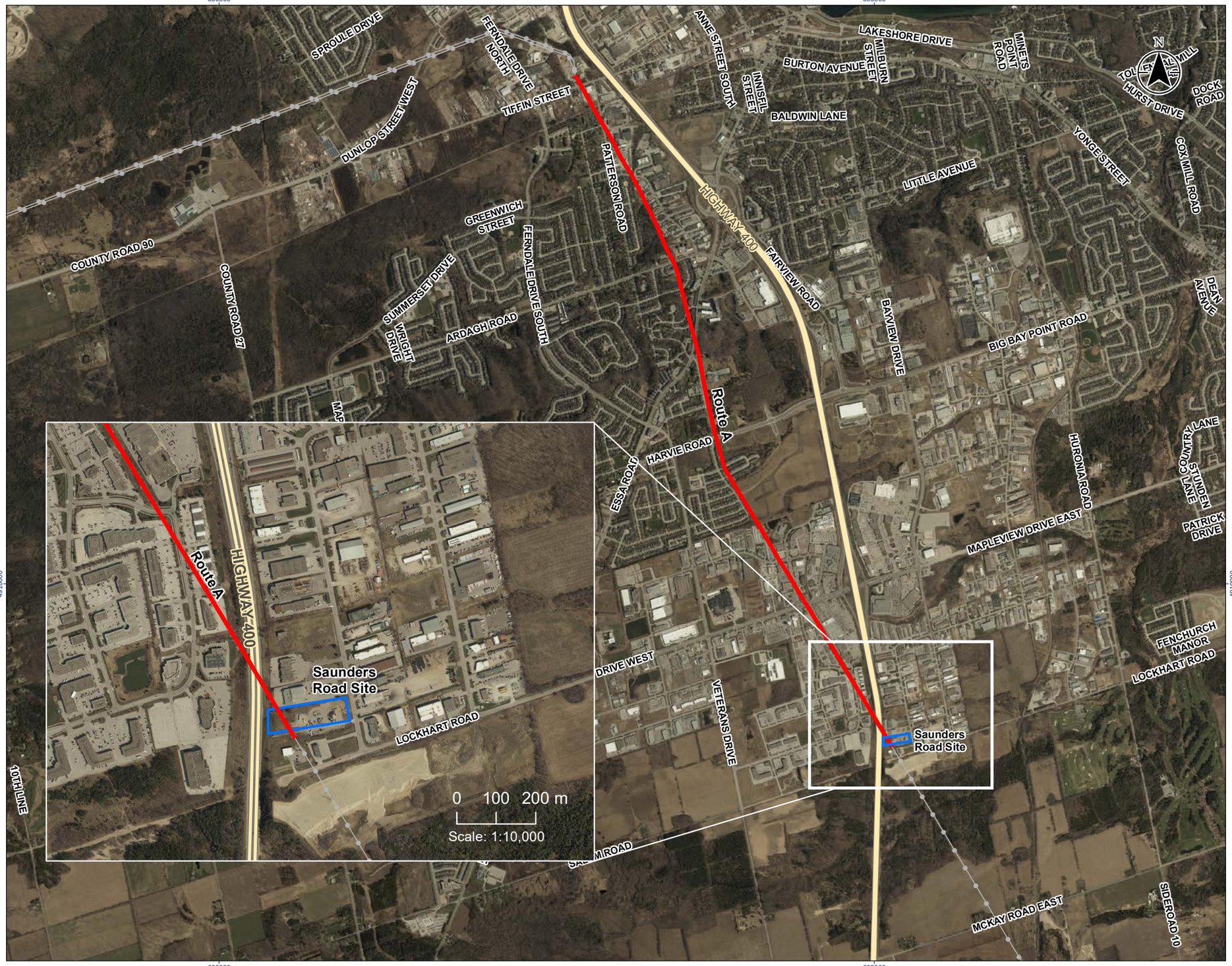
According to the preliminary assessment, Route A utilizes the existing 115kV corridor, whereby the existing 30 m wide corridor can accommodate the proposed new 230kV transmission circuits (i.e., two circuits on a single structure line). Therefore, this eliminates the need to develop a new 'greenfield' overhead line, and there are little to no anticipated conflicts with land use designations, and impacts to terrestrial and aquatic natural heritage, and cultural heritage are expected to be negligible. Additionally, this route does not cross PSW nor ANSIs. Therefore, Route A was determined to be the preferred alternative for the TL route.

With regards to Route B, being partially underground increases the construction complexity due to the additional risks of impacts to other underground utilities. Potential repair and maintenance work is also anticipated to be costly and time consuming due to the need for excavation. Land will also need to be acquired (rather than obtaining easements) for the underground sections of the Route.

Likewise, the underground portion of Route C increases the construction complexity, and increases the costs and time needed for potential repair and maintenance work. Land will also need to be acquired (rather than obtaining easements) for the underground sections of the Route.

The construction costs for Route D are expected to be the highest as it is the longest route proposed (10 km). Furthermore, this route alternative would require an easement of 45 m, which might be challenging to obtain as it interferes with MTO's plans to widen Highway 27.

Table 5.5 below reflects the evaluation completed for the TL route alternatives.



Stantec

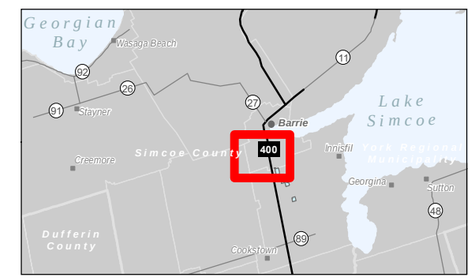
Legend

- Saunders Road Site
- Route A
- Hydro Line

0 1 2 km

1:30,000 (At original document size of 11x17)

Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.
3. Orthoimagery © First Base Solutions, 2023. Imagery Date, 2022.



Project Location
City of Barrie/
Town of Innisfill

160900977 REVA
Prepared by MDA on 2023-11-28

Client/Project
INNPOWER CORPORATION
INNPOWER HYDRO ONE ESR

Figure No.
5.3

Title
Preferred TS Site and Transmission Line Route

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Table 5.5 Evaluation of Routes

Criteria	Route A	Route B	Route C	Route D
Biophysical				
Changes to terrestrial environment	Limited to vegetation removal for installation and operation of TL. None otherwise expected as route utilizes the existing Hydro One 115 kV corridor.	Potential impacts such as loss of terrestrial habitat (planned northern junction is proposed to be installed on LSRCA regulated lands).	Potential impacts such as loss of terrestrial habitat (planned northern junction is proposed to be installed on LSRCA regulated lands).	Potential impacts such as loss of terrestrial habitat (proposed route crosses an ANSI), and potential impacts to deer wintering areas.
Changes to aquatic environment	Potential impacts during construction phase such as pollution from accidental spills, erosion and sedimentation, as the route crosses watercourses and wetland features (e.g., Lover's Creek Swamp). None expected during operational phase as route utilizes the existing Hydro One 115 kV corridor and impacts are previously established.	Potential impacts during construction phase such as pollution from accidental spills, erosion and sedimentation, as the route crosses watercourses and wetland features (e.g., Bear Creek Wetland). Potential impacts during operational phase due to permanent loss of aquatic habitat as a result of operations in new areas.	Potential impacts during construction phase such as pollution from accidental spills, erosion and sedimentation, as the route crosses watercourses and wetland features (e.g. Lover's Creek Swamp). None expected during operational phase as route mostly utilizes the existing Hydro One 115 kV corridor and does not transverse sensitive aquatic environments.	Potential impacts during construction phase such as pollution from accidental spills, erosion and sedimentation, as the route crosses watercourses and wetland features (e.g., Bear Creek Wetland). Potential impacts during operational phase due to permanent loss of aquatic habitat as a result of operations in new areas.
Generation or importation of material (e.g., soil/ aggregate)	Route to consist entirely of overhead cabling. Some excess soil generated from installing poles and foundations.	Route to consist of both underground and overhead cabling. Excess soil may be generated from trenching and burying of cable and installation of poles and foundations. Conversely, may require importing of fill for burying of cables if excess soil was not well-managed for reuse or not appropriate as fill material.	Route to consist of both underground and overhead cabling. Excess soil may be generated from trenching and burying of cable and installation of poles and foundations. Conversely, may require importing of fill for burying of cables if excess soil was not well-managed for reuse or not appropriate as fill material.	Route to consist entirely of overhead cabling. Some excess soil generated from installing poles and foundations.

Criteria	Route A	Route B	Route C	Route D
Changes to surface water	None expected as route utilizes the existing Hydro One 115 kV corridor.	Planned southern junction will be located adjacent to a stormwater management pond.	Planned northern junction is proposed to be installed on LSRCA regulated lands.	Proposed route crosses a provincially significant wetland and an area of natural and scientific interest.
Changes to groundwater	Potential temporary impacts to groundwater during the installation of foundation infrastructure. None expected as route utilizes the existing Hydro One 115 kV corridor.	Potential temporary impacts due to underground construction.	Potential temporary impacts due to underground construction.	Potential impacts due to risk of environmental spill in environmentally sensitive areas.
Changes to air quality	Air quality changes related to construction works, and maintenance works during operational phase are anticipated to be localized and of relatively short duration, with a negligible effect on the surrounding airshed.	Air quality changes related to construction works, and maintenance works during operational phase are anticipated to be localized and of relatively short duration, with a negligible effect on the surrounding airshed.	Air quality changes related to construction works, and maintenance works during operational phase are anticipated to be localized and of relatively short duration, with a negligible effect on the surrounding airshed.	Air quality changes related to construction works, and maintenance works during operational phase are anticipated to be localized and of relatively short duration, with a negligible effect on the surrounding airshed.
Changes to noise levels	Construction Phase - Noise level changes are anticipated to be localized and of relatively short duration with limited effect on the surrounding residences. Operational Phase - No noise disturbances expected.	Construction Phase - Noise level changes are anticipated to be localized and of relatively short duration with limited effect on the surrounding residences. Operational Phase - No noise disturbances expected.	Construction Phase - Noise level changes are anticipated to be localized and of relatively short duration with limited effect on the surrounding residences. Operational Phase - No noise disturbances expected.	Construction Phase - Noise level changes are anticipated to be localized and of relatively short duration with limited effect on the surrounding residences. Operational Phase - No noise disturbances expected.

Criteria	Route A	Route B	Route C	Route D
RESULTS OF BIOPHYSICAL EVALUATION	**Preferred**	**Less Preferred**	**Less Preferred**	**Least Preferred**
Socio-Economic				
Potential to disrupt communities	Potential temporary disruptions to communities and businesses during construction phase due to anticipated road closures/detours, increased traffic, noise levels, and air quality. No additional disruption to current conditions is expected during operational phase as the proposed route utilizes the existing Hydro One 115 kV corridor.	Potential temporary disruptions to communities and businesses during construction phase due to anticipated road closures/detours, increased traffic, noise levels, and air quality. Front-lawn easements required for the proposed route may cause disruption to businesses and may pose a visual disturbance during the various phases until de-commissioned.	Potential temporary disruptions to communities and businesses during construction phase due to anticipated road closures/detours, increased traffic, noise levels, and air quality. Front-lawn easements required for the proposed route may cause disruption to businesses and may pose a visual disturbance during the various phases until de-commissioned.	Potential temporary disruptions to communities and businesses during construction phase due to anticipated road closures/detours, increased traffic, noise levels, and air quality. Some additional disruption to current conditions is expected. Some additional easements of agricultural lands potentially required for the proposed route may cause disruption to businesses and may pose a visual disturbance during the various phases until de-commissioned.
Potential to disrupt vehicular traffic and transit	Potential traffic disruptions during construction phase.	Potential traffic disruptions during construction phase for potentially extended periods (depending on complexity of underground construction work).	Potential traffic disruptions during construction phase for potentially extended periods (depending on complexity of underground construction work).	Potential traffic disruptions during construction phase as the proposed route is along Highway 27.

Criteria	Route A	Route B	Route C	Route D
Archaeological resources, built heritage resources, and cultural heritage landscapes	No additional adverse negative impacts/indirect impacts expected as the proposed route utilizes the existing Hydro One 115 kV corridor. Archaeological conditions will be further studied and areas of impact cleared of potential prior to construction.	Potential negative impacts/ indirect impacts expected due to greater impact of underground construction work.	Potential negative impacts/ indirect impacts expected due to greater impact of underground construction work.	Potential negative impacts/ indirect impacts.
Health and safety considerations	General construction safety considerations.	Increase construction safety considerations due to complexity of underground work.	Increase construction safety considerations due to complexity of underground work.	General construction safety considerations.
Impacts to resources of Indigenous interest	None identified.	None identified.	None identified.	None identified.
RESULTS OF SOCIO-ECONOMIC EVALUATION	**Preferred**	**Least Preferred**	**Less Preferred**	**Less Preferred**
Technical				
Construction complexity	Route utilizes the existing Hydro One 115 kV corridor. Existing 30 m wide corridor can be utilized for the proposed new 230 kV transmission circuits.	Since the route would be partially underground, there is additional risk of interaction/impacts to underground utilities.	Since the route would be partially underground, there is additional risk of interaction/impacts to underground utilities.	Overhead structures for the line would need to navigate multiple overpasses and exchanges along the route.
Potential need for property	Easements will need to be negotiated.	Route is anticipated to require fewer easements on front-lawn properties. Since the route is proposed to be partially underground, land would need to be acquired (rather than obtaining easements) to install junctions along the underground portions of the line.	Route is anticipated to require fewer easements on front-lawn properties. Since the route is proposed to be partially underground, land would need to be acquired (rather than obtaining easements) to install junctions along the underground portions of the line.	Route would require an easement of 45 m. Based on Barrie's Transportation Master Plan, MTO intends to widen Highway 27. It is unlikely that MTO would provide rights for the proposed route as it may interfere with this plan.

Criteria	Route A	Route B	Route C	Route D
Potential operation risks	Operational risks associated with overhead transmission lines include lightning, tree falls, severe windstorms, and excessive icing. Potential outages because of failures in overhead cabling are anticipated to last for shorter periods of time than those due to failures of underground cabling. In most operations, accessing overhead cabling is comparatively less complex than accessing underground cabling.	Operational risks associated with underground transmission lines include flooding, accidental contact by construction equipment, and damage from vegetation/wildlife. Potential outages because of failures in underground cabling are anticipated to last longer than those due to failures of overhead cabling due to additional challenges in accessing underground cabling.	Operational risks associated with underground transmission lines include flooding, accidental contact by construction equipment, and damage from vegetation/wildlife. Potential outages because of failures in underground cabling are anticipated to last longer than those due to failures of overhead cabling due to additional challenges in accessing cabling.	Operational risks associated with overhead transmission lines include lightning, tree falls, severe windstorms, and excessive icing. Potential outages because of failures in overhead cabling are anticipated to last for shorter periods of time than those due to failures of underground cabling. In most operations, accessing overhead cabling is comparatively less complex than accessing underground cabling.
RESULTS OF TECHNICAL EVALUATION	**Preferred**	**Less Preferred**	**Less Preferred**	**Least Preferred**
Financial				
Construction cost	Construction costs anticipated to be approximately $32 million plus studies, incentives, and other costs based on preliminary estimate.	The proposed route would be approximately 7 km and partially underground. The cost per kilometre for an underground line is approximately 2-3 times higher than that of an overhead line based on recent comparative projects.	The proposed route would be partially underground. The cost per kilometre for an underground line is approximately 2-3 times higher than that of an overhead line based on recent comparative projects.	The proposed route would be approximately 10 km (longest of the four alternatives). Route would also require an easement width of 45 m, which would increase acreage of the easements required indicating additional costs.
Operation and maintenance costs	Potential repair and maintenance work anticipated to be less costly and/or time consuming than underground options.	Potential repair and maintenance work anticipated to be more costly and/or time consuming than overhead alternatives due to need for excavation for underground portions of the TL.	Potential repair and maintenance work anticipated to be more costly and/or time consuming than overhead alternatives due to need for excavation for underground portions of the TL.	Potential repair and maintenance work anticipated to be less costly and/or time consuming than underground options.

Criteria	Route A	Route B	Route C	Route D
RESULTS OF FINANCIAL EVALUATION	**Preferred**	**Less Preferred**	**Less Preferred**	**Least Preferred**
OVERALL RESULTS	**Preferred**	**Less Preferred**	**Less Preferred**	**Least Preferred**

6 Project Description

6.1 Design Phase

Following the completion of the Class EA for MTF process, the detailed engineering design will be completed. Final design plans for the proposed facilities will be prepared. The design will be based on necessary surveys and technical studies, and consultation with provincial agencies, municipal officials and other appropriate stakeholders, as necessary. During the design phase, additional studies and surveys (e.g., Stage 2 Archaeological Assessment, geotechnical investigations) will be conducted as required. Concurrent with finalization of the design, applicable permits, licences and approvals, as listed in Section 1.4, will be obtained as required.

Hydro One and InnPower recognize that a changing climate is likely to result in an increase of unusual weather patterns and severe weather events, which could potentially damage or adversely affect infrastructure and other public facilities. Hydro One and InnPower are confident that the facilities being planned for this Project have been engineered to adequately withstand the effects of climate change throughout the duration of their planned lifespan.

6.2 Construction Phase

Construction activities will be guided by both Hydro One and InnPower standards and guidelines as well as Project specific documents; these are to be adhered to by all construction personnel including contractors and sub-contractors. In addition, a project-specific Environmental Specifications will be prepared, outlining specific requirements to be followed for the proposed Project.

Prior to construction, a detailed construction plan will be developed. Construction activities will be restricted to designated work areas and staging areas in and around the corridor.

Throughout the construction period, an Environmental Specialist will be available to address unforeseen environmental effects and mitigation requirements. The Environmental Specialist will monitor activities to confirm conformance with the requirements set out in the detailed construction plan and Environmental Management Plan.

Should any archaeological finds be uncovered during construction, work will stop immediately pending assessment by the Project archaeologist and further consultation with the MCM – Heritage Program Unit, as well as the appropriate Indigenous communities.

Upon completion of construction, clean up and restoration (e.g. seeding, plantings, etc.) of areas disturbed by construction may occur, as required.

Temporary facilities for the purpose of the proposed Project may include equipment staging areas and temporary stockpile areas, temporary rider poles or similar protective measures required during conductor

stringing, and temporary structures near the TS for the staging of outages. Temporary facilities will be required prior to, and during, the construction period. The location of the temporary facilities will be determined by the Project team and their contractor(s) during detail design/construction planning

6.3 Maintenance and Operation Phase

The proposed Project is planned to be in service by late 2027 . The new TS and TL would undergo regular maintenance in adherence with InnPower and Hydro One's maintenance standards and regulatory requirements to maintain a safe and reliable electricity transmission system

6.4 Decommissioning Phase

When transmission facilities become obsolete or unserviceable and/or deemed to be at end-of-life, the equipment is retired from service. Transmission facilities that are retired from service are often left in place (idle) for potential future use. The facilities may eventually be removed and the site made suitable for other purposes. The foundations are typically cut back 1.0 m below ground surface when transmission structures are removed. Since there are currently no plans for decommissioning the infrastructure, the decommissioning phase has not been further considered in this ESR. If required, further assessment will be undertaken if and when infrastructure is decommissioned in accordance with applicable regulations at the time.

6.5 Project Schedule

The anticipated schedule for the proposed Project activities is provided below in Table 6.1. This schedule shows the key steps remaining in the Class EA for MTF process and subsequent anticipated timing of the start of construction and operation.

Table 6.1 Project Schedule[9]

Activity	Period
Release of the draft ESR and start of the review period	Q1 2025
Comment integration and response	30-day review following submission of the draft ESR
Filing of final ESR with the MECP	Q2 2025
Detailed engineering and permitting	2025-2026
Construction of TS	2025
Construction of TL	2026
Start of operations of the TS and TL	Late 2027

[9] Milestone timelines are approximate and are subject to change depending on outcomes of the planning and approvals process

7 Potential Environmental Effects and Mitigation Measures

This section describes the potential environmental effects and mitigation measures associated with both the construction and operation activities of the proposed Project. Project effects and mitigation assessment considered the baseline information on the environmental features that were collected for the LSA of the preferred alternatives, as presented in Section 4. The appropriate discipline-specific study areas for the LSA of the preferred alternatives are as outlined in Section 2.

The potential environmental effects resulting from the construction, operation and maintenance of the proposed Project are similar to other projects undertaken by Hydro One and InnPower and are well understood by the project Team. Hydro One and InnPower have strong track records of environmental compliance and stewardship and are committed to the completion of comprehensive environmental and social analysis and mitigation of potential effects.

Mitigation measures selected take the following into consideration:

- Avoidance of sensitive areas, where practical.
- Avoidance of watercourse crossings, where feasible, by use of existing nearby crossings, access to structures from either side of the watercourse, or use of corridor access.
- Appropriate scheduling of construction activities, where feasible, to avoid sensitive time periods, such as fish spawning and egg incubation periods, or migratory bird nesting periods.
- Proactive communication with area residents, property owners and businesses on the proposed Project timelines and construction areas.
- Proactive communication with Indigenous communities, government agencies, stakeholders and interest groups regarding the proposed Project.
- Implementation of conventional, proven mitigation measures during construction consistent with the examples criteria set out in Appendix E of the Class EA for MTF (Hydro One 2022), and in accordance with applicable legislative requirements.
- Development of environmental enhancement or compensation measures to offset the unavoidable effects of construction and operation where such effects exist and where practical.

Based on the Project design and implementation of the proposed mitigation measures, no substantial adverse net effects (e.g., effects following the implementation of mitigation) are anticipated. The following subsections detail the effects assessment and identify avoidance, mitigation and/or compensation commitments required for the proposed Project.

7.1 Agricultural Resources

7.1.1 Loss of Agricultural Lands and Crops

The Project may result in temporary removal of planted/established crops to facilitate construction activities in the transmission line ROW, in a single area south of Harvie Road, along Thurshwood Drive. No additional land loss of agricultural lands is expected from current conditions as the proposed route utilizes the existing 115 kV corridor, and proposed InnPower TS Site will be located in an industrial area. In the event that an expansion of the TL route into additional agricultural lands is required to accommodate Project infrastructure (e.g., tower footing locations), resulting in a loss of agricultural land, discussions with landowners will be held in advance. All lands and crops lost will be compensated in accordance with Hydro One real estate practices as agreed upon with landowners during the property acquisition/easement process.

Measures to mitigate potential impacts of loss of agricultural lands and crops include:

- Contact will be maintained with landowners and relevant stakeholders to provide timely information of relevant work plans, work schedules and other items of interest (e.g., access routes, remediation, reduced disturbances to existing and planned farm operations, etc.), and to provide a point of contact for feedback, if any.
- Where practical, construction and maintenance activities will be scheduled to avoid the growing season or sensitive times of year (e.g., extreme wet periods). To the extent practical, activities will be scheduled to occur during non-growing seasons or during frozen conditions.
- Access roads, staging areas, tower construction and stringing activities will be designed and constructed to a minimum length and width required, where possible, to accommodate the safe movement of construction equipment.
- Work will be limited to the planned access roads, staging and work areas. If an expansion beyond these areas is later required, discussions will be held with the landowners in advance.
- Towers will be located along fence/property lines to limit impeding on agricultural operations, to the extent practical.
- Existing farm lanes and other existing access routes will be used whenever possible. In the event that farm lanes are absent, access will be limited to along field edges, to the extent practical.
- Restoration measures, as informed by discussions with landowners, to cultivate or otherwise alleviate soil compaction on areas affected by construction, may be undertaken following the completion of construction and removal of temporary construction access, as necessary.

7.1.2 Soil Compaction

Project activities have the potential to cause soil compaction due to the use of heavy equipment throughout the construction, operation and maintenance phases of the Project. Soil compaction resulting from these activities is largely unavoidable and is anticipated to be temporary in nature.

Measures to mitigate soil compaction include:

- Equipment with low bearing capacity will be used, where practical.
- Access will be located along existing farm lanes or field edges, where practical.
- Construction access roads and staging areas will be minimally sized (i.e., minimum length and width required) to safely accommodate equipment movement.
- Work will be limited to the planned access roads, staging and work areas. If a later expansion to these areas is required, it will be discussed with the landowner in advance.
- Where necessary, temporary access roads and laydown areas proposed to be built in agricultural fields will be constructed using construction best practices which allow for easy removal upon completion of the construction (e.g., mats, or geotextile and crushed rock) to allow for re-cultivation of the area.
- Restoration measures to alleviate soil compaction in construction-affected areas, may be implemented post-construction as necessary, based on landowner consultations and site conditions.
- Construction and maintenance activities will be scheduled to avoid work on wet soils and reduce potential compaction, to the extent practical.

7.2 Forestry Resources

No Crown lands and therefore no managed forests are located within the PSA. As such, no potential effects on forestry resources have been identified for the proposed Project. Forestry activities for incompatible vegetation maintenance of the right of way is not considered as part of forestry resource.

7.3 Cultural Heritage Resources

7.3.1 Archeological Resources

Based on the results of property inspection, parts of the Archaeological Assessment Area were considered to possess archaeological potential and will require a Stage 2 archaeological assessment to confirm the possible presence of archaeological resources and the potential for impacts (refer to Appendix C.4). It is also acknowledged that there is the potential for disturbance of unassessed or undocumented archaeological resources during construction activities. Chance find procedures will be

undertaken should archaeological resources be encountered during construction activities, which includes contacting appropriate Indigenous communities

7.3.2 Built Heritage Resources and Cultural Heritage Landscapes

No cultural heritage impacts were identified for the preferred Site Alternative. Based on the findings of the Cultural Heritage Screening Report (Appendix C.2), one potential cultural heritage landscape historically associated with the former Northern Railway line was identified within the Cultural Heritage Assessment Area of the preferred TL Route Alternative. However, the TL installation across the railway line is not anticipated to require encroachment into the railway's ROW. Therefore, no surface impacts are anticipated in the rail corridor and the identified potential cultural heritage landscape is not at risk of adverse negative direct or indirect impacts. No further mitigation measures or cultural heritage studies were recommended for the potential cultural heritage landscape and for the Project.

7.4 Human Settlements

7.4.1 Business Operations

The preferred TL Route Alternative intersects Highway 400 close to Lockhart Road, and the preferred Site Alternative is connected to the TL adjacent to this intersection. Existing commercial operations in this area are reliant on Highway 400, a critical path connecting Barrie south to Toronto, and further northward to the greater region. As such, Project activities carried out in this location have the potential to cause disruption to the access and subsequent function of commercial operations during the construction phase of the Project. This impact is however, expected to be limited and temporary in nature.

To reduce disruptions and/or impacts:

- Contact will be maintained with commercial property owners during construction.
- Access to businesses will be maintained throughout construction, and in instances where access cannot be maintained, alternate access routes will be planned prior to the commencement of construction activities.
- Access to construction areas will also be designed to reduce impacts on business operations. Advanced notices will be provided to potentially impacted stakeholders (e.g., nearby residences, farmers, landowners and commercial operations), appropriate agencies (i.e., MTO), and emergency response services.
- Notices will include the location(s) of entry/exit points for the construction site, planned work schedule, anticipated construction-related traffic, and all other relevant information.
- Appropriate road signage will be provided and installed to reflect this information.

7.4.2 Effects to Existing and Future Land Use Designations and Potential Future Development

The proposed InnPower TS site is located in an industrial park in the City of Barrie and is designated as Employment Areas for industrial use within the City of Barrie Official Plan 2051 (Section 2.6.10) (City of Barrie 2023). The proposed route utilizes the existing Hydro One 115 kV corridor.

The siting of the proposed Project is identified to be compatible with the land use policies summarized in Section 4.4.1 and is aligned with the PPS (2024) which encourages the development of energy supply to accommodate current and projected needs.

7.4.3 Noise and Vibration

The proposed TS is predicted to operate in compliance with the applicable regulatory limits for daytime, evening, and nighttime periods during the operation phase. No noise impacts are anticipated from the proposed TL during operation phase. Consequently, no potential effects have been identified for the operation phase of the proposed Project.

During the construction phase, increased noise and vibration levels are anticipated. These effects, while expected to be short-term and temporary, may create temporary nuisance or disturbance for residents, land users, and wildlife. Indirect noise disturbance effects on wildlife during construction can include temporary declines in habitat occupancy, as well as changes to mobility and feeding habitat patterns. Construction of the Project will be subject to compliance with municipal noise bylaws and MECP guidelines, including the NPC-300 (MOECC 2013), which provides outdoor sound level limits for stationary sources.

All work is expected to be completed using common construction methods. The noise and vibration associated with construction are anticipated to result from activities such as general site grading, foundations work, construction traffic, and implosive splicing. Vibration impacts, in particular, are expected to be temporary and localized, occurring only during specific activities. In addition to the noise and vibration generated by specific construction activities, the movement of heavy equipment and other vehicles would also contribute to increased noise levels in the area.

Measures to reduce potential nuisance effects resulting from noise and vibration include:

- Equipment and machinery used on site will be maintained in good working condition.
- Affected persons will be notified of noisy work activities in advance.
- Should the proposed construction methodology be altered from what has been described in this ESR, a separate mitigation plan will be development if the construction methodology is anticipated to result in excessive noise or vibration per the MECP NPC-300 guideline.

7.4.4 Effects to Local Roads and Traffic

The proposed Project intersects several major roads including Highway 400, a critical transportation corridor through southern and central Ontario which connects Toronto to Barrie and further extends northward, and Essa Road which is a critical arterial roadway in Barrie connected to Highway 400.

During the construction phase, potential disruptions to local roads and traffic include temporary road closures and traffic diversions to accommodate construction work (e.g. stringing of conductors across roads and highways) and increased traffic due to movement of machinery and materials into the construction areas. Impacts to pedestrians may also occur should the closure of sidewalks or walkways be necessary during construction. Heavy equipment may also cause increased wear and tear on lower-order roadways due to the additional load. Potential disruption to railway lines are not anticipated.

While such impacts are largely unavoidable, the proposed Project is not anticipated to have long-term net effects on local roads and traffic. Disruptions can be reduced through early notification and careful planning of construction activities. Additional mitigation measures include:

- Adhering to seasonal load restrictions.
- Providing early notification of planned construction work
  - Sharing construction haul routes and schedules with local municipalities, as necessary.
- Erecting road signage to inform residents about timelines, construction routes, and potential detours.
- Planning routes and access roads to reduce traffic bottlenecks.
  - Planning for construction traffic to access the construction area from the existing road network at specified construction access/egress locations.
  - Establishing common parking areas for the construction crews.
- Utilizing rider poles, boom-tipped riders, or other protective measures during conductor stringing to reduce road closures and other disruptions during stringing, to the extent practical.
- Coordinating with appropriate road authorities for any temporary road or highway closures, including providing proper notice in advance and using the required signage and traffic controls. The construction manager is also to lessen the duration of any temporary closures to the extent practical.
- Assigning traffic control officers or flag persons to assist with construction entry/exit as needed.

7.4.5 Construction Debris, Soil and Dust Control

Construction activities may result in the accumulation of construction debris on and adjacent to local roads in construction areas which can potentially migrate to areas outside of the construction zone. Some

measures to mitigate the impacts of construction debris, soil and dust from construction activities are as follows:

- Implementation of general clean site policies such as regular scheduled debris removal, removal of construction-related debris and mud from local roads, installing mud mats as needed to reduce transporting debris off-site, limiting washing and maintenance of vehicles and equipment to specific work areas, implementing formal cleanups for completed areas as construction progresses and/or restoring disturbed areas as soon as practical to reduce duration of soil exposure.
- Development and implementation of a waste and soil management plan (where necessary), including:
  - Proper handling, storage, and disposal procedures. In the event that contaminated soils have been identified, the plan is to include soil transport to accredited facilities for proper treatment and/or disposal.
  - Consideration for reuse. For instance, excess soil management needs can be reduced by reducing clearing and maximizing on-site reuse of excavated soil or construction debris.
  - Use of erosion control mats as required and maintaining vegetative covers to mitigate soil-related issues.
- Implementation of general dust control measures such as frequent water spraying and using dust suppressants (non-chloride) as needed.

With the implementation of these mitigation measures, impacts due to construction debris, soil and dust generated by the proposed Project are not anticipated to have a long-term net effect.

7.5 Mineral Resources

There are no areas within the Project footprint used for the extraction of aggregate. Therefore, no potential effects have been identified for the proposed Project.

7.6 Natural Environment Resources

7.6.1 Physical Environment

The proposed TS and TL locations are located in an industrial park at the south end of the City of Barrie and has no natural features, watercourses, or constructed drains in the site. The existing physiography, topography and geology is expected to remain as is following the construction of the proposed Project.

7.6.1.1 Spills

During construction and maintenance activities, there is the possibility of spills from the release of oils and fuels from construction/maintenance vehicles and equipment. There are a number of mitigation measures to reduce the risk of spills and to lessen the effect in the unlikely event that a spill occurs.

An Emergency Response Plan and spill cleanup equipment will be maintained and readily accessible at all times during construction and maintenance activities. Refueling of vehicles and equipment will be completed in designated locations, at least 30 m away from sensitive receptors (e.g. source water protection areas, watercourse, wetlands, etc.) while utilizing emergency spill trays. In the event refueling is required outside of designated areas, additional containment or other mitigation and spill prevention measures will be utilized. Fueling operations will require the operator to visually observe the fueling process at all times.

There are a number of additional mitigation measures to reduce the risk of spills and to lessen the effect in the unlikely event that a spill occurs. These measures include the following:

- Areas impacted by a spill will be secured, and unauthorized personnel will be kept out of the affected area until further assessment and/or clean-up is conducted
- Clean-up and the disposal of contaminated materials will be managed in accordance with provincial regulations and guidelines
- Fuels, chemicals, lubricants or other deleterious substances will be stored on level ground in properly contained storage areas
- Only approved aboveground petroleum storage tanks will be used during the construction phase of the Project and will be stored in designated fueling areas and with additional temporary containment measures

Should a spill occur, the MECP Spills Action Centre (SAC) will be notified of all reportable spills and containment and remediation should occur as soon as possible.

7.6.1.2 Waste Generation

Construction waste would be generated by the proposed Project and would need to be disposed of in regional landfills and recycling facilities. Waste produced during the construction period may include non-hazardous wastes (packaging, spent lubricating cartridges, coffee cups, etc.) and hazardous wastes (pneumatic oils from hydraulic systems, gasoline and other lubricants/oils), and construction wastes (old hydro poles, demolition waste from existing building).

Solid and liquid hazardous waste will be transported by MECP licensed waste haulers to MECP registered disposal sites. Any temporary waste on-site will include the use of secured containers in designated sites away from sensitive areas and removed from the site on an ongoing basis. With respect to concrete wash water, all water from concrete chute washing activities will be contained in leak proof containers or in an approved settling pond off site. Waste produced will be reduced, segregated, and

recycled where possible, and all testing, handling, storage, transport and disposal of waste will be completed in accordance with all applicable legislation. With the implementation of the mitigation measures described above, waste generated by the proposed Project is not anticipated to have a long-term net effect.

7.6.1.3 Excess Materials Management

Project activities have the potential to produce excess materials during construction and maintenance phases. Excess materials can include topsoil and subsoil from excavation or stripping activities. All efforts will be made to reuse soils onsite where practical and feasible; however, excess materials that cannot be managed onsite will be handled in accordance with O. Reg. 406/19 *On-Site and Excess Soil Management*.

Soil testing to meet the requirements of O.Reg. 406/19 will be completed, if necessary, during geotechnical investigations prior to or during construction. If excess material is deemed suitable, Hydro One and InnPower will work with landowners to explore opportunities for beneficial reuse within the property parcel. Any excess soil required to leave the site will be taken to an approved facility licensed to accept excess soil based on its characterization or other off-site location that can demonstrate beneficial reuse.

7.6.2 Atmospheric Environment

7.6.2.1 Air Quality

Impacts on air quality for the proposed Project is mainly expected during the construction phase due to the use of heavy machinery, increased vehicular traffic and construction debris, soil and dust produced during construction (as discussed in Section 7.6.2.1. Key pollutants include dust, particulate matter (PM10, PM2.5, and PM1), volatile organic compounds, and emissions from gas/diesel-powered machinery.

While the impacts on air quality is expected to be localised and temporary, these pollutants can potentially pose serious health risks under prolonged exposure, particularly to construction workers and nearby residents. In addition to implementing dust control measures, additional measures to mitigate negative impacts on air quality include:

- Utilizing low-emission equipment and machinery such as those meeting Tier 4 emission standards, where possible, to reduce exhaust emissions
- Cover and/or contain loose construction materials with the potential to release airborne particulates during transport, installation or removal
- Implementing good practices for vehicles and equipment on site, such as regular maintenance of construction equipment to verify optimal performance, adhering to posted speed limits, and limiting idling of construction vehicles and equipment to reduce excessive exhaust

- Optimizing vehicle routes with careful planning and the use of GPS, where possible, to reduce fossil fuel emissions
- Monitoring air quality, periodically or activity-targeted, to assess the effectiveness of mitigation measures and implement targeted interventions as needed
- Equipping construction workers with appropriate personal protection equipment, where applicable.
- Restoring disturbed areas as soon as practical to reduce duration of soil exposure
- Scheduling activities to avoid excavation and other construction activities that have the potential to release airborne particulates during windy and prolonged dry periods, to the extent practical. If such activities must occur during these periods, to utilize dust control measures and monitor air quality regularly

7.6.3 Surface Water Resources

During construction and certain maintenance activities, potential effects of the proposed Project on surface water resources include changes in surface water quantity or quality conditions in nearby municipal drains or watercourses due to site preparation, earthworks, discharge of construction water, and operation of vehicles and equipment.

7.6.3.1 Potential Effects on Surface Water Quantity

Construction activities that may influence surface water quantity conditions in nearby water features (i.e., municipal drains and watercourses) potentially include:

- Site preparation for new transmission towers, construction of temporary access roads and temporary laydown areas
- Construction adjacent to municipal drains, watercourses and in/adjacent to wetland areas.
- Discharge of construction water from dewatering activities

Site preparation, including activities such as removal of vegetation, locates/daylighting of potential existing buried utilities, and construction of temporary access roads would be required in support of transmission tower installation. Vegetation removals during construction have the potential to result in a temporary increase in overland flows, potential organic and sediment loading to nearby municipal drains and water courses, as well as potential water temperature increases in instances where vegetation removal adjacent to watercourses is required. Similarly, vehicle and construction equipment have the potential to create temporary rutting in soils which have the potential to result in localized ponding and/or channelization leading to additional erosion of soils.

Measures to mitigate the potential adverse effects related to vegetation removals and soil rutting on surface water quantity include:

- Utilizing existing watercourse crossings and constructed access routes to the extent practical
- Installing erosion and sediment control measures such as erosion blankets and silt fences, where necessary, to reduce soil runoff and introducing sediments into waterways
- Where required, temporary crossing structures will be installed for construction access at watercourses and other low lying areas, and will be removed upon completion of construction
- The use of constructed access (e.g., mats or geotextile/crushed stone) roads will be utilized and will be monitored to confirm there is no surface ponding to reduce rutting and pooling of water
- Vegetation removals will be avoided to the extent practical. Compatible vegetation will be retained within riparian areas adjacent to watercourses
- Machine clearing and grubbing will be restricted near sensitive environmental areas; hand clearing will be required within watercourse banks/riparian areas or in wetlands
- Replant with compatible vegetation as required
- Where erosion is of a concern, exposed soils in previously vegetated areas will be re-vegetated as practical or have other erosion or sedimentation measures applied as necessary
- Where applicable and possible, vegetative buffers will be maintained to protect receptors
- Construction access and laydown areas will be restored following completion of construction
- Work will be staged to reduce the extent of exposed and disturbed areas at any given time
- Cleared vegetation will be relocated to designated areas away from water features
- Topsoil will be stockpiled in designated areas away from water features and will utilize containment measures such as erosion and sediment control as appropriate
- Disturbed areas will be stabilized and restored as soon as practical
- Equipment operation adjacent to water features will be avoided, where possible
- Works adjacent or around water feature banks will be conducted during appropriate conditions and times of the year (e.g., dry or frozen conditions), to the extent practical
- Vegetation buffers along water feature banks will be maintained to the extent practical, and restored
- LSRCA will be consulted for erosion and sediment control (ESC) measures in regulated areas during detailed design

With the implementation of the mitigation measures described above during the construction of the 6 km TL, vegetation removals and temporary soil rutting are not anticipated to have a long-term net effect on surface water quantity in the receiving municipal drains/watercourses.

Site preparation would also be required for temporary laydown areas, and conductor “pulling pads”; the locations of which have not been established. Where practical, these areas would be placed away from sensitive areas (e.g., municipal drains, watercourses, wetlands, woodlots) to the extent feasible.

If, during detailed design and/or construction, it is identified that dewatering activities over 50,000 L/day may be required, Hydro One commits to proactively preparing and submitting to the MECP an EASR registration, or in the case of dewatering activities over 400,000 L/day, a Permit to Take Water (PTTW) application.

To avoid or reduce the potential adverse effects of dewatering activities on surface water quantity, the following mitigation measures would be implemented:

- Construction water will be discharged in compliance with permits and/or approvals from MECP, the City of Barrie, as required
- A construction water management plan will be developed prior to construction and implemented appropriately (e.g., passing discharge water through a filter bag or drum before discharge to the environment to capture sediment and slow down the water velocity, etc.), as required
- Where possible, opportunities to increase retention times and reduce surface flow velocities will be executed

With the implementation of the preliminary designs and mitigation measures described above, and the short duration of the dewatering activities, these activities are not anticipated to have a long-term net effect on surface water quantity in the receiving municipal drains/watercourses.

At the end of construction, the work areas (i.e., tower foundation areas, access roads, pulling pads and temporary laydown areas) will be seeded/re-vegetated and the temporary laydown areas would be restored to their original condition to the extent feasible. The construction phase of the proposed Project is not anticipated to have a long-term net effect on surface water quantity.

Maintenance activities will be variable, are expected to be short-term in duration, and would occur periodically over the life of the proposed Project. Though short-term in duration, maintenance activities have the potential to result in soil rutting, disrupt sheet flow of surface water over agricultural lands, increase overland flow and mobilization/transportation of organic debris and sediment loading in nearby municipal drains and watercourses.

To avoid or reduce the potential adverse effects of maintenance activities on surface water quantity, the implementation of the mitigation measures outlined above for construction related activities (where applicable) would be implemented during maintenance activities. As a result, maintenance activities are not anticipated to have a long-term net effect on surface water quantity.

7.6.3.2 Potential Effects on Surface Water Quality

Project activities during the construction phase that have the potential to influence surface water quality conditions in nearby aquatic features (e.g., municipal drains, watercourses) include:

- Site preparation for the new transmission station and towers, construction of access roads, and temporary laydown areas
- Earthworks associated with the construction of access roads, temporary laydown areas, puller pads, etc.
- Discharge of construction water from dewatering activities to nearby lands
- Operation of vehicles and equipment throughout the construction phase

Site preparation would consist of removal of vegetation, rough grading, and stockpiling of materials. These activities would result in the temporary exposure and disturbance of soil with the potential for wind and water erosion and the transport of sediment to aquatic features. Site preparation would also result in the temporary accumulation of cleared vegetation with the potential for mobilization of organic debris and its transport to aquatic features during runoff events. Earthworks would consist of excavation, fill, and stockpiling activities, and would similarly result in disturbance and exposure of soil to wind and water erosion and the transport of sediment to aquatic features. It is expected that the transmission ROW associated with the proposed Project will be restored to similar grades at the various areas of disturbance.

Earthworks will also be required for the construction of temporary access roads, temporary laydown areas, and pulling pads within the various disturbed work areas along the transmission line ROW. Earthworks may also be required for the installation of culverts for temporary access roads, including excavation, preparation of culvert pipe bedding, culvert pipe placement, and backfilling. Stockpiling of soil and aggregate materials will also be required in support of earthworks.

Construction of temporary laydown areas, pulling pads, etc., would include the installation of crushed stone overtop of geotextile fabric. Soil and aggregate materials would be stockpiled.

If, during detailed design and/or construction, it is identified that dewatering activities over 50,000 L/day may be required, Hydro One commits to proactively preparing and submitting to the MECP an EASR registration, or in the case of dewatering activities over 400,000 L/day, a PTTW application.

The measures outlined in Section 7.6.3.1 to avoid or reduce potential impacts the proposed Project may have on surface water quantity will also serve to avoid or reduce the potential adverse effects of site preparation and other earthwork activities on surface water quality in aquatic features.

In addition, and in support of site preparation and earthwork activities, the following ESC measures will be implemented as a mechanism to avoid and reduce impacts on surface water quality:

- An Erosion and Sediment Control Plan will be developed prior to construction and ESC measures will be identified and implemented as required
- Areas with high erosion potential will be identified and avoided, where possible
- Construction activities near sensitive features or areas may be suspended during extreme wet weather events, and crews will review and consider weather forecasts in their planning of such work
- ESC installations will only be removed after disturbed areas are restored, accumulated sediment has been disposed, and construction activities in the vicinity are completed
- In an effort to reduce potential erosion, mechanical or vegetation erosion control measures will be employed, such as buffer strips, erosion control blankets and sedimentation fences, as required
- Equipment operation on slopes adjacent to streams will be reduced to the extent practical
- Disturbed areas near water features or sensitive environmental areas will be restored as soon as practical
- ESC measures will be regularly inspected, including after each significant [>10 mm] rainfall event, and repaired where necessary to maintain functionality

With the implementation of the mitigation measures described above, and the limited duration of the construction works, site preparation and earthwork activities are not anticipated to have long-term net effects on surface water quality conditions in aquatic features.

In addition to the above recommendations, general mitigations for working near water are as follows:

- Wash, refuel and/or service equipment at least 30 m from drainage features and wetlands to reduce the risk of deleterious substances from entering the features. Check machinery regularly for fluid leaks
- Develop a Spill Management Plan and have it on site for implementation in the event of an accidental spill. Keep an emergency spill kit on site
- Stabilize materials requiring stockpiling (fill, topsoil, etc.) and keep a safe distance (> 30 m) from drainage features and wetlands
- Timing restrictions for in-water work, if required
- A fish rescue/relocation plan, if required

7.6.4 Groundwater Resources

During construction, the potential effects of the proposed Project on groundwater include changes to existing groundwater quality or quantity due to excavation and construction dewatering, and changes in

groundwater flow regime due to the installation of foundations for transmission line towers. It is not expected that there would be any effects on groundwater during the maintenance and operation phase.

7.6.4.1 Potential Effects on Groundwater Quality

Contaminated soil and groundwater containment and disposal measures would be implemented according to the applicable regulations, as required. No adverse effects have been identified for changes in groundwater quality due to the construction of the proposed Project. If changes in groundwater quality were to occur, it is anticipated that groundwater quality would return to baseline conditions following the implementation of mitigation measures previously outlined in Section 7.6.3, such as containment and removal of contaminated soils.

7.6.4.2 Potential Effects on Groundwater Quantity

Groundwater base flow (quantity) is seasonally important to nearby waterbodies and natural environment features, including vegetation, fish and aquatic habitat. The effects on groundwater quantity associated with construction of transmission towers are anticipated to be local to the hole or excavation. Foundation excavations would be backfilled in a timely manner. As such, it is predicted that there would be limited to no temporal effects on groundwater levels and quantity as a result of construction activities.

Though currently not anticipated, if detailed design suggests that construction dewatering of transmission tower foundation holes/excavations is required at a rate greater than 50,000 L/day, an EASR (or PTTW in the case of a rate greater than 400,000 L/day) would be obtained from the MECP. The proposed Project would comply with applicable guidelines and legislation, including Provincial Water Quality Objectives, Ontario Drinking Water Standards, Objectives and Guidelines and O. Reg. 153/04 *Records of Site Condition*. Adequate dewatering and discharge plans would be developed prior to construction, and collected water would be contained and tested prior to disposal, if required.

The effects of any dewatering activities during construction are expected to be temporary, and groundwater levels and flow are expected to return to pre-construction conditions following the construction period. The nature of the subsurface soils, the existence of a high water table regime, and the small zone of influence to be created by construction dewatering is expected to result in a recovery to the pre-disturbance state in a matter of several days.

7.6.5 Natural Heritage Features

While the majority of the Project footprint consists of previously disturbed industrial and commercial lands, the 6 km Transmission Line overlaps with various permanent watercourses, including Lover's Creek, and a small unevaluated wetland regulated by LSRCA (surface water discussed in Section 7.6.3). The following general mitigation measures are recommended to reduce impacts to wildlife in the Terrestrial and Aquatic Ecosystems Study Area:

- Avoid construction activities with the potential to remove migratory bird habitat, such as vegetation clearing, to the extent possible during the breeding season, which is generally from April 1 to August 31 in southern Ontario (ECCC 2022). Should vegetation clearing activities be unavoidable during this window, a program inclusive of preventative and mitigation measures (i.e. nest sweeps) should be implemented to reduce and avoid impacts to migratory birds and their nests.
- Implement a sedimentation and erosion control plan, with particular focus on areas of the Terrestrial and Aquatic Ecosystems Study Area in proximity to the wetlands, water bodies and watercourses. Maintain until the restoration measures have been assessed and determined to be secure and stable and keep additional materials on site in the event of an emergency.
- If removal of above-ground habitat features (rock slabs or piles, brush) is needed, these features will be relocated to a suitable location nearby under the direction of a biologist or retained outside the active work zone during construction and returned post-construction to the same location. Removal of features will be done by hand, if possible, to allow wildlife to flee without harm.
- If wildlife is encountered during construction, personnel are required to move away from the animal and provide reasonable time for the animal to move off the construction site.
- In some instances, handling wildlife may be required, such as the movement of an animal to outside of harm's way, or the transportation of an injured animal to an authorized wildlife rehabilitator; however, this activity should occur under the direction of a professional with knowledge of wildlife handling.
- Delineate boundaries of the work zone to avoid accidental encroachment into natural areas.
- Clearing should be reduced to the extent possible in sensitive areas such as woodlands and wetlands.
- Clearing should be done during dry soil conditions to the extent practical to limit disturbance to vegetation and terrain.
- Native topsoil should be preserved through topsoil salvage and separation.
- High-traffic or erosion-prone areas should be revegetated with suitable protective cover during and post-construction.
- Should significant *Phragmites australis* stands be identified during field investigations, a *Phragmites australis* management plan should be developed.
- Where disturbed temporary work areas overlap with natural areas, the permanent easement should be seeded with a native seed mix.
- Replaced soils should contain native seed bank, facilitating successful revegetation.

Habitat in the Terrestrial and Aquatic Ecosystems Study Area may support SOCC (Eastern Wood-pewee, Wood Thrush, and Monarch) and SAR (Chimney Swift and Bat SAR). Further surveys may be required to confirm presence/absence of species in the Terrestrial and Aquatic Ecosystems Study Area.

Bat SAR (Little Brown Myotis, Northern Myotis, Tri-coloured Bat)

- If a proposed activity or project is expected to adversely affect (e.g., remove, stub, etc.) potential maternity or day roost trees in treed habitats, but the timing of tree removal will avoid the bat active season (April 1 – September 30 in Southern Ontario / May 1 to August 31 in Northern Ontario), then bat surveys of treed habitats would not be needed.
- If the active season cannot be avoided, bat exit surveys would be needed if suitable bat maternity trees are to be removed.
- Submission of an Information Gathering Form (IGF) to the MECP is recommended, to determine permitting requirements under the ESA.

Eastern Wood-pewee and Wood Thrush

- Limit tree removal to the extent possible within deciduous and mixed forests.
- To avoid contravention of the Migratory Bird Conservation Act, mitigation measures must be implemented to prevent the disturbance, destruction or taking of a nest, egg, or shelter of a migratory bird. Disturbances to nests of protected bird species should be performed outside of the primary nesting period (April 1 – August 31) unless an avian biologist is retained to conduct nest sweeps of the Study Area a maximum of seven days prior to work.

Monarch

- Avoid mowing areas with milkweed where eggs and caterpillars are developing, generally mid-May until end of August, where possible.

7.7 Recreational Resources

There is potential that the roads leading to some of the identified recreational resources may be temporarily affected during the construction and maintenance phase of the proposed Project due to the presence of construction laydown areas in the corridor, vegetation removals, potential road closures and traffic diversions, as well as construction equipment and presence of construction crew members.

While there may be some temporary impacts to accessing and enjoying the recreational resources adjacent to the proposed Project, such impacts are expected to be short-term in nature. Advanced notice will be provided to nearby residences, farms, landowners and commercial operations, outlining the location of entry/exit points for the construction (e.g., at Highway 400 and other affected arterial roads) as well as the schedule for construction work or construction related traffic in those areas. Clear and temporary road signage will also be created and installed to reflect this information.

7.8 Visual and Aesthetic Resources

The proposed TL transverses industrial areas, commercial spaces, residential neighbourhoods, and wooded lots across the PSA, as well as running adjacent to residential areas. The proposed 230kV TL will require the installation of taller steel structures to replace the existing infrastructure. Slender, narrow steel poles will be used throughout the proposed TL, while lattice towers will be installed at the end points and at large line angles of the corridor. This results in increased visibility of the TL across the landscape and alters the local skyline when viewed from nearby properties or roads.

The proposed InnPower TS structure is also expected to alter the visual character of the immediate area due to its size and presence of new equipment. For the proposed Saunders Road Site InnPower TS, as it is situated in an industrial park surrounded by non-residential buildings, the resulting impacts on the aesthetics of the surroundings is expected to be limited.

It is also expected that the proposed InnPower TS require lighting for safety and security purposes, hence potentially affecting the nighttime visual environment. Majority of the sensitive receptors are residences with wide views into the horizon. Many of the properties have existing tree lined wind breaks and hedgerows that offer localized privacy from adjacent visual elements. To mitigate potential visual and lighting impacts, TS structures can be sited away from these receptors where possible and lighting can be installed in accordance with municipal and safety requirements and directed away from these receptors. Landscaping can additionally be used to screen external transformers in areas of high visibility or along arterial roads.

7.9 Climate Change

7.9.1 Project Effects on Climate Change

The short period of construction of the facility is generally not considered as a period over which the effects of future climate change can or should be considered. Similarly, there are no anticipated effects of the Project on climate change for the operation phase.

7.9.2 Climate Change Effects on the Project

Forecasted changes in climate may affect the operation and maintenance of the Project. Changes in climate that could potentially have an effect on the Project are:

- Increased frequency and magnitude of severe precipitation events.
- Increased frequency of extreme storms accompanied by heavy and/or freezing precipitation, thunderstorms, and strong winds.
- Increased incidence of flooding and erosion.

The potential effects of climate change on the Project are long-term and beyond the scope of this report. Therefore, while potential effects were identified for consideration during planning and design, no mitigation measures have been recommended.

7.10 Summary of Potential Environmental Effects, Mitigation Measures, and Residual Effects

Table 7.2 provides a summary of potential effects, the associated mitigation, and the residual effects identified for the Project. Based on the project design and implementation of the proposed mitigation measures, no net adverse or residual effects (i.e., effects following the implementation of mitigation) are expected from the proposed Project.

Table 7.2 Summary of Potential Environmental Effects, Mitigation Measures, and Residual Effects

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
Agricultural Resources			
Crop Loss	Construction and Maintenance: Temporary removal of crops and soils supporting crop production	Mitigation measures recommended include: • Contact will be maintained with landowners and relevant stakeholders to provide timely information of relevant work plans, work schedules and other items of interest (e.g., access routes, remediation, reduce disturbances to existing and planned farm operations, etc.), and to provide a point of contact for feedback, if any. • Where practical, construction and maintenance activities will be scheduled to avoid the growing season or sensitive times of year (e.g., extreme wet periods). To the extent practical, activities will be scheduled to occur during non-growing seasons or during frozen conditions. • Construction access roads and staging areas will be minimally sized (i.e., minimum length and width required) to safely accommodate equipment movement. • Work will be limited to the planned access roads, staging and work areas. If an expansion beyond these areas is later required, discussions will be held with the landowners in advance. • Towers will be located along fence/property lines to reduce impeding on agricultural operations, to the extent practical. • Existing farm lanes and other existing access routes will be used whenever possible. In the event that farm lanes are absent, access will be limited to along field edges, to the extent practical. • Restoration measures, as informed by discussions with landowners, to cultivate or otherwise alleviate soil compaction on areas affected by construction, may be undertaken following the completion of construction and removal of temporary construction access, as necessary.	No significant net effects are predicted. Crop loss and lands out of production as a result of the proposed Project will be compensated. Permanent removal of agricultural land is not expected.

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
Soil Compaction	Construction and Maintenance: Compaction of soil due to movement of construction equipment or maintenance vehicles over agricultural lands.	In addition to the measures outlined above, mitigation measures include: • Equipment with low bearing capacity will be used, where practical. • Access will be located along existing farm lanes or field edges, where practical. • Where necessary, temporary access roads and laydown areas proposed to be built in agricultural fields will be constructed using construction best practices which allow for easy removal upon completion of the construction (e.g., mats, or geotextile and crushed rock) to allow for re-cultivation of the area. • Restoration measures to alleviate soil compaction in construction-affected areas, may be implemented post-construction as necessary, based on landowner consultations and site conditions. • Construction and maintenance activities will be scheduled to avoid work on wet soils and reduce potential compaction, to the extent practical.	No significant net effects are predicted.
Soil Mixing	Construction and Maintenance: Soil mixing due to stripping and/or excavation and backfilling operations.	Mitigation measures include: • Stripping or excavation of soils will be lessened to the extent practical. • Where soil stripping is unavoidable, topsoil and subsoils will be removed and stockpiled separately, and the depths of soil being removed will be carefully monitored and reduced to the extent possible. • The volume of topsoil and subsoil salvaged will be maximized to the extent possible. • Soils will be stripped under generally dry conditions (not saturated), to the extent practical, to reduce rutting, soil mixing, or other undesired ground disturbance. • Vegetation, stone piles, fencing and deleterious materials will be removed prior to stripping.	No significant net effects are predicted.

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
		• For backfilling operations, soil structure will be preserved (i.e., backfill with subsoil followed by topsoil) to reduce the potential for additional mixing and increase future growing potential. • Consultations with landowners about soil cover on exposed areas within agricultural areas will be held. • Equipment and vehicle inspections and cleaning will be conducted to prevent soil cross-contamination. Equipment and vehicles that have been in contact with soils will be inspected and cleaned of dirt/debris/seeds.	
Forestry Resources			
No potential identified for the proposed Project to affect forestry resources.	N/A	N/A	N/A
Cultural Heritage Resources			
Archaeological Resources	Construction: Disturbance to lands with potential to support archaeological resources.	Prior to construction, a Stage 2 Archaeological Assessment will be completed for the parts of the archaeological study area retaining archaeological potential, to document archaeological resources and to determine whether these archaeological resources require further assessment. A Stage 1 Archaeological Assessment was completed for the Project and has identified areas of archaeological potential.	No significant net effects are predicted. Additional archaeological investigations will be completed prior to construction, as required.
Built Heritage Resources and Cultural Heritage Landscapes	No cultural heritage impacts were identified.	No cultural heritage impacts were identified and hence no mitigation measures recommended.	No significant net effects are predicted. No additional cultural heritage studies were recommended.

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
Human Settlements			
Business Operations	Construction: Potential for activities to disrupt commercial or industrial operations.	Mitigation measures include: • Contact will be maintained with commercial property owners during construction. • Access to businesses will be maintained throughout construction where possible, and in instances where access cannot be maintained, alternate access routes will be planned prior to the commencement of construction activities. • Access to construction areas will also be designed to reduce impacts on business operations where possible, • Advanced notices will be provided to potentially impacted stakeholders (e.g., nearby residences, farmers, landowners and commercial operations), appropriate agencies (i.e., MTO), and emergency response services. Notices will include the location(s) of entry/exit points for the construction site, planned work schedule, anticipated construction-related traffic, and all other relevant information. • Appropriate road signage will be provided and installed to reflect this information.	No significant net effects are predicted.
Effects to Existing and Future Land Use Designations and Potential Future Development	No negative effects to existing and future land use designations and potential future development were identified.	No negative effects to existing and future land use designations and potential future development were identified and hence no mitigation measures recommended.	No significant net effects are predicted.
Noise and Vibration	Construction: Potential disturbance as a result of noise and vibration from construction activities, and movement of heavy equipment and other vehicles.	Mitigation measures include: • Equipment and machinery used on site will be maintained in good working condition. • Affected persons will be notified of noisy work activities in advance. • Should the proposed construction methodology be altered from what has been described in this ESR, a separate mitigation plan will be development if the construction methodology is anticipated to result in excessive noise or vibration per the MECP NPC-300 guideline.	No significant net effects are predicted. Construction of the Project will be subject to compliance with municipal noise bylaws and MECP guidelines, including the NPC-300 guidance document.

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect

Effects to Local Roads and Traffic	Construction:
	Potential for increased traffic, including heavy equipment, on local and regional roads. In addition, stringing of conductors across highways and roadways may require temporary road closures and detours.
		Mitigation measures include:
		• Adhering to seasonal load restrictions.
		• Providing early notification of planned construction work
		  ▪ Sharing construction haul routes and schedules with local municipalities, as necessary.
		• Erecting road signage to inform residents about timelines, construction routes, and potential detours.
		• Planning routes and access roads to reduce traffic bottlenecks.
		  ▪ Planning for construction traffic to access the construction area from the existing road network at specified construction access/egress locations.
		  ▪ Establishing common parking areas for the construction crews.
		• Utilizing rider poles, boom-tipped riders, or other protective measures during conductor stringing to reduce road closures and other disruptions during stringing, to the extent practical.
		• Coordinating with appropriate road authorities for any temporary road or highway closures, including providing proper notice in advance and utilizing the required signage and traffic controls. The construction manager is also to lessen the duration of any temporary closures to the extent practical.
		• Assigning traffic control officers or flag persons to assist with construction entry/exit as needed.
			No significant net effects are predicted.

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
Construction Debris, Soil and Dust Control	Construction & Maintenance: Potential for migration of construction debris, soil and dust to areas beyond the construction zone.	Mitigation measures include: • Implementation of general clean site policies such as regular scheduled debris removal, removal of construction-related debris and mud from local roads, installing mud mats as needed to reduce transporting debris off-site, limiting washing and maintenance of vehicles and equipment to specific work areas, implementing formal cleanups for completed areas as construction progresses and/or restoring disturbed areas as soon as practical to reduce duration of soil exposure. • Development and implementation of a waste and soil management plan (where necessary). ▪ Proper handling, storage, and disposal procedures. In the event that contaminated soils have been identified, the plan is to include soil transport to accredited facilities for proper treatment and/or disposal. ▪ Consideration for reuse. For instance, excess soil management needs can be reduced by reducing clearing and increasing on-site reuse of excavated soil or construction debris. ▪ Use of erosion control mats as required and maintaining vegetative covers to mitigate soil-related issues. • Implementation of general dust control measures such as frequent water spraying and using dust suppressants (non-chloride) as needed.	No significant net effects are predicted.
Mineral Resources			
No potential identified for the proposed Project to affect mineral resources.	N/A	N/A	N/A

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
Natural Environment Resources			
Physical Environment - Spills	Construction & Maintenance: Potential inadvertent release of deleterious substances including oil, fuel or other liquids.	Mitigation measures include: • An Emergency Response Plan and spill cleanup equipment will be maintained and readily accessible at all times during construction and maintenance activities. • Refueling of vehicles and equipment will be completed in designated locations, at least 30 m away from sensitive receptors (e.g. watercourse, wetlands, etc.) while utilizing emergency spill trays. In the event refueling is required outside of designated areas, additional containment or other mitigation and spill prevention measures will be utilized. Fueling operations will require the operator to visually observe the fueling process at all times. • Areas impacted by a spill will be secured, and unauthorized personnel will be kept out of the affected area until further assessment and/or clean-up is conducted • Clean-up and the disposal of contaminated materials will be managed in accordance with provincial regulations and guidelines • Fuels, chemicals, lubricants or other deleterious substances will be stored on level ground in properly contained storage areas • Only approved aboveground petroleum storage tanks will be used during the construction phase of the Project and will be stored in designated fuelling areas and with additional temporary containment measures.	No significant net effects are predicted.

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
Physical Environment – Waste Generation	Construction & Maintenance: Waste (hazardous and non-hazardous) will be generated.	Mitigation measures include: • Solid and liquid hazardous waste will be transported by MECP licensed waste haulers to MECP registered disposal sites. • Any temporary waste on-site will include the use of secured containers in designated sites away from sensitive areas and removed from the site on an ongoing basis. • With respect to concrete wash water, all water from concrete chute washing activities will be contained in leak proof containers or in an approved settling pond off site. • Waste produced will be reduced, segregated, and recycled where possible, and all testing, handling, storage, transport and disposal of waste will be completed in accordance with all applicable legislation.	No significant net effects are predicted.
Physical Environment – Excess Materials Management	Construction & Maintenance: Excess materials, including topsoil and subsoil, may be generated.	Mitigation measures include: • All efforts will be made to reuse soils onsite where practical and feasible. • Excess materials that cannot be managed onsite will be handled in accordance with O.Reg. 406/19. • Soil testing to meet the requirements of O.Reg. 406/19 will be completed, if necessary, during geotechnical investigations prior to or during construction. Hydro One and InnPower will work with landowners to explore opportunities for beneficial reuse of suitable soils. • Excess soil required to leave the site will be taken to an approved facility licensed to accept excess soil based on its characterization or other off-site location that can demonstrate beneficial reuse.	No significant net effects are predicted.

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
Atmospheric Environment – Air Quality	Construction & Maintenance: Potential for fugitive dust and impacts to air quality from machinery/vehicle emissions.	Mitigation measures include: • Utilizing low-emission equipment and machinery such as those meeting Tier 4 emission standards, where possible, to reduce exhaust emissions • Cover and/or contain loose construction materials with the potential to release airborne particulates during transport, installation or removal • Implementing good practices for vehicles and equipment on site, such as regular maintenance of construction equipment to verify optimal performance, adhering to posted speed limits, and reduce idling of construction vehicles and equipment to reduce excessive exhaust • Optimizing vehicle routes with careful planning and the use of GPS, where possible, to reduce fossil fuel emissions • Monitoring air quality, periodically or activity-targeted, to assess the effectiveness of mitigation measures and implement targeted interventions as needed • Equipping construction workers with appropriate personal protection equipment, where applicable. • Restoring disturbed areas as soon as practical to reduce duration of soil exposure • Scheduling activities to avoid excavation and other construction activities that have the potential to release airborne particulates during windy and prolonged dry periods, to the extent practical. If such activities must occur during these periods, to utilize dust control measures and monitor air quality regularly	No significant net effects are predicted.

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
Surface Water Resources – Surface Water Quantity	Construction: Potential for surface water quantity to be increased due to soil rutting, vegetation clearing and dewatering.	Mitigation measures to reduce the impacts of soil rutting and vegetation clearing include: • Utilizing existing watercourse crossings and constructed access routes to the extent practical • Installing erosion and sediment control measures such as erosion blankets and silt fences, where necessary, to reduce soil runoff and introducing sediments into waterways • Where required, temporary crossing structures will be installed for construction access at watercourses and other low lying areas, and will be removed upon completion of construction • The use of constructed access (e.g., mats or geotextile/crushed stone) roads will be utilized and will be monitored to confirm there is no surface ponding to reduce rutting and pooling of water • Vegetation removals will be reduced to the extent practical. Compatible vegetation will be retained within riparian areas adjacent to watercourses • Machine clearing and grubbing will be restricted near sensitive environmental areas; hand clearing will be required in watercourse banks/riparian areas or in wetlands • Replant with compatible vegetation as required • Where erosion is of a concern, exposed soils in previously vegetated areas will be re-vegetated as practical or have other erosion or sedimentation measures applied as necessary • Where applicable and possible, vegetative buffers will be maintained to protect receptors	No significant net effects are predicted. If dewatering activities over 50,000 L/day are required, Hydro One and InnPower commit to proactively preparing and submitting to the MECP an EASR application or, in the case of dewatering activities over 400,000 L/day, a PTTW. .

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
		• Construction access and laydown areas will be restored following completion of construction • Work will be staged to reduce the extent of exposed and disturbed areas at any given time • Cleared vegetation will be relocated to designated areas away from water features • Topsoil will be stockpiled in designated areas away from water features and will utilize containment measures such as erosion and sediment control as appropriate • Disturbed areas will be stabilized and restored as soon as practical • Equipment operation adjacent to water features will be reduced, where possible • Works adjacent or around water feature banks will be conducted during appropriate conditions and times of the year (e.g., dry or frozen conditions), to the extent practical • Vegetation buffers along water feature banks will be maintained to the extent practical, and restored • LSRCA will be consulted for ESC measures within regulated areas during detailed design Mitigation measures to reduced the impacts of dewatering include: • Construction water will be discharged in compliance with permits and/or approvals from MECP, the City of Barrie and the Town of Innisfil, as required • A construction water management plan will be developed prior to construction and implemented appropriately (e.g., passing discharge water through a filter bag or drum before discharge to the environment to capture sediment and slow down the water velocity, etc.), as required • Where possible, opportunities to increase retention	

Surface Water Resources – Surface Water Quality	Construction: Potential for impacts on surface water quality due to erosion, sedimentation and soil loss, and introduction of other materials into surface water.	Mitigation measures to prevent erosion, sedimentation and soil loss include: • An Erosion and Sediment Control Plan will be developed prior to construction and ESC measures will be identified and implemented as required • Areas with high erosion potential will be identified and avoided, where possible • Construction activities near sensitive features or areas may be suspended during extreme wet weather events, and crews will review and consider weather forecasts in their planning of such work • ESC installations will only be removed after disturbed areas are restored, accumulated sediment has been disposed, and construction activities in the vicinity are completed • In an effort to reduce potential erosion, mechanical or vegetation erosion control measures will be employed, such as buffer strips, erosion control blankets and sedimentation fences, as required • Equipment operation on slopes adjacent to streams will be reduced to the extent practical • Disturbed areas near water features or sensitive environmental areas will be restored as soon as practical • ESC measures will be regularly inspected, including after each significant [>10 mm] rainfall event, and repaired where necessary to maintain functionality Additional mitigation measures to protect water bodies include: • Wash, refuel and/or service equipment at lease 30 m from drainage features and wetlands to reduce the risk of deleterious substances from entering the features. Check machinery regularly for fluid leaks • Develop a Spill Management Plan and have it on site for implementation in the event of an accidental spill. Keep an emergency spill kit on site • Stabilize materials requiring stockpiling (fill, topsoil, etc.) and keep a safe distance (> 30 m) from drainage features and wetlands • Timing restrictions for in-water work, if required	No significant net effects are predicted.

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
Groundwater Resources – Groundwater Quality	Construction: Disturbance and compaction to soil has the potential to inhibit infiltration.	Refer to mitigation measures recommended for Soil Compaction under Agricultural Resources.	No significant net effects are predicted.
	Construction: Disturbance of contaminated soil has the potential to contribute to groundwater contamination.	Refer to the mitigation measures recommended for Spills and Excess Materials Management under Physical Environment.	No significant net effects are predicted. Contaminated soil and groundwater containment and disposal measures will be implemented according to the pertinent regulations, as required
Groundwater Resources – Groundwater Quantity	Construction: Dewatering activities / removal of groundwater have the potential to result in temporary lowering of aquifers.	Dewatering activities are currently not anticipated for the proposed Project. Therefore, no mitigation measures have been recommended.	No significant net effects are predicted. If dewatering activities over 50,000 L/day are required, Hydro One and InnPower commit to proactively preparing and submitting to the MECP an EASR registration or, in the case of dewatering activities over 400,000 L/day, a PTTW.

Natural Heritage Features – General Wildlife	Construction and Operation: Potential disturbance to wildlife.	Mitigation measures include: • Avoid construction activities with the potential to remove migratory bird habitat, such as vegetation clearing, to the extent possible during the breeding season, which is generally from April 1 to August 31 in southern Ontario (ECCC 2022). Should vegetation clearing activities be unavoidable during this window, a program inclusive of preventative and mitigation measures (i.e. nest sweeps) should be implemented to reduce and avoid impacts to migratory birds and their nests. • Implement a sedimentation and erosion control plan, with particular focus on areas of the Terrestrial and Aquatic Ecosystems Study Area in proximity to the wetlands, water bodies and watercourses. Maintain until the restoration measures have been assessed and determined to be secure and stable and keep additional materials on site in the event of an emergency. • If wildlife is encountered during construction, personnel are required to move away from the animal and provide reasonable time for the animal to move off the construction site. • In some instances, handling wildlife may be required, such as the movement of an animal to outside of harm's way, or the transportation of an injured animal to an authorized wildlife rehabilitator; however, this activity should occur under the direction of a professional with knowledge of wildlife handling. • Delineate boundaries of the work zone to avoid accidental encroachment into natural areas. • Clearing should be reduced to the extent possible in sensitive areas such as woodlands and wetlands. • Clearing should be done during dry soil conditions to the extent practical to limit disturbance to vegetation and terrain. • Native topsoil should be preserved through topsoil salvage and separation. • High-traffic or erosion-prone areas should be revegetated with suitable protective cover during and post-construction. • Should significant *Phragmites australis* stands be identified during field investigations, a *Phragmites australis* management plan should be developed.	No significant net effects are predicted. Net effects include removal of vegetation to accommodate TL installation works along the existing corridor. Re-vegetation works will be carried out concurrently with the works to the extent practical.

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
		• Where disturbed temporary work areas overlap with natural areas, the permanent easement should be seeded with a native seed mix. • Replaced soils should contain native seed bank, facilitating successful revegetation.	
Natural Heritage Features – SOCC and SAR	Construction and Operation: Potential disturbance to SAR and SOCC.	Mitigation measures specific to Bat SAR include: If a proposed activity or project is expected to adversely affect (e.g., remove, stub, etc.) potential maternity or day roost trees in treed habitats, but the timing of tree removal will avoid the bat active season (April 1 – September 30 in Southern Ontario / May 1 to August 31 in Northern Ontario), then bat surveys of treed habitats would not be needed. If the active season cannot be avoided, bat exit surveys would be needed if suitable bat maternity trees are to be removed. Submission of an IGF to the MECP is recommended, to determine permitting requirements under the ESA. Mitigation measures specific to Eastern Wood-pewee and Wood Thrush include: • Limit tree removal to the extent possible within deciduous and mixed forests. • To avoid contravention of the Migratory Bird Conservation Act, mitigation measures must be implemented to prevent the disturbance, destruction or taking of a nest, egg, or shelter of a migratory bird. Disturbances to nests of protected bird species should be performed outside of the primary nesting period (April 1 – August 31) unless an avian biologist is retained to conduct nest sweeps of the Study Area a maximum of seven days prior to work. Mitigation measures specific to Monarch include: • Avoid mowing areas with milkweed where eggs and caterpillars are developing, generally mid-May until end of August, where possible.	No significant net effects are currently predicted. As habitats in the Terrestrial and Aquatic Ecosystems Study Areas may support SOCC (Eastern Wood-pewee, Wood Thrush, and Monarch) and SAR (Chimney Swift and Bat SAR). Further surveys may be required to confirm presence/absence of species in the Terrestrial and Aquatic Ecosystems Study Area.

Environmental Concern	Project Phase and Potential Effect(s)	Mitigation Measures	Net Effect
Recreational Resources			
Enjoyment of Recreational Resources	Construction & Maintenance: Potential for temporary disturbance of enjoyment of recreational resources	Mitigation measures include: • Advanced notice will be provided to nearby residences, farms, landowners and commercial operations, outlining the location of entry/exit points for the construction (e.g., at Highway 400 and other affected arterial roads) as well as the schedule for construction work or construction related traffic in those areas. • Clear and temporary road signage will also be created and installed to reflect this information.	No significant net effects are currently predicted.
Visual and Aesthetic Resources			
Visibility of the Project by Sensitive Receptors	All Phases: Potential visual impacts to sensitive receptors with views of the Project.	Mitigation measures include: • TS structures can be sited away from these receptors where possible, and installed lighting in accordance with municipal and safety requirements and directed away from these receptors. • Landscaping can additionally be used to screen external transformers in areas of high visibility or along arterial roads.	No significant net effects are currently predicted.
Climate Change			
Project Effects on Climate Change	N/A	There are no anticipated effects of the Project on climate change for the various phase. Therefore, no mitigation measures have been recommended.	N/A
Climate Change Effects on Project	Operation: Potential climate change effects to the Project (long -term)	The potential effects of climate change on the Project are long-term and beyond the scope of this report. Therefore, while potential effects were identified for consideration during planning and design, no mitigation measures have been recommended.	N/A

8 Effects Monitoring

The purpose of effects monitoring is to confirm the extent of the Project's environmental effects, by comparing the actual effects with the predicted effects, to verify the effectiveness of implemented mitigation measures, and to determine whether additional measures are warranted. Monitoring also confirms that the commitments, conditions of approval, where applicable, and compliance with other environmental legislation are met. An Environmental Monitor would be assigned to the proposed Project for the duration of construction to monitor construction activities and provide guidance on needed field changes.

Following the completion of the Class EA process and before start of construction, a project-specific Environmental Management Plan will be prepared to include the following:

- Summary of legislative requirements. Summary of environmental commitments set out in the final ESR, and terms and conditions of approval, if any.
- Documentation of pre-construction site conditions, where necessary.
- Specific directions to construction personnel on the implementation of environmental mitigation measures, response plans, and other information (e.g., identification of Species at Risk).
- Steps to confirm that supporting protection plans have been implemented during construction.
- Description of the environmental monitoring process and frequency to be undertaken during construction.
- Outline of steps to be taken when documenting monitoring and identify procedures for follow-up actions, as required.
- Provide specific directions on the post-construction restoration of work areas and access locations.

At the end of construction, an as-constructed plan will be prepared to guide ongoing operation and maintenance activities. The plan will document "as constructed" conditions as well as ongoing monitoring requirements, if required.

9 Conclusion

InnPower and Hydro One have successfully completed a Class EA for MTF and has subsequently met the requirements of the *EA Act* for the proposed InnPower/Hydro One Minor Transmission Station Project within the City of Barrie, Ontario.

Potential environmental effects for the construction and operation phases were identified for the proposed Project and corresponding mitigation measures were developed to address these effects. Based on the project design and implementation of the proposed mitigation measures, no substantial adverse residual effects are expected.

InnPower and Hydro One have conducted comprehensive consultation to inform First Nation communities, municipal and provincial government officials and agencies, potentially affected and interested persons and interest groups about the proposed Project, as well as to identify and resolve potential concerns. The consultation process included direct notification letters via mail or email; COHs, which provided opportunities for interested parties to discuss with, and pose questions to, the InnPower and Hydro One project teams directly; correspondence with property owners; meetings with key rightsholders and stakeholders; and establishment and maintenance of a project website.

Upon submission of this ESR, and the associated Statement of Completion, the proposed Project will be implemented in full compliance with the requirements of the Class EA for MTF process as outlined in this ESR, incorporating input obtained throughout the planning process including feedback and input from project stakeholders. InnPower and Hydro One will obtain the necessary environmental approvals and permits required for the proposed Project.

10 References

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Appendix A

Independent Electricity System Operator (IESO) Handoff Letter

ieso
Connecting Today.
Powering Tomorrow.

Independent Electricity System Operator
1600-120 Adelaide Street West
Toronto, ON M5H 1T1
t 416.967.7474
www.ieso.ca

December 7, 2015

Bing Young
Director, System Planning
Hydro One Networks, Inc.
483 Bay Street
Toronto, ON M5G 2P5

Dear Bing:

Re: Initiating a Near-term Transmission Project identified through the Barrie/Innisfil Integrated Regional Resource Planning ("IRRP") process

The purpose of this letter is to:

- Hand off a near-term transmission project to Hydro One that is required to address urgent needs to replace infrastructure nearing its end of life and provide supply capacity in the Barrie/Innisfil sub-region; and
- Request that Hydro One begin development of a project to replace the existing Barrie transformer station ("Barrie TS") and the E3/4B transmission line with new 230 kV infrastructure.

Since a wires option has been determined to be the only feasible means to address these urgent needs, the hand off of this transmission project to Hydro One is consistent with the regional planning process endorsed by the Ontario Energy Board ("OEB") as part of its Renewed Regulatory Framework for Electricity.

The Barrie/Innisfil Working Group ("the Working Group"), consisting of staff from the IESO, Hydro One, PowerStream and InnPower, is conducting an IRRP process for the Barrie/Innisfil sub-region. The Terms of Reference for the Barrie/Innisfil IRRP established a phased planning process to ensure that near-term needs could be met in a timely fashion. The Working Group has completed the first phase of the IRRP, including reviewing options to address near-term needs with consideration of future needs, meeting with municipalities in the sub-region, and meeting with First Nation communities in the broader South Georgian Bay/Muskoka region. Due to the nature and the timing of the needs, which include replacing existing infrastructure that is approaching its end of life, and providing additional capacity to supply growth in the City of Barrie and Town of Innisfil in the near and medium term, the Working Group has concluded that non-wires alternatives are not viable options and recommends development of this near-term transmission project. The objectives and scope of this project are provided in Attachment 1.

At this time, the Working Group recommends that Hydro One proceed immediately with development of the transmission project, including pursuing the required environmental and

regulatory approvals. The Working Group will continue to develop the medium- and long-term plan for the Barrie/Innisfil sub-region in parallel, and will benefit from updated information from Hydro One through the development of this project.

To facilitate development of this project, the IESO will provide Hydro One with the following information on request:

- Demand forecasts
- Conservation and distributed generation forecasts
- Any other relevant information

We look forward to ongoing exchange of information, results and deliverables from the Barrie/Innisfil near-term transmission project as part of the Barrie/Innisfil Working Group activities, and to continuing to work with and provide support to Hydro One in the implementation of this project.

Yours truly,

Bob Chow
Director, Transmission Integration

Cc: Barrie/Innisfil IRRP Working Group Members:

PowerStream
Irv Klajman
Michael Swift
Riaz Shaikh

InnPower
Wade Morris
Ali Syed

Hydro One Distribution
Paul Brown
Richard Shannon
Charlie Lee
Mark Van Tol
Matthew Bell
Gaurav Behal

Hydro One Networks
Michael Penstone
Ibrahim El-Nahas
Alexander Constantinescu
Kirpal Bahra
Ajay Garg
Harneet Panesar

IESO
Michael Lyle
Nicole Hopper
Megan Lund
Nancy Marconi
Julia McNally
Luisa da Rocha
Amanda Flude
Tabatha Bull
Mark Wilson
Leonard Kula
Ahmed Maria
Phillip Woo

Attachment 1 – Project Objectives and Scope

Project Objectives:

- To address the "end of life" of the Barrie transformer station ("Barrie TS") and the infrastructure that supplies it: the E3/4B transmission line; and the 230/115 kV autotransformers at the Essa transformer station ("Essa TS"). Various elements of this infrastructure range from 40 to 67 years old and have been identified for replacement as early as 2018 by Hydro One's sustainment program. These assets are indentified in Figure 1.
- To provide capacity to supply growth in the southern portion of the City of Barrie and in the Town of Innisfil. Currently, Barrie TS is the primary source of supply for this area. Based on current forecasts (net of conservation and distributed generation), this station will reach its capacity around 2017. Distribution system enhancements currently planned by PowerStream will enable this need to be deferred until around 2020, at which point additional supply capability will be required.

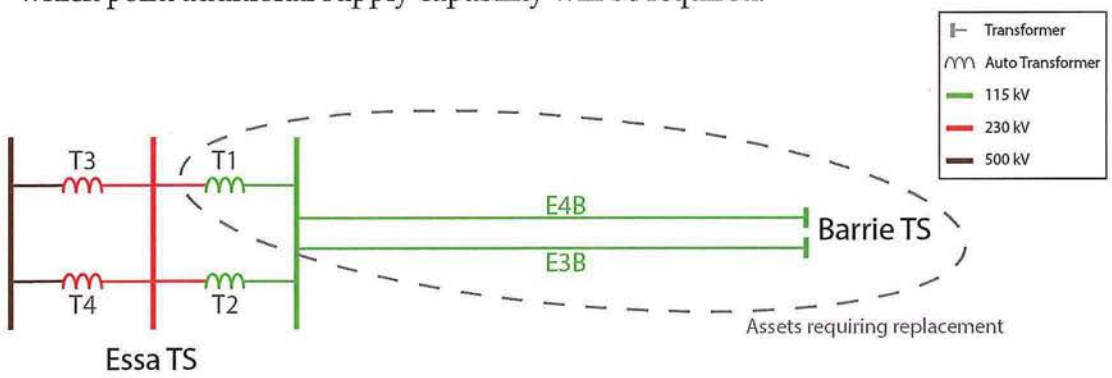

Figure 1 - Single line diagram detailing existing supply of Barrie TS and assets requiring replacement

Project Scope:

The Working Group has considered various alternatives for meeting the above objectives, including non-wires alternatives and various wires options:

- Non-wires solutions were determined to be infeasible by the Working Group on the basis that over 100 MW of existing customer load in southern Barrie and the Town of Innisfil that is currently supplied by Barrie TS would be left without electricity supply if the infrastructure is not replaced when it reaches end of life.
- An option to replace the existing 115 kV line, station and autotransformer with like-for-like equipment (i.e., maintaining its voltage at 115 kV) was also ruled out on the basis that it would not address the growth requirements in the area. Any additional capacity needed to supply growth would then require development of new, greenfield station site(s) and rights-of-way, which would be inconsistent with the 2014 Provincial Policy Statement.[1]

[1] Section 1.6.3 of the 2014 Provincial Policy Statement states that: "Before consideration is given to developing new *infrastructure* and *public service facilities*: a) the use of existing *infrastructure* and *public*

Based on the above considerations, the Working Group recommends that Hydro One proceed with a project consisting of:

- Rebuilding Barrie TS and the E3/4B transmission line and upgrading the voltage of these facilities from 115 kV to 230 kV;
- Upgrading the transformers at Barrie TS from 55/92 MVA units to 75/125 MVA units; and
- Retiring the two 230/115 kV auto-transformers at Essa TS (T1 and T2).

These measures address the near-term need to refurbish Barrie TS, allowing it to continue supplying the existing load in southern Barrie and the Town of Innisfil. At the same time, upgrading the station and line to 230 kV allows for the additional load growth forecast in this area to be supplied for the near and medium term using the existing station site and transmission right-of-way. Upgrading the transmission line to 230 kV also provides increased capability that allows for future development of the system. Additionally, savings are incurred from removing the 230/115 kV auto-transformers at Essa TS that are currently maintained solely to supply Barrie TS.

Due to the timing of the needs, and considering typical development timelines for transmission refurbishment/upgrade projects, Hydro One should work toward a targeted in-service date of 2020. It is the Working Group's understanding that a Class Environmental Assessment process will be required for this project, as well as Leave to Construct approval from the OEB for the line replacement portion of this project. The IESO will endeavor to provide support to Hydro One in these activities.

The Working Group will continue to review the medium- and long-term needs in the Barrie/Innisfil sub-region and will develop an IRRP addressing needs over a 20-year period for publication at the end of 2016.

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service facilities should be optimized; and b) opportunities for adaptive re-use should be considered, wherever feasible."

Appendix B

Class EA for MTF Consultation Documents

B.1 Project Rightsholder and Stakeholder List

Indigenous Communities and Nations Contact List

FIRST NAME	LAST NAME	POSITION / TITLE	ADDRESS	EMAIL	TELEPHONE
Beausoleil First Nation					
Joanne P.	Sandy	Chief	11 O'Gemaa Miikaan, Christian Island, L9M 0A9	jsandy@chimnissing.ca	705-247-2251
Council General Inbox		Chief Councillor	11 O'Gemaa Miikaan, Christian Island, L9M 0A9	council@chimnissing.ca	705-247-2251
Isabella	Mardsen	EA	11 O'Gemaa Miikaan, Christian Island, L9M 0A9	executiveassistant@chimnissing.ca	
Mike	Smith	Environmental Specialist	11 O'Gemaa Miikaan, Christian Island, L9M 0A9	msmith@chimnissing.ca	
Chippewas of Georgian Island					
Donna	Big Canoe	Chief	R.R.#2 Box N-13, Sutton West, L0E 1R0	dbigcanoe@georginaisland.com	(705) 437-1337
JL	Porte	Community Consultation	R.R.#2 Box N-13, Sutton West, L0E 1R0	jl.porte@georginaisland.com	
Chippewas of Rama First Nation					
Ted	Williams	Chief	5884 Rama Road, Suite 200, 1st Floor, Orillia, L3V 6H6	chief@ramafirstnation.ca	
Ben	Benson	Community Consultation Officer	5884 Rama Road, Suite 200, 1st Floor, Orillia, L3V 6H6	consultation@ramafirstnation.ca	705-325-3611 x.1633
Huron-Wendat Nation					
Isabelle	Lechasseur	- - -	255, place Chef Michel Laveau, Wendake (Quebec), G0A 4VO	Isabelle.Lechasseaur@wendake.ca	418-843-3767
Thiefaine	Terriro	- - -	255, place Chef Michel Laveau, Wendake (Quebec), G0A 4VO	Thiefaine.Terrier@wendake.ca	418-843-3767
Dominic	Ste-Marie	- - -	255, place Chef Michel Laveau, Wendake (Quebec), G0A 4VO	Dominic.ste-marie@wendake.ca	418-843-3767

Federal Government Representatives and Agencies Contact List

FIRST NAME	LAST NAME	POSITION / TITLE	ADDRESS	EMAIL	TELEPHONE
Canadian National Railway					
- - -	- - -	- - -	1 Administration Road, Concord, L4K 1B9	Proximity@cn.ca	
Canadian Pacific Kentucky City Railway					
Tom	Twigge	Director	1290 Central Parkway W., Missisauga, L5C 4R3	tom_twigge@cpr.ca	905-803-5986

NOTE: "- - -" denotes the absence of any available information

Provincial Government Representatives and Agencies Contact List

FIRST NAME	LAST NAME	POSITION / TITLE	ADDRESS	EMAIL	TELEPHONE
Infrastructure Ontario					
Katherine	Hotrum	Director	1 Dundas St. W. 20th Floor, Toronto, M5G1Z3	katherine.hotrum@infrastructureontario.ca	647-264-4573
Joanna	Craig	Planner	1 Dundas St. W. 20th Floor, Toronto, M5G1Z3	noticereview@infrastructureontario.ca	647-965-6703
Lake Simcoe Region Conservation Authority					
Frank	Pinto	Infrastructure Regulations Analyst	120 Bayview Parkway, Newmarket	f.pinto@lsrca.on.ca	905-895-1281 x288
Dave	Ruggle	Manager, Planning	120 Bayview Parkway, Newmarket	d.ruggle@lsrca.on.ca	905-895-1281 x240
Christa	Sharp	Manager, Restorarion	120 Bayview Parkway, Newmarket	c.sharp@lsrca.on.ca	905-895-1281 x115
Peter	Shuttleworth	Watershed Restoration Specalist	120 Bayview Parkway, Newmarket	p.shuttleworth@lsrca.on.ca	905-895-1281 x114
Members of Provinical Parliament					
Andrea	Khanjin	MPP for Barrie-Innisfil	237 Mapleview Drive East, Unit 1, Barrie, L4N 0W	andrea.khanjin@pc.ola.org	705-722-0575
Members of Parliament					
John	Brassard	MP for Barrie-Innisfil	480 Huronia Road, Suite 204-B, Barrie, L4N 6M2	john.brassard@parl.gc.ca	705-726-5959
Metrolinx					
Adam	Snow	Director	10 Bay Street, Toronto	adam.snow@metrolinx.com	- - -
Ministry of Citizenship and Multiculturalism					
Karla	Barboza	Team Lead - Heritage	5th Flr, 400 University Ave, Toronto	karla.barboza@ontario.ca	416-660-1027
Dan	Minkin	Heritage Planner	5th Flr, 400 University Ave, Toronto	dan.minkin@ontario.ca	416-786-7553
Ministry of Energy					
Joerg	Wittenbrinck	Manager(A)	77 Grenville Street, 6th Floor, Toronto	joerg.wittenbrinck@ontario.ca	289-980-8124
Farrah	Ali-Khan	Senior Advisor	77 Grenville Street, 6th Floor, Toronto	farrah.ali-khan@ontario.ca	416-526-2963
Ministry of Environment, Conservation and Parks					
- - -	- - -	- - -	- - -	eanotification.cregion@ontario.ca	- - -
- - -	- - -	- - -	- - -	Environment.Barrie@Ontario.ca.	- - -
Chunmei	Liu	Environmental Resource Planner & EA Coordinator	7th Floor, 135 St. Claire Avenue W., Toronto	chunmei.liu@ontario.ca	437-249-3102
Matthew	Dmytrenko	Regional Issues Coordinator (Acting)	Place Nouveau 8th Floor, 5775 Yonge Street, Toronto	matthew.dmytrenko@ontario.ca	437-882-8743
Ministry of Mines					
Tracey	Burton	Manager (A)	Willet Green Miller Centre, 2nd Floor, 933 Ramsey Lake Road, Sudbury	tracey.burton@ontario.ca	705-918-1609
Melanie	Johnson	Senior Strategic Initiatives Lead	Willet Green Miller Centre, 2nd Floor, 933 Ramsey Lake Road	melanie.johnson@ontario.ca	705-698-5041
Ministry of Municipal Affairs and Housing					
Maya	Harris	Manager	13th Floor, 777 Bay Street, Toronto	maya.harris@ontario.ca	437-776-8447
Ministry of Natural Resources and Forestry					
Amanda	McCloskey	Land Use Planning Supervisor	300 water Street, Box 7000 4th floor, south tower, Peterborough	SR.Planning@ontario.ca	705-313-0507
Gillian	Hartman	Regional Planning Coordinator	300 water Street, Box 7000 4th floor, south tower, Peterborough	SR.Planning@ontario.ca	705-761-7061
Ministry of Transportation					
Jason	White	Manager	159 Sir William Hearst Ave, Toronto	jason.white@ontario.ca	416-235-5575
Ontario Energy Board					
- - -	- - -	- - -	Ontario Energy Board 2300 Yonge Street, 27th floor, P.O. Box 2319, Toronto, M4P 1E4	IndustryRelations@oeb.ca	1-877-632-2727
Onxpress Transportation Partners					
Brenda	Hickey	Assistant Project Manager	130 Adelaide St. W., Toronto	bhickey@onxpress.com	647-616-5048
Simcoe County District School Board					
Corry	Van Nispen	Superintendent	1170 Highway 26, Midhurst, L9X 1N6	info@scdsb.on.ca	705-728-7570

NOTE: "- - -" denotes the absence of any available information

Municipal Government Representatives and Agencies Contact List

FIRST NAME	LAST NAME	POSITION / TITLE	ADDRESS	EMAIL	TELEPHONE
City of Barrie					
Alex	Nuttal	Mayor	- - -	officeofthemayor@barrie.ca	705-792-7900
Robert	Thomson	Ward 5 Councillor	- - -	Robert.Thomson@barrie.ca	(705) 739-4275
Nigussie	Nigussie	Ward 6 Councillor	- - -	nigussie.nigussie@barrie.ca	(705) 739-4286
Gary	Harvey	Ward 7 Councillor	- - -	gary.harvey@barrie.ca	(705) 739-4217
Wendy	Cooke	City Clerk & Director of Legislative and Court Services	70 Collier Street, Barrie, L4M 1G8	wendy.cooke@barrie.ca	(705) 739-4220 x4560
John	Daly	County Clerk	1110 Highway 26, Midhurst, L9C 1N6	john.daly@simcoe.ca	705-726-9300 x1623
Clare	Riepma	Councillor- Chair of the Heritage Barrie Committee	70 Collier Street, Barrie, L4M 1G8	clare.riepma@barrie.ca	(705) 739-4271
Jim	Harris	Ward 8 Councillor	70 Collier Street, Barrie, L4M 4T5	jim.harris@barrie.ca	705 739 4273
Kelly	Oakley	Associate Director	70 Collier Street, Barrie, L4M 4T5	Kelly.Oakley@barrie.ca	705-739-4220 ext.4451
- - -	- - -	- - -	70 Collier Street, Barrie, L4M 4T5	ServiceBarrie@barrie.ca	705-726-4242
Town of Innisfil					
Oliver	Jerschow	Chief Administrative Officer	2101 Innisfil Beach Road, Innisfil, L9S 1A1	kshea@innisfil.ca	705-436-3720
Nicole	Bowman	Director	2101 Innisfil Beach Road, Innisfil, L9S 1A1	inquiry@innisfil.ca	705-436-3720
Patty	Thoma	Town Clerk	2101 Innisfil Beach Road, Innisfil, L9S 1A1	clerkoffice@innisfil.ca	705-436-3720

NOTE: "- - -" denotes the absence of any available information

Potentially Affected and Interested Persons and Interest Groups Contact List

FIRST NAME	LAST NAME	POSITION / TITLE	ADDRESS	EMAIL	TELEPHONE
Alectra Utilities Corporation					
Riaz	Shaikh	Manager, Distribution System Planning	55 Patterson Rd, Barrie, L4N 3V9	riaz.shaikh@alectrautilities.com	1 877-963-6900
Nana	Obeng	- - -	- - -	nana.obeng@alectrautili	- - -
Barrie Native Friendship Centre					
- - -	- - -	- - -	175 Bayfield Street, Barrie, L4M 3B4	info@bnfc.ca	705-721-7689
Barrie Women's Hockey Association					
- - -	- - -	- - -	1 Saunders Rd, Barrie, L4N 9A7	info@bwha.ca	(705) 721-9699
Bell Canada					
- - -	- - -	- - -	1 Carrefour Alexander-Graham-Bell, Building A, 4th Floor, Verdun (QC), H3E 3B3	bcecomms@bce.ca	- - -
Brereton Field Naturalists Club					
Brian	Gibbon	Business Relations	PO Box 1084, Barrie, L4M 2E1	naturebarrie@gmail.com	- - -
CFUW Barrie					
- - -	- - -	- - -	767 Huronia Road, Barrie, L4N 9H2	contact@cfuwbarrie.ca.	- - -
Christ Embassy Simcoe					
- - -	- - -	- - -	74 Bryne Drive, Barrie, L4N 9Y4	info@christembassysimcoe.org	647-797-8035
Comet Chemical					
- - -	- - -	- - -	3463 Thomas Street, Innisfil, L9S 3W4	office@cometchemical.com	705-4363-5580
Connexus Church					
- - -	- - -	- - -	20 Mills Road, Barrie, Barrie, L4N 6H4	contact@connexuschurch.com	705-721-9090
Convenant Christian Reformed Church					
- - -	- - -	- - -	101 Ardagh Road, Barrie, L4N 9B6	covenantundershepherd@gmail.com	705-734-0651
CTV Barrie					

- - -	- - -	- - -	33 Beacon Rd, Barrie, L4N 9J9	barrieinbox@bellmedia.ca	(705) 734-3300
Discovery Child Care					
Karen	Eilersen	- - -	11 Thrushwood Drive, Barrie, L4N 0Z1	Karen@discoverychild.o	(705) 734-3300
Empower Ministries					
- - -	- - -	- - -	45 Commerce Park Dr, Barrie, L4N 8X1	RON@EMPOWERMINISTRIES.CA	(705) 719-1607
Empower Simcoe					
- - -	- - -	- - -	39 Fraser Ct, Barrie, L4N 5J5	inquiries@empowersimcoe.ca	705-726-9082
Enbridge Gas					
- - -	- - -	Corporate Head Office	200-425 1st Street S.W., Calgary, T2P 3L8	markups@enbridge.com	403-231-3900
Faith Alive Outreach Centre					
- - -	- - -	- - -	565 Bryne Drive, Barrie, L4N 9Y3	office@faithalivebarrie.org	705-739-4971
Ganaraska Hiking Trail Association					
Liz	Erwin	Barrie Club President	- - -	lizerwin@rogers.com	705-792-6181
Greater Barrie Chamber of Commerce					
- - -	- - -	- - -	121 Commerce Park Dr Unit A, Barrie, L4N 8X1	admin@barriechamber.com	(705) 721-5000
Hedbern Homes					
- - -	- - -	- - -	323 Tiffin St, Barrie, L4N 5P4	bstill@hedbernhomes.com	- - -
IESO					
Nicole	Hopper	- - -	1600-120 Adelaide Street West, Toronto, M5H 1T1	Nicole.Hopper@ieso.ca	- - -
Inclusive Milestones					
- - -	- - -	- - -	34 Commerce Park Drive, Barrie, L4N 8W8	info@inclusivemilestones.ca	(705)503-9131
Koalaroo Preschool					
	- - -	- - -	28 Commerce Park Drive, Barrie, L4N 8W8	info@koalaroo.ca	(705)735-2747
Kumon Math and Reading Centre of Barrie					
- - -	- - -	- - -	62 Commerce Park Drive, Barrie, L4N 8W8	barriemapleview@ikumon.com	(705)717-9086
Little Start Child Care - Bryne					

- - -	- - -	- - -	565 Bryne Dr Unit R & S, Barrie, L4N 9Y3	info@littlestart.ca	(705) 728-7807
Rogers Communications Canada Inc					
- - -	- - -	- - -	333 Bloor Street East, Toronto, M4W 1G9	mob.permits@rci.rogers.com	(416) 935-7777
Saint Nicholas Orthodox Church of Barrie					
- - -	- - -	- - -	31 Saunders Road, Barrie, L4N 9A7	barriesobor@gmail.com	416-522-5237
Southshore Bible Church					
- - -	- - -	- - -	565 Bryne Drive, Units 0 & P, Barrie, L4N 9Y3	communications@southshorebible.org	705-812-6749
Tag Environmental					
- - -	- - -	- - -	23 Truman Road, Barrie, L4N 8Y7	- - -	705-725-1938
Tarpin Lumber					
- - -	- - -	- - -	2267 Bowman Street, Innisfil, L9S 3V5	tkrul@tarpin.com	705-716-0824
The Worship Centre					
- - -	- - -	- - -	25 Morrow Road, Barrie, L4N 3V7	cogwc@live.ca	705-730-6655
Trillium Woods Elementary School					
- - -	- - -	- - -	20 Elmbrook Dr, Barrie, L4N 0Z1	trillium@ypce.com	(705) 792-7766
Western Mechanical					
- - -	- - -	- - -	160 Brock Street, Barrie, L4N 2M4	ddinniwell@westernmechanical.net	705-737-4135
Winners Chapel International Barrie					
- - -	- - -	- - -	21 Commerce Park Drive, Barrie, L4N 8X1	admin@winnerschapelcanada.org	- - -

NOTE: “- - -“ denotes the absence of any available information

B.2 Community Open House Materials and Summary Reports

[NTD] To include:

- Notice of Commencement
- Summary of COH #1
- Summary of COH #2
- Poster boards
- Notice of Draft ESR

Community Open House Summary Report

Hydro One Networks Inc. and InnPower Corporation New Municipal Transformer Station and 230 kV Line Project

Final Report

February 18, 2025

Prepared for:
Hydro One Networks Inc. and InnPower Corporation

Prepared by:
Stantec Consulting Ltd.
675 Cochrane Drive
Markham, ON L3R 0B8

Project/File:
160901024

Stantec

Limitations and Sign-off

The conclusions in the Report titled Community Open House Summary Report are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Hydro One Networks Inc. and InnPower Corporation (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by: Choo, Zhi Xuan Clarice Digitally signed by Choo, Zhi Xuan Clarice Date: 2025.02.19 14:00:21 -05'00'

Signature

Clarice Choo
Environmental Consultant

Printed Name and Title

Reviewed by: Digitally signed by Greener, Leslie Date: 2025.02.19 13:33:35 -05'00'

Signature

Leslie Greener, EP
Senior Associate, Environmental Assessment Planner

Printed Name and Title

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Appendix B Notice of Commencement
Appendix C Community Open House Material
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1 Introduction

Stantec Consulting Ltd. (Stantec) was retained by Hydro One Networks Inc. (Hydro One) and InnPower Corporation (InnPower) to undertake a Class Environmental Assessment (EA) for a new InnPower-owned Municipal Transformer Station and the connecting 6km Hydro One-owned 230 kV Line Project (the Project). The Project is located in the City of Barrie, Ontario, Canada. The Project location is presented in Appendix B.

The Project is subject to the Class Environmental Assessment (Class EA) for Minor Transmission Facilities (Hydro One 2022), which has been approved under the Ontario *Environmental Assessment Act*. The Class EA is a streamlined process for transmission projects with a predictable range of effects, are carried out in consideration of environmental features, and have feasible environmental mitigation and/or protection measures in place.

To support public consultation and engagement efforts in the preparation of the Environmental Screening Report (ESR), Hydro One and InnPower hosted a Community Open House (COH) in the City of Barrie on July 26, 2023.

The purpose of the COH was to share information about the Project with the public, including the need for the Project and the Class EA process. The COH provided an opportunity for members of the public to ask questions and provide feedback on the materials presented and on the Project in general.

This Summary Report provides key details on the methods used to notify stakeholders, information presented, and comments/questions recorded during the COH.

2 Notice of Commencement

A Notice of Commencement (the Notice) was sent to stakeholders in the following formats to invite stakeholders with a potential interest in the Project and other interested persons to attend the COH:

- Email notices to the Project contact list
- Mailout to 1,200 property and business owners within the Project study area
- Newspaper notices
- The Project website: https://www.hydroone.com/about/corporate-information/major-projects/innpower

The Notice identified the proposed Project need, the planning process, and a request for feedback. The Notice also included details on the upcoming COH and provided contact information to ask questions or to be included on the Project contact list. The various versions of the Notice (for mailout/email and for publishing in the local newspapers) are provided in Appendix B. Further details on these contact methods are described in the following sections.

2.1 Contact List and Distribution

The Notice of Commencement and invitation to the first community open house was sent via email/physical mail to the following:

- Indigenous Communities received the Notice on June 30
- Elected Officials received the notice on July 5
- Agencies and Municipalities received the Notice on July 7
- Property or Business owners (approximately 1,200) via Canada Post – beginning July 13

2.2 Newspaper Publication

The Notice of the Commencement was published in the weekly *Barrie Advance* newspaper on July 13 and 20, 2023 and the biweekly *Innisfil Journal* on July 20, 2023.

2.3 Hydro One Website

The Notice of Commencement was posted on the Hydro One website https://www.hydroone.com/about/corporate-information/major-projects/innpower

3 Community Open House

The COH was hosted by Hydro One and InnPower at the Allandale Recreation Centre, 190 Bayview Drive, Barrie on July 26, 2023, from 5:00 pm to 8:00 pm. The material presented can be found in Appendix C.

The information presented in the COH included the need for the Project, an overview of the Project, including the proposed Project area, the Class EA process, corridor details, a sample municipal transformer station, future engagement for public stakeholders and Indigenous communities, Project milestones, and health and safety.

The purpose of the COH was to gather feedback on the Project to better understand concerns from local residents and begin identifying mitigation measures.

4 Comments Received

A total of two comments forms were received during the COH, and are included in Appendix D. The comments received included questions regarding the location and size of the new towers, construction impacts and safety. Additional comments from residents in response to the Notice received via email include concerns about Electric and Magnetic Fields (EMF), impacts from construction on a local business, and a request regarding potential uses within the existing easement.

Any comments or questions received through comment form or email were addressed by the Project Team via emails, phone calls or in-person meetings where applicable.

Table 1 Received Questions & Comments

Theme	Question/ Comment	Actions Taken
Design of Transmission Towers	Concerns about the size & location of the transmission towers	**This information was not available at the time as the project was still in early planning stages. The size and location of the towers has now been shared with the public at the second COH and on Hydro One's website.**
Potential Impacts during Operational phase	Concerns about the potential impacts of EMF on the public	Hydro One met with Discovery Daycare which raised concerns about the potential impacts of EMF during the operational phase to provide an overview of EMF as it relates to 230kV corridors and discussed the EMF change that would occur on this line. Hydro One also shared that they are currently undertaking an EMF study and would share the results when they were available. Consultation with Discovery Daycare is ongoing, and outcomes will be captured in the Record of Consultation.
Potential Impacts during Construction phase		**This information was not available at the time as the project was still in early planning stages. Potential impacts during construction have been shared with the public at the second COH and on Hydro One's website.**

5 Summary

To support public consultation and engagement efforts in the preparation of the Environmental Screening Report, Hydro One and InnPower hosted a Community Open House in the City of Barrie on July 26, 2023. Elected officials, municipalities, agencies, Indigenous Communities, residents and other potentially interested stakeholders were notified through newspaper ads, emails and mailed notices. Members of the public were able to provide input regarding the location and size of new towers, construction impacts and safety, with continued engagement with the Project team where necessary.

Appendices

Appendix A Contact List

Indigenous Communities and Nations Contact List

FIRST NAME	LAST NAME	POSITION / TITLE	ADDRESS	EMAIL	TELEPHONE
Beausoleil First Nation					
Joanne P.	Sandy	Chief	11 O'Gemaa Miikaan, Christian Island, L9M 0A9	jsandy@chimnissing.ca	705-247-2251
Council General Inbox		Chief Councillor	11 O'Gemaa Miikaan, Christian Island, L9M 0A9	council@chimnissing.ca	705-247-2251
Isabella	Mardsen	EA	11 O'Gemaa Miikaan, Christian Island, L9M 0A9	executiveassistant@chimnissing.ca	
Mike	Smith	Environmental Specialist	11 O'Gemaa Miikaan, Christian Island, L9M 0A9	msmith@chimnissing.ca	
Chippewas of Georgian Island					
Donna	Big Canoe	Chief	R.R.#2 Box N-13, Sutton West, L0E 1R0	dbigcanoe@georginaisland.com	(705) 437-1337
JL	Porte	Community Consultation	R.R.#2 Box N-13, Sutton West, L0E 1R0	jl.porte@georginaisland.com	
Chippewas of Rama First Nation					
Ted	Williams	Chief	5884 Rama Road, Suite 200, 1st Floor, Orillia, L3V 6H6	chief@ramafirstnation.ca	
Ben	Benson	Community Consultation Officer	5884 Rama Road, Suite 200, 1st Floor, Orillia, L3V 6H6	consultation@ramafirstnation.ca	705-325-3611 x.1633
Huron-Wendat Nation					
Isabelle	Lechasseur	- - -	255, place Chef Michel Laveau, Wendake (Quebec), G0A 4VO	Isabelle.Lechasseaur@wendake.ca	418-843-3767
Thiefaine	Terriro	- - -	255, place Chef Michel Laveau, Wendake (Quebec), G0A 4VO	Thiefaine.Terrier@wendake.ca	418-843-3767
Dominic	Ste-Marie	- - -	255, place Chef Michel Laveau, Wendake (Quebec), G0A 4VO	Dominic.ste-marie@wendake.ca	418-843-3767

Appendix B Notice of Commencement

Notice of Commencement

InnPower and Hydro One are working together to ensure a safe and reliable supply of power in your community.

June 2023

Hydro One and InnPower are committed to energizing homes and businesses in the Town of Innisfil and parts of the City of Barrie. In order to meet the anticipated electricity demand and growth in your community, InnPower has identified that a new Municipal Transformer Station (MTS) is required.

Through its transmission network, Hydro One provides safe and reliable power to InnPower. In order to power the new MTS, Hydro One will need to connect the new station to the electrical transmission system. To facilitate the new connection, Hydro One is proposing to replace approximately 6km of an existing 115kV transmission line with a new 230kV transmission line. The new line will be built with taller electrical infrastructure on the existing corridor between Hydro One's Barrie Transformer Station and the proposed new InnPower MTS. The proposed 230kV MTS would be on InnPower property, located north of Saunders Road and Lockhart Road in Barrie. Please see reverse side for map.

Minimizing the effects of our projects and operations on the environment is important to us. As such, InnPower and Hydro One are beginning a joint Class Environmental Assessment (EA) for the proposed InnPower MTS and Hydro One's associated transmission line connection.

Our planning process

The planning of this project will follow the "Class EA for Minor Transmission Facilities (2022)", established in accordance with Ontario's Environmental Assessment Act. This planning process applies to transmission projects that are carried out routinely and have predictable environmental effects that can be readily managed. Following the Class EA, this project will also require Ontario Energy Board (OEB) approval to construct the line under Section 92 of the OEB Act. Construction could begin as early as 2025 to meet InnPower's required connection date of 2027/2028.

We want to hear from you

Your input is important to us. Feedback from residents, interest groups, elected officials, and Indigenous communities will inform all aspects of the Class EA and planning process. We invite you to attend our upcoming Community Open House to learn more about the project details, meet the InnPower and Hydro One team, and share your feedback.

New InnPower Municipal Transformer Station & Hydro One 230kV Line

Please Join Us:

Community Open House
Allandale Recreation Centre
190 Bayview Drive
Barrie, ON L4N 4Y8
July 26, 2023
5 pm to 8 pm

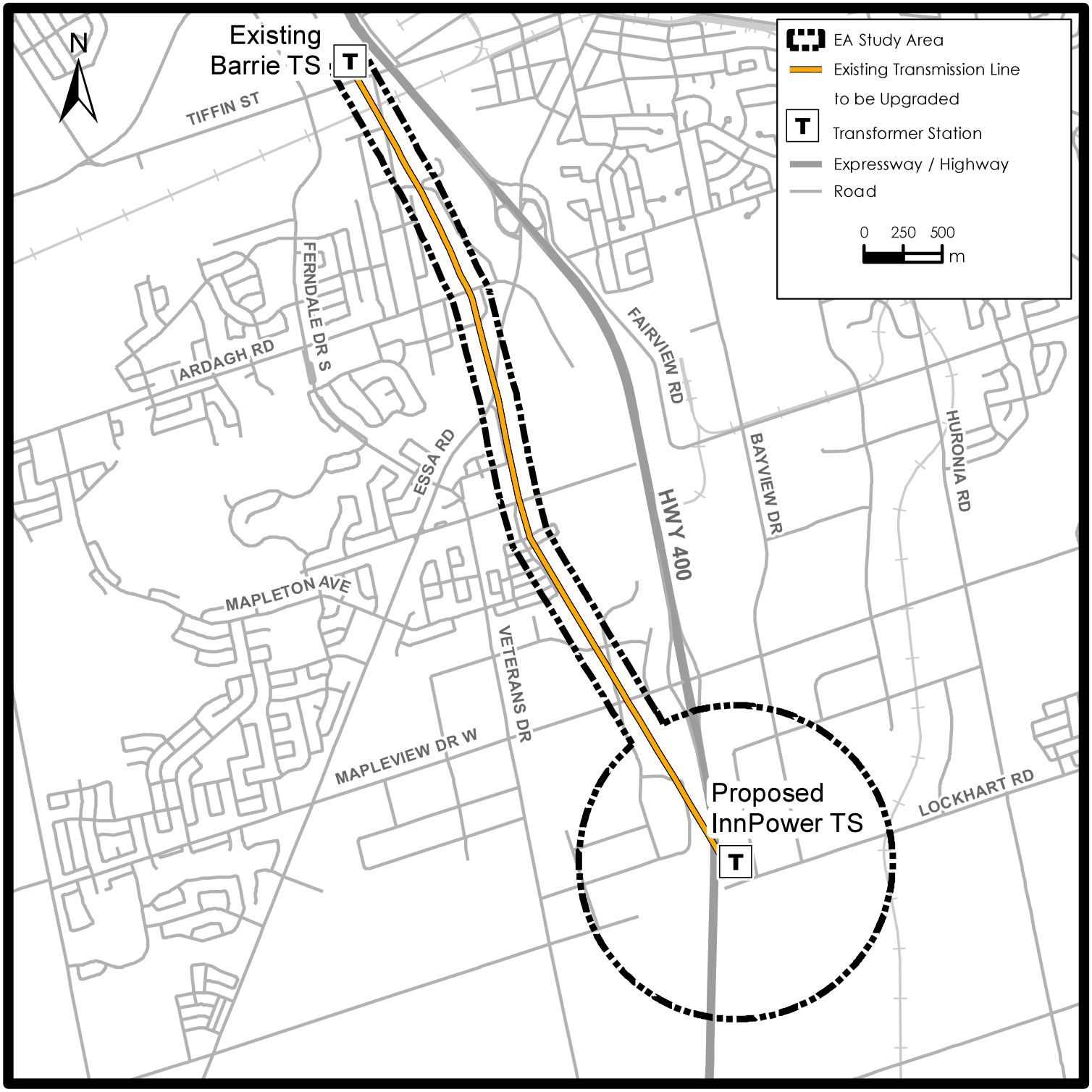
We're here to help

For more information, to sign up for the project contact list, or to ask questions, please contact Hydro One:

1.877.345.6799

Community.Relations@HydroOne.com

HydroOne.com/InnPowerMTS



All personal information included in your request – such as name, address, telephone number and property location – is collected, under the authority of Section 30 of the *Environmental Assessment Act* and is collected and maintained for the purpose of creating a record that is available to the general public. As this information is collected for the purpose of a public record, the protection of personal information provided in the *Freedom of Information and Protection of Privacy Act* (FIPPA) does not apply (s.37). Personal information you submit will become part of the available public record unless you request that your personal information remain confidential. If you have any accessibility requirements in order to participate in this Study, please contact Community Relations listed above.

Appendix C Community Open House Material

Welcome

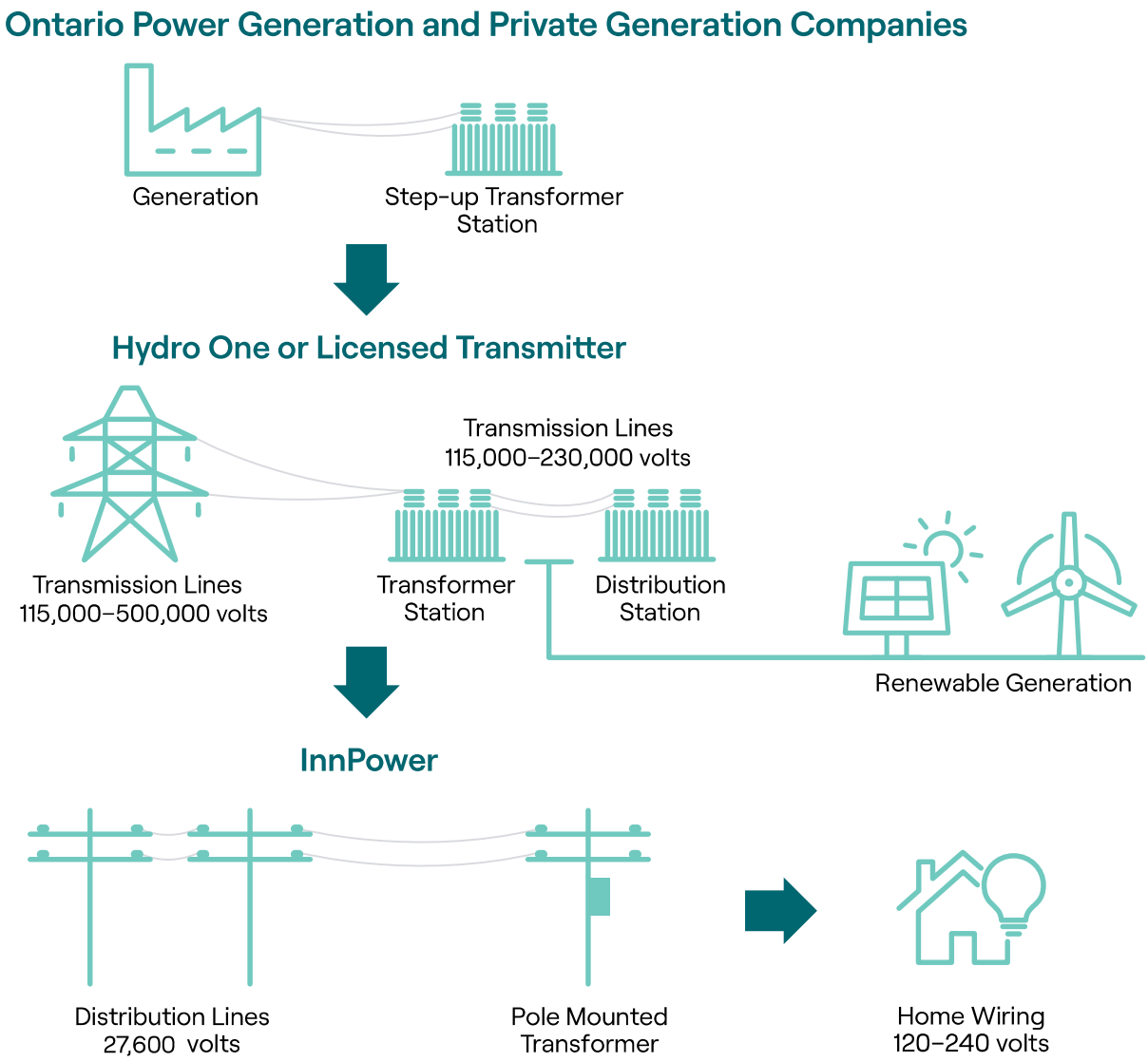
New InnPower Municipal Transformer Station and Hydro One 230 kV Line

Why we are here:

- Present the need for the project
- Provide an overview of the project
- Discuss the Environmental Assessment process
- Listen to feedback and provide next steps

Keeping the lights on in your community

Hydro One operates Ontario's transmission system energizing life and communities, helping Ontarians live a better and brighter future. We transmit power to InnPower, who keep the lights on for homes and businesses in the southern area of the City of Barrie and the Town of Innisfil.



Energy partners

Building infrastructure to meet the energy needs of today and tomorrow involves a number of partners, including:

The Independent Electricity System Operator (IESO) oversees planning to ensure electricity needs are met both now and in the future.

Builds, owns, operates and maintains transmission and distribution electricity facilities across the province of Ontario.

Builds, owns, operates and maintains distribution electricity facilities within the Town of Innisfil and the southern portion of the City of Barrie.

The Ministry of Environment, Conservation and Parks is the legislative authority for Environmental Assessments for minor transmission facilities in Ontario.

Regulates the electricity market in Ontario, including electricity rates.

Meeting local energy needs

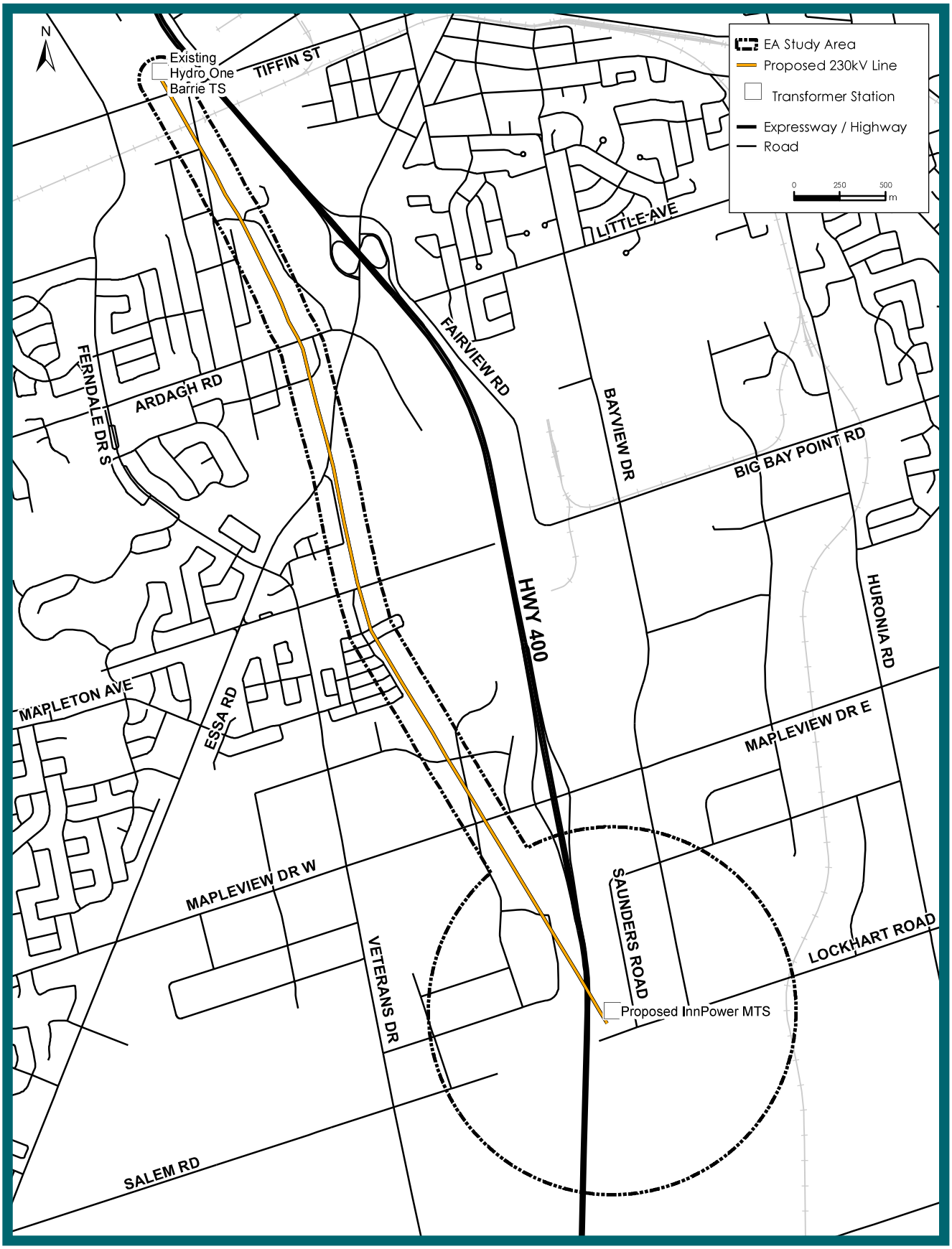
Electricity demand is growing in your community. An estimated 12,685 new connections (residential, commercial & industrial) are expected by 2028 and 13,315 post 2028. To ensure you have power where and when it is needed, InnPower and Hydro One are working together to support this growth.

A new Municipal Transformer Station (MTS) is required in the southern area of the City of Barrie and Town of Innisfil.

To power the new MTS, Hydro One will need to replace approximately 6 km of an existing 115 kV Transmission Line with a new 230 kV Transmission Line.

Together, Hydro One and InnPower are beginning the Class Environmental Assessment process for this project, in accordance with Ontario's *Environmental Assessment Act*.

Project Area



Project area identification

To determine the location of the MTS, InnPower considered criteria such as:

- Proximity to existing infrastructure
- Minimizing impacts to the natural environment
- Constructability and cost

To determine a route to connect the station to the transmission system, Hydro One considered criteria such as:

- Ability to utilize an existing corridor
- Minimizing technical challenges
- Minimizing impacts to the natural and socio-economic environment
- The distance between the new MTS and the northern connection point at Hydro One's Barrie TS
- Constructability and cost

What is a Class Environmental Assessment?

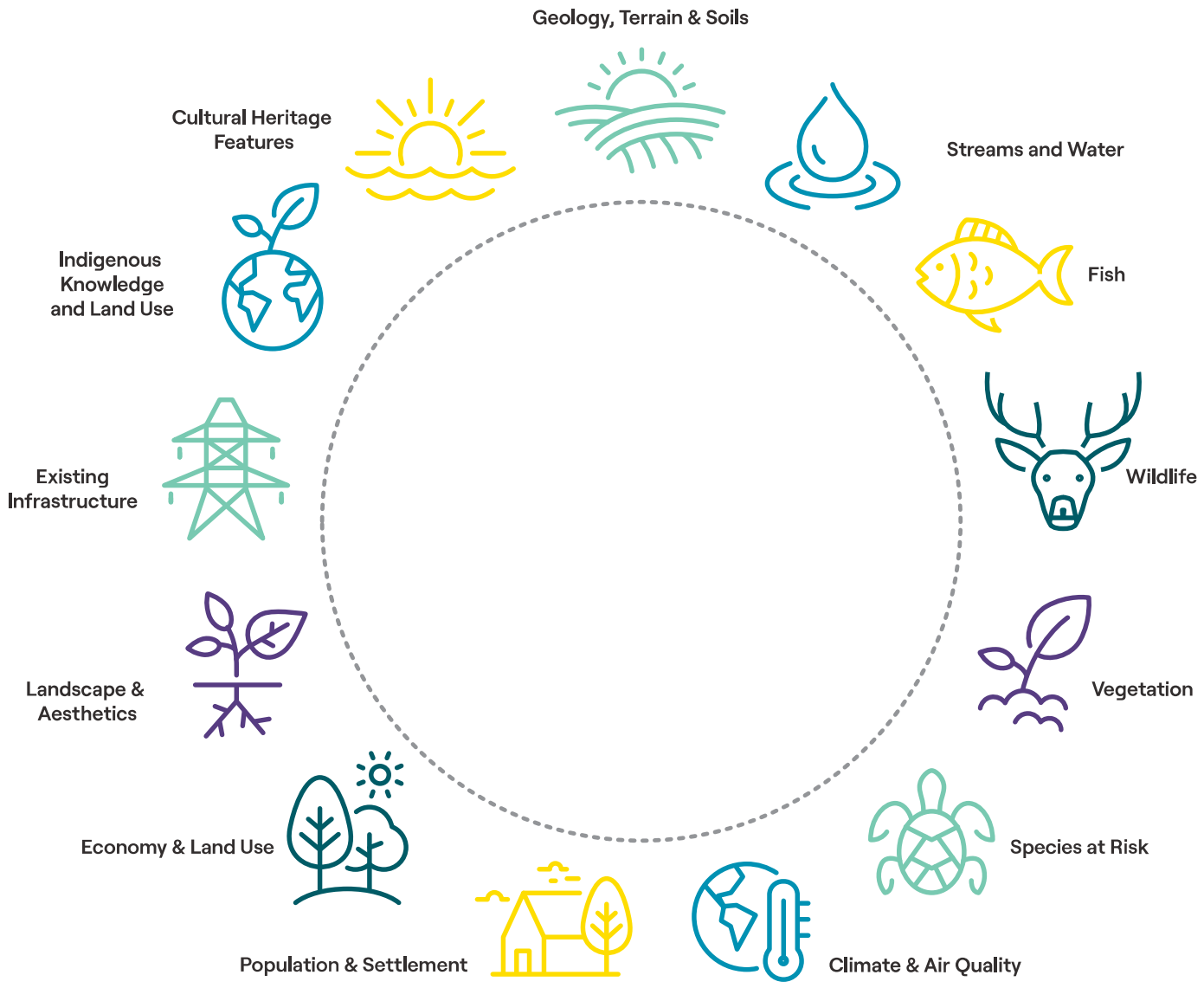
This project is subject to the Class Environmental Assessment (Class EA) for Minor Transmission Facilities (Hydro One, 2022), in accordance with the Ontario *Environmental Assessment Act*. This process ensures that transmission projects that have a predictable range of effects are planned and carried out in an environmentally acceptable manner.

As part of the Class EA process, all project planning will be shaped by:

- Engagement with government agencies, residents, interest groups, elected officials and Indigenous communities
- Collection of natural and socio-economic data
- Identification of potential effects and proposed mitigation measures

Hydro One's Class EA is available at: **HydroOne.com/ClassEA**

Environmental considerations in the EA



Hydro One's Class EA is available at: **HydroOne.com/ClassEA**

Corridor details

Over the next several months our team will focus on completing detailed engineering to determine the tower types and their location.

We anticipate that the new towers will be:

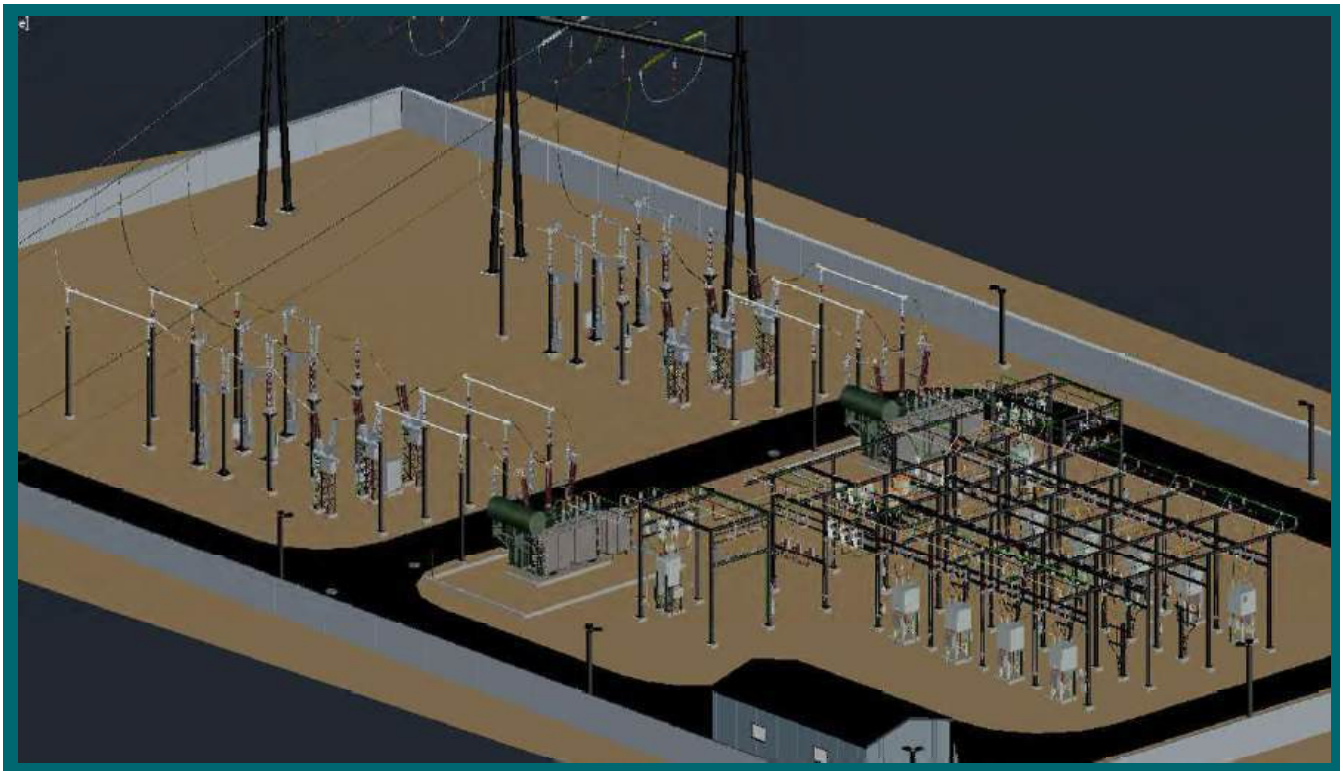
- constructed at or near existing locations where possible
- slender, narrow steel poles, however, structures could vary depending on location and technical constraints
- taller than the poles and towers that exist today
- located within the existing corridor width, with no additional property required

A member of our team will contact you, should access to your property be required to complete EA studies.

The existing corridor was acquired in the 1940s. As we progress in our planning and design, we will determine if any existing easements need to be updated.

Typical steel pole

Sample Transformer Station



Rendering of the Proposed InnPower Municipal Transformer Station

Indigenous community engagement

Hydro One regularly engages with First Nations and Indigenous Communities, to build meaningful relationships based on mutual trust and respect.

For this Project, we are committed to:

- Meeting with community representatives and hosting community-wide meetings to provide information on the project in a timely matter
- Supporting participation in environmental field studies
- Providing opportunities to review project documentation

Community engagement

Community Engagement is a critical driver of the planning and development this project. Over the next several months our team will be focused on collecting feedback from residents, interest groups, elected officials and Indigenous Communities.

We are committed to engaging with the community throughout each stage of the project by:

- Providing a number of opportunities to share information about the project
- Understanding the community's perspective, collecting input and considering options to mitigate impacts where possible
- We will hold a second open house in the coming months to provide more design and project details to the community

Project milestones

June 2023
Notice Of Commencement

July 2023
First Community Open House

Early Winter 2024
Second Community Open House

Summer 2024
Draft Environmental Study Report available for public review and comment

Fall 2024
Final ESR report submitted to Ministry of Environment

2024
Construction of MTS begins

Early 2025
Ontario Energy Board Section 92 application submitted

2026
Construction Begins for 230 kV line

End of 2027
230 kV line is energized

Late 2027/early 2028
MTS is energized

Consultation and engagement will be ongoing throughout the life of the project

Milestone timelines are approximate and are subject to change depending on outcomes of the planning and approvals process.

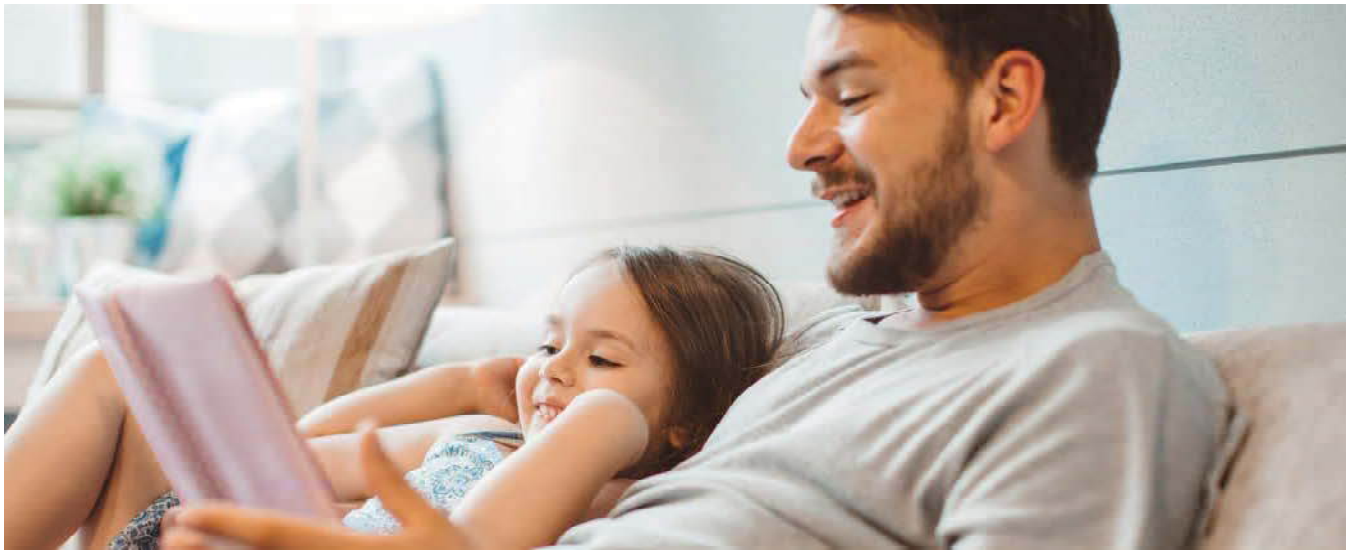
Health and safety

Hydro One has a dedicated team that regularly monitors global studies around electric and magnetic fields (EMF) and ensures that our infrastructure is built and maintained following best practices and industry standards. We look to Health Canada, the World Health Organization and the International Commission on Non-Ionizing Radiation Protection, for guidance on EMF and our approach.

Based on global studies which have and continue to be regularly monitored, these organizations indicate that members of the public do not need to take precautions to protect from fields produced by extremely low frequencies such as transmission lines. Hydro One is completing modeling to confirm that once the line is energized the fields produced will remain within a safe level.

Typically, EMF levels for a project like this one are less than 1% of the recommended guidelines.

Hydro One will be undertaking a study on EMF along this corridor and will share the conclusions when they are available.



Thank you for coming

Please fill out a comment form before you leave, or send us your comments afterward. Join our project contact list to receive important updates.

1.877.345.679

Community.Relations@HydroOne.com

www.HydroOne.com/InnPower

Appendix D Completed Comment Forms

Discovery Daycare

hydro one | innpower

COMMENT FORM
Hydro One | InnPower
New Municipal Transformer Station and 230 kV Line Project
July 26, 2023

Thank you for attending Hydro One's Information Session. We value your feedback and comments. Please take a moment to answer a few questions or take this comment form home and send it to us at your convenience.

1. Did you find the meeting helpful in understanding the Project?

   Yes / Somewhat / No

2. Do you have any comments or questions on the information shared this evening?

Additional comments or questions:

Discovery Child Care

- location of towers - maybe a problem if in the children's playground
- Construction activities + possible impact to children going outside - + Parking lot
- Safety of children playing under ~~wire~~ wires daily - would like research to give to families re: Safety
- Concern over possible closure + ~~dis~~ disruption to families re: construction

Tower 272.

hydro one | innpower

COMMENT FORM
Hydro One | InnPower
New Municipal Transformer Station and 230 kV Line Project
July 26, 2023

Thank you for attending Hydro One's Information Session. We value your feedback and comments. Please take a moment to answer a few questions or take this comment form home and send it to us at your convenience.

1. Did you find the meeting helpful in understanding the Project?

   Yes / Somewhat / No

2. Do you have any comments or questions on the information shared this evening?

- Concern about size of the Town? Beside House?

Additional comments or questions:

Community Open House #2 Summary Report

New Municipal Transformer Station and 230kV Power Line Project

Final Report

February 18, 2025

Prepared for:
Hydro One Networks Inc. and InnPower Corporation

Prepared by:
Stantec Consulting Ltd.
675 Cochrane Drive
Markham, ON L3R 0B8

Project/File:
160901024

Stantec

Limitations and Sign-off

The conclusions in the Report titled Community Open House #2 Summary Report are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Hydro One Networks Inc. and InnPower Corporation (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by: McGillis, Aidan Digitally signed by McGillis, Aidan Date: 2025.02.19 12:06:48 -05'00'

Signature

Aidan McGillis, B.Sc. Hons., M.Env.
Environmental Assessment Planner

Printed Name and Title

Reviewed by: Digitally signed by Hill, Laura Date: 2025.02.20 09:14:05 -05'00'

Signature

Laura Hill, M.Env.Sc.
Environmental Team Lead

Printed Name and Title

Approved by: Digitally signed by Greener, Leslie Date: 2025.02.19 13:35:29 -05'00'

Signature

Leslie Greener, EP
Senior Associate, Environmental Assessment Planner

Printed Name and Title

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2 Notice of Community Open House 2
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2.2 Simcoe Newsletter 2
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Appendix A Contact List
Appendix B Notice of Community Open House
Appendix C Community Open House Material

1 Introduction

Stantec Consulting Ltd. (Stantec) was retained by Hydro One Networks Inc. (Hydro One) and InnPower Corporation (InnPower) to undertake a Class Environmental Assessment (Class EA) for a new municipal transformer station and associated 6km 230 kV transmission line (the Project). The transformation station will be owned and operated by InnPower and the power line will be owned and operated by Hydro One. The Project is located in the City of Barrie, Ontario, Canada.

The Project is subject to the Class EA for Minor Transmission Facilities (Hydro One 2022), which has been approved under the Ontario *Environmental Assessment Act*. The Class EA is a streamlined process for transmission projects with a predictable range of effects, that are carried out in consideration of environmental features and have feasible environmental mitigation and/or protection measures in place.

To support public consultation and engagement efforts in the preparation of the Environmental Screening Report (ESR), Hydro One and InnPower hosted a Community Open House (COH) in the City of Barrie on November 5, 2024.

The purpose of the COH was to share information about the Project with the public, including the need for the Project and the Class EA process. The COH provided an opportunity for members of the public to ask questions and provide feedback on the materials presented and on the Project in general.

This COH Summary Report provides key details on the methods used to notify stakeholders, information presented, and comments/questions recorded during the COH.

2 Notice of Community Open House

A Notice of Community Open House (the Notice) was sent to stakeholders in the following formats to invite stakeholders with a potential interest in the Project and other interested persons to attend the COH:

- Email notices to the Project contact list
- Mailout to approximately 1,200 property and business owners within the Project study area
- Newsletter COH notices in Metroland's Simcoe.com newsletter
- Digital COH notices placed on a network of high traffic websites
- Targeted social media COH notices on META
- The Project website: https://www.hydroone.com/about/corporate-information/major-projects/innpower

The Notice identified the proposed Project need, the planning process, and requested feedback. The Notice also included details on the upcoming COH and provided contact information to ask questions or to be included on the Project contact list (Appendix A – Contact List). The various versions of the Notice (for mailout/email and for publishing in the newsletter and on the Project website) are provided in Appendix B. Further details on these contact methods are described in the following sections.

2.1 Contact List and Distribution

The invitation to the November 5th COH was sent via email or physical mail to the following:

- Indigenous Communities received the Notice via email on October 23, 2024
- Elected Officials and Municipalities received the notice via email on October 23, 2024
- Federal and Provincial Agencies received the Notice via email on October 21, 2024
- Property or Business owners (approximately 1,200) via Canada Post – sent out October 21, 2024
- Third party interest groups received the Notice via email on October 21, 2024

2.2 Simcoe Newsletter

The Notice was published in Metroland's Simcoe.com newsletter. The advertisement ran for seven days, from October 28 to 30, 2024 and November 1 to 5, 2024. Due to the lack of print publications, programmatic displays (advertisements placed on a network of websites) were used to help bolster the campaign's reach.

Websites:

1. investing.com
2. people.com
3. kijiji.ca
4. moneyawaits.com
5. buzzfeed.com
6. cbc.ca
7. msn.com
8. globalnews.ca
9. bbc.com
10. allrecipes.com

2.3 Hydro One Website

The Notice was posted on the Hydro One website on : October 22, 2024 https://www.hydroone.com/abouthydroone/CorporateInformation/majorprojects/InnPower/Documents/InnPower_COH_2_Invitation.pdf.

3 Community Open House

The COH was hosted by Hydro One and InnPower on November 5, 2024 from 3:00 pm to 7:00 pm at the Peggy Hill Team Community Centre (171 Mapleton Avenue, Barrie, Ontario). The material presented can be found in Appendix C.

The primary focus of the COHl was to provide an update to residents about the work Hydro One and InnPower have completed to date, provide engagement opportunities, and outline next steps once the Class EA has been completed. The information presented in the COH included the need for the Project, an overview of the Project, the proposed Project area, the Class EA process, Project milestones and next steps, corridor details, construction activities and vegetation work, future engagement for public stakeholders and Indigenous communities, and health and safety considerations.

The purpose of the COH was to gather feedback on the Project to better understand local concerns and begin identifying mitigation measures.

4 Comments Received

No comment forms were received during the COH.

Table 1 outlines the comments raised during the COH. which included questions regarding the tower locations, timeframe for construction, Project schedule, cost, and health and safety.

Table 1 Received Questions & Comments

Theme	Question/ Comment	Actions Taken
Alterations to the current landscape	Concerns about what the current landscape is and how it will be altered during construction and operations, including the proposed tower locations	Hydro One provided information on their approach to corridor vegetation management, as well the siting of poles. It was noted that some pole locations have been adjusted from the previous locations.
Potential Impacts during Operational phase	Concerns about the potential impacts of EMF on the public	Hydro One provided information on EMF exposure limits and field assessments done as part of the Project. EMF levels are expected to remain well below ICNIRP industrial exposure limits.
Potential radio interference	Concerns about whether the Project will impact radio frequency	Hydro One noted that radio frequency is not impacted at road level.
Utility Conflict - Alectra	Concerns about the proposed transmission lines and their potential impacts on Alectra transmission lines, specifically during road widening	Hydro One agreed to discuss these concerns further outside of this COH.
Proposed Project schedule and timeframe for construction	Inquiries about the timeframe for the Project construction and the overall schedule for the Project	Attendee was directed to the poster board on the Project timing. (See Appendix C)
Project cost	Inquiries about the Project cost.	Hydro One provided high level guidance on publicly available figures.
Private Property	Impacts to private property and concerns about property valuation/safety.	Hydro One provided information on how to engage on the property, addressed concerns about tower types and locations and addressed private property valuation issues. As the corridor exists already impacts to property are not anticipated.

5 Summary

To support public consultation and engagement efforts in the preparation of the Environmental Screening Report, Hydro One and InnPower hosted a Community Open House in the City of Barrie on November 5, 2024. Indigenous Communities, Elected officials, municipalities, agencies, residents and other potentially interested stakeholders were notified through online newspaper ads, emails and mailed notices. Members of the public were able to provide input on the Project, including on the location and size of new towers, construction impacts, and safety. Continued engagement with the Project team will occur where necessary.

Appendices

Appendix A Contact List

Provincial Government Representatives and Agencies Contact List

FIRST NAME	LAST NAME	POSITION / TITLE	ADDRESS	EMAIL	TELEPHONE
Infrastructure Ontario					
Katherine	Hotrum	Director	1 Dundas St. W. 20th Floor, Toronto, M5G1Z3	katherine.hotrum@infrastructureontario.ca	647-264-4573
Joanna	Craig	Planner	1 Dundas St. W. 20th Floor, Toronto, M5G1Z3	noticereview@infrastructureontario.ca	647-965-6703
Lake Simcoe Region Conservation Authority					
Frank	Pinto	Infrastructure Regulations Analyst	120 Bayview Parkway, Newmarket	f.pinto@lsrca.on.ca	905-895-1281 x288
Dave	Ruggle	Manager, Planning	120 Bayview Parkway, Newmarket	d.ruggle@lsrca.on.ca	905-895-1281 x240
Christa	Sharp	Manager, Restorarion	120 Bayview Parkway, Newmarket	c.sharp@lsrca.on.ca	905-895-1281 x115
Peter	Shuttleworth	Watershed Restoration Specalist	120 Bayview Parkway, Newmarket	p.shuttleworth@lsrca.on.ca	905-895-1281 x114
Members of Provinical Parliament					
Andrea	Khanjin	MPP for Barrie-Innisfil	237 Mapleview Drive East, Unit 1, Barrie, L4N 0W	andrea.khanjin@pc.ola.org	705-722-0575
Members of Parliament					
John	Brassard	MP for Barrie-Innisfil	480 Huronia Road, Suite 204-B, Barrie, L4N 6M2	john.brassard@parl.gc.ca	705-726-5959
Metrolinx					
Adam	Snow	Director	10 Bay Street, Toronto	adam.snow@metrolinx.com	- - -
Ministry of Citizenship and Multiculturalism					
Karla	Barboza	Team Lead - Heritage	5th Flr, 400 University Ave, Toronto	karla.barboza@ontario.ca	416-660-1027
Dan	Minkin	Heritage Planner	5th Flr, 400 University Ave, Toronto	dan.minkin@ontario.ca	416-786-7553
Ministry of Energy					
Joerg	Wittenbrinck	Manager(A)	77 Grenville Street, 6th Floor, Toronto	joerg.wittenbrinck@ontario.ca	289-980-8124
Farrah	Ali-Khan	Senior Advisor	77 Grenville Street, 6th Floor, Toronto	farrah.ali-khan@ontario.ca	416-526-2963
Ministry of Environment, Conservation and Parks					
- - -	- - -	- - -	- - -	eanotification.cregion@ontario.ca	- - -
- - -	- - -	- - -	- - -	Environment.Barrie@Ontario.ca.	- - -
Chunmei	Liu	Environmental Resource Planner & EA Coordinator	7th Floor, 135 St. Claire Avenue W., Toronto	chunmei.liu@ontario.ca	437-249-3102
Matthew	Dmytrenko	Regional Issues Coordinator (Acting)	Place Nouveau 8th Floor, 5775 Yonge Street, Toronto	matthew.dmytrenko@ontario.ca	437-882-8743
Ministry of Mines					
Tracey	Burton	Manager (A)	Willet Green Miller Centre, 2nd Floor, 933 Ramsey Lake Road, Sudbury	tracey.burton@ontario.ca	705-918-1609
Melanie	Johnson	Senior Strategic Initiatives Lead	Willet Green Miller Centre, 2nd Floor, 933 Ramsey Lake Road	melanie.johnson@ontario.ca	705-698-5041
Ministry of Municipal Affairs and Housing					
Maya	Harris	Manager	13th Floor, 777 Bay Street, Toronto	maya.harris@ontario.ca	437-776-8447
Ministry of Natural Resources and Forestry					
Amanda	McCloskey	Land Use Planning Supervisor	300 water Street, Box 7000 4th floor, south tower, Peterborough	SR.Planning@ontario.ca	705-313-0507
Gillian	Hartman	Regional Planning Coordinator	300 water Street, Box 7000 4th floor, south tower, Peterborough	SR.Planning@ontario.ca	705-761-7061
Ministry of Transportation					
Jason	White	Manager	159 Sir William Hearst Ave, Toronto	jason.white@ontario.ca	416-235-5575
Ontario Energy Board					
- - -	- - -	- - -	Ontario Energy Board 2300 Yonge Street, 27th floor, P.O. Box 2319, Toronto, M4P 1E4	IndustryRelations@oeb.ca	1-877-632-2727
Onxpress Transportation Partners					
Brenda	Hickey	Assistant Project Manager	130 Adelaide St. W., Toronto	bhickey@onxpress.com	647-616-5048
Simcoe County District School Board					
Corry	Van Nispen	Superintendent	1170 Highway 26, Midhurst, L9X 1N6	info@scdsb.on.ca	705-728-7570

NOTE: "- - -" denotes the absence of any available information

Indigenous Communities and Nations Contact List

FIRST NAME	LAST NAME	POSITION / TITLE	ADDRESS	EMAIL	TELEPHONE
Alderville First Nation					
Julie	Kapyrka	Dr. Lands & Resources Consultation Liaison	- - -	jkapyrka@alderville.ca	- - -
Beausoleil First Nation					
Joanne P.	Sandy	Chief	11 O'Gemaa Miikaan, Christian Island, L9M 0A9	jsandy@chimnissing.ca	705-247-2251
Council General Inbox		Chief Councillor	11 O'Gemaa Miikaan, Christian Island, L9M 0A9	council@chimnissing.ca	705-247-2251
Isabella	Mardsen	EA	11 O'Gemaa Miikaan, Christian Island, L9M 0A9	executiveassistant@chimnissing.ca	
Mike	Smith	Environmental Specialist	11 O'Gemaa Miikaan, Christian Island, L9M 0A9	msmith@chimnissing.ca	
Chippewas of Georgina Island First Nation					
Donna	Big Canoe	Chief	R.R.#2 Box N-13, Sutton West, L0E 1R0	dbigcanoe@georginaisland.com	(705) 437-1337
JL	Porte	Community Consultation	R.R.#2 Box N-13, Sutton West, L0E 1R0	jl.porte@georginaisland.com	
Chippewas of Rama First Nation					
Ted	Williams	Chief	5884 Rama Road, Suite 200, 1st Floor, Orillia, L3V 6H6	chief@ramafirstnation.ca	
Ben	Benson	Community Consultation Officer	5884 Rama Road, Suite 200, 1st Floor, Orillia, L3V 6H6	consultation@ramafirstnation.ca	705-325-3611 x.1633
Curve Lake First Nation					
Keith	Knott	Chief	- - -	keithk@curvelake.ca	(705) 657-8045 x. 204
Jeffrey	Jacobs	Deputy Chief	- - -	jeffj@curvelake.ca	(705) 872-1337
Sean	Conway	Councillor	- - -	seanc@curvelake.ca	(705) 559-8739
Shannon	Day	Executive Assistant to Chief and Council	- - -	shannond@curvelake.ca	(705) 657-8045 x. 207
Hiawatha First Nation					
Sean	Davison	Lands/Resource Consultation	- - -	sdavison@hiawathafn.ca	(705) 295-4421 x. 215
Mandy	McGonigle	Archaeology Coordinator	- - -	mmcgonigle@hiawathafn.ca	(705) 295-4421 x. 225
Huron-Wendat Nation					
To whom it may concern		- - -	255, place Chef Michel Laveau, Wendake (Quebec), G0A 4VO	consultations@wendake.ca	
Dominique	Lesage	- - -	255, place Chef Michel Laveau, Wendake (Quebec), G0A 4VO	Dominique.Lesage@wendake.ca	
Thiefaine	Terriro	- - -	255, place Chef Michel Laveau, Wendake (Quebec), G0A 4VO	Thiefaine.Terrier@wendake.ca	418-843-3767
Dominic	Ste-Marie	- - -	255, place Chef Michel Laveau, Wendake (Quebec), G0A 4VO	Dominic.ste-marie@wendake.ca	418-843-3767
Kawartha Nishnawbe First Nation					
Kawartha Nishnawbe Council		- - -		kawarthanishnawbecouncil@outlook.com	
Métis Nation of Ontario					
Sir/Madam		Métis Nation of Ontario Head Office	Suite 1100 – 66 Slater Street, Ottawa, ON K1P 5H1	consultations@metisnation.org; contactus@metisnation.org	613-798-1488
Roxanne	Shank	President	Unit 1401 & 1402 – 64 Cedar Pointe Drive, Barrie, ON, L4N 5R7	president.bssmc@outlook.com	705-435-5055
Mississaugas of Scugog Island First Nation					
Sir/Madam			- - -	consultation@scugogfirstnation.com	905-985-3337

NOTE: "- - -" denotes the absence of any available information

Federal Government Representatives and Agencies Contact List

FIRST NAME	LAST NAME	POSITION / TITLE	ADDRESS	EMAIL	TELEPHONE
Canadian National Railway					
- - -	- - -	- - -	1 Administration Road, Concord, L4K 1B9	Proximity@cn.ca	
Canadian Pacific Kentucky City Railway					
Tom	Twigge	Director	1290 Central Parkway W., Missisauga, L5C 4R3	tom_twigge@cpr.ca	905-803-5986

NOTE: "- - -" denotes the absence of any available information

Municipal Government Representatives and Agencies Contact List

FIRST NAME	LAST NAME	POSITION / TITLE	ADDRESS	EMAIL	TELEPHONE
City of Barrie					
Alex	Nuttal	Mayor	- - -	officeofthemayor@barrie.ca	705-792-7900
Robert	Thomson	Ward 5 Councillor	- - -	Robert.Thomson@barrie.ca	(705) 739-4275
Nigussie	Nigussie	Ward 6 Councillor	- - -	nigussie.nigussie@barrie.ca	(705) 739-4286
Gary	Harvey	Ward 7 Councillor	- - -	gary.harvey@barrie.ca	(705) 739-4217
Wendy	Cooke	City Clerk & Director of Legislative and Court Services	70 Collier Street, Barrie, L4M 1G8	wendy.cooke@barrie.ca	(705) 739-4220 x4560
John	Daly	County Clerk	1110 Highway 26, Midhurst, L9C 1N6	john.daly@simcoe.ca	705-726-9300 x1623
Clare	Riepma	Councillor- Chair of the Heritage Barrie Committee	70 Collier Street, Barrie, L4M 1G8	clare.riepma@barrie.ca	(705) 739-4271
Jim	Harris	Ward 8 Councillor	70 Collier Street, Barrie, L4M 4T5	jim.harris@barrie.ca	705 739 4273
Kelly	Oakley	Associate Director	70 Collier Street, Barrie, L4M 4T5	Kelly.Oakley@barrie.ca	705-739-4220 ext.4451
- - -	- - -	- - -	70 Collier Street, Barrie, L4M 4T5	ServiceBarrie@barrie.ca	705-726-4242
Town of Innisfil					
Oliver	Jerschow	Chief Administrative Officer	2101 Innisfil Beach Road, Innisfil, L9S 1A1	kshea@innisfil.ca	705-436-3720
Nicole	Bowman	Director	2101 Innisfil Beach Road, Innisfil, L9S 1A1	inquiry@innisfil.ca	705-436-3720
Patty	Thoma	Town Clerk	2101 Innisfil Beach Road, Innisfil, L9S 1A1	clerkoffice@innisfil.ca	705-436-3720
Council				council@innisfil.ca	

NOTE: "- - -" denotes the absence of any available information

Potentially Affected and Interested Persons and Interest Groups C

FIRST NAME	LAST NAME	POSITION / TITLE	ADDRESS	EMAIL	TELEPHONE
Alectra Utilities Corporation					
Riaz	Shaikh	Manager, Distribution System Planning	55 Patterson Rd, Barrie, L4N 3V9	riaz.shaikh@alectrautilities.com	1 877-963-6900
Nana	Obeng	- - -	- - -	nana.obeng@alectrautili	- - -
Barrie Native Friendship Centre					
- - -	- - -	- - -	175 Bayfield Street, Barrie, L4M 3B4	info@bnfc.ca	705-721-7689
Barrie Women's Hockey Association					
- - -	- - -	- - -	1 Saunders Rd, Barrie, L4N 9A7	info@bwha.ca	(705) 721-9699
Bell Canada					
- - -	- - -	- - -	1 Carrefour Alexander-Graham-Bell, Building A, 4th Floor, Verdun (QC), H3E 3B3	bcecomms@bce.ca	- - -
Brereton Field Naturalists Club					
Brian	Gibbon	Business Relations	PO Box 1084, Barrie, L4M 2E1	naturebarrie@gmail.com	- - -
CFUW Barrie					
- - -	- - -	- - -	767 Huronia Road, Barrie, L4N 9H2	contact@cfuwbarrie.ca.	- - -
Christ Embassy Simcoe					
- - -	- - -	- - -	74 Bryne Drive, Barrie, L4N 9Y4	info@christembassysimcoe.org	647-797-8035
Comet Chemical					
- - -	- - -	- - -	3463 Thomas Street, Innisfil, L9S 3W4	office@cometchemical.com	705-4363-5580
Connexus Church					
- - -	- - -	- - -	20 Mills Road, Barrie, Barrie, L4N 6H4	contact@connexuschurch.com	705-721-9090
Convenant Christian Reformed Church					
- - -	- - -	- - -	101 Ardagh Road, Barrie, L4N 9B6	covenantundershepherd@gmail.com	705-734-0651

CTV Barrie					
- - -	- - -	- - -	33 Beacon Rd, Barrie, L4N 9J9	barrieinbox@bellmedia.ca	(705) 734-3300
Discovery Child Care					
Karen	Eilersen	- - -	11 Thrushwood Drive, Barrie, L4N 0Z1	Karen@discoverychild.o	(705) 734-3300
Empower Ministries					
- - -	- - -	- - -	45 Commerce Park Dr, Barrie, L4N 8X1	RON@EMPOWERMINISTRIES.CA	(705) 719-1607
Empower Simcoe					
- - -	- - -	- - -	39 Fraser Ct, Barrie, L4N 5J5	inquiries@empowersimcoe.ca	705-726-9082
Enbridge Gas					
- - -	- - -	Corporate Head Office	200-425 1st Street S.W., Calgary, T2P 3L8	markups@enbridge.com	403-231-3900
Faith Alive Outreach Centre					
- - -	- - -	- - -	565 Bryne Drive, Barrie, L4N 9Y3	office@faithalivebarrie.org	705-739-4971
Ganaraska Hiking Trail Association					
Liz	Erwin	Barrie Club President	- - -	lizerwin@rogers.com	705-792-6181
Greater Barrie Chamber of Commerce					
- - -	- - -	- - -	121 Commerce Park Dr Unit A, Barrie, L4N 8X1	admin@barriechamber.com	(705) 721-5000
Hedbern Homes					
- - -	- - -	- - -	323 Tiffin St, Barrie, L4N 5P4	bstill@hedbernhomes.com	- - -
IESO					
Nicole	Hopper	- - -	1600-120 Adelaide Street West, Toronto, M5H 1T1	Nicole.Hopper@ieso.ca	- - -
Inclusive Milestones					
- - -	- - -	- - -	34 Commerce Park Drive, Barrie, L4N 8W8	info@inclusivemilestones.ca	(705)503-9131
InnPower Board					
				board@innpower.ca	
Koalaroo Preschool					
	- - -	- - -	28 Commerce Park Drive, Barrie, L4N 8W8	info@koalaroo.ca	(705)735-2747
Kumon Math and Reading Centre of Barrie					

- - -	- - -	- - -	62 Commerce Park Drive, Barrie, L4N 8W8	barriemapleview@ikumon.com	(705)717-9086
Little Start Child Care - Bryne					
- - -	- - -	- - -	565 Bryne Dr Unit R & S, Barrie, L4N 9Y3	info@littlestart.ca	(705) 728-7807
Rogers Communications Canada Inc					
- - -	- - -	- - -	333 Bloor Street East, Toronto, M4W 1G9	mob.permits@rci.rogers.com	(416) 935-7777
Saint Nicholas Orthodox Church of Barrie					
- - -	- - -	- - -	31 Saunders Road, Barrie, L4N 9A7	barriesobor@gmail.com	416-522-5237
Southshore Bible Church					
- - -	- - -	- - -	565 Bryne Drive, Units 0 & P, Barrie, L4N 9Y3	communications@southshorebible.org	705-812-6749
Tag Environmental					
- - -	- - -	- - -	23 Truman Road, Barrie, L4N 8Y7	- - -	705-725-1938
Tarpin Lumber					
- - -	- - -	- - -	2267 Bowman Street, Innisfil, L9S 3V5	tkrul@tarpin.com	705-716-0824
The Worship Centre					
- - -	- - -	- - -	25 Morrow Road, Barrie, L4N 3V7	cogwc@live.ca	705-730-6655
Trillium Woods Elementary School					
- - -	- - -	- - -	20 Elmbrook Dr, Barrie, L4N 0Z1	trillium@ypce.com	(705) 792-7766
Western Mechanical					
- - -	- - -	- - -	160 Brock Street, Barrie, L4N 2M4	ddinniwell@westernmechanical.net	705-737-4135
Winners Chapel International Barrie					
- - -	- - -	- - -	21 Commerce Park Drive, Barrie, L4N 8X1	admin@winnerschapelcanada.org	- - -

NOTE: “- - -“ denotes the absence of any available information

Appendix B Notice of Community Open House

October 2024

You may recall that last summer, InnPower and Hydro One began a project to explore potential infrastructure upgrades to meet the growing electricity needs in your community. As part of this effort, InnPower has identified that a new Municipal Transformer Station (MTS) is required to meet future growth. We invite you to attend our second community open house for this important project.

Project overview

In order to power InnPower's new MTS, Hydro One will need to connect the new station to the electrical system. To facilitate the new connection, Hydro One is proposing to replace approximately 6 km of an existing 115 kilovolt (kV) transmission line with a new 230 kV transmission line. The new line would be built with taller electrical infrastructure on the existing corridor between Hydro One's Barrie Transformer Station and InnPower's proposed new MTS.

Class Environmental Assessment (EA)

Since the Class EA was initiated for this project in July 2023, we have been reviewing environmental and technical data, and collecting feedback from stakeholders and community members. We have finalized design details including tower size and location and have updated our project timelines. These details will be shared at the upcoming community open house.

We want to hear from you

Feedback from Indigenous communities, residents, property owners, government officials and agencies, interest groups and businesses will inform all aspects of the Class EA and planning process.

New InnPower Municipal Transformer Station & Hydro One 230 kV Line

We invite you to attend our upcoming Community Open House to learn more about the project details, meet the project team, and share your feedback.

Please join us:

Community Open House

November 5, 2024
3:00 p.m. – 7:00 p.m.
Peggy Hill Team Community Centre
171 Mapleton Ave, Barrie

We're here to help

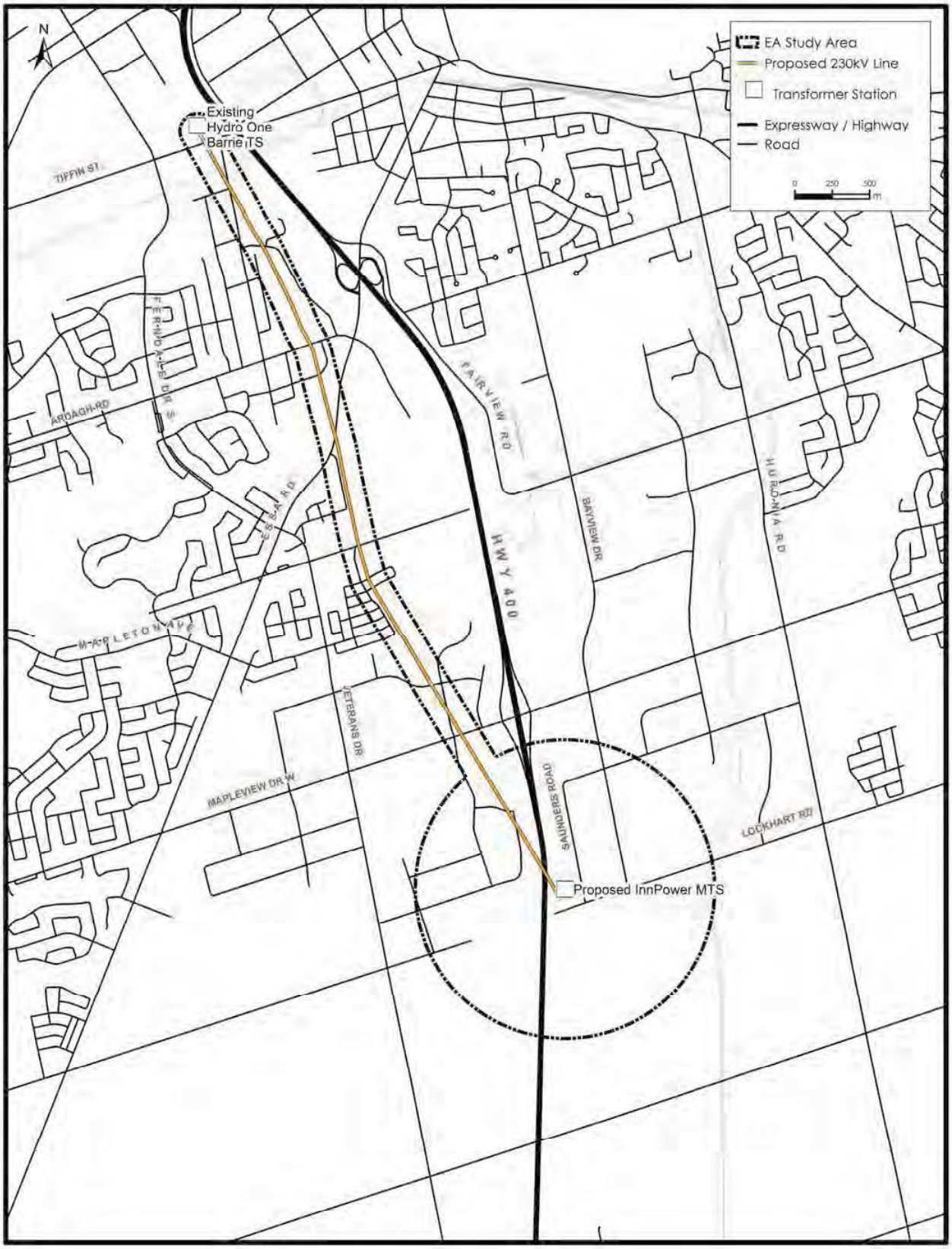
For more information, to sign up for the project contact list, or to ask questions, please contact Hydro One:

1.877.345.6799

Community.Relations@HydroOne.com

HydroOne.com/innpower

New InnPower Municipal Transformer Station & Hydro One 230 kV Line Project Study Area



Appendix C Community Open House Material

Welcome

New InnPower Municipal Transformer Station and Hydro One 230 kV Line

Community Open House #2

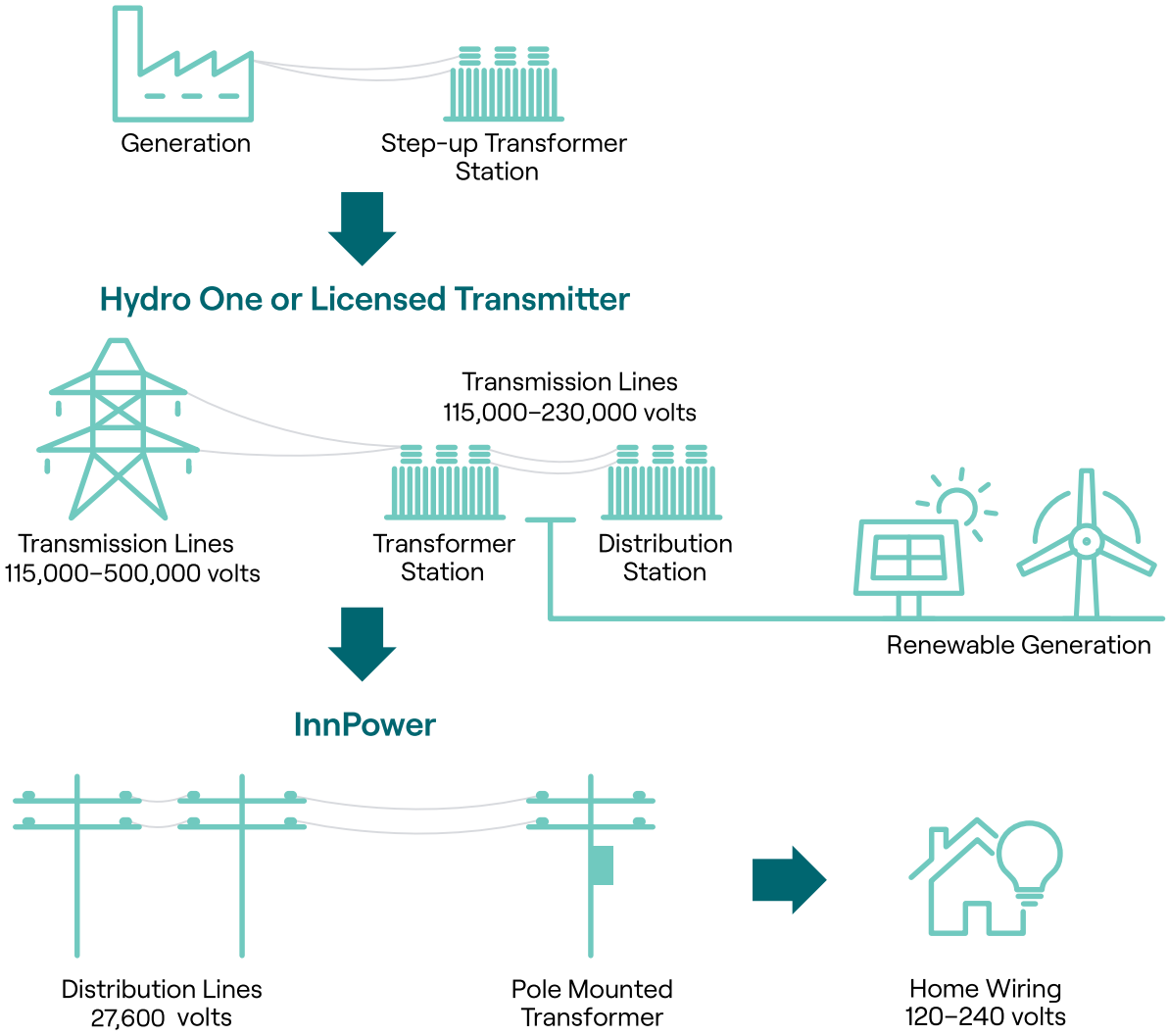
Why we are here:

- Provide project need and overview
- Share next steps
- Provide information for ongoing community consultation

Keeping the lights on in your community

Hydro One operates Ontario's transmission system energizing life and communities, helping Ontarians live a better and brighter future. We transmit power to InnPower, who keep the lights on for homes and businesses in the southern area of the City of Barrie and the Town of Innisfil.

Ontario Power Generation and Private Generation Companies



Energy partners

Building infrastructure to meet the energy needs of today and tomorrow involves a number of partners, including:

The Independent Electricity System Operator (IESO) oversees planning to ensure electricity needs are met both now and in the future.

Builds, owns, operates and maintains transmission and distribution electricity facilities across the province of Ontario.

Builds, owns, operates and maintains distribution electricity facilities within the Town of Innisfil and the southern portion of the City of Barrie.

The Ministry of Environment, Conservation and Parks is the legislative authority for Environmental Assessments for minor transmission facilities in Ontario.

Regulates the electricity market in Ontario, including electricity rates.

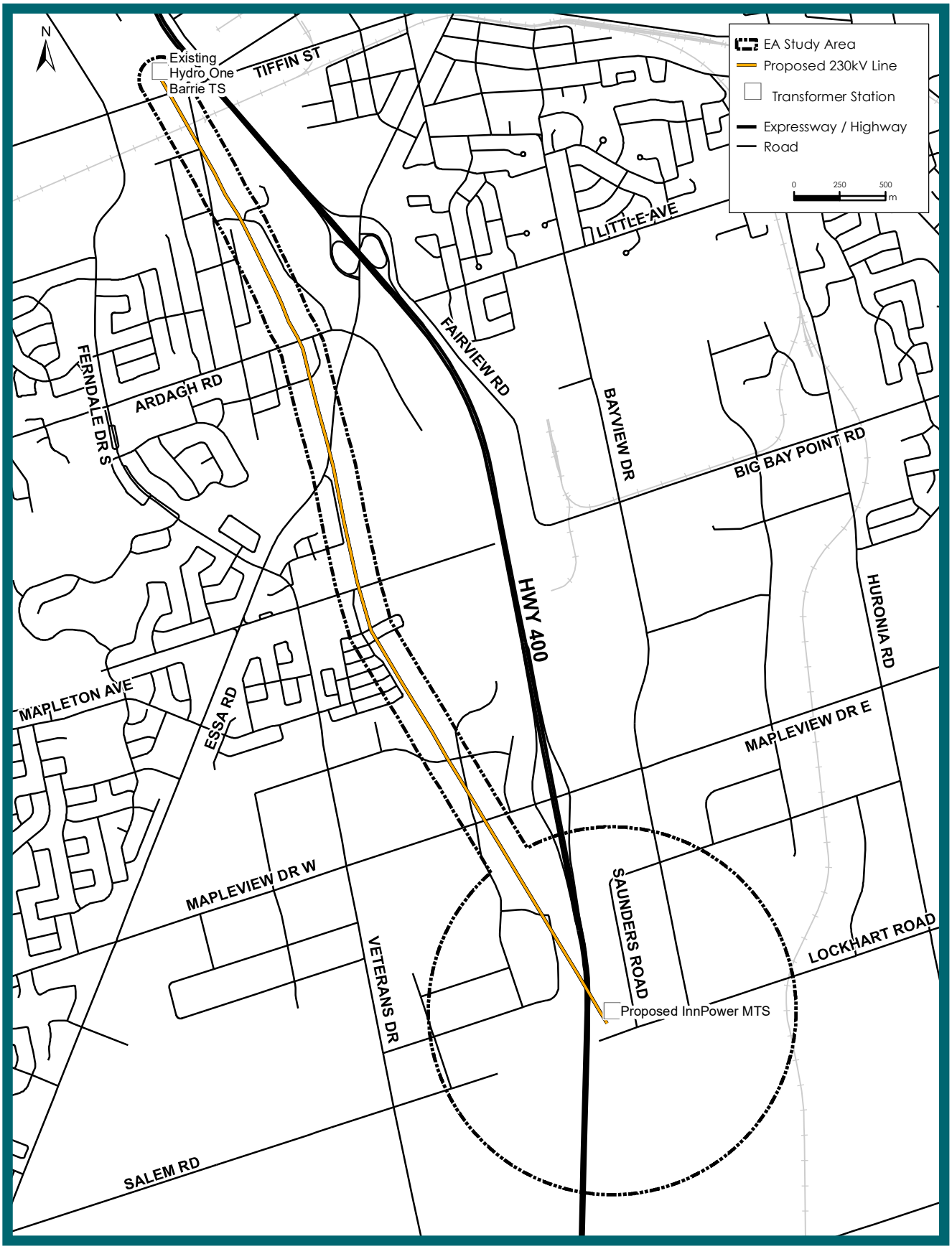
Project overview

InnPower and Hydro One are working together to explore potential infrastructure upgrades to ensure your community has safe and reliable power for years to come.

Electricity demand is growing in your community. An estimated 12,685 new connections (residential, commercial & industrial) are expected by 2028 and 13,315 post 2028.

InnPower has identified that a new Municipal Transformer Station (MTS) is required in the southern area of the City of Barrie and Town of Innisfil. To power the new MTS, Hydro One will need to replace approximately 6 km of an existing 115 kV Transmission Line with a new 230 kV Transmission Line. Together, Hydro One and InnPower began the Class Environmental Assessment process for this project in July 2023, in accordance with Ontario's *Environmental Assessment Act*.

Project area



Project area identification

To determine the location of the MTS, InnPower considered criteria such as:

- Proximity to existing infrastructure
- Minimizing impacts to the natural environment
- Constructability and cost

To determine a route to connect the station to the transmission system, Hydro One considered criteria such as:

- Ability to utilize an existing corridor
- Minimizing technical challenges
- Minimizing impacts to the natural and socio-economic environment
- The distance between the new MTS and the northern connection point at Hydro One's Barrie TS
- Constructability and cost

What is a Class Environmental Assessment?

This project is subject to the Class Environmental Assessment (Class EA) for Minor Transmission Facilities (Hydro One, 2022), in accordance with the Ontario *Environmental Assessment Act*. This process ensures that transmission projects that have a predictable range of effects are planned and carried out in an environmentally acceptable manner.

As part of the Class EA process, all project planning will be shaped by:

- Engagement with government agencies, residents, interest groups, elected officials and Indigenous communities
- Collection of natural and socio-economic data
- Identification of potential effects and proposed mitigation measures

Hydro One's Class EA is available at: **HydroOne.com/ClassEA**

Project milestones

Ongoing Engagement

June 2023
Notice Of Commencement

July 2023
First Community Open House

Fall 2024
Second Community Open House ← **We are here**

Early Winter 2025
Draft Environmental Study Report available for public review and comment

Winter 2025
Final ESR report and Class EA completed

Consultation and engagement will be ongoing throughout the life of the project

Should this project move forward

Mid-2025
Ontario Energy Board Section 92 application submitted

2026
Construction of InnPower's MTS begins

Late 2026
Third Community Open House (line pre-construction)

Early 2027
Construction begins for 230 kV line

End of 2027
230 kV line is energized

Late 2027/early 2028
MTS is energized

Consultation and engagement will be ongoing throughout the life of the project

Tower details

Should this project move forward, we will hold a third pre-construction open house to provide more project details to the community.

We anticipate that the new towers will be:

- Constructed at or near existing locations where possible
- Slender, narrow steel poles, taller than the poles and towers that exist today throughout most of the line. Lattice towers will be installed at the end points and at large line angles
  - Poles could vary depending on location and technical constraints
- Located within the existing corridor

Typical steel pole

Construction activities to remove the existing line

Should this project move forward, crews will:

- Remove vegetation and establish structure removal work areas along the corridor
- Construct temporary gravel roads where necessary to safely access tower bases for removal
- Remove conductor from spans across the entire line from Barrie TS
- Disassemble towers and wood poles along the entire corridor and remove foundations where required

Construction activities to rebuild the line

Should this project move forward, crews will:

- Trim and remove additional vegetation along the corridor to prepare for wire installation
- Install tower foundations to support new tower structures
- Assemble and erect towers on top of tower foundations for every single structure
- Conduct stringing operations of the line from end to end
- Remove temporary access roads and restore work areas

Upcoming vegetation work

Should this project move forward, to prepare for construction and energizing the line, vegetation trimming and removal will be completed in three stages:

Stage 1: Preparing for construction

Remove vegetation at and near tower bases, through the entire right of way and construction areas

Stage 2: Stringing the line

Trim and remove vegetation under and near the power lines

Stage 3: Energizing the line

Trim and remove vegetation on the edge of the corridor

Future maintenance work

Once the line is energized, crews will return annually to perform routine maintenance to ensure trees and vegetation remain within a safe distance from the power lines.

Please speak to a member of our team if you are concerned about vegetation on your property.

What you can expect during construction

Noise

- Construction activities will occur Monday – Friday, 7:30 a.m. to 5 p.m. in compliance with City Noise Bylaws
- Weekend work will occur only if required

Safety and Access

- To ensure residents can still safely access parts of the corridor that are not under construction, we will install temporary access gates and fencing around the construction areas and the new towers

Dust

- Hydro One will implement best management practices to control and minimize dust. This can include watering areas during dry periods and constructing temporary barriers

Traffic

- Where temporary lane restrictions are required, Hydro One will coordinate the timing of construction with the City of Barrie and other projects that may be scheduled in the area
- Traffic control measures will be in place to ensure public safety during active construction. Staff will be on site to direct traffic as needed

Communication

- We are committed to ensuring you know what to expect every step of the way during construction and will provide updates throughout the project duration

Health and safety

Hydro One has a dedicated team that regularly monitors global studies around electric and magnetic fields (EMF) and ensures that our infrastructure is built and maintained following best practices and industry standards.

We look to Health Canada, the World Health Organization and the International Commission on Non-Ionizing Radiation Protection, for guidance on EMF and our approach. Based on global studies which have and continue to be regularly monitored, these organizations indicate that members of the public do not need to take precautions to protect from fields produced by extremely low frequencies such as transmission lines.

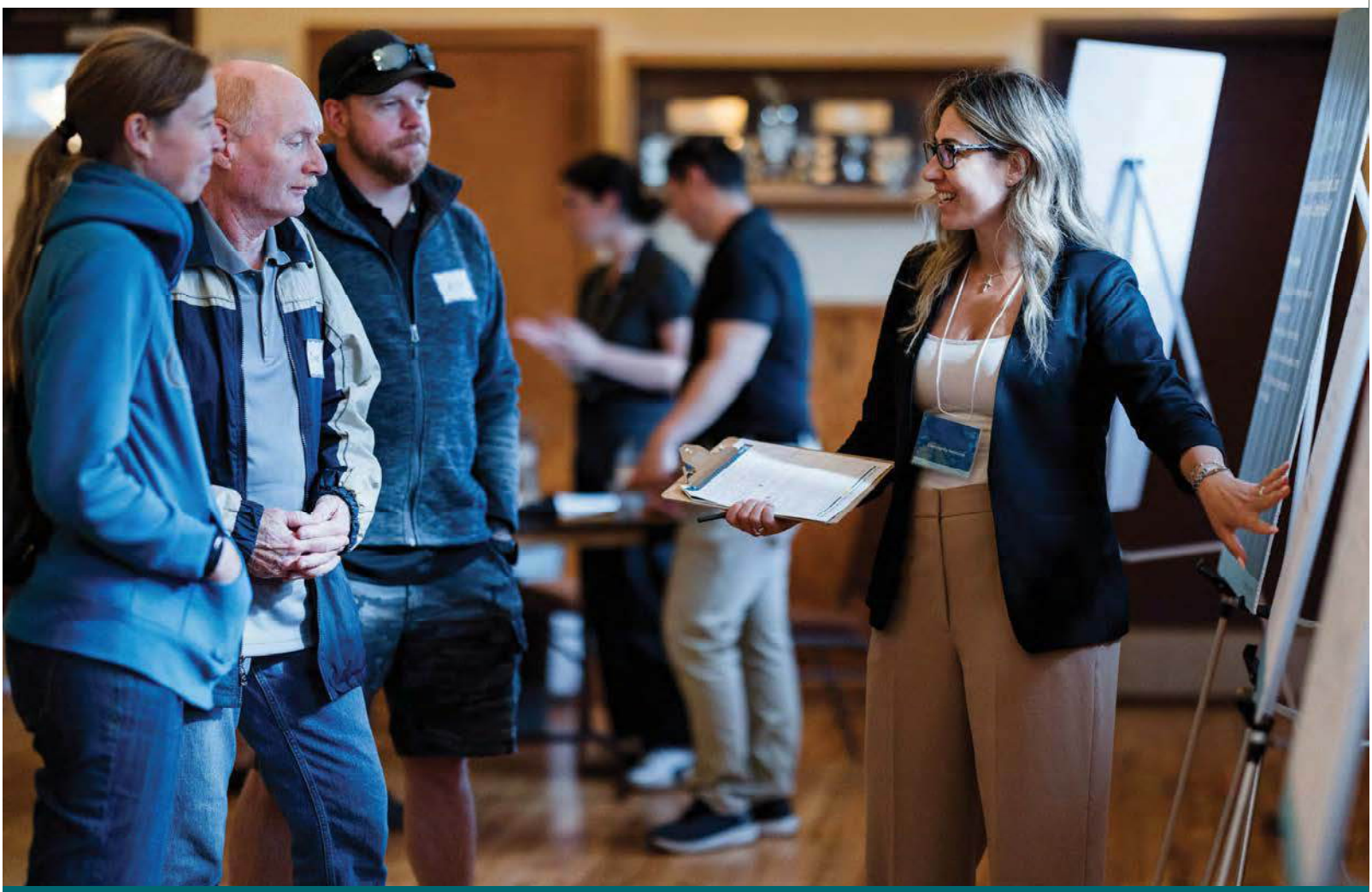
Hydro One has completed modeling that confirmed that once the line is energized the fields produced will remain within a safe level. Typically, EMF levels for a project like this one are less than 1% of the recommended guidelines.

Community engagement

Community Engagement is a critical driver of the planning and development this project. Over the next several months our team will be focused on collecting feedback from residents, interest groups, elected officials and Indigenous Communities.

We are committed to engaging with the community throughout each stage of the project by:

- Providing a number of opportunities to share information about the project
- Understanding the community's perspective, collecting input and considering options to mitigate impacts where possible



Thank you for coming

Please fill out a comment form before you leave, or send us your comments afterward. Join our project contact list to receive important updates.

1.877.345.679

Community.Relations@HydroOne.com

www.HydroOne.com/InnPower

B.3 Indigenous Consultation Materials

February 3, 2023

Amy Gibson
Manager, Indigenous Energy Policy
Ministry of Energy
77 Grenville St., 6th Floor
Toronto, ON M7A 2C1

Sent via email

Re: InnPower Municipal Transformer Station (MTS) and Transmission Line Project and Environmental Assessment – First Nation and Métis Inquiry

Dear Ms. Gibson,

This letter is to inform the Ministry of Energy that Hydro One Networks Inc. (Hydro One) and InnPower Corp. (InnPower) are planning as co-proponents to commence an Environmental Assessment (EA) per the Environmental Assessment Act for the proposed new InnPower MTS and Transmission Line Project (Project).

As part of the Project, InnPower is proposing to construct a new MTS in the City of Barrie to meet the growth in the area. In order to connect the MTS to the transmission system, Hydro One is proposing to remove an existing 115 kilovolt (kV) transmission line and build a new 230 kV transmission line between the existing Barrie TS and the proposed InnPower MTS. Please see the attached Preliminary Project Area Map for location and route. The project will be planned following the Class EA for Minor Transmission Facilities (2022).

The scope of the project consists of the following:

- Construction of a new 230/27.6 kV MTS on InnPower-owned land, located at Saunders Road and Lockhart Road, in the City of Barrie.
- Remove the existing 115 kV single-circuit and replace with a new 230 kV double-circuit transmission line of approximately 6 kilometres on existing corridor between the new InnPower MTS and Barrie TS.

The Project will also require Leave-to-Construct approval from the Ontario Energy Board under Section 92 of the Ontario Energy Board Act.

Once the Class EA process is successfully completed and permits and approvals are obtained, construction could commence as early as 2025 to meet InnPower's required connection date of 2027/2028

Hydro One is requesting a determination from the Ministry of Energy as to whether the proposed Project triggers the Crown's constitutional Duty to Consult with respect to Indigenous and treaty rights, and if so, whether the Crown delegates procedural aspects of the Duty to Consult to Hydro One. If the procedural aspects of the Duty to Consult are delegated to Hydro One, please provide clear direction on which Aboriginal communities are to be consulted, and the level of consultation.

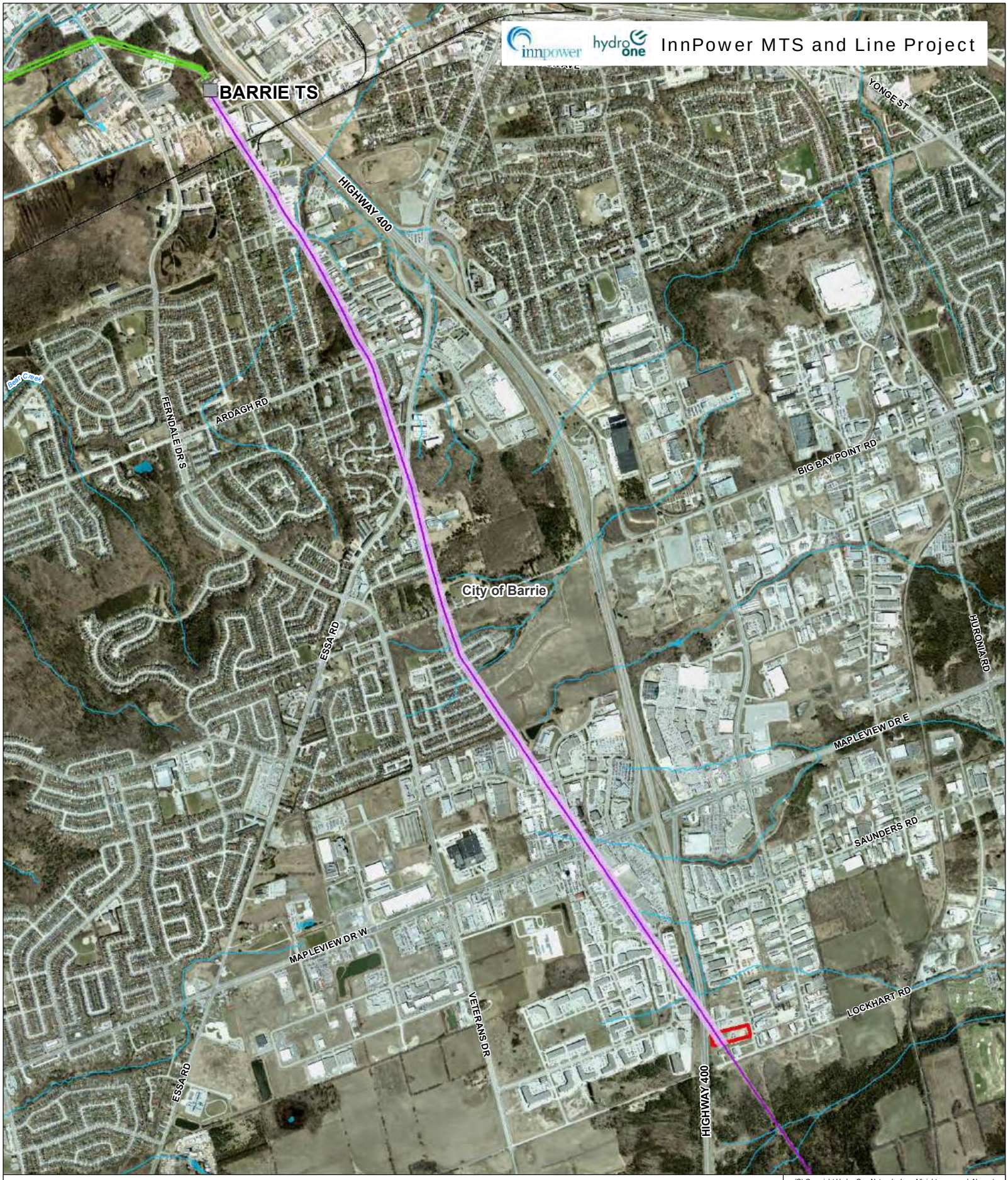
We are eager to advance the Project and respectfully request direction from the Ministry on this matter as quickly as possible. We welcome the opportunity to discuss the Project further and would be happy to answer any questions you might have.

Sincerely,

Hydro One Networks Inc.	**InnPower Corp.**
Elise Croll Director, Environmental Services Tel: (416) 579-3513 Email: Elise.Croll@HydroOne.com	mmirkeshmiri **Morteza Mirkeshmiri** Manager, Stations, Planning & Asset Optimization Tel: (705) 431-6870 ext. 294 Email: mortezam@innpower.ca

Attachment: Preliminary Project Area Map

cc: Simmer Anand, Manager, Indigenous Relations, Hydro One
Alex Moskalyk, Senior Manager, Cormmunity Relations, Hydro One
Jessica Maga, Senior Manager Government Relations, Hydro One
Patricia Yeung, Manager, Environmental Services, Hydro One
David Smith, Senior Manager, Environmental Services, Hydro One
Arthur Berdichevsky, Chief Operating Officer, InnPower
Gillian Brown, Senior Advisor, Ministry of Energy
Farrah Ali-Khan Senior Advisor, Ministry of the Environment, Conservation and Parks



Station or Junction

Existing Transmission Line

Existing 115 kV Tx Corridor

Proposed Line Replacement from 115 kV to 230 kV

Proposed new InnPower MTS

Railway

Watercourse

Waterbody

Municipal Boundary

Produced By: Hydro One Networks Inc., GIS Services
Date: Dec 12, 2022
Map22-103_InnPowerMTS_LineProject_ProjectAreaMap_v2

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Ministry of Energy

Energy Networks and Indigenous Policy Branch

Indigenous Energy Policy

77 Grenville Street, 6th Floor
Toronto, ON M7A 67C
Tel: (416) 529-9137

Ministère de l'Énergie

Direction Générale des Réseaux Énergétiques et des Politiques Autochtones

Politique Énergétique Autochtones

77 Rue Grenville, 6e Étage
Toronto, ON M7A 67C
Tel: (416) 529-9137

Ontario

August 25, 2023 VIA EMAIL

Elise Croll
Director, Environmental Services
Hydro One Networks Inc.
483 Bay Street
Toronto, Ontario M5G 2P5

Morteza Mirkeshmiri
Manager, Stations, Planning & Asset Optimization
InnPower Corp.
7251 Yonge St.
Innisfil, ON, Canada, L9S 0J3

Re: InnPower Municipal Transformer Station and Transmission Line Project

Dear Elise Croll and Morteza Mirkeshmiri:

Thank you for the email dated February 3, 2023, and follow up information provided in July and August 2023, notifying the Ministry of Energy (ENERGY) of the intention of Hydro One Networks Inc. (Hydro One) and InnPower Corp. (InnPower) to commence a Class Environmental Assessment (EA) for Minor Transmission Facilities for the proposed new InnPower Municipal Transformer Station (MTS) and Transmission Line Project (Project).

I understand that InnPower is proposing to construct a new MTS in the City of Barrie to meet the growth in the area. In order to connect the MTS to the transmission system, Hydro One is proposing to remove an existing 115 kilovolt (kV) transmission line and build a new 230 kV transmission line between the existing Barrie Transmission System and the proposed InnPower MTS. I also understand that the proposed new MTS is to be installed on InnPower-owned land within an industrial/commercial area and that the existing transmission right-of-way (ROW) will be used to replace the existing 115 kV overhead transmission line with a new 230 kV line. InnPower's required connection date is 2027/2028.

On behalf of the Government of Ontario (the Crown), ENERGY has reviewed the information provided by Hydro One and InnPower with respect to the Project and assessed it against the Crown's current understanding of the interests and rights of Aboriginal communities who hold or claim Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act 1982* in the area. In doing so, ENERGY has determined that the Project may have the potential to affect such Indigenous communities.

The Crown has a constitutional duty to consult and, where appropriate, accommodate Indigenous communities when the Crown contemplates conduct that might adversely impact established or asserted Aboriginal or Treaty rights. These consultations are in addition to consultation imposed by statute.

While the legal responsibility to meet the duty to consult lies with the Crown, the Crown may delegate the day-to-day, procedural aspects of consultation to project proponents. Such a delegation by the Crown to proponents is routine practice for ENERGY.

I am writing to advise you that on behalf of the Crown, ENERGY is delegating the procedural aspects of consultation in respect of the Project to Hydro One and InnPower (the "Proponents") through this letter. ENERGY expects that the Proponents will undertake the procedural aspects of consultation with respect to any regulated requirements for the proposed Project. The Crown and/or its agents will fulfill the substantive aspects of consultation and retain oversight over all aspects of the process for fulfilling the Crown's duty.

Please see the appendix for information on the roles and responsibilities of both the Crown and the Proponents.

Based on the Crown's assessment of First Nation and Métis community rights and potential project impacts, the following Indigenous communities should be consulted on the basis that they have or may have constitutionally protected Aboriginal or Treaty rights that may be adversely affected by the Project.

Community	Mailing Address
Alderville First Nation*	11696 Second Line, P.O. Box 46 Roseneath, ON K0K 2X0 http://alderville.ca/
Beausoleil First Nation*	11 O'Gemaa Miikan Christian Island, ON L9M 0A9 http://www.chimnissing.ca/
Chippewas of Georgina Island First Nation*	R.R.#2 Box N-13 Sutton West, ON L0E 1R0 https://www.georginaisland.com/
Chippewas of Rama First Nation*	200 - 5884 Rama Rd Orillia, ON L3V 6H6 https://www.ramafirstnation.ca/
Curve Lake First Nation*	22 Winookeedaa Rd Curve Lake, ON K0L 1R0 https://curvelakefirstnation.ca/
Hiawatha First Nation*	123 Paudash St. Keene, ON K0L 2G0 https://www.hiawathafirstnation.com/
Huron-Wendat**	255, place Chef Michel Laveau

Community	Mailing Address
	Wendake, QC G0A 4V0 https://wendake.ca/
Kawartha Nishnawbe *Note: Kawartha Nishnawbe currently has a collective leadership and does not have a Chief. Their solicitor Christopher Reid has indicated that three of the four current Councillors have email (provided).*	Kawartha Nishnawbe First Nation c/o Christopher Reid, Solicitor 38 Nursewood Road Toronto, ON M4E 3R8 Email addresses: kawarthanishnawbecouncil@outlook.com nodin.webb@hotmail.com samgharvey@live.com giiwednang@hotmail.com lawreid@aol.com
Georgian Bay Historic Métis Community (Represented by the MNO Region 7), which is affiliated with the Barrie Métis Council	Initial notifications should be sent electronically to the MNO Lands, Resources and Consultations Branch at consultations@metisnation.org with a copy to David Dusome, MNO Regional Councillor, Region 7 at DavidD@metisnation.org
Mississaugas of Scugog Island First Nation*	22521 Island Road Port Perry, ON L9L 1B6 https://www.scugogfirstnation.com

Notes:

* It is standard practice to copy Karry Sandy McKenzie, Williams Treaties First Nations Process Coordinator, on correspondence to the identified Williams Treaties First Nations identified above (inquiries@williamstreatiesfirstnations.ca).

** Interests are specific to archeological resources.

ENERGY's preliminary assessment has determined, based on currently available information about the nature of the Project's anticipated impacts, Hydro One and InnPower should consult at the low end of the consultation spectrum in respect of potential impacts to archaeological resource-related rights for the Huron-Wendat Nation; and harvesting and archaeological resource-related rights for the Williams Treaties First Nations (Alderville First Nation, Beausoleil First Nation, Curve Lake First Nation, Chippewas of Georgina Island First Nation, Chippewas of Rama First Nation, Hiawatha First Nation, and Mississaugas of Scugog Island First Nation), Kawartha Nishnawbe First Nation; and the Georgian Bay Historic Métis Community.

As such, ENERGY requires the Proponents to, at a minimum, notify the communities listed above of the Project, share information about the project and provide an opportunity for the communities to comment. Any issues raised by these communities should be discussed and

considered in light of the potential to impact rights, with mitigation or other forms of accommodation identified where appropriate. The initial notice of the Project could include a request to confirm whether or not the community believes the Project will impact their rights and accordingly whether they are interested in being consulted. Should no response be received, the proponent should continue to provide high-level notifications in accordance with project stage milestones.

Should any of the communities indicate they are not interested in being consulted, please inform ENERGY so that we can consider revisions to the consultation list. Should information become available throughout the consultation process to suggest that project impacts will be significant enough to warrant a deeper level of consultation, the Proponents must inform ENERGY so that updated guidance can be provided.

This rights-based consultation list is based on information that is subject to change. Consultation is ongoing throughout the duration of the project, including project development and design, consultation, approvals, construction, operation and decommissioning. First Nation and Métis communities may make new rights assertions at any time, and further Project related developments can occur that may require additional First Nation and/or Métis communities to be notified and/or consulted.

If you become aware of potential rights impacts on Indigenous communities that are not listed above at any stage of the Project, please bring this to the attention of ENERGY with any supporting information regarding the claim at your earliest convenience.

Acknowledgement

By accepting this letter, the Proponents acknowledge this Crown delegation and the procedural consultation responsibilities enumerated in the appendix. If you have any questions about this request, you may contact Farrah Ali-Khan, Senior Advisor (farrah.ali-khan@ontario.ca).

I trust that this information provides clarity and direction regarding the respective roles of the Crown and the Proponents. If you have any questions about this letter or require any additional information, please contact me directly.

Sincerely,

Samir Adkar Digitally signed by Samir Adkar
Date: 2023.08.25 15:13:31
-04'00'

Samir Adkar, Director
Energy Networks and Indigenous Policy Branch

APPENDIX: PROCEDURAL CONSULTATION

Roles and Responsibilities Delegated to the Proponent

Please refer to the letter above for specific guidance on this project. On behalf of the Crown, please be advised that your responsibilities as Project Proponent for this Project include:

- providing notice and information about the Project to Indigenous communities, with sufficient detail and at a stage in the process that allows the communities to prepare their views on the Project and, if appropriate, for changes to be made to the Project. This can include:
  - accurate, complete and plain language information including a detailed description of the nature and scope of the Project and translations into Aboriginal languages where appropriate;
    - maps of the Project location and any other affected area(s);
    - information about the potential negative effects of the Project on the environment, including their severity, geographic scope and likely duration. This can include, but is not limited to, effects on ecologically sensitive areas, water bodies, wetlands, forests or the habitat of species at risk and habitat corridors;
    - a description of other provincial or federal approvals that may be required for the Project to proceed;
    - whether the Project is on privately owned or Crown controlled land;
    - any information the Proponent may have on the potential effects of the Project, including particularly any likely adverse impacts on established or asserted Aboriginal or treaty rights;
  - a written request asking the Indigenous community to provide in writing or through a face-to-face meeting:
    - any information available to them that should be considered when preparing the Project documentation;
    - any information the community may have about any potential adverse impacts on their Aboriginal or treaty rights; and
    - any suggested measures for avoiding, minimizing or mitigating potential adverse impacts;
    - information about how information provided by the Indigenous community as part of the consultation process will be collected, stored, used, and shared for their approval;
  - identification of any mechanisms that will be applied to avoid, minimize or mitigate potential adverse impacts;
  - identification of a requested timeline for response from the community and the anticipated timeline for meeting Project milestones following each notification;
  - an indication of the Proponent's availability to discuss the process and provide further information about the Project;
  - the Proponent's contact information; and
  - any additional information that might be helpful to the community;

- following up, as necessary, with Indigenous communities to ensure they received Project notices and information and are aware of the opportunity to comment, raise questions or concerns and identify potential adverse impacts on their established or asserted rights;
- gathering information about how the Project may adversely affect Aboriginal or treaty rights;
- bearing the reasonable costs associated with the procedural aspects of consultation (paying for meeting costs, making technical support available, etc.) and considering reasonable requests by communities for capacity funding to assist in participating in the consultation process;
- considering and responding to comments and concerns raised by Indigenous communities and answering questions about the Project and its potential impacts on Aboriginal or treaty rights;
- as appropriate, discussing and implementing changes to the Project in response to concerns raised by Indigenous communities. This could include modifying the Project to avoid or minimize an impact on an Aboriginal or treaty right (e.g. altering the season when construction will occur to avoid interference with mating or migratory patterns of wildlife); and
- informing Indigenous communities about how their concerns were taken into consideration and whether the Project proposal was altered in response. It is considered a best practice to provide the Indigenous community with a copy of the consultation record as part of this step for verification.

If you are unclear about the nature of a concern raised by an Indigenous community, you should seek clarification and further details from the community, provide opportunities to listen to community concerns and discuss options, and clarify any issues that fall outside the scope of the consultation process. These steps should be taken to ensure that the consultation process is meaningful and that concerns are heard and, where possible, addressed.

You can also seek guidance from the Crown at any time. It is recommended that you contact the Crown if you are unsure about how to deal with a concern raised by an Indigenous community, particularly if the concern relates to a potential adverse impact on established or asserted Aboriginal or treaty rights.

The consultation process must maintain sufficient flexibility to respond to new information, and we request that you make all reasonable efforts to build positive relationships with all Indigenous communities potentially affected by the Project. If a community is unresponsive to efforts to notify and consult, you should nonetheless make attempts to update the community on the progress of the Project, the environmental assessment (if applicable) and other regulatory approvals.

If you reach a business arrangement with an Indigenous community that may affect or relate to the Crown's duty to consult, we ask that that Crown be advised of those aspects of such an arrangement that may relate to or affect the Crown's consultation obligations, and that the community itself be apprised of the Proponent's intent to so-apprise the Crown. Whether or not any such business arrangements may be reached with any community, the Crown expects the Proponent to fulfill all of its delegated procedural consultation responsibilities to the satisfaction of the Crown.

If the Crown considers that there are outstanding issues related to consultation, the Crown may directly undertake additional consultation with Indigenous communities, which could result in delays to the Project. The Crown reserves the right to provide further instructions or add communities throughout the consultation process.

Roles and responsibilities assumed directly by the Crown

The role of the Crown in fulfilling any duty to consult and accommodate in relation to this Project includes:

- identifying for the Proponent, and updating as appropriate, the Indigenous communities to consult for the purposes of fulfillment of the Crown duty;
- carrying out, from time to time, any necessary assessment of the extent of consultation or, where appropriate, accommodation, required for the project to proceed;
- supervising the aspects of the consultation process delegated to the Proponent;
- determining in the course of Project approvals whether the consultation of Indigenous communities was sufficient;
- determining in the course of Project approvals whether accommodation of Indigenous communities, if required, is appropriate and sufficient.

Consultation Record

It is important to ensure that all consultation activities undertaken with Indigenous communities are fully documented. This includes all attempts to notify or consult the community, all interactions with and feedback from the community, and all efforts to respond to community concerns. Crown regulators require a complete consultation record in order to assess whether Aboriginal consultation and any necessary accommodation is sufficient for the Project to receive Ontario government approvals. The consultation record should include, but not be limited to, the following:

- a list of the identified Indigenous communities that were contacted;
- evidence that notices and Project information were distributed to, and received by, the Indigenous communities (via courier slips, follow up phone calls, etc.). Where a community has been non-responsive to multiple efforts to contact the community, a record of such multiple attempts and the responses or lack thereof.
- a written summary of consultations with Indigenous communities and appended documentation such as copies of notices, any meeting summaries or notes including where the meeting took place and who attended, and any other correspondence (e.g., letters and electronic communications sent and received, dates and records of all phone calls);
- responses and information provided by Indigenous communities during the consultation process. This includes information on Aboriginal or treaty rights, traditional lands, claims, or cultural heritage features and information on potential adverse impacts on such Aboriginal or treaty rights and measures for avoiding, minimizing or mitigating potential adverse impacts to those rights; and

- a summary of the rights/concerns, and potential adverse impacts on Aboriginal or treaty rights or on sites of cultural significance (e.g. burial grounds, archaeological sites), identified by Indigenous communities; how comments or concerns were considered or addressed; and any changes to the Project as a result of consultation, such as:
    - changing the Project scope or design;
    - changing the timing of proposed activities;
    - minimizing or altering the site footprint or location of the proposed activity;
    - avoiding impacts to the Aboriginal interest;
    - environmental monitoring; and
    - other mitigation strategies.

As part of its oversight role, the Crown may, at any time during the consultation and approvals stage of the Project, request records from the Proponent relating to consultations with Indigenous communities. Any records provided to the Crown will be subject to the *Freedom of Information and Protection of Privacy Act,* however, may be exempted from disclosure under section 15.1 (Relations with Aboriginal communities) of the Act. Additionally, please note that the information provided to the Crown may also be subject to disclosure where required under any other applicable laws.

The contents of what will make up the consultation record should be shared at the onset with the Indigenous communities consulted with and their permission should be obtained. It is considered a best practice to share the record with the Indigenous community prior to finalizing it to ensure it is a robust and accurate record of the consultation process.

Ministry of Energy

Energy Networks and Indigenous Policy Branch

Indigenous Energy Policy

77 Grenville Street, 6th Floor
Toronto, ON M7A 67C
Tel: (416) 529-9137

Ministère de l'Énergie

Direction Générale des Réseaux Énergétiques et des Politiques Autochtones

Politique Énergétique Autochtones

77 Rue Grenville, 6e Étage
Toronto, ON M7A 67C
Tel: (416) 529-9137

Ontario

VIA EMAIL

August 28, 2023

Re: InnPower Municipal Transformer Station and Transmission Line Project

Good afternoon:

This letter is to notify you that the Ministry of Energy on behalf of Ontario has delegated the procedural aspects of consultation to Hydro One Networks Inc. (Hydro One) and InnPower Corporation (InnPower) for their proposed "InnPower Municipal Transformer Station (MTS) and Transmission Line Project" project (Project) in relation to the Class Environmental Assessment for Minor Transmission Facilities.

InnPower is proposing to construct a new MTS in the City of Barrie to meet the growth in the area. In order to connect the MTS to the transmission system, Hydro One is proposing to remove an existing 115 kilovolt (kV) transmission line and build a new 230 kV transmission line between the existing Barrie Transmission System and the proposed InnPower MTS. I understand that the proposed new MTS is to be installed on InnPower-owned land within an industrial/commercial area and that the existing transmission right-of-way (ROW) will be used to replace the existing 115 kV overhead transmission line with a new 230 kV line. InnPower's required connection date is proposed for 2027/2028.

The Ministry of Energy, on behalf of the Crown, has delegated the procedural aspects of consultation with potentially impacted Indigenous communities to Hydro One and InnPower for the Project. If they have not already done so, Hydro One and InnPower will be contacting you to discuss your community's interests in the proposed project and to understand any potential for adverse impacts to Aboriginal or treaty rights. Based on the Ministry of Energy's preliminary assessment of the provincial Crown's duty to consult for the Project, we have directed Hydro One and InnPower to, at minimum, consult your community at the low range of the consultation spectrum in respect of potential impacts to Aboriginal or treaty rights, specific to archaeological resources.

Please note that should information become available throughout the consultation process to suggest that potential project impacts will be significant enough to warrant a deeper level of consultation, the Ministry of Energy will provide Hydro One and InnPower with updated guidance to that respect.

I encourage representatives of your community to participate in efforts made by Hydro One and InnPower to consult your community on their proposed project so that you can receive project information and understand if there are any potential impacts on Aboriginal or treaty rights. The consultation process is an opportunity to provide your community's feedback to Hydro One, InnPower and the Crown, including any suggestions or proposals your community might have for mitigating, avoiding or accommodating any potential impacts to Aboriginal or treaty rights. Ministry officials are also available should you wish to contact the Crown directly. Please note that none of the foregoing should be taken to imply approval of this project.

Should you or any members of your community have questions regarding the material above, please contact Farrah Ali-Khan at farrah.ali-khan@ontario.ca.

Sincerely,

Samir Adkar Digitally signed by Samir Adkar
Date: 2023.08.28 08:45:29
-04'00'

Samir Adkar, Director
Energy Networks and Indigenous Policy Branch

C: Elise Croll, Director, Environmental Services, Hydro One Networks Inc.
Simmer Anand, Manager, Indigenous Relations, Hydro One Networks Inc.
Tomek Chwieszczenik, Environmental Services, Hydro One Networks Inc.
Morteza Mirkeshmiri, Manager, InnPower Corp.
Andrew Evers, Manager, Environmental Assessment Services, Ministry of Environment, Conservation and Parks

B.4 Record of Consultation

First Nations and Métis Record of Consultation

DATE	METHOD	ORIGIN	CONTACT	PROJECT TEAM MEMBER(S)	SUMMARY OF COMMUNICATION
Alderville First Nation (AFN)					
2023-09-11	Email	Outgoing	Dr Julie Kapyrka	Hydro One	Hydro One sent the Notice of Commencement of a Class EA for Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230kV Line Project and invited the First Nation to participate in upcoming field studies to be conducted in Fall 2023.
2023-09-26	Email	Incoming	Dr Julie Kapyrka	Hydro One	AFN acknowledged receipt of the Notice of Commencement and informed that as the Project is situated within the Traditional Territory of Alderville First Nation, a File Fee is required. Additionally, should excavation unearth bones, remains, or other such evidence of a native burial site or any other archaeological findings, Hydro One is to notify the First Nation without delay. AFN also requested for the Notice of Request to Consult, and expressed their interest in participating in archaeological assessments and asked to be apprised of Project updates. Attachments: - Letter of Acknowledgement - Alderville First Nation's Consultation Protocol
2023-10-19	Email	Outgoing	Dr Julie Kapyrka	Hydro One, Stantec	On behalf of Hydro One, Stantec thanked AFN for their interest in the Project and invited the First Nation to participate in the upcoming ecosystems field studies tentatively scheduled for Oct 26/27, 2023 and informed that the Stage 1 AA findings will be shared once available.
2023-10-23	Email	Incoming	Dr Julie Kapyrka	Hydro One, Stantec	AFN thanked Stantec and Hydro One for the email and declined participation in the ecosystems fieldwork. AFN expressed their interest in reviewing the Stage 1 AA findings and participating in Stage 2 AA work, if required.
2023-10-23	Email	Incoming	Dr Julie Kapyrka	Hydro One, Stantec	Stantec, on behalf of Hydro One, confirmed that they would keep AFN up to date on the Stage 1 AA findings and further archaeological studies as required.
2024-03-15	Email	Outgoing	Dr Julie Kapyrka	Hydro One	Hydro One provided AFN with the Archaeology Report for the Project via an external link.
2024-03-22	Email	Incoming	Dr Julie Kapyrka	Hydro One	AFN notified Hydro One that they could not access the Archaeology Report provided and requested that it be sent via email.
2024-03-26	Email	Outgoing	Dr Julie Kapyrka	Hydro One	Hydro One provided an alternative link to AFN to receive the Archaeology Report, as it was too large to send via email.
2024-10-23	Email	Outgoing	Dr Julie Kapyrka	Hydro One	Hydro One invited AFN to the November 5, 2024 open house for the Project.
2024-10-28	Email	Incoming	Dr Julie Kapyrka	Hydro One	AFN informed Hydro One that they would like to be engaged on all archaeological work planned for the Project.
Beausoleil First Nation, Williams Treaties First Nation					
2023-06-30	Email	Outgoing	Chief Sandy	InnPower, Hydro One, Stantec	Hydro One sent the Notice of Commencement of a Class EA for Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230kV Line Project.
2023-09-11	Email	Outgoing	Chief Sandy, Karry Sandy-Mckenzie, Mike Smith	InnPower, Hydro One, Stantec	Hydro One sent the Notice of Commencement of a Class EA for Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230kV Line Project and invitated BFN and WTFN to participate in upcoming field studies to be conducted in Fall 2023.
2023-10-13	Email	Outgoing	Chief Sandy, Mike Smith	Hydro One, Stantec	On behalf of Hydro One, Stantec informed the First Nation of the upcoming field studies in end Oct 2023, invited the First Nation to participate.
2024-03-15	Email	Outgoing	Chief Sandy, Karry Sandy-Mckenzie, Mike Smith	Hydro One	Hydro One provided BFN and WTFN with the Stage 1 Archaeological Assessment report for their review.
2024-10-23	Email	Outgoing	Chief Sandy, Karry Sandy-Mckenzie, Mike Smith	Hydro One	Hydro One informed BFN and WTFN of the November 5, 2024 open house for the Project and provided the Stage 1 Archaeological Assessment report for their review.
Chippewas of Georgina Island First Nation					
2023-06-30	Email	Outgoing	Chief Big Canoe	InnPower, Hydro One, Stantec	Hydro One sent the Notice of Commencement of a Class EA for Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230kV Line Project.
2023-10-13	Email	Outgoing	Chief Big Canoe, JL Porte	Hydro One, Stantec	On behalf of Hydro One, Stantec informed the First Nation of the upcoming field studies in end Oct 2023, invited the First Nation to participate.
2024-03-15	Email	Outgoing	Chief Big Canoe, JL Porte	Hydro One	Hydro One provided the First Nation with the Stage 1 Archaeological Assessment Report for their review.
2024-10-23	Email	Outgoing	Chief Big Canoe, JL Porte	Hydro One	Hydro One informed the First Nation of the November 5, 2024 open house for the Project.
Chippewas of Rama First Nation					

First Nations and Métis Record of Consultation

DATE	METHOD	ORIGIN	CONTACT	PROJECT TEAM MEMBER(S)	SUMMARY OF COMMUNICATION
2023-06-30	Email	Outgoing	Chief Williams	InnPower, Hydro One, Stantec	Hydro One sent the Notice of Commencement of a Class EA for Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230kV Line Project.
2023-07-25	Email	Phone Call	Chief Williams	Hydro One	Hydro One held a phone conversation with Chief Williams of Rama First Nation from a request from a Notice of Commencement of Inn Power Project. Chief Williams had no comments on the Project but inquired a matter outside the Project.
2023-10-13	Email	Outgoing	Chief Williams	Hydro One, Stantec	On behalf of Hydro One, Stantec informed the First Nation of the upcoming field studies in end Oct 2023, invited the First Nation to participate.
2024-03-15	Email	Outgoing	Chief Williams	Hydro One	Hydro One provided the First Nation with the Stage 1 Archaeological Assessment Report for their review.
2024-10-23	Email	Outgoing	Chief Williams	Hydro One	Hydro One informed the First Nation of the November 5, 2024 open house for the Project.
Curve Lake First Nation (CLFN)					
2023-08-29	Email	Incoming	Francis Chua	Hydro One	CLFN requested an in-person meeting with Hydro One to discuss the Project and to pursue a long-term relationship beyond project-related consultation.
2023-09-05	Email	Outgoing	Francis Chua	Hydro One	Hydro One confirmed a date for the in-person meeting with CLFN.
2023-09-11	Email	Outgoing	Sean Conway, Paige Williams	Hydro One	Hydro One sent the Notice of Commencement of a Class EA for Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230kV Line Project and invitated the First Nation to participate in upcoming field studies to be conducted in Fall 2023.
2023-09-13	Email	Outgoing	Chief Knott, Deputy Chief Jeffrey Jacobs, Sean Conway, Shannon Day	Hydro One, Stantec	On behalf of Hydro One, Stantec informed the First Nation of the upcoming field studies in end Oct 2023, invited the First Nation to participate.
2023-09-26	Email	Outgoing	Sean Conway, Steve Toms, Francia Chua	Hydro One	Hydro One sent a follow up email for the in-person meeting on September 22, 2023 with an investment form application link for the programs/initiatives discussed at the meeting.
2024-03-15	Email	Outgoing	Sean Conway, Paige Williams	Hydro One	Hydro One provided CLFN with the Stage 1 Archaeological Assessment Report for their review.
2024-10-23	Email		Paige Williams	Hydro One	Hydro One informed CLFN of the November 5, 2024 open house for the Project.
Hiawatha First Nation					
2023-09-11	Email	Outgoing	Sean Davison	Hydro One	Hydro One sent the Notice of Commencement of a Class EA for Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230kV Line Project and invitated the First Nation to participate in upcoming field studies to be conducted in Fall 2023.
2023-09-13	Email	Incoming	Sean Davison	Hydro One	With regards to the email dated Sept 11, 2023, HFN thanked Hydro One for the email and expressed their interest in participating in the field studies.
2023-10-19	Email	Outgoing	Sean Davison, Mandy McGonigle	Hydro One, Stantec	On behalf of Hydro One, Stantec thanked HFN for their interest in the Project and invited the First Nation to participate in the upcoming ecosystems field studies tentatively scheduled for Oct 26/27, 2023 and informed that the Stage 1 AA findings will be shared once available.
2023-10-23	Email	Outgoing	Sean Davison, Mandy McGonigle	Hydro One, Stantec	On behalf of Hydro One, Stantec sent a follow-up invitation to the email dated Oct 19, 2023.
2024-10-23	Email	Outgoing	Sean Davison, Tom Cowie	Hydro One	Hydro One informed the HFN of the November 5, 2024 open house for the Project.
Nation huronne-wendat					
2023-10-13	Email	Outgoing	Isabelle Lechasseaur, Thiefaine Terrier, Dominic Ste-Marie	Hydro One, Stantec	On behalf of Hydro One, Stantec informed the First Nation of the upcoming field studies in end Oct 2023, invited the First Nation to participate.
2023-10-13	Email	Outgoing	Consultations Department	Hydro One, Stantec	Email forwarded due to failed delivery to Dominic Ste. Marie and Isabelle Lechasseaur. On behalf of Hydro One, Stantec informed the First Nation of the upcoming field studies in end Oct 2023, invited the First Nation to participate.
2023-10-23	Email	Outgoing	Dominique Lesage	Hydro One, Stantec	Email dated Oct 13, 2023 forwarded to Dominique Lesage, to inform the First Nation of the upcoming ecosystem field studies and Stage 1 AA.
2023-10-24	Email	Incoming	Gabrielle Beaudry, Dominique Lesage	Hydro One, Stantec	With regards to the emails dated Oct 13 and 23, 2023, Nation huronne-wendat expressed their interest in participating in the field studies.
2024-03-15	Email	Outgoing	Marie-Sophie Gendron, Caroline Therrien	Hydro One, Stantec	Hydro One provided Nation huronne-wendat with the Stage 1 Archaeological Assessment Report for their review.
2024-04-04	Email	Outgoing	Marie-Sophie Gendron, Caroline Therrien	Hydro One, Stantec	Hydro One acknowledged Nation huronne-wendat's interest in participating in the Project.
2024-04-12	Email	Incoming	Marie-Sophie Gendron, Caroline Therrien	Hydro One, Stantec	Nation huronne-wendat provided a letter with feedback for the Archaeology Assessment and provided an invoice for their participation.
Kawartha Nishnawbe First Nation (KNFN)					

First Nations and Métis Record of Consultation

DATE	METHOD	ORIGIN	CONTACT	PROJECT TEAM MEMBER(S)	SUMMARY OF COMMUNICATION
2023-09-11	Email	Outgoing	Christopher Reid, Nodin Webb, Sam Harvey, Jack (Giiwednang) Hoggarth	Hydro One	Hydro One sent the Notice of Commencement of a Class EA for Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230kV Line Project and invitated the First Nation to participate in upcoming field studies to be conducted in Fall 2023.
2023-10-13	Email	Outgoing	Christopher Reid, Nodin Webb, Sam Harvey, Jack (Giiwednang) Hoggarth	Hydro One, Stantec	On behalf of Hydro One, Stantec informed the First Nation of the upcoming field studies in end Oct 2023, invited the First Nation to participate.
2024-03-15	Email	Outgoing	Christopher Reid, Nodin Webb, Sam Harvey, Jack (Giiwednang) Hoggarth	Hydro One	Hydro One provided KNFN with the Stage 1 Archaeological Assessment Report for their review.
2024-03-16	Email	Incoming	Christopher Reid, Nodin Webb, Sam Harvey, Jack (Giiwednang) Hoggarth	Hydro One	KNFN provided dates to book a virtual consultation meeting.
2024-04-09	Email	Outgoing	Christopher Reid, Nodin Webb, Sam Harvey, Jack (Giiwednang) Hoggarth	Hydro One	Hydro One confirmed a date for the in-person meeting with KNFN.
2024-07-08	Email	Outgoing	Nodin Webb	Hydro One	Hydro One confirmed KNFN's participation in the review of the Stage 1 AA and confirmed participation funding rates.
2024-07-31	Email	Outgoing	Nodin Webb	Hydro One	Hydro One confirmed that funding will be sent to KNFN for their participation in the review of the Stage 1 AA.
2024-10-23	Email	Outgoing	Christopher Reid, Nodin Webb, Sam Harvey, Jack (Giiwednang) Hoggarth	Hydro One	Hydro One invited KNFN to the November 5, 2024 open house for the Project.
Métis Nation of Ontario (MNO)					
2023-09-11	Email	Outgoing	Consultations Department	Hydro One	Hydro One sent the Notice of Commencement of a Class EA for Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230kV Line Project and invitated the First Nation to participate in upcoming field studies to be conducted in Fall 2023.
2023-10-13	Email	Outgoing	Consultations Department	Hydro One, Stantec	On behalf of Hydro One, Stantec informed the First Nation of the upcoming field studies in end Oct 2023, invited the First Nation to participate.
2024-03-15	Email	Outgoing	Consultations Department	Hydro One	Hydro One provided MNO with the Stage 1 Archaeological Assessment Report for their review.
2024-10-23	Email	Outgoing	Consultations Department	Hydro One	Hydro One invited MNO to the November 5, 2024 open house for the Project.
Mississaugas of Scugog Island First Nation (MSIFN)					
2023-09-11	Email	Outgoing	Tom Turoczi	Hydro One	Hydro One sent the Notice of Commencement of a Class EA for Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230kV Line Project and invitated the First Nation to participate in upcoming field studies to be conducted in Fall 2023.
2023-09-13	Email	Incoming	Tom Turoczi	Hydro One	MSIFN thanked Hydro One and acknowledged receipt of the notification.
2023-10-13	Email	Outgoing	Consultations Department	Hydro One, Stantec	On behalf of Hydro One, Stantec informed the First Nation of the upcoming field studies in end Oct 2023, invited the First Nation to participate.

Federal Government Representatives and Agencies Record of Consultation

DATE	METHOD	ORIGIN	CONTACT	PROJECT TEAM MEMBER(S)	SUMMARY OF COMMUNICATION
CN Rail					
2023-07-07	Email	Outgoing	Proximity@cn.ca	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
CP Rail					
2023-07-07	Email	Outgoing	Tom Twigge, Liam Roney, Andreas Grammenz	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.

NOTE: “- - -“ denotes the absence of any available information

Provincial Government Representatives and Agencies Record of Consultation

DATE	METHOD	ORIGIN	CONTACT	PROJECT TEAM MEMBER(S)	SUMMARY OF COMMUNICATION
LEGISLATIVE ASSEMBLY OF ONTARIO					
2023-07-10	Email	Outgoing	MPP Andrea Khanjin, Andrew Valler	HydroOne	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project and request for a briefing with the office.
2023-07-10	Email	Outgoing	MPP Doug Downey, Kathryn Abel, Hale Mahon	HydroOne	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project and request for a briefing with the office.
MECP					
2023-07-07	Email	Outgoing	Metthew Dmytrenko, Chunmei Liu, General EA notice	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
2023-07-07	Email	Incoming	Stephen Belanger	InnPower, HydroOne, Stantec	MECP acknowledged receipt of the notice of commencement and requested for future submissions to be sent to Environment.Barrie@Ontario.ca.
MNRF					
2023-07-10	Email	Outgoing	Gilian Hartman (SR.Planning@ontario.ca)	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
Ministry of Energy					
2023-02-03	Email	Outgoing	Amy Gibson, Farrah Ali-Khan, Gillian Brown	InnPower, HydroOne	Details of the scope of work for the Project was shared with Ministry of Energy. Attachment: - DTC Letter to the Crown (Feb 2023)
2023-02-03	Email	Incoming	Farrah Ali-Khan, Gillian Brown, Amy Gibson	InnPower, HydroOne	In response to the email dated February 03, 2023, Farrah Ali-Khan (Ministry of Energy) acknowledge receipt of the scope of work, informed that she will be the preliminary assessor for the proposed Project, and requested for the shapefiles for the proposed Project.
2023-02-08	Email	Incoming	Farrah Ali-Khan, Gillian Brown, Amy Gibson	InnPower, HydroOne	Ministry of Energy requested for additional details to the Project, including permits/ approvals associated with the Project, foreseeable impacts and indigenous community engagement.
2023-02-15	Email	Outgoing	Farrah Ali-Khan	InnPower, HydroOne	With regards to the email dated February 08, 2023, Hydro One provided an interim update that the team is working on collating the responses.
2023-02-15	Email	Incoming	Farrah Ali-Khan	InnPower, HydroOne	Ministry of Energy acknowledged and thanked the team for the interim update.
2023-03-07	Email	Outgoing	Farrah Ali-Khan	InnPower, HydroOne	With regards to the email dated February 08, 2023, Hydro One provided an interim update that the team is working on collating the responses.
2023-03-07	Email	Incoming	Farrah Ali-Khan	InnPower, HydroOne	Ministry of Energy acknowledged and thanked the team for the interim update.
2023-07-07	Email	Outgoing	Joerg Wittenbrink, Farrah Ali-Khan	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
2023-07-07	Email	Incoming	Farrah Ali-Khan	InnPower, HydroOne, Stantec	Ministry of Energy acknowledged receipt of the notice of commencement and enquired on the additional information requested in Feb 2023.
2023-07-07	Email	Outgoing	Farrah Ali-Khan	InnPower, HydroOne	In response to the emails dated February 06 and 08, 2023, HydroOne provided the shapefiles requested and responded to Ministry of Energy's questions. Note: Interim updates were provided to Ministry of Energy as HydroOne collated the information. Attachments: - Proposed Line Upgrade 115 to 230 - Proposed New Innpower MTS - Document collating HydroOne's responses to Ministry of Energy
2023-07-07	Email	Incoming	Farrah Ali-Khan	InnPower, HydroOne	Ministry of Energy acknowledged receipt of the Project details and informed that they will be commencing the preliminary assessment.
2023-07-28	Email	Incoming	Farrah Ali-Khan	InnPower, HydroOne	Ministry of Energy requested for a map of the proposed Project.
2023-07-28	Email	Outgoing	Farrah Ali-Khan	InnPower, HydroOne	In response to the email dated July 28, 2023, HydroOne provided a map of the proposed Project.

Provincial Government Representatives and Agencies Record of Consultation

DATE	METHOD	ORIGIN	CONTACT	PROJECT TEAM MEMBER(S)	SUMMARY OF COMMUNICATION
2023-07-30	Email	Incoming	Farrah Ali-Khan	InnPower, HydroOne	Ministry of Energy enquired on the permits required from MTO and MECP, and details of the engagement with Indigenous Communities (namely, Chippewas of Rama First Nation, Beausoleil First Nation, Chippewas of Georgina Island First Nation and Huron Wendat).
2023-08-03	Email	Outgoing	Farrah Ali-Khan	InnPower, HydroOne	In response to the email dated July 30, 2023, HydroOne shared the potential permits required from MTO and MECP, and provided details of their Indigenous Community engagement efforts, which include disseminating the Notice of Commencement and inviting Huron Wendat Nation for participation in archaeological assesments. HydroOne informed that no concerns of feedback have been received from the respective Indigenous Communities of date.
2023-08-03	Email	Incoming	Farrah Ali-Khan	HydroOne	Ministry of Energy thanked Hydro One for the additional information provided and notified that the assessment is currently under review.
2023-08-28	Email	Incoming	Farrah Ali-Khan	InnPower, HydroOne	Ministry of Energy notified that the procedural aspects of consultation have been delegated to InnPower and Hydro One for the proposed Project. Attachment: - Notification Letter - InnPower Municipal Transformer Station and Transmission Line Project
2023-08-28	Email	Incoming	Farrah Ali-Khan	InnPower, HydroOne	Ministry of Energy provided the delegation letter for the proposed Project and informed that the Ministry of Energy will be sending notification of consultation delegation to the Indigenous communities. The Ministry also confirmed the list of Indigenous communities to be consulted: Alderville First Nation, Beausoleil First Nation, Chippewas of Georgina Island First Nation, Chippewas of Rama First Nation, Curve Lake First Nation, Hiawatha First Nation, Huron-Wendat, Kawartha Nishnawbe, Georgian Bay Historic Métis Community and Mississaugas of Scugog Island First Nation Attachment: - Delegation Letter - InnPower Municipal Transformer Station and Transmission Line Project
Ministry of Mines					
2023-07-07	Email	Outgoing	Tracey Burton, Melanie Johnson	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
MCM					
2023-07-07	Email	Outgoing	Karla Barboza, Dan Minkin	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
2023-08-21	Email	Outgoing	MCM Registrar	Stantec	Stantec (on behalf of Hydro One and InnPower) enquired if there are any potential of provincial heritage properties within or adjacent to the Project Study Area. Note: Email correspondence is also captured in the Cultural Heritage Memo
2023-08-23	Email	Incoming	Karla Barboza	Stantec	MCM confirmed that they were not aware of any provincial heritage properties with or adjacent to the Project Study Area, and to date, no properties have been designated by MCM as protected under the Ontario Heritage Act as being of cultural heritage value or interest of provincial significance. MCM also requested for the technical Cultural Heritage studies, if any, to be submitted for review as part of the EA process. Note: Email correspondence is also captured in the Cultural Heritage Memo

Provincial Government Representatives and Agencies Record of Consultation

DATE	METHOD	ORIGIN	CONTACT	PROJECT TEAM MEMBER(S)	SUMMARY OF COMMUNICATION
2023-12-05	Email	Incoming	Erika Leclerc	InnPower, HydroOne, Stantec	In response to the email dated July 07, 2023, MCM acknowledged receipt of the NOC and provided their initial letter to the Project. MCM informed that under the EA process, the proponent is required to determine the potential impact on cultural heritage resources and archaeological resources. The Project is to be screened in accordance with the following: - Standards and Guidelines for Conservation of Provincial Heritage Properties - the Ministry's Criteria for Evaluating Archaeological Potential - the Ministry's Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes MCM also informed that they are to be advised on technical cultural heritage studies to be completed for the EA and subitted to MCM before issuing a Notice of Completion. All studies conducted are also to be incorporated into the EA projects. Attachment: - General Class EA response letter (dated December 05, 2023)
Metrolinx					
2023-07-07	Email	Outgoing	Adam Snow	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
Ministry of Transportation					
2023-07-07	Email	Outgoing	Jason White	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
ONxpress Transportation Partners					
2023-07-07	Email	Outgoing	Brenda Hickey	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
Infrastructure Ontario					
2023-07-07	Email	Outgoing	Katherine Hotrum, Joanna Craig	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
Ontario Energy Board					
2023-07-07	Email	Outgoing	IndustryRelations@oeb.ca	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
Ontario Heritage Trust (OHT)					
2023-08-21	Email	Outgoing	Samuel Bayefsky	Stantec	Stantec (on behalf of Hydro One and InnPower) enquired if there are any OHT conservation easements of OHT-owned properties within or adjacent to the Project Study Area. Note: Email correspondence is also captured in the Cultural Heritage Memo
2023-08-21	Email	Incoming	Samuel Bayefsky	Stantec	OHT confirmed that they did not own nor protect via easement, any properties with the provided Project Study Area. Note: Email correspondence is also captured in the Cultural Heritage Memo

Municipal Government Representatives and Agencies Record of Consultation

DATE	METHOD	ORIGIN	CONTACT	PROJECT TEAM MEMBER(S)	SUMMARY OF COMMUNICATION
MMAH Central Municipal Services Office					
2023-07-07	Email	Outgoing	Maya Harris	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
Lake Simcoe Region Conservation Authority (LSRCA)					
2023-07-07	Email	Outgoing	Frank Pinto, Dave Ruggle, Christa Sharp, Peter Shuttleworth	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
2023-07-19	Email	Incoming	Taylor Stevenson	InnPower, HydroOne, Stantec	LSRCA acknowledged receipt of the Notice of commencement and provided their comments, including: - The EA study area is partially regulated by them under O. Reg 179/06 made pursuant to the CA Act. - The EA study area is located within a SGRA and HVA as identified under the Lake Simcoe Protection Act and Plan and the Clean Water Act. - In regards to the LSPP, the settlement area policies 6.32-6.34 - To engage the City of Barrie for natural heritage policies. LSRCA attached maps for reference and suggested mitigation measures, and further consultation through detailed design/environmental discipline studies.
2023-09-27	Email	Outgoing	Taylor Stevenson	InnPower, HydroOne, Stantec	With regards to the email date Jul 19, 2023, HydroOne requested for a discussion to understand the regulatory requirements of the LSRCA.
2023-10-17	Email	Incoming	Taylor Stevenson	InnPower, HydroOne, Stantec	With regards to the upcoming meeting between LSRCA and Hydro One, LSRCA requested for more details of the proposed works required and to identify watercourse crossings, if any.
City of Barrie					
2023-07-05	Email	Outgoing	Councillor Jim Harris	HydroOne	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project and request for a briefing with the office.
2023-07-05	Email	Outgoing	Mayor Nuttall	HydroOne	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project and request for a briefing with the office.
2023-07-05	Email	Outgoing	Councillor Gary Harvey	HydroOne	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project and request for a briefing with the office.
2023-07-05	Email	Outgoing	Councillor Nigussie	HydroOne	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project and request for a briefing with the office.
2023-07-05	Meeting and Follow-Up Email	-	Councillor Gary Harvey	HydroOne	Meeting between City of Barrie and Hydro One to share on the Project. The City of Barrie informed that they are currently developing a new subdivision beside the hydro line at Thrushwood and the road alignment with Brookwood is affected by one of the towers (project is listed as 15 Harvie Rd and is being developed by Smart Centres), and that the connecting traffic flow is expected to be impacted.
2023-08-17	Meeting	-	City of Barrie, Mark Resnick (Smart Centres)	HydroOne	Meeting between City of Barrie, Smart Centres and Hydro One to discuss the route alignment at 15 Harvie Road in Barrie. Attachment: - Proposed Smart Centre Location in Barrie
2023-08-21	Email	Outgoing	Tomasz Wierzba	Stantec	Stantec (on behalf of Hydro One and InnPower) enquired if there are any municipal provincial heritage properties or interests within or adjacent to the Project Study Area. Note: Email correspondence is also captured in the Cultural Heritage Memo
2023-09-20	Email	Incoming	Tomasz Wierzba	Stantec	The City of Barrie confirmed that there were no municipal provincial heritage properties or interests within or adjacent to the Project Study Area that they were aware of, based on the desktop exercise by their GIS team on the lands within the municipality boundaries. The City of Barrie highlighted that this confirmation does not eliminate the possibility of indigenous cultural heritage resources being present in or adjacent to the Project Study Area. Note: Email correspondence is also captured in the Cultural Heritage Memo

Municipal Government Representatives and Agencies Record of Consultation

DATE	METHOD	ORIGIN	CONTACT	PROJECT TEAM MEMBER(S)	SUMMARY OF COMMUNICATION
Town of Innisfil					
2023-07-07	Email	Outgoing	Oliver Jerschow, Nicole Bowman, Patty Thoma	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
Simco Country District School Board					
2023-07-07	Email	Outgoing	Corry Van Nispen	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.

Potentially Affected and Interested Persons and Interest Groups Record of Consultation

DATE	METHOD	ORIGIN	CONTACT	PROJECT TEAM MEMBER(S)	SUMMARY OF COMMUNICATION
Community Group					
2023-07-14	Email	Outgoing	Multiple Interest Groups	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
Third party					
2023-07-14	Email	Outgoing	Multiple Third Parties	InnPower, HydroOne, Stantec	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project.
Discovery Child Care Centre					
2023-08-21	Meeting	-	Karen Eilersen	HydroOne	In-person meeting to share on the Project, in particular, the electric and magnetic fields as it relates to the 230kV corridor. Hydro One shared that there is an ongoing EMF study, and the results will be shared once available. Hydro One would also help the centre create a handout to address concerns from parents of the childcare.
Heritage Baptist Church					
2023-07-19	Email	Outgoing	Brett Pennell (Pastor)	HydroOne	Notice of commencement of a Class Environmental Assessment for the Minor Transmission Facilities for the New InnPower Municipal Transformer Station and Hydro One 230 kV Line Project, invitation to participate in the July 26 Open House, and invitation to share on the Project.
2023-07-26	Meeting	-	Brett Pennell (Pastor)	HydroOne	In-person meeting to share on the Project and receive feedback.
2023-08-24	Meeting	-	Brett Pennell (Pastor)	HydroOne	In-person meeting to share on the Project, including Project need, EA process, timelines and anticipated scope of work. The Church's queries include exposure to electric and magnetic fields, construction impacts on pick-off/drop-off at the associated school facility, and expressed interest in building a bus shelter on their property under the existing transmission lines. Hydro One requested for the bus shelter plans for discussion with the Project team.
Smart Centres					
2023-08-17	Email	Incoming	Mark Resnick, Daniel Branzea, Junior Memaj	HydroOne, City of Barrie	Smart Centres shared that the Project potentially affected their property at 15 Harvie Rd, namely their road connection to Thrushwood Dr which will be impacted by the location of the hydro line, and requested for a coordination call.
2023-08-17	Telecommunication	-	Mark Resnick	HydroOne	Hydro One and Smart Centres agreed to meet for a discussion in Aug 2023.
2023-08-17	Meeting	-	City of Barrie, Mark Resnick (Smart Centres)	HydroOne	Meeting between City of Barrie, Smart Centres and Hydro One to discuss the route alignment at 15 Harvie Road in Barrie. Attachment: - Proposed Smart Centre Location in Barrie

NOTE: "- - -" denotes the absence of any available information

Property Owners Record of Consultation

DATE	METHOD	ORIGIN	CONTACT	PROJECT TEAM MEMBER(S)	SUMMARY OF COMMUNICATION
Member of Public					
2023-08-21	Telecommunication	Incoming/Outgoing	Member of Public	HydroOne	Member of Public expressed her comments with HydroOne representative about the EMF, including: to avoid hosting meetings in summer as many of her neighbours were unaware of the project, that she was open to taller towers, and shared about a tree on the ROW adjacent to her backyard.

NOTE: “- - -“ denotes the absence of any available information

Appendix C

Environmental Inventory

C.1 Innpower Minor Transmission Station Project – Site Selection Study

InnPower Minor Transmission Station Project

Site Selection Study

March 23, 2022

Prepared for:

InnPower Corporation

Prepared by:

Stantec Consulting Ltd.
100-300 Hagey Boulevard,
Waterloo ON N2L 0A4

INNPOWER MINOR TRANSMISSION STATION PROJECT

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Prepared by _____ Digitally signed by Bean, Jordan Date: 2022.03.23 13:59:48 -04'00'

(signature)

Jordan Bean, B.ES.

Reviewed by _____ Digitally signed by Hill, Laura Date: 2022.03.24 09:28:50 -04'00'

(signature)

Laura Hill, M.Env.Sc.

Approved by _____ Digitally signed by Piero Amodeo Date: 2022.03.23 14:06:31 -04'00'

(signature)

Piero Amodeo, B.A.

Accepted by _____ Digitally signed by Greener, Leslie Date: 2022.03.23 13:54:48 -04'00'

(signature)

Leslie Greener, B.Sc., EP

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Abbreviations

AG	Agricultural General Zone
ANSI	Area of Natural and Scientific Interest
dBA	A-Weighted Decibels
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EP	Environmental Protection
ha	Hectare
LIO	Land Information Ontario
LSRCA	Lake Simcoe Region Conservation Authority
m	Metre
MECP	Ministry of the Environment, Conservation and Parks
MHSTCI	Ministry of Heritage, Sport, Tourism and Culture Industries
MTF	Minor Transmission Facilities
MTO	Ministry of Transportation
NDMNRF	Ministry of Northern Development, Mines, Natural Resources and Forestry

NHIC	Natural Heritage Information Centre
NHS	Natural Heritage System
NVCA	Nottawasaga Valley Conservation Authority
PSW	Provincially Significant Wetlands
SAR	Species at Risk

1.0 INTRODUCTION

InnPower Corporation (InnPower) plans to design, construct, energize, and operate a new 230 kilovolt (kV)/27.6 kV Jones-style municipal transformer station (the Project) in the City of Barrie and the Town of Innisfil, in Simcoe County. The Project is required to address the load growth in Innisfil and southern portion of the City of Barrie. Based on the preliminary design, the proposed Project will require an area of approximately 130 metres by 70 metres, including infrastructure, fencing and a control building. InnPower has identified three potential sites for the proposed Project that can accommodate the Project's spatial requirements.

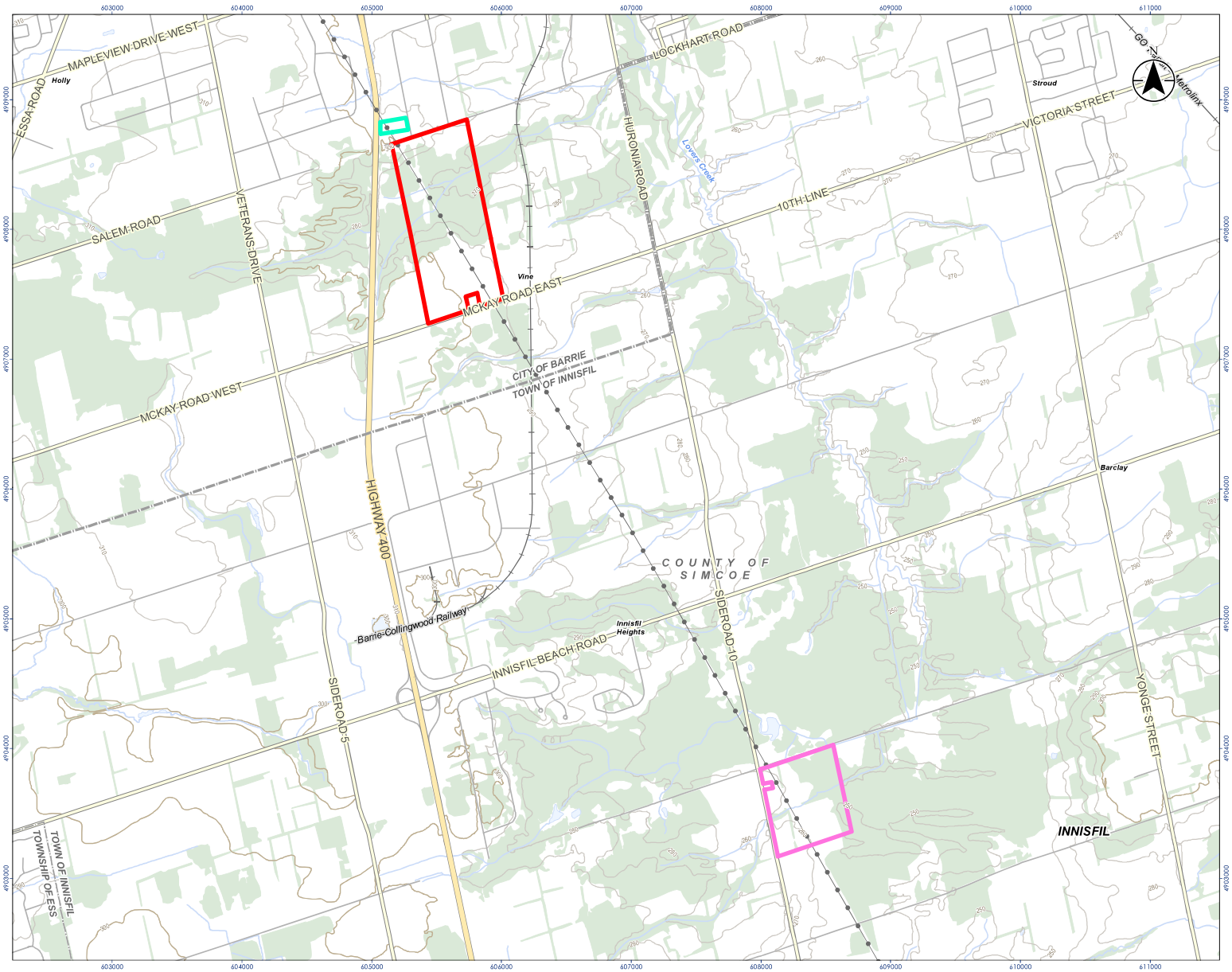
As the Project is subject to the Class Environmental Assessment for Minor Transmission Facilities (MTF Class EA) (Hydro One Networks Inc. 2022), InnPower is undertaking a site selection study to identify a preliminary preferred site based on an evaluation of the biophysical, socio-economic, cultural heritage, and financial/technical aspects of each site. InnPower has identified three potential sites for the proposed Project. This report serves to evaluate the potential sites and identify a preliminary preferred site for the Project to be carried forward as part of the MTF Class EA phase for a more comprehensive assessment.

The remainder of this report has been organized as follows:

- Section 2.0 provides a description of the three potential sites and includes mapping to illustrate the locations of the sites.
- Section 3.0 describes the study areas for each of the technical disciplines (i.e., terrestrial and aquatic, land use, noise, cultural heritage resources, and archaeology) and outlines the methodologies used to gather baseline information and assess the three sites.
- Section 4.0 summarizes the existing terrestrial and aquatic ecosystems, land use, noise, cultural heritage resources and archaeological conditions for each of the three sites.
- Section 5.0 provides an assessment of the three alternative sites according to the criteria identified for biophysical, socio-economic, cultural heritage, and financial/technical aspects.
- Section 6.0 outlines recommendations and identifies next steps for the Project.

2.0 POTENTIAL SITES

InnPower identified three potential sites that could feasibly accommodate the transformer and associated infrastructure. Figure 2.1 illustrates the location of the sites. Each site is described in more detail below.



Stantec

Legend

- Saunders Road Site Boundary
- Site 1 Boundary
- Site 2 Boundary
- Contour
- Highway
- Major Road
- Hydro Line
- Railway
- Watercourse
- Municipal Boundary
- Municipal Boundary, Lower
- Waterbody
- Wooded Area

0 0.5 1 km

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Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.

Project Location
City of Barrie/
Town of Innisfill

160900977 REVA
Prepared by DH on 2022-02-23

Client/Project
INNPOWER CORPORATION
INNPOWER MINOR TRANSMISSION STATION

Figure No.
2.1

Title
Potential Project Sites

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

2.1 SAUNDERS SITE

The Saunders site is located at 14 Saunders Road in the City of Barrie, Ontario. The site is three separate parcels which are legally described as: Pcl 7-18 Sec 51INN11; Pt Lts 7 & 8 Con 11 (BA), Pts 4, 5 & 6 51R17512 ; S/T IN26463A,IN29146 Innisfil; Pcl 7-17 Sec 51INN11; Pt Lts 7 & 8 CON 11 (BA), Pts 1, 2 & 3 51R17512 ; S/T IN26463A,IN29146 Innisfil; and Pcl 7-19 Sec 51INN11; Pt Lts 7 & 8 Con 11 (BA), Pts 7, 8 & 9 51R17512 ; S/T IN26463A,IN29146 Innisfil. The site is approximately 1.9 hectares (ha) and is bounded by adjacent private properties to the north and south, Highway 400 to the west, and Saunders Road to the east. The property is accessible via Saunders Road. The site is private property currently owned by InnPower. A 230 kV hydro line intersects the property northwest to south-east.

2.2 SITE 1

Site 1 is located east of the intersection of Highway 400 and McKay Road East in the City of Barrie, Ontario and is legally described as Pcl 8-1 Sec 51-INN-10; Pt Lt 8 Con 10 Innisfil Pt 1, 2 & 3 51R4320 ; S/T IN26464A, Innisfil. The site is approximately 84 ha and is bounded by Lockhart Road to the north, private properties to the east and west, and McKay Road East to the south. The site is privately-owned property and consists partially of plowed fields at the south end and forested area at the north end. A 230 kV hydro line intersects the property northwest to south-east.

2.3 SITE 2

Site 2 is located at 7169 10 Sideroad in Innisfil, Ontario, at the intersection between Sideroad 10 and 7th Line, which is immediately south of the City of Barrie. The site is legally described as N 1/2 Lt 11, Con 6 Except Pt 1, Pl 51R27923; S/T IN26566; Innisfil. The site is approximately 40.3 ha and is bounded by 7th Line to the north, Sideroad 10 to the west, forested area to the east, and adjacent private property to the south. The site is primarily plowed fields with forested area to the east and northeast end of the property and is 40.3 ha in size. A 230 kV hydro line intersects the property northwest to south-east.

3.0 METHODOLOGY

The following subsections provide an overview of the methodologies for delineation of study areas and data collection used to provide an overview of existing conditions for terrestrial and aquatic ecosystems, noise, land use, cultural heritage resources and archaeology. This is followed by a summary of the site selection methodology.

3.1 EXISTING CONDITIONS METHODOLOGY

The following subsections provide an overview of the methodologies for delineation of study areas and data collection.

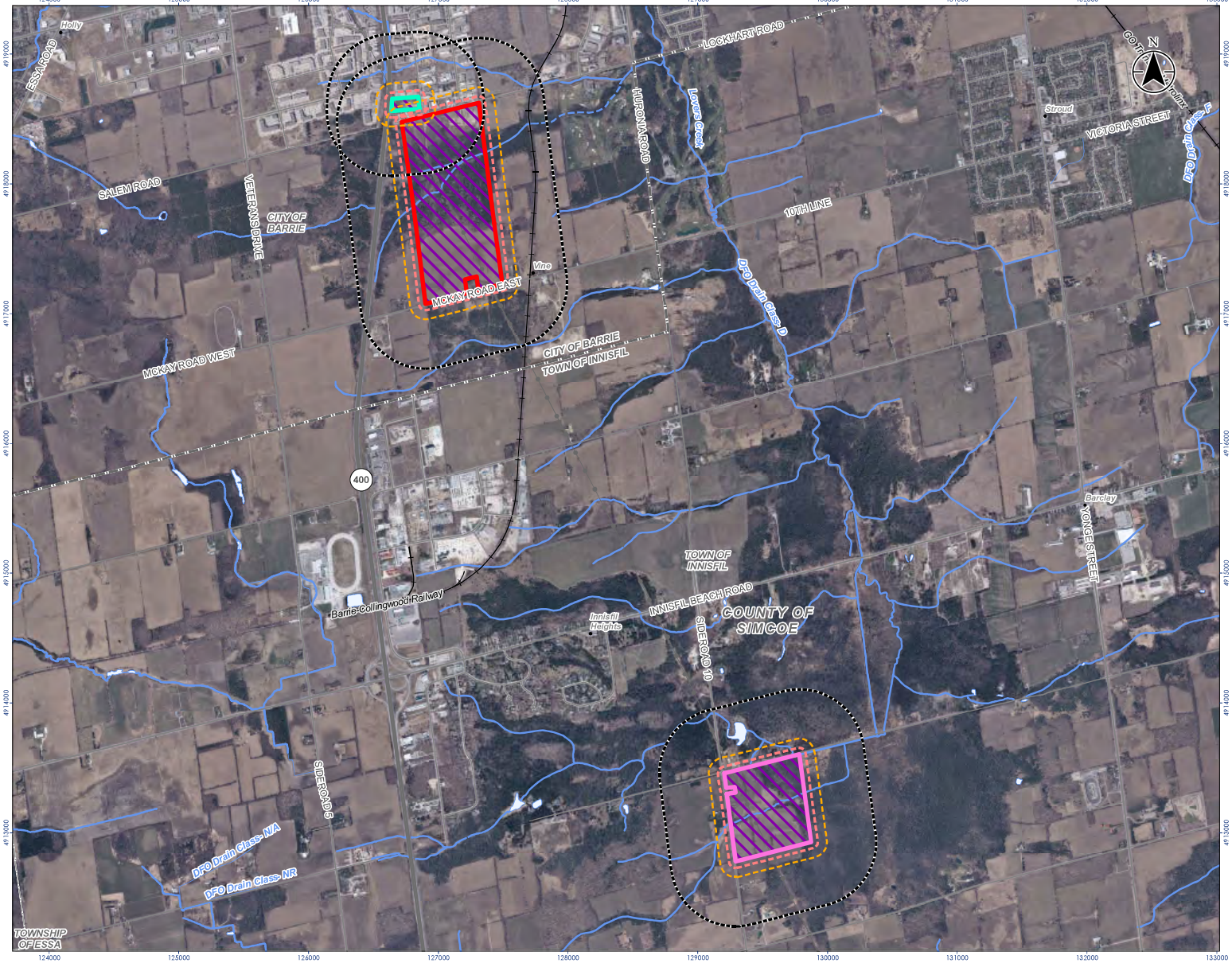
3.1.1 Study Areas

Study Areas for each of the sites were delineated to encompass a preliminary area where effects associated with Project construction and/or operation could potentially occur. The boundaries of the Study Areas were established by considering the proposed sites in relation to the occurrence of known potential environmental and technical constraints, as well as constraints associated with relevant land use policies.

For each technical discipline, discipline-specific Study Areas were defined based on the anticipated area of effect. These Study Areas are summarized in Table 3.1 and shown in Figure 3.1.

Table 3.1: Study Areas for Technical Disciplines

Technical Discipline	Study Area
Terrestrial and Aquatic Ecosystems	• A 120 m buffer on each of the site property boundaries.
Noise	• A 500 m buffer on each of the site property boundaries.
Land Use	• Site property boundaries.
Cultural Heritage Resources	• A 50 m buffer on each of the site property boundaries.
Archaeology	• Site property boundaries.



Stantec

Legend

- Saunders Road Site Boundary
- Site 1 Boundary
- Site 2 Boundary
- Archaeology and Landuse Study Area
- Cultural Heritage Study Area
- Noise Study Area
- Terrestrial and Aquatic Ecosystems Study
- Constructed Drain
- Hydro Line
- Railway
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Municipal Boundary, Upper
- Municipal Boundary, Lower
- Waterbody

0 1 2 km

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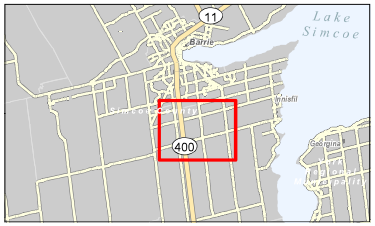
Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2019.
3. Orthoimagery © First Base Solutions, 2021. Imagery Date: 2016.



Project Location
City of Barrie/
Town of Innisfill

160900977 REV4
Prepared by DH on 2022-02-23

Client/Project
INNPOWER CORPORATION
INNPOWER MINOR TRANSMISSION STATION

Figure No.
3.1

Title
Study Areas

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3.1.2 Terrestrial and Aquatic Ecosystems

A review of background documents and related information sources was conducted to identify natural heritage features, species at risk (SAR) occurrences, site constraints, and permitting considerations for each of the three potential sites. Information sources included provincial and federal databases, maps, wildlife atlases, conservation authority information, and municipal plans. The following background documents and related information sources were reviewed:

- Ministry of Northern Development, Mines, Natural Resources and Forestry's (NDMNRF) Land Information Ontario (LIO) database (NDMNRF 2022a) – to identify forested areas, area of natural and scientific interest (ANSIs) and wetlands, including provincially significant wetlands (PSWs)
- NDMNRF's LIO database (NDMNRF 2022a) – to identify the location of watercourses and, where available, flow regime, thermal regime, and fish community data
- Natural Heritage Information Centre's (NHIC) Biodiversity Explorer database (NDMNRF 2022b) – for occurrences of rare and at-risk species
- NDMNRF's Constructed Drains digital dataset (NDMNRF 2022c) – to assess if there are constructed drains and, if applicable, the corresponding Drain Class as per Fisheries and Oceans Canada (DFO) (DFO 2014)
- DFO maps of aquatic SAR (DFO 2021) – to identify if federally regulated fish or freshwater mussel SAR have been documented in or near the alternative sites
- Various wildlife atlases (Ontario Reptile and Amphibian Atlas, Ontario Nature 2020; Ontario Mammal Atlas, Dobbyn 1994; Ontario Breeding Bird Atlas, Cadman et al. 2007) – for occurrences of rare and at-risk species
- Lake Simcoe Region Conservation Authority (LSRCA) (LSRCA 2016) – to estimate the location of the NVCA's regulation limits
- Nottawasaga Valley Conservation Authority (NVCA) (NVCA 2020) – to estimate the location of the NVCA's regulation limits
- The following municipal documents were reviewed to obtain additional information regarding local policies or classification of natural areas, as available:
  - Town of Innisfil Official Plan (Town of Innisfil 2018)
  - City of Barrie Official Plan 2051 (City of Barrie 2021a)
  - City of Barrie Annexed Lands Natural Heritage Characterization Report (NRSI 2012).

Wildlife atlases and NDMNRF databases do not provide the locations of species occurrences, and accuracy ranges from 1 km^2 (NHIC Biodiversity Explorer) to 10 km^2 (wildlife atlases) or to municipal boundaries or watersheds. Results were therefore screened to assess their relevance to the sites and species were removed from consideration if no suitable habitat was present on the sites (based on background data). A technical memo summarizing the natural features for each site is provided in **Appendix A**.

3.1.3 Land Use

To determine the applicable land use and zoning for each site, the following sources were consulted:

- City of Barrie Comprehensive Zoning By-law 2009-141 (Office Consolidation January 2021) (City of Barrie 2021b)
- City of Barrie Official Plan (City of Barrie 2021a)
- City of Barrie Salem Secondary Plan (City of Barrie 2018)
- Town of Innisfil Official Plan (Town of Innisfil 2018)
- Town of Innisfil Comprehensive Zoning By-law 080-13 (Town of Innisfil 2013)

3.1.4 Noise

A desktop review using available aerial imagery was conducted to identify a preliminary inventory of potential sensitive land uses within 500 m of the site boundaries. The Ontario Ministry of the Environment, Conservation and Parks (MECP) document *Environmental Noise Guideline NPC-300: Noise Criteria for Stationary and Transportation Sources – Approval and Planning* (MECP 2013) is the applicable guideline for the Project. Noise sensitive receptors of interest under MECP NPC-300 guidelines include the following noise sensitive land uses:

- Permanent, seasonal, or rental residences;
- Hotels, motels and campgrounds;
- Schools, universities, libraries and daycare centres;
- Hospitals and clinics, nursing/retirement homes; and
- Churches and places of worship.

Applicable municipal official plans and zoning bylaws were also reviewed to determine where vacant lots should be considered as future potential sensitive receptors (i.e., where existing land use designations / zoning may permit the development of a sensitive land use).

3.1.5 Cultural Heritage Resources

Review of background data and available online material were consulted to place the three potential locations in historical context. Municipal and provincial authorities were consulted to identify protected properties in the vicinity of the three sites. The background research was used to complete the checklist titled *Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (the Cultural Heritage

Checklist). The Cultural Heritage Checklist was used to identify potential heritage resources for each site and is provided in Appendix B.

3.1.6 Archaeology

A preliminary desktop examination of archaeological potential for the proposed sites was undertaken based on the criteria commonly used by the MHSTCI to evaluate archaeological potential. Criteria include proximity to registered archaeological sites, distance to various types of water sources, soil texture and drainage, glacial geomorphology, and general topographic variability of the area. Further, archaeological potential can be extended to areas of early Euro-Canadian settlement, including places of military or pioneer settlements, early transportation routes, and properties listed on the municipal register or designated under the *Ontario Heritage Act*, or properties that local histories or informants have identified with possible historical events. The sites were also reviewed to determine where archaeological potential can be considered absent, that is, when it can be documented that all or parts of a subject property has been subject to deep and extensive land alterations or disturbance that has severely damaged the integrity of potential archaeological resources.

3.2 SITE SELECTION METHODOLOGY

To evaluate the potential environmental effects of the Project on the three proposed sites, four broad categories were identified, biophysical, socio-economic, cultural heritage resources, and financial/technical based on a broad definition of the environment described in the *Environmental Assessment Act*.

The potential environmental effects were assessed qualitatively, and where possible quantitatively based on a series of criteria that represent anticipated environmental effects in each of the four categories:

- Biophysical:
  - Terrestrial Environment
    - Removal of forested areas
    - Removal of wetlands
    - Removal of habitat
    - Presence of SAR
    - Proximity to natural hazards (i.e., erosion, flooding)
  - Aquatic Environment
    - Removal or alteration of fish habitat
    - Presence of SAR
- Socio-Economic:
  - Land Use
    - Change in land use designation / zoning
    - Change in land tenure
    - Proximity of sensitive land uses
    - Number of proposed developments publicly announced in proximity to the site

  - Noise
    - Number of existing receptors potentially impacted
    - Number of vacant lot receptors potentially impact
    - Distance to the closest receptor
    - Noise classification for receptors
    - Assessment criteria

- Cultural Heritage Resources:

  - Alteration or destruction of archaeological resources
  - Alteration or destruction of a cultural heritage landscapes/built heritage resources

- Financial / Technical:

  - Development Costs
    - Site development considerations (e.g., land acquisition, soil remediation, etc.)
    - Potential costs for mitigation measures
    - Proximity to Existing Transmission Lines
    - Distance to transmission lines
  - Regulatory Approvals
    - Number of regulatory approvals anticipated and complexity
  - Site Characteristics
    - Site can accommodate transformer station
    - Sufficient space to accommodate laydown/staging during construction

The potential for effects of the Project on each criterion were identified considering how the Project would be conceptually implemented at each site. A comparative analysis was undertaken by comparing each site to determine which site demonstrates the greatest balance of advantages to disadvantages, based on the potential for environmental effects. Determination of potential Project interactions with the environment was based on the professional judgment of technical specialists, experience with other similar projects, and based on preliminary understanding of existing conditions.

4.0 EXISTING CONDITIONS

The following subsections provides an overview of existing conditions for terrestrial and aquatic ecosystems, noise, land use, cultural heritage resources and archaeology.

4.1 SAUNDERS SITE

4.1.1 Terrestrial and Aquatic Ecosystems

The Saunders site is located within an industrial park at the south end of the City of Barrie and has no natural features, watercourses, or constructed drains within the site. While the site is located within the LSRCA jurisdiction, there are no LSRCA regulated areas within the site boundary. There is an area of the LSRCA Regulation Limit approximately 120 m north of the site boundary (Figure 3.2).

Based on the background review, two SAR have been documented or have the potential to occur at the site. These are Barn Swallow and Little Brown Myotis.

Stantec

Legend

- Saunders Road Site Boundary
- Site 1 Boundary
- Noise Receptor
- Direction of Surface Water Flow
- Regulation Limit (LSRCA)
- Hydro Line
- Watercourse (Permanent)

0 40 80 m

1:1,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
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Project Location
City of Barrie/
Town of Innisfill

160900977 REV4
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Figure No.
3.2

Title
Saunders Road Existing Environmental Conditions

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4.1.2 Land Use

According to the City of Barrie Consolidated Zoning By-law, Section 4.2.1, a public utility may use any lands as long as they are developed within the provisions of that zone (City of Barrie, 2021b). This approach to the siting of public utilities is consistent across the policy framework in Ontario. Notwithstanding these considerations around siting, the Saunders location includes some considerations from both the Official Plan (City of Barrie 2021a) and Zoning By-law (City of Barrie 2021b) that may influence the site depending on the development being considered.

This location is within the City of Barrie Official Plan designated as Highway 400 Industrial (Official Plan Section 4.4.2.4). This land use is intended to support the development of 'prestige industrial and office-based uses". This recognizes the visual impact of these institutional uses as a gateway to the City. Subsection I identifies that this land use category does allow for open storage activities subject to the appropriate screening and landscaping to be addressed through Site Plan Control. The adjacent land uses to the west is General Industrial will be compatible with the public utility function.

The City of Barrie Zoning By-law identifies the site as Highway Industrial (refer to Figure 3.3), which has specific provisions providing for front lot setbacks and exterior finishes which respond to the Official Plan direction for this area as a gateway to the City. The development standards for Highway Industrial use are provided in Table 4.1 and delineated on Figure 3.3.

Table 4.1: Highway Industrial Development Standards

Parameter	Development Standards
Lot Area (min)	1300 m^2
Lot Frontage (min)	30 m
Front Yard (min)	15 m
Side Yard (min)	4 m
Rear Yard (min)	8 m
Lot Coverage (max)	50%
Building Height (max)	14 m^3

Notes:
City of Barrie Zoning By-Law (City of Barrie 2021).

The site is directly adjacent to Highway 400, and the western end of the property is within Ministry of Transportation (MTO) Permit Control Area.

InnPower currently uses this property for storage. Previous uses of the site are unknown and soil conditions are unconfirmed.

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Legend

- Site Boundary
- Zoning Limits
- Zoning Setbacks (min)

0 40 80 m

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Notes

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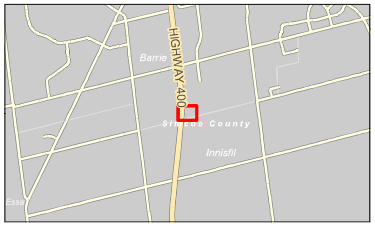

Project Location
City of Barrie /
Town of Innisfil

1609-00977 REV0
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Figure No.
3.3

Title
Saunders - Zoning

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4.1.3 Noise

The Saunders site is located within an industrial land zone in the southern portion of the City of Barrie. No existing noise-sensitive receptors are identified within 500 m of the site.

The land south of Lockhart Road falls under the City of Barrie and is zoned for agricultural use. As parcels zoned as agricultural lands which permits residential dwellings, the property south of Lockhart Road should be considered a vacant lot receptor for the noise assessment. The vacant lot receptor is approximately 120 m away from the Saunders site (Figure 3.2). High background sound levels are expected at the vacant lot receptor due to proximity to Highway 400. Therefore, considering high baseline sound levels in the area, baseline sound levels over the exclusionary limits presented in MECP NPC-300 could be used for the project noise assessment. The area can be classified as a Class 1 Area in accordance with the MECP guidelines. Class 1 Area is described as an area with an acoustical environment dominated by the urban hum and/or road traffic. The noise criteria for Class 1 Areas are the higher of the background sound level or MECP exclusionary limit of 50 dBA for daytime and 45 dBA for nighttime (MECP 2013).

4.1.4 Cultural Heritage Resources

The Parks Canada and Canada's Historic Places websites identified no historic sites within or adjacent to the Saunders site. There are no identified United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites within the City of Barrie.

The Saunders site has no special association with a community, person, or historical event. The site is located within an industrial area in the southern portion of the City of Barrie. The Cultural Heritage Study Area includes modern roadways with modern infill properties, and no trails were identified within or adjacent to any of the proposed properties.

The 1881 Historical Atlas Map of the Township of Innisfil shows no structures in the Cultural Heritage Study Area in the late 19th century. The historical mapping is missing properties 36 and 110 McKay Road, two mid- to late-19th century residences that may be considered landmarks in the local community or may be important in defining the character of the area. The properties 36 and 110 McKay Road are approximately 500 m from the Saunders site (refer to Figure 3.2).

The Cultural Heritage Checklist determined no heritage potential for the Saunders site.

4.1.5 Archaeology

Based on a preliminary review of the Saunders site and common archaeological potential criteria, it is anticipated that archaeological potential will be identified for the site.

4.2 SITE 1

4.2.1 Terrestrial and Aquatic Ecosystems

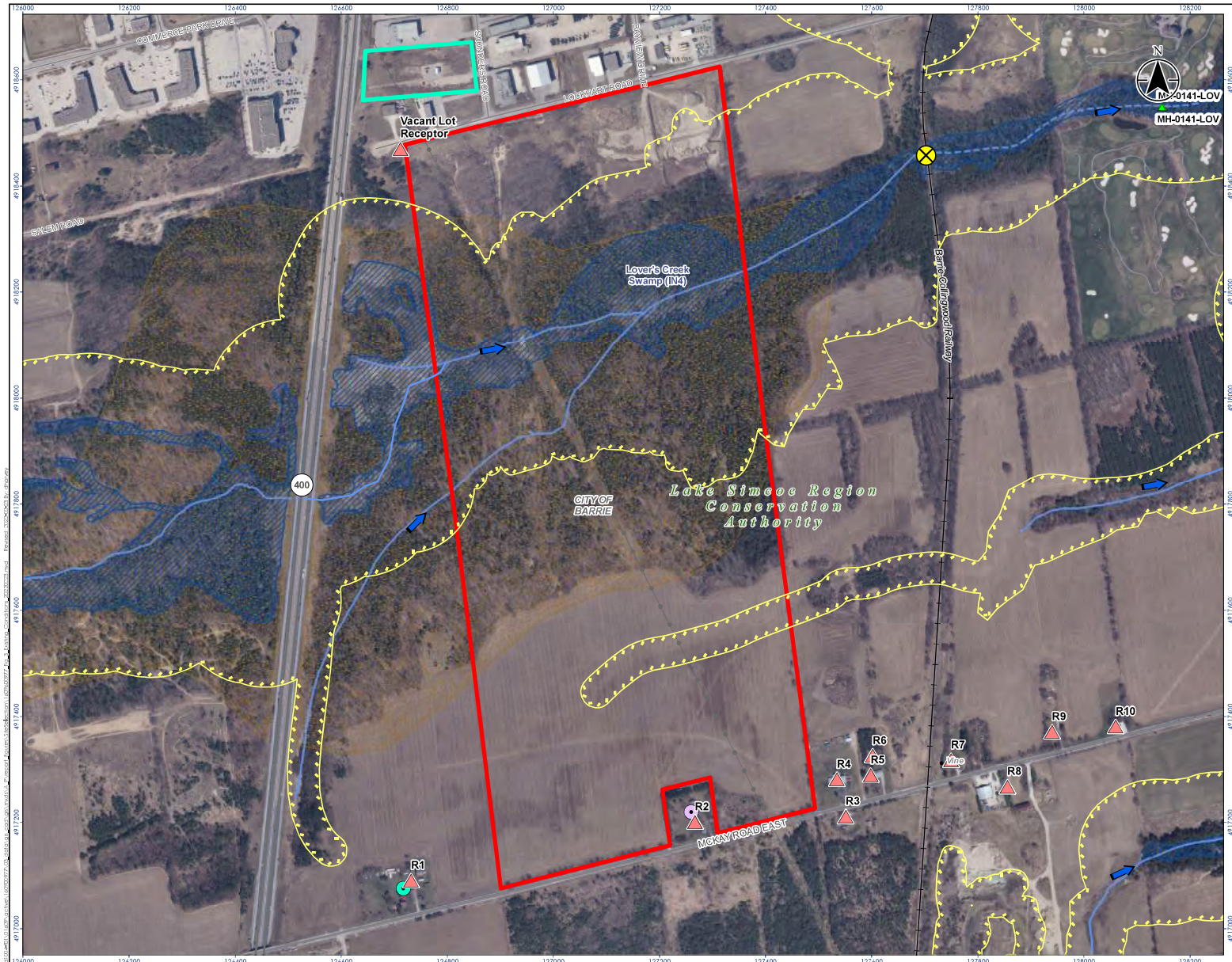
Site 1 contains a large natural area in the northern half of the site. The natural area is largely wooded and contains the Lover's Creek Swamp Provincially Significant Wetlands and two unnamed tributaries. It is also identified as a Natural Core Area within the City of Barrie Official Plan (City of Barrie 2021a). The northern end of the site is a designated Deer Wintering Area as per Ontario's Cervid Ecological Framework and is anticipated to provide habitat for a diversity of wildlife (NDMNRF, 2021).

The two mapped unnamed watercourses within the site are tributaries to Lover's Creek and converge in the eastern half of the site. The main tributary of Lover's Creek is a High Constraint Stream Corridor Area and must be protected in its existing location, as outlined required by the Official Plan (City of Barrie 2021a). Fish habitat is present in this branch of Lover's Creek, including Brook Trout spawning habitat approximately 400 m downstream of the east boundary of the site (NRSI 2012). Approximately 800 m downstream of the eastern boundary of the site, the fish community includes Brook Stickleback, Brook Trout, Mottled Sculpin and Northern Pearl Dace (NDMNRF 2022a).

Site 1 is situated within the LSRCA-regulated watershed. The tributaries to Lover's Creek and a small area in the southern third of the site are within LSRCA Regulation Limits.

Figure 3.4 illustrates the features outlined above in context with the Site 1 boundaries.

Based on the background review, five SAR have been documented or have the potential to occur at the site. These are Bobolink, Eastern Meadowlark, Blanding's Turtle, Little Brown Myotis and Butternut.



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Legend

- Saunders Road Site Boundary
- Site 1 Boundary
- Noise Receptor
- 110 McKay Road
- 36 McKay Road
- Fish Survey Point (ARA)
- Brook Trout Spawning Area (NRSI, 2012)
- Direction of Surface Water Flow
- Regulation Limit (LSRCA)
- Hydro Line
- Railway
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Deer Wintering Area
- Wetland, Provincially Significant

0 230 460 m

1:7,300 (At original document size of 11x17)

Notes

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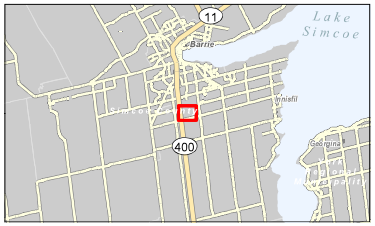

Project Location
City of Barrie/
Town of Innisfill

160900977 REV4
Prepared by DH on 2022-02-23

Client/Project
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INNPOWER MINOR TRANSMISSION STATION

Figure No.
3.4

Title
Site 1 Existing Environmental Conditions

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4.2.2 Land Use

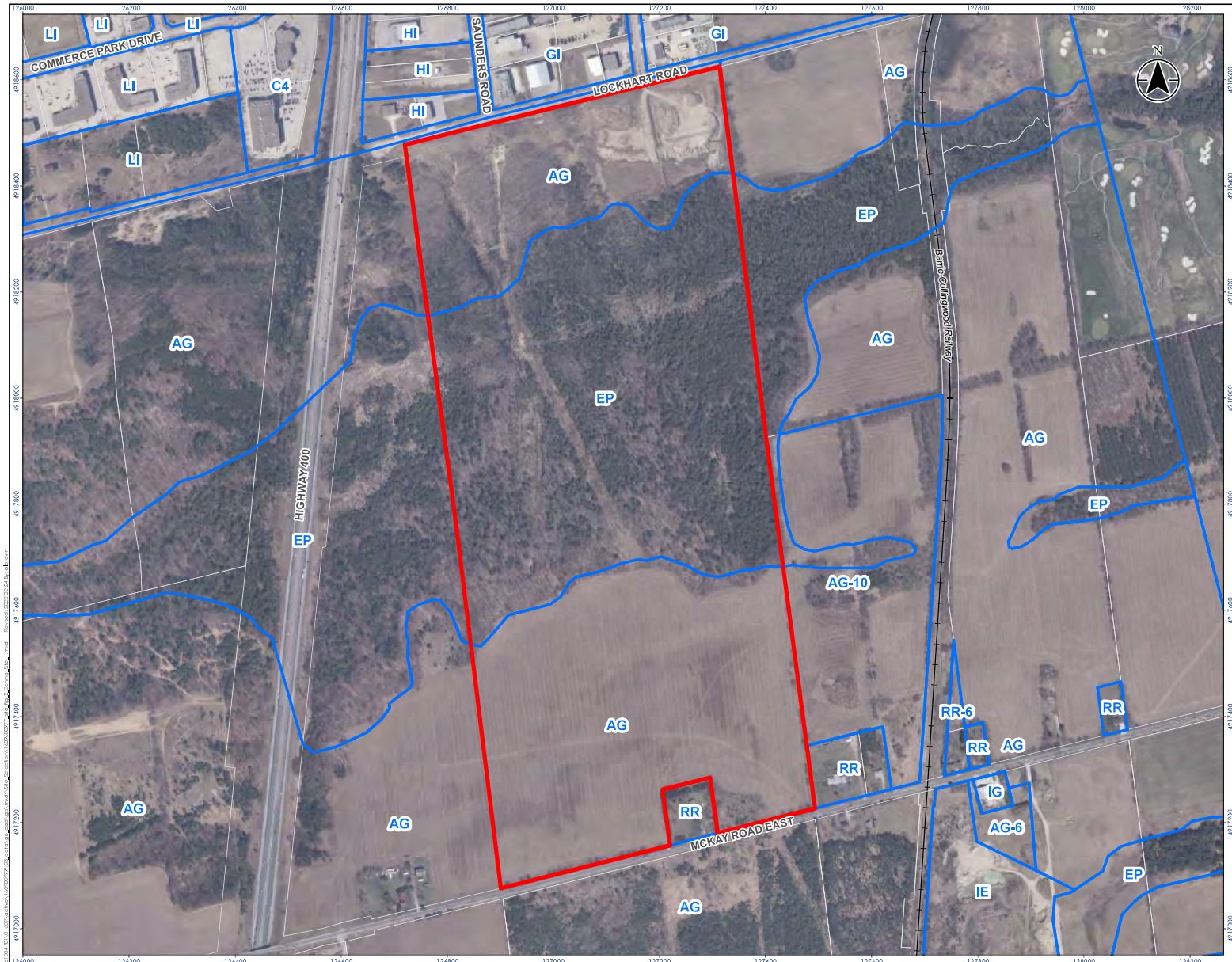
The site is zoned primarily as 'agriculture general zone (AG)' with a portion of 'environmental protection (EP)' intersecting the middle of the property under City of Barrie Consolidated Zoning By-law 080-13 (City of Barrie 2021b) (refer to Figure 3.5).

Within the City of Barrie Consolidated Zoning By-law, Section 4.2.1, a public utility may use any lands as long as they are developed within the provisions of that zone (City of Barrie 2021b). This approach to the siting of public utilities is consistent with the Ontario PPS. Notwithstanding these considerations around siting, Site 1 includes some considerations from both the Official Plan and Zoning Bylaw that may influence the selection of that site.

This location is within the City of Barrie Salem Secondary Plan designated as Special Rural (City of Barrie 2018). The function of the Special Rural purpose is to retain an agricultural function until such a time as the land is required for development. The site is bisected by the natural heritage system, it is assumed that the development will be located to avoid these portions of the lands. If the natural heritage system is going to be impacted, review of Section 2.0 of the Ontario PPS needs to be carefully evaluated. The size of the lands available suggest it that would be possible to site the proposed transformer station accordingly. It should be noted that Site 1 is in an area of the City of Barrie which is to be retained for future growth; this does not preclude the use of Site 1, but indicates potential for residential development around the location.

The size of the parcel, and variability of the siting the transformer station within that parcel suggests that a plan of subdivision, or land severance would likely be required. A plan of subdivision or land severance process would require additional time but is not likely prevent development. The remaining portion of the parcel would remain Agricultural General to which section 10.1.3.(a) applies. The remaining Agricultural General area would need to remain 40 ha with a maximum building height of 15 m. The transformer station portion of the property would be subject to section 10.1.3.(b), which would require the parcel to be a minimum of 1 ha, with a maximum building height of 11 m.

While the Site 1 soil conditions are unknown, areas of existing contamination are not anticipated given agricultural uses and forested / natural areas.



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Legend

- Site Boundary
- Zoning Limits

0 225 450 m

1:7,300 (At original document size of 11x17)

Notes

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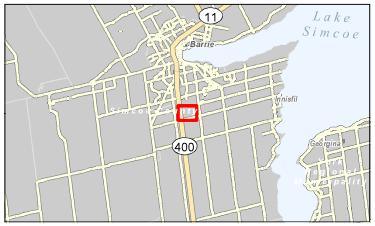

Project Location
City of Barrie / Town of Innisfil

1609-00977 REV0
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Figure No.
3.5

Title
Site 1 - Zoning

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4.2.3 Noise

Site 1 is located in an agricultural land zone in the City of Barrie. The site is surrounded with mixed land uses: industrial to the north, agricultural land use with dwellings to the west, south and east. Approximately 10 existing noise-sensitive receptors (dwellings) and one vacant lot receptor are identified within 500 m of the site (refer to Figure 3.4 for locations of the receptors).

Like the Saunders site, high background sound levels are expected at some of the receptors due to their proximity to Highway 400. The area of the property closer to the highway can be classified as Class 1 or 2 Areas and the rest of the property as Class 3 in accordance with MECP guidelines. A Class 3 Area is in a rural area with an acoustical environment dominated by natural sounds having little or no road traffic. The noise criteria for Class 1 and 2 Areas are the higher of the background sound level or MECP exclusionary limit of 50 dBA for daytime and 45 dBA for nighttime, while the criteria for Class 3 Areas are the higher of the background sound level or MECP exclusionary limit of 45 dBA for daytime and 40 dBA for nighttime (MECP 2013).

4.2.4 Cultural Heritage Resources

Parks Canada, the City of Barrie, and Canada's Historic Places websites identified no historic sites within or adjacent to the Study Area.

Site 1 has no special association with a community, person, or historical event. The site is located in a rural area in the Town of Innisfil. The Cultural Heritage Study Area includes modern roadways with modern infill properties, and no trails were identified within or adjacent to any of the proposed properties.

Site 1 has two adjacent mid- to late-19th century properties (36 and 110 McKay Road) (shown on Figure 3.4). These two properties are situated in relation to the historic community of Vine, which is about 200 m east of the site along McKay Road. The age of these properties indicate that the site has potential cultural heritage value.

4.2.5 Archaeology

Based on a preliminary review of site and common archaeological potential criteria, it is anticipated that archaeological potential will be identified for all or some parts of the site.

4.3 SITE 2

4.3.1 Terrestrial and Aquatic Ecosystems

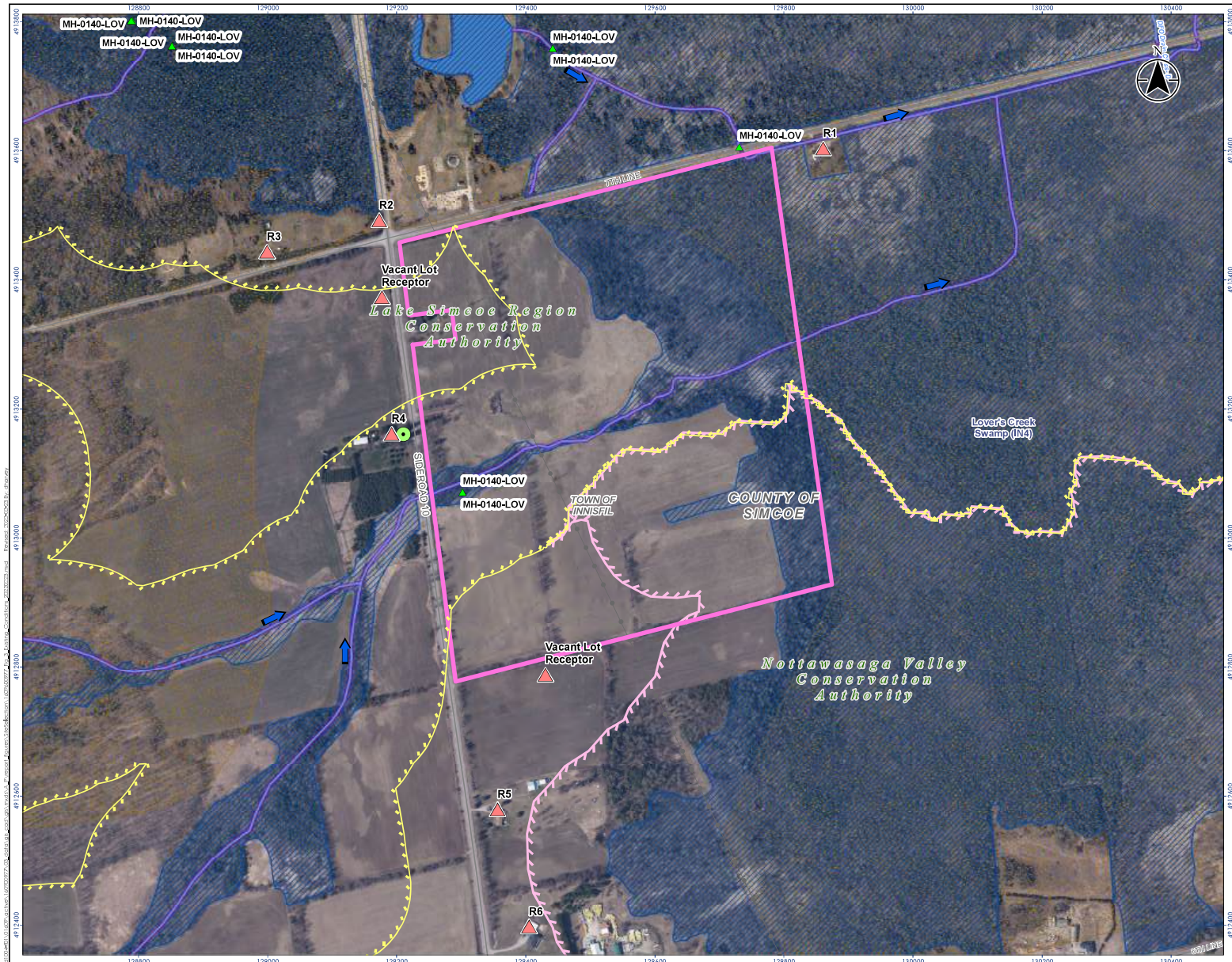
Site 2 contains a large natural area in the eastern portion of the site. The natural area is a largely wooded area and contains the Lover's Creek Swamp PSW. It is also identified as Environmental Protection under the Innisfil Official Plan (Town of Innisfil 2018). This feature is anticipated to provide habitat for a diversity of wildlife.

There are two mapped watercourses within the site that are tributaries to Lover's Creek. Based on available fish collection records, the tributary that crosses the site supports Blacknose Dace, and the tributary in the northeast corner of the site supports Central Mudminnow, Creek Chub and Northern Redbelly Dace.

Site 2 is on the boundary of LSRCA and NVCA regulated watersheds. The southern third of the site is within the jurisdiction of the NVCA, a portion of which is within the Regulation Limit of the NVCA.

Figure 3.6 illustrates the features outlined above in context with Site 2 boundaries.

Based on the background review, five SAR have been documented or have the potential to occur at the site. These are Bobolink, Eastern Meadowlark, Blanding's Turtle, Little Brown Myotis, and Butternut.



Stantec

Legend

- Site 2 Boundary
- Noise Receptor
- 7140 Sideroad 10
- Fish Survey Point (ARA)
- Direction of Surface Water Flow
- Constructed Drain
- Thermal Regime, Cold
- Regulation Limit (LSRCA)
- Regulation Limit (NVCA, Approximate)
- Hydro Line
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Deer Wintering Area
- Thermal Regime, Cold
- Waterbody
- Wetland, Provincially Significant

0 190 380 m

1:6,000 (At original document size of 11x17)

Notes

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Project Location
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160900977 REV4
Prepared by DH on 2022-02-23

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Figure No.
3.6

Title
Site 2 Existing Environmental Conditions

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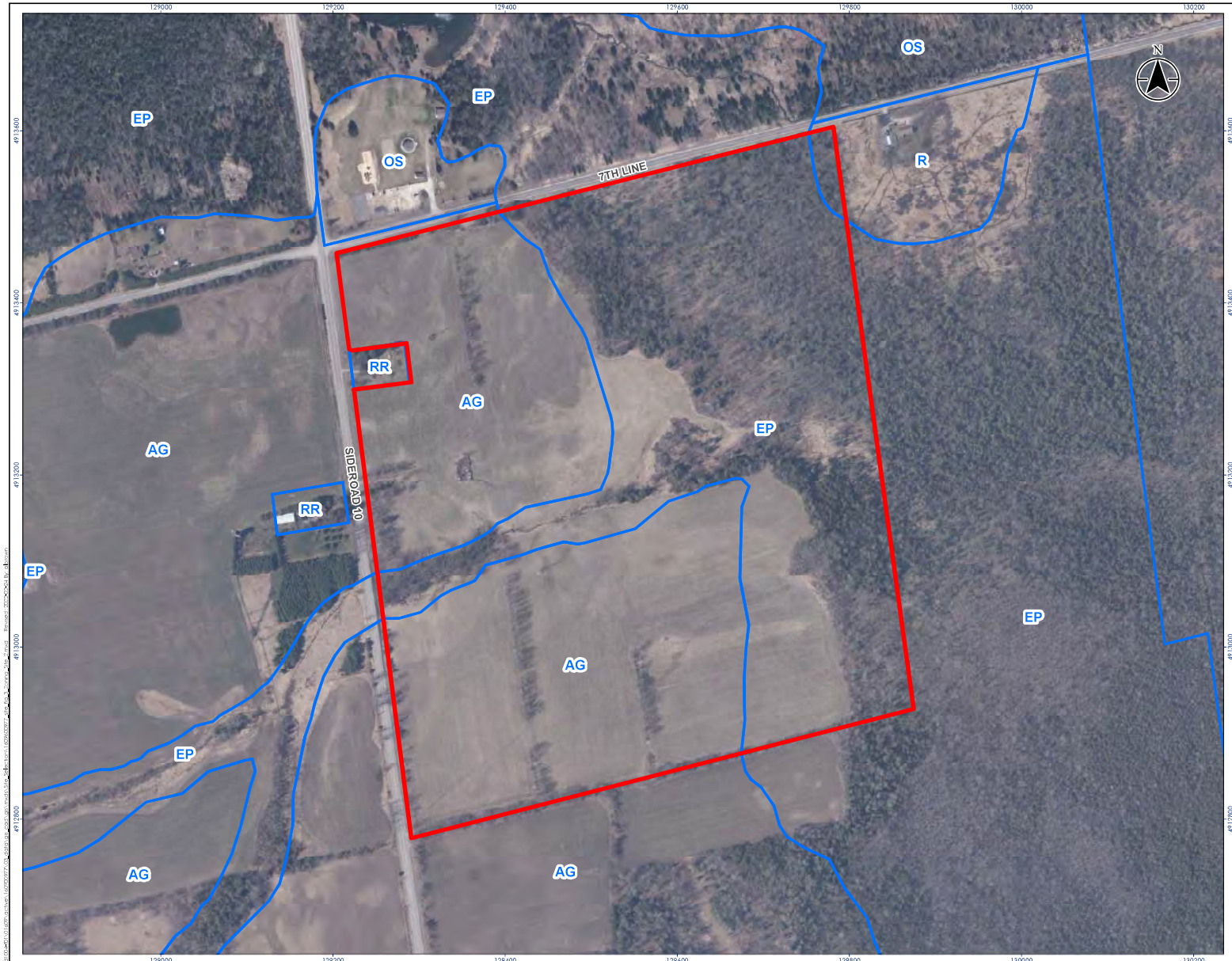
4.3.2 Land Use

This site is located within the Town of Innisfil and is subject to the Official Plan and Zoning By-law of that municipality, as well as the Natural Heritage System (NHS) Area (Growth Plan for the Greater Golden Horseshoe) requirements. Section 3.47.1 of the Zoning By-law states that a utility operation providing a public utility service may use any land or erect or use any building or structure in any zone, provided that in the building or structure is in compliance with the height, coverage, landscaped open space and yard regulations prescribed for the zone and there is no outside storage in the yards. Notwithstanding these considerations around siting, Site 2 includes some considerations from both the Official Plan and Zoning By-law that may influence the selection of that site.

The site is identified as Agricultural Area in the Official Plan, similarly the area around this site is all designated Agricultural. The site has three different zones including Rural Residential, Environmental Protection and Agricultural General (Town of Innisfil 2013) (refer to Figure 3.7). Based on the proposed size of the future facility, the lot would need to be severed, and the portions designated as Rural Residential and Environmental Protection can be avoided. This would create an Agricultural General Lot that does not meet the minimum size requirement of 40 ha; this would require a variance from the Town of Innisfil (Town of Innisfil 2013). This consideration should not preclude the use of this site but may require that InnPower consider other options for the remainder of the land should the Town not be amenable a severance.

While the Site 2 soil conditions are unknown, areas of existing contamination are not anticipated given agricultural uses and forested / natural areas.



Stantec

Legend

- Site Boundary
- Zoning Limits

0 130 260 m

1:4,500 (At original document size of 11x17)

Notes

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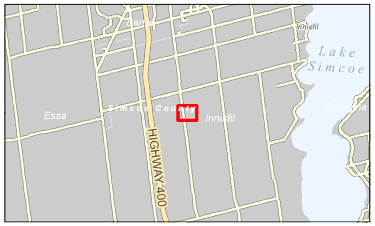

Project Location
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1609-00977 REV0
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Client/Project
INNPOWER CORPORATION
INNPOWER MINOR TRANSMISSION STATION

Figure No.
3.7

Title
Site 2 - Zoning

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4.3.3 Noise

Site 2 is located in an agricultural land zone, at the intersection between Sideroad 10 and 7th Line in the Town of Innisfil. The site is bounded by 7th Line, followed by a dog park to the north, Sideroad 10 followed by agricultural land with residential dwelling to the west, a forested area followed by a dwelling to the east, and agricultural land with dwellings to the south. Approximately eight noise-sensitive receptors and two vacant lot receptors are identified within 500 m of this site (refer to Figure 3.6).

Site 2 is in a rural area with an acoustical environment dominated by natural sounds having little or no road traffic. It is classified as a Class 3 Area as per the MECP guidelines. The noise criteria for Class 3 Areas are the higher of the background sound level or MECP exclusionary limit of 45 dBA for daytime and 40 dBA for nighttime (MECP 2013).

4.3.4 Cultural Heritage Resources

Parks Canada, the Town of Innisfil, and Canada's Historic Places websites identified no historic sites within or adjacent to the Study Area.

Site 2 has no special association with a community, person, or historical event. The site is located in a rural area in the Town of Innisfil. The Cultural Heritage Study Area includes modern roadways with modern infill properties, and no trails were identified within or adjacent to any of the proposed properties.

Site 2 is adjacent to one late 19th century to early 20th century red brick residence (7140 Sideroad 10) (shown on Figure 3.6). The age of this property indicates that Site 2 has potential cultural heritage value.

4.3.5 Archaeology

Based on a preliminary review of Site 2 and common archaeological potential criteria, it is anticipated that archaeological potential will be identified for all or some parts of the site.

5.0 SITE SELECTION PROCESS

5.1 EVALUATION OF SITES

The following tables provide a summary of the qualitative and where possible quantitatively assessment of the three proposed sites based on the biophysical, socio-economic, cultural heritage resources, and financial-technical criteria.

Table 5.1: Evaluation of Sites – Biophysical

Evaluation Criteria	Potential Sites Considered		
	Saunders	**Site 1**	**Site 2**
Biophysical Environment			
Terrestrial Environment • Removal of forested areas • Removal of wetlands • Removal of habitat • Presence of SAR • Proximity to natural hazards (i.e., erosion, flooding)	• No removal of forested areas, wetlands or habitat as the site is located within an industrialized area. • Two SAR (Barn Swallow and Little Brown Myotis) have been documented, or have the potential to occur, within the site. • While the site is located within LSRCA jurisdiction, there are no LSRCA regulated areas within the site.	• Depending on the siting of the transformer station, potential removal of forested areas, wetlands and habitat. • Five SAR (Bobolink, Eastern Meadowlark, Blanding's Turtle, Little Brown Myotis and Butternut) have been documented, or have the potential to occur, within the site. • The site is situated within the LSRCA watershed. The tributaries to Lover's Creek and a small area in the southern third of the site are within LSRCA Regulation Limits.	• Depending on the siting of the transformer station, potential removal of forested areas, wetlands and habitat. • Five SAR (Bobolink, Eastern Meadowlark, Blanding's Turtle, Little Brown Myotis, and Butternut) have been documented, or have the potential to occur, within the site. • The site overlaps both the LSRCA and NVCA watersheds. The southern third of the site is within the jurisdiction of the NVCA, a portion of which is within the Regulation Limit of the NVCA.
Aquatic Environment • Removal or alteration of fish habitat • Presence of SAR	• There are no mapped surface water features within the site; therefore, there is no fish habitat within the sites • No aquatic SAR identified through background reviews.	• Fish habitat is present on the site and may require alteration/modification depending on the siting of the transformer station. • No aquatic SAR identified through background reviews.	• Fish habitat is present on the site and may require alteration/modification depending on the siting of the transformer station. • No aquatic SAR identified through background reviews.
Preference based on the Biophysical Environment Attributes	**Preferred**	**Not preferred**	**Not preferred**

Table 5.2: Evaluation of Sites – Socio-Economic Environment

Evaluation Criteria	Potential Sites Considered		
	Saunders	**Site 1**	**Site 2**
Socio-Economic Environment			
Land Use • Change in land use designation / zoning • Change in land tenure • Proximity of sensitive land uses • Number of proposed developments publicly announced in proximity to the site	• No change in land use designation or zoning required. Public utility is permitted within any lands as long as it is developed within the provisions of that zone. • Open storage activities permitted subject to appropriate screening and landscaping. • Specific provisions for front lot setbacks and exterior finishes can be met. • Site is owned by InnPower. • Adjacent land uses are industrial with agricultural within 200 m of the site. The Agricultural site is a future residential zone, but not currently planned for development. • There is one development application for industrial uses currently going through the approval process at 140 Lockhart Drive within 500 m of the site.	• No change in land use designation or zoning required. Public utility is permitted within any lands as long as it is developed within the provisions of that zone. • Bisected by a natural heritage system. • Future residential area anticipated around the site. • Removal of lands from agricultural use, depending on siting of the transformer station. • Site is not owned by InnPower; acquisition required. • The lands around the site are similarly zoned, which are future residential lands for the City of Barrie. • There is one development application for industrial uses currently going through the approval process at 140 Lockhart Drive within 500 m of the site.	• No change in land use designation or zoning required. Public utility service may use any land or erect or use any building or structure in any zone, provided that in the building or structure is in compliance with the height, coverage, landscaped open space and yard regulations prescribed for the zone and there is no outside storage in the yards. • Anticipated lot severance would create an undersized Agricultural Lot which would require a variance. • Site is not owned by InnPower; acquisition required. • Adjacent land uses including agricultural, environmental and open space will be compatible with the development the residential uses in the area will need to be examined for impact as they are consistently spaced around the site.

Table 5.2: Evaluation of Sites – Socio-Economic Environment

Evaluation Criteria	Potential Sites Considered		
	Saunders	**Site 1**	**Site 2**
Noise • Number of existing receptors potentially impacted • Number of vacant lot receptors potentially impact • Distance to the closest receptor • Noise classification for receptors • Assessment criteria	• No existing sensitive receptors were identified, however the adjacent vacant lot (i.e., 120 m from the site boundary) should be considered as a potential sensitive receptor as current zoning permits residential development. • In the event of sound level exceedance at the vacant lot receptor, implementation of mitigation is required only if and when a building permit for dwelling is issued for the agricultural land (vacant lot receptor). • The site is located within a Class 1 Area for noise receptors. • Assessment criteria is categorized as relaxed as defined by the MECP NPC-300 guidelines.	• There are an estimated 10 existing receptors that may be impacted from noise emissions, with one additional potential vacant lot receptor. The nearest receptor is approximately 40 m from the site boundary, although the site is large and positioning of the transformer station within the site may increase the distance from this receptor. • The site is located within Class 1 and 2 Areas for noise receptors. • The potential noise effects will be dependent on the location of the transformer station with reference to the existing noise-sensitive receptors. The least impact is expected if the transformer station is located farther away from the receptor locations. In the event of sound level exceedance at the receptor locations, a noise wall may be required for mitigation. • Assessment criteria is categorized as medium relaxed as defined by the MECP NPC-300 guidelines.	• There are an estimated eight existing receptors that may be impacted from noise emissions, with two additional potential vacant lot receptors. The nearest receptor is approximately 50 m from the site boundary, although the site is large and positioning of the transformer station within the site may increase the distance from this receptor. • The site is located within a Class 3 Area for noise receptors. • Assessment criteria is categorized as stringent as defined by the MECP NPC-300 guidelines.
Preference based on the Socio-Economic Environment Attributes	**Preferred**	**Not preferred**	**Not preferred**

Table 5.3: Evaluation of Sites – Cultural Heritage Resources

Evaluation Criteria	Potential Sites Considered		
	Saunders	**Site 1**	**Site 2**
Cultural Heritage Resources			
Archaeological resources, built heritage resources, and cultural heritage landscapes • Alteration or destruction of archaeological resources • Alteration or destruction of a cultural heritage landscapes/built heritage resources	• Anticipated that archaeological potential will be identified. • No alteration or destruction of a cultural heritage landscapes / built heritage resources anticipated.	• Anticipated that archaeological potential will be identified. • Potential impacts to cultural heritage value as the site is located adjacent to mid- to late-19th century properties (36 and 110 McKay Road). These two properties are related to the historic community of Vine, which is about 200 m east of the site along McKay Road.	• Anticipated that archaeological potential will be identified. • Potential impacts to cultural heritage value as the site is located adjacent to one late 19th century to early 20th century red brick residence (7140 Sideroad 10).
Preference based on the Cultural Heritage Resources Attributes	**Preferred**	**Not preferred**	**Not preferred**

Table 5.4: Evaluation of Sites – Financial/Technical

Evaluation Criteria	Potential Sites Considered		
	Saunders	**Site 1**	**Site 2**
Financial / Technical			
Development Costs • Site development considerations (e.g., land acquisition, soil remediation, etc.) • Potential costs for mitigation measures	• Site is owned by InnPower; no acquisition costs. • Site was subject to previous development. Current soil conditions unknown. • In the event of sound level exceedance at the vacant lot receptor, implementation of mitigation is required only if and when a building permit for dwelling is issued for the agricultural land (vacant lot receptor).	• Cost to acquire the site. • No concerns with soil conditions anticipated given current land uses (i.e., agriculture and natural heritage). • The impact of the project noise will be depending on the location of the transformer with reference to the existing noise-sensitive receptors. Least impact is expected if the transformer station is located farther away from the receptor locations. In the event of sound level exceedance at the receptor locations, a noise wall may be required for mitigation.	• Cost to acquire the site. • No concerns with soil conditions anticipated given current land uses (i.e., agriculture and natural heritage).. • This site is expected to have the most impact on the noise-sensitive receptors, and therefore, more mitigation may be required for noise compliance.
Proximity to Existing Transmission Lines • Distance to transmission lines	• Existing transmission line traverses site. • Assumed transformer station would be placed in proximity to the transmission line.	• Existing transmission line traverses site. • Assumed transformer station would be placed in proximity to the transmission line.	• Existing transmission line traverses site. • Assumed transformer station would be placed in proximity to the transmission line.
Regulatory Approvals • Number of anticipated regulatory approvals and level of complexity	• Removal or renovations to buildings or sheds may require a permit under the ESA, 2007 if Barn Swallow or Little Brown Myotis is present. • A Wildlife Scientific Collectors Authorization under the *Fish and Wildlife Conservation Act* may be required if wildlife relocations are required to	• Permitting under the ESA, 2007 will likely be required for encroachment into the large natural area in the northern portion of the Site. Permitting is not anticipated if the project is sited in the active agricultural fields, if the fields are not in hay or pasture. If hay or pasture are present, ESA 2007 permitting may be needed.	• Permitting under the ESA, 2007 will likely be required for encroachment into the large natural area in the northern portion of the Site. Siting in the active agricultural fields may result in a need for permitting, if Bobolink or Eastern Meadowlark be present. Potential habitat for these two species may be present.

Table 5.4: Evaluation of Sites – Financial/Technical

Evaluation Criteria	Potential Sites Considered		
	Saunders	**Site 1**	**Site 2**
	complete construction activities. • A Building Permit may need to be obtained from the City of Barrie. • Should a new entrance or the alteration of an existing entrance be required for the project, an Entrance Permit from the County of Simcoe may be required. • The site is directly adjacent to Highway 400, and the western end of the property is within MTO Permit Control Area. • Should any existing structures require removal from the site, a Demolition Permit may be required from the City of Barrie.	• A License to Collect Fish for Scientific Purposes and/or Wildlife Scientific Collectors Authorization under the *Fish and Wildlife Conservation Act* may be required if fish relocations are required to complete in-water work in fish habitat and wildlife relocations are required to complete construction activities, respectively. • Potential for a *Fisheries Act* authorization if work will result in the death of fish or the harmful alteration, disruption or destruction of fish habitat. • A portion of the site is within the LSRCA Regulation Limits and a permit under Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 179/06) would be required if development were to occur within the regulated area. • A Building Permit may need to be obtained from the Town of Innisfil. • Should a new entrance or the alteration of an existing entrance be required for the project, an Entrance Permit from the County of Simcoe may be required. • The main tributary of Lover's Creek is a High Constraint Stream Corridor Area and must be protected in in its existing location,	• A License to Collect Fish for Scientific Purposes and/or Wildlife Scientific Collectors Authorization under the *Fish and Wildlife Conservation Act* may be required if fish relocations are required to complete in-water work in fish habitat and wildlife relocations are required to complete construction activities, respectively. • Potential for a *Fisheries Act* authorization if work will result in the death of fish or the harmful alteration, disruption or destruction of fish habitat. • Portions of the site are situated within the LSRCA Regulation Limits and the NVCA Regulation Limits. A permit under under the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 179/06 and 172/06, as applicable) would be required if development were to occur within the regulated area. • A Building Permit may need to be obtained from the Town of Innisfil. • Should a new entrance or the alteration of an existing entrance be required for the project, an Entrance Permit from the County of Simcoe may be required. • Variance required to sever lot.

Table 5.4: Evaluation of Sites – Financial/Technical

Evaluation Criteria	Potential Sites Considered		
	Saunders	**Site 1**	**Site 2**
		as outlined in the Official Plan (City of Barrie 2021).	
Site Characteristics • Site can accommodate transformer station • Sufficient space to accommodate laydown/staging during construction	• Site is large enough to accommodate the transformer station. • On-site laydown / staging may be limited.	• Site is large enough to accommodate the transformer station, and positioning within the site could limit impacts to natural features. • Laydown / staging could be accommodated on-site.	• Site is large enough to accommodate the transformer station, and positioning within the site could limit impacts to natural features. • Laydown / staging could be accommodated on-site.
Preference based on Financial / Technical Attributes	**Preferred**	**Not preferred**	**Not preferred**

5.2 OVERALL SITE ASSESSMENT SUMMARY

The following table provides a summary of the qualitative assessment of the three proposed sites, Saunders, Site 1 and Site 2 and identifies the preferred location based on the evaluation criteria.

Table 5.5: Preferred Site Assessment Summary

Saunders	Site 1	Site 2
The site is located in an existing industrial area and therefore impacts to terrestrial and aquatic natural heritage, and cultural heritage, are expected to be negligible. No existing noise receptors were identified in proximity to the site. The site is currently owned by InnPower and there are no anticipated conflicts with land use designations. While the site is directly adjacent to Highway 400, it is expected that the transformer station can be constructed in compliance with the required setbacks. However, due to the size of the property, on-site laydown and staging may be limited and may require further assessment. The Saunders site is therefore the **most preferred**.	The impacts to the biophysical environment, Conservation Authority regulatory areas, agricultural areas, and noise receptors are dependent on the Project siting. There are an estimated 10 existing receptors that may be impacted from noise emissions, with additional potential vacant lot receptors (anticipated future residential area). The site is not owned by InnPower, and acquisition is therefore required. The site has potential cultural heritage value. The site is large enough to accommodate the transformer station, lay-down and staging areas (positioning could limit impacts to natural features). Site 1 is therefore **less preferred**.	The impacts to the biophysical environment, Conservation Authority regulatory areas, agricultural areas, and noise receptors are dependent on the Project siting. There are an estimated eight existing receptors that may be impacted from noise emissions, and the site is expected to have the most impact on the noise-sensitive receptors. More mitigation may be required for noise compliance The site is not owned by InnPower and would require acquisition. The site has existing potential cultural heritage value. The size of the parcel, and variability of the siting the transformer station within that parcel suggests that a plan of subdivision, or land severance would likely be required. The anticipated lot severance would create an undersized Agricultural Lot which would require a variance. Site is large enough to accommodate the transformer station, laydown and staging areas (positioning within the site could limit impacts to natural features). Site 2 is therefore the **least preferred.**

6.0 RECOMMENDATIONS AND NEXT STEPS

Due to the overall fewer biophysical, socio-economic, and financial impacts, it is recommended that InnPower use the Saunders site for the proposed Project. Confirmation that the site is large enough to accommodate the transformer and laydown/staging areas based on the proposed preliminary design and construction requirements should be verified before the Project is further progressed.

Upon confirmation of the preferred site, the Project will require assessment in accordance with the Hydro One MTF Class EA document (Hydro One Networks Inc. 2022). As part of the Class EA process, consultation and engagement with potentially affected stakeholders should be undertaken.

Further, as part of the Class EA process, additional baseline work is recommended to verify existing conditions and identify potential environmental effects as a result of the Project. The following site-specific studies are recommended:

- A natural environment screening, including a site-visit to confirm existing natural heritage features, identification of mitigation measures, if applicable, and required permitting under the Endangered Species Act, 2007.
- A noise impact assessment to establish baseline acoustical conditions, confirm assessment criteria based on the baseline measurements, development of a noise model, prediction of noise levels at the nearest receptors and identification of noise mitigation options if Project noise levels are expected to exceed regulatory limits.
- A Stage 1 / 2 archaeological assessment to determine the presence/absence of archaeological resources.

Other environmental data required to support the Class EA (i.e., agricultural resources, forestry resources, human settlements, mineral resources, regional resources and visual and aesthetic resources) will be obtained from desktop sources.

As the InnPower Project will require close collaboration between InnPower and Hydro One Networks Inc., further discussions and coordination between the two companies is encouraged during early phases of the Project to confirm scope and responsibilities.

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APPENDIX A:

Screening of Natural Heritage Features

Stantec

Memo

To:	Leslie Greener and Jackie Franklin Waterloo Office	From:	Andrew Taylor and Nancy Harttrup
File:	160900977	Date:	March 23, 2022

Reference: Screening of Natural Heritage Features – InnPower Corporation, Innisfil

Stantec Consulting Ltd. (Stantec) was retained to conduct a natural heritage features review (desktop screening) in support of InnPower Corporation's (InnPower) plans to design, construct, energize, and operate a new municipal transformer station (the Project). The transformer station will be located in Innisfil, Simcoe County to address the load growth in Innisfil and South Barrie.

This memo summarizes background information for natural heritage features within the three alternative sites for the Project (**Attachment 1, Figure 1 to Figure 3**). The Study Area for each site consists of the area within the Site and within 120 m around the Site.

1 METHODS

1.1 BACKGROUND DATA COLLECTION SOURCES

The following background documents and related information sources were reviewed to identify natural heritage features and constraints within 120 metres (m) of each of the three alternative sites:

- Ministry of Northern Development, Mines, Natural Resources and Forestry's (NDMNRF) Land Information Ontario (LIO) database (NDMNRF 2022a) – to identify forested areas, area of natural and scientific interest (ANSIs) and wetlands, including provincially significant wetlands (PSWs)
- NDMNRF's LIO database (NDMNRF 2022b) – to identify the location of watercourses and, where available, flow regime, thermal regime, and fish community data
- Natural Heritage Information Centre's (NHIC) Biodiversity Explorer database (NDMNRF 2022c) – for occurrences of rare and at risk species
- NDMNRF's Constructed Drains digital dataset (NDMNRF 2022d) – to assess if there are constructed drains and, if applicable, the corresponding Drain Class as per Fisheries and Oceans Canada (DFO) (DFO 2014)
- DFO maps of aquatic species at risk (SAR) (DFO 2021) – to identify if federally regulated fish or freshwater mussel SAR have been documented in or near the alternative sites
- Various wildlife atlases (Ontario Reptile and Amphibian Atlas, Ontario Nature 2020; Ontario Mammal Atlas, Dobbyn 1994; Ontario Breeding Bird Atlas, Cadman et al. 2007) – for occurrences of rare and at risk species
- Lake Simcoe Region Conservation Authority (LSRCA) (LSRCA 2016) – to obtain data files for LSRCA regulation limits
- Nottawasaga Valley Conservation Authority (NVCA) (NVCA 2020) – to estimate the location of the NVCA's regulation limits
- The following municipal documents were reviewed to obtain additional information regarding local policies or classification of natural areas, as available:
  - Town of Innisfil Official Plan (Town of Innisfil 2018)
  - City of Barrie Official Plan 2051 (City of Barrie 2021)

– City of Barrie Annexed Lands Natural Heritage Characterization Report (NRSI 2012).

Wildlife atlases and NDMNRF databases do not provide the locations of species occurrences, and accuracy ranges from 1 km^2 (NHIC Biodiversity Explorer) to 10 km^2 (wildlife atlases) or to municipal boundaries or watersheds. Results were therefore screened to assess their relevance to the alternative sites and species were removed from consideration if no suitable habitat was present on the Site (based on background data).

Definitions for Species at Risk

For the purpose of this screening, SAR are defined as:

- Endangered and threatened species that are on the Species at Risk in Ontario (SARO) list and protected by the provincial *Endangered Species Act*, 2007 (ESA)
- Endangered and threatened aquatic species and migratory birds that are listed on Schedule 1 of the federal *Species at Risk Act*, 2002 (SARA) and protected by the SARA

Non-aquatic species or migratory birds listed on Schedule 1 of SARA are excluded because protection under SARA is not provided outside of federal lands.

1.2 PERMIT CONSIDERATIONS

Once project details are available, consultation with the following regulatory agencies may be required to determine the need for permits and authorizations:

DFO

If fish habitat is identified on site and in-water work is proposed that will potentially affect fish or fish habitat, a Request for Review may need to be prepared for review under the *Fisheries Act*. The form must include details of the proposed work and DFO will determine if the project will result in the death of fish or the harmful alteration, disruption or destruction (HADD) of fish habitat. If it is determined that death of fish or HADD of fish habitat will not occur, DFO may issue a Letter of Advice to proceed with the project. A determination of HADD would require a *Fisheries Act* Authorization for the project.

NDMNRF

Wetlands and low-lying areas may contain turtles and amphibians. In-water works or alteration of these may require salvage and relocation of wildlife under a *Wildlife Scientific Collector's Authorization* (WSCA). In-water work in areas that provide fish habitat require the collection and relocation of fish and would require a *Licence to Collect Fish for Scientific Purposes* (LCFSP). Both licences are issued by the NDMNRF under the *Fish and Wildlife Conservation Act*.

MECP

If the presence of SAR is identified through targeted wildlife surveys, consultation with the Ministry of the Environment, Conservation and Parks (MECP) is recommended to confirm the presence of protected features and requirements under the ESA. Requirements may include mitigation measures to avoid impacts to SAR, or if impacts to SAR cannot be avoided, a permit or other authorization under the ESA may be required.

LSRCA

The LSRCA administers the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 179/06), under Section 28 of the *Conservation Authorities Act*. A permit will be needed from the LSRCA if the project includes grading or filling within the LRCA's regulation limits.

NVCA

The NVCA administers the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 172/06), under Section 28 of the *Conservation Authorities Act*. A permit will be needed from the NVCA if the project includes grading or filling within the NVCA's regulation limits.

2 RESULTS

2.1 SAUNDERS ROAD

2.1.1 Natural Heritage Information

The Saunders Road Site is in an industrial park located in the south end of Barrie. There are no natural features on the Site, such as wetlands, woodlands or ANSIs.

There are no mapped watercourses or constructed drains within the Site or within the 120 m Study Area around the Site (**Attachment 1, Figure 1**). In the absence of watercourses or drains, there is no fish habitat associated with the Saunders Road Site.

The Site is situated within the LSRCA watershed; however, there are no LSRCA regulated areas within the Site. There is a small area of the LSRCA Regulation Limit approximately 120 m north of the Site boundary (**Attachment 1, Figure 1**).

2.1.2 Species at Risk

Two SAR that have been documented, or have the potential to occur, within the Site were identified during the background review of the species databases. A list of the SAR identified during the background review is provided in **Table 1**.

Table 1: SAR Species with Potential to Occur within the Saunders Road Site

Species	SAR Legislation and Status		Habitat
	Ontario ESA, SARO List	Federal SARA, Schedule 1	
Birds			
Barn Swallow[1]	Threatened	Threatened	Nests on ledges on buildings or other structures. May occur on existing buildings, sheds and/or shipping containers
Mammals			
Little Brown Myotis[2]	Endangered	Endangered	Roosts in tree cavities or buildings. May occur in existing buildings, sheds and/or shipping containers

[1] Ontario Breeding Bird Atlas (Cadman et al 2007)
[2] Atlas of the Mammals of Ontario (Dobbyn 1994)

2.1.3 Site Constraints and Recommendations

There were no natural heritage constraints on the Saunders Road Site identified during the desktop analysis. There is potential for SAR to occur on structures within the Site; if present, permitting under the ESA may be required.

2.1.4 Permitting Considerations

Based on the available background data, a summary of potential permit requirements is provided in **Table 2**.

Table 2: Saunders Road – Potential Permit Requirements

Project Phase / Agency / Legislation	Trigger
Approvals	
DFO	
Fisheries Act	N/A (there is no fish habitat within the Site
Species a Risk Act	N/A (there are no watercourses or records of federally protected aquatic SAR within the Site)
MECP	
Endangered Species Act, 2007	Removal or renovations to buildings or sheds may required a permit if Barn Swallow or Little Brown Myotis is present.
LSRCA	
Conservation Authorities Act (Ontario Regulation 179/06)	Permitting not anticipated as Site is outside the LRCA regulation limits.
Construction	
NDMNRF	
Fish and Wildlife Conservation Act i. Licence to Collect Fish for Scientific Purposes and/or ii. Wildlife Scientific Collectors Authorization	i. N/A (there is no fish habitat within the Site) ii. If wildlife relocations are required to complete work

N/A: Not Applicable

2.2 MCKAY ROAD EAST

2.2.1 Natural Heritage Information

The McKay Road East Site contains a large natural area in the northern portion of the Site. The natural area is largely wooded area and contains the Lover's Creek Swamp Provincially Significant Wetlands and watercourses (NDMNRF 2022a; NDMNRF 2022b) (**Attachment 1, Figure 2**). It is also identified as a Natural Core Area within the City of Barrie Official Plan (City of Barrie 2021). According to the City's Official Plan, Natural Core Areas and their ecological functions are protected. Within the Site, the Natural Core Area includes a 30 m buffer from the edge of the woodlands, wetlands and watercourses (City of Barrie 2021). The natural area is anticipated to provide habitat for a diversity of wildlife.

The two mapped watercourses within the Site are tributaries to Lover's Creek and converge in the eastern half of the Site (**Attachment 1, Figure 2**). The tributaries have a permanent flow regime and there is no assigned thermal regime (NDMNRF 2022b). There are no records of constructed drains within the Site (NDMNRF 2022d). The main tributary of Lover's Creek is a High Constraint Stream Corridor Area (City of

Barrie 2021). High Constraint Stream Corridor Areas are located within Natural Core Areas and must be protected in in their existing locations, as outlined in the Official Plan (City of Barrie 2021).

There are no historical fish collection records within the Site; however, fish habitat is present in this branch of Lover's Creek, including Brook Trout spawning habitat approximately 400 m downstream of the east boundary of the Site (NRSI 2012). Approximately 800 m downstream of the east boundary of the Site, the fish community includes Brook Stickleback, Brook Trout, Mottled Sculpin and Northern Pearl Dace (NDMNRF 2022b).

The Site is situated within the LSRCA watershed. The tributaries to Lover's Creek and a small area in the southern third of the Site are within LSRCA Regulation Limits (**Attachment 1, Figure 2**).

2.2.2 Species at Risk

The desktop background review of species databases identified five SAR that have been previously documented, or have the potential to occur, within the Site. A list of the SAR identified during the background review is provided in **Table 3**.

Table 3: SAR Species with Potential to Occur within the McKay Road East Site

Species	SAR Legislation and Status		Habitat
	Ontario ESA, SARO List	Federal SARA, Schedule 1	
Birds			
Bobolink[1]	Threatened	Threatened	Breeds in open grassland habitat, including active hay and pasture fields, which according to Google streetview, were not present on the Site in 2021. Species may occur if fields are rotated into hay or pasture.
Eastern Meadowlark[1]	Threatened	Threatened	Breeds in open grassland habitat, including active hay and pasture fields, which according to Google streetview, were not present on the Site in 2021. Species may occur if fields are rotated into hay or pasture.
Reptiles			
Blanding's Turtle[2]	Threatened	Threatened	Occurs in wetlands and adjacent uplands habitats. The large natural area in the north portion of the Site is likely to be considered Blanding's Turtle habitat.
Mammals			
Little Brown Myotis[3]	Endangered	Endangered	Roosts in tree cavities or buildings. May occur in treed habitat, including the large woodland, and in hedgerows around the perimeter of the Site.
Plants			
Butternut[4]	Endangered	Endangered	May occur in the large woodland, and in hedgerows around the perimeter of the Site.

[1] Ontario Breeding Bird Atlas (Cadman et al 2007)
[2] Ontario Reptile and Amphibian Atlas (Ontario Nature 2020)
[3] Atlas of the Mammals of Ontario (Dobbyn 1994)
[4] NHIC Biodiversity Explorer database (NDMNRF 2022c)

2.2.3 Site Constraints and Recommendations

A large natural area in the northern portion of the Site, comprised of woodlands, PSW, a watercourse, and habitat that is likely to be protected under the ESA was identified in the desktop review. The large natural area is anticipated to be a constraint to development, with buffers and development restrictions identified in the Official Plan (City of Barrie 2021).

Natural heritage constraints were not identified in the active agricultural fields at the south end of the site. If the field were in hay or pasture, they may provide habitat for Bobolink and Eastern Meadowlark, which are protected by the ESA. Bobolink and Eastern Meadowlark habitat could be removed, with authorization under the ESA, but there would be a requirement to create compensation habitat off site or pay into the provincial Species at Risk Conservation Fund.

2.2.4 Permitting Considerations

Based on the available background data, a summary of potential permit requirements is provided in **Table 4**.

Table 4: McKay Road East – Potential Permit Requirements

Project Phase / Agency / Legislation	Trigger
Approvals	
DFO	
Fisheries Act	If work will result in the death of fish or HADD of fish habitat
Species a Risk Act	N/A (there are no records of federally protected aquatic SAR within the Site)
MECP	
Endangered Species Act, 2007	Permitting will likely be required for encroachment into the large natural area in the northern portion of the Site. Permitting is not anticipated if the project is sites in the active agricultural fields, if the fields are not in hay or pasture. If hay or pasture are present, ESA permitting may be needed.
LSRCA	
Conservation Authorities Act (*Ontario Regulation 179/06*)	If work requires grading or filling within regulation limits
Construction	
NDMNRF	
Fish and Wildlife Conservation Act Licence to Collect Fish for Scientific Purposes and/or Wildlife Scientific Collectors Authorization	 If fish relocations are required to complete in-water work in fish habitat If wildlife relocations are required to complete work

N/A: Not Applicable

2.3 SIDEROAD 10

2.3.1 Natural Heritage Information

The Sideroad 10 Site contains a large natural area in the eastern portion of the Site. The natural area is a largely wooded area and contains the Lover's Creek Swamp Provincially Significant Wetland (NDMNRF 2022a; NDMNRR 2022b). The watercourse and a branch of the PSW extend west, bisecting the Site through the middle (**Attachment 1, Figure 3**). It is also identified as Environmental Protection under the Innisfil Official Plan (Town of Innisfil 2018). This feature is anticipated to provide habitat for a diversity of wildlife.

Within the Site there are two mapped watercourses that are tributaries to Lover's Creek (**Attachment 1, Figure 3**). The tributaries have a permanent flow regime, a coldwater thermal regime and the confluence of the two tributaries is located approximately 600 m downstream of the east boundary of the Site (NDMNRF 2022b). There are no records of constructed drains within the Site (NDMNRF 2022d).

There are two historical fish collection records within or adjacent to the Site (**Attachment 1, Figure 3**). Based on available fish collection records, the tributary that crosses the Site supports Blacknose Dace (captured adjacent to 10 Sideroad). The tributary in the northeast corner of the Site supports Central Mudminnow, Creek Chub and Northern Redbelly Dace (captured on the north side of 7th Line) (NDMNRF 2022b).

The Site overlaps both the LSRCA and NVCA watersheds. The two tributaries to Lover's Creek are within LSRCA Regulation Limits (**Attachment 1, Figure 3**). The southern third of the Site is within the jurisdiction of the NVCA, a portion of which is within the Regulation Limit of the NVCA.

2.3.2 Species at Risk

Five SAR, that were documented, or have the potential to occur within the Site were identified during the desktop background review of the species databases identified five SAR, that have been previously documented as occurring, or have the potential to occur within the Site. A list of the SAR identified during the background review is provided in **Table 5**.

Table 5: SAR Species with Potential to Occur within the Sideroad 10 Site

Species	SAR Legislation and Status		Habitat
	Ontario ESA, SARO List	Federal SARA, Schedule 1	
Birds			
Bobolink[1]	Threatened	Threatened	Breeds in open grassland habitat, including active hay and pasture fields which, according to Google streetview, were potentially present on the Site in 2021. As such, the species were potentially present.
Eastern Meadowlark[1]	Threatened	Threatened	Breeds in open grassland habitat, including active hay and pasture fields which, according to Google streetview, were potentially present on the Site in 2021. As such, the species were potentially present.

Species	SAR Legislation and Status		Habitat
	Ontario ESA, SARO List	Federal SARA, Schedule 1	
Reptiles			
Blanding's Turtle[2]	Threatened	Threatened	Occurs in wetlands and adjacent uplands habitats. The large natural area in the eastern portion of the Site is likely to be considered Blanding's Turtle habitat.
Mammals			
Little Brown Myotis[3]	Endangered	Endangered	Roosts in tree cavities or buildings. May occur in treed habitat, including the large woodland, and in hedgerows around the perimeter of the Site.
Plants			
Butternut[4]	Endangered	Endangered	May occur in the large woodland, and in hedgerows around the perimeter of the Site.

[1] Ontario Breeding Bird Atlas (Cadman et al, 2007)
[2] Ontario Reptile and Amphibian Atlas, Ontario Nature 2020
[3] Atlas of the Mammals of Ontario (Dobbyn 1994)
[4] NHIC Biodiversity Explorer database (NDMNRF 2022c)

2.3.3 Site Constraints and Recommendations

A large natural area in the eastern portion of the Site, comprised of woodlands, PSW, a watercourse, and habitat that is likely to be protected under the ESA was identified during the desktop analysis. The large natural area is anticipated to be a constraint to development. The PSW and watercourse also bisect the middle of the Site, which should be considered a constraint. There may be an opportunity to extend transmission overtop of the wetland, but encroachment of other infrastructure would be a constraint.

Available LIO database mapping (NDMNRF 2022a) shows a projection of the PSW into the active agricultural fields, which appears to be an error in the mapping. There may be an opportunity to review the wetland boundaries with LSRCA and align the PSW boundary with that of the natural area.

In the event active agricultural fields in the south end of the Site are in hay or pasture, they may provide habitat for ESA protected Bobolink and Eastern Meadowlark. Bobolink and Eastern Meadowlark habitat could be removed, with authorization under the ESA. However, there would be a requirement to create compensation habitat off site or pay into the provincial Species at Risk Conservation Fund. Aside from the Bobolink and Eastern Meadowlark habitat, no other natural heritage constraints were identified in the active agricultural fields.

2.3.4 Permitting Considerations

Based on the available background data, a summary of potential permit requirements is provided in **Table 6**.

Table 6: Sideroad 10 Road – Potential Permit Requirements

Project Phase / Agency / Legislation	Trigger
Approvals	
DFO	
Fisheries Act	If work will result in the death of fish or HADD of fish habitat
Species a Risk Act	N/A (there are no records of federally protected aquatic SAR)
MECP	
Endangered Species Act, 2007	Permitting will likely be required for encroachment into the large natural area in the northern portion of the Site. Siting in the active agricultural fields may result in a need for permitting, if Bobolink or Eastern Meadowlark be present. Potential habitat for these two species may be present.
LSRCA	
Conservation Authorities Act (Ontario Regulation 179/06)	If work requires grading or filling within regulation limits
NVCA	
Conservation Authorities Act (Ontario Regulation 172/06*)*	If work requires grading or filling within regulation limits
Construction	
NDMNRF	
Fish and Wildlife Act Licence to Collect Fish for Scientific Purposes and/or Wildlife Scientific Collectors Authorization	 If fish relocations are required to complete in-water work in fish habitat If wildlife relocations are required to complete work

N/A: Not Applicable

3 CLOSURE

Based on available background data, Stantec completed the natural heritage features screening and constraints analysis in support of InnPower's plans to design, construct, energize, and operate a new municipal transformer station. Natural heritage constraints and potential permits are provided for the three alternative sites. Please contact the undersigned if you have any questions regarding the enclosed information.

Stantec Consulting Ltd.

Andrew Taylor
Digitally signed by Andrew Taylor
Date: 2022.03.23 13:07:26 -04'00'

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Senior Terrestrial Ecologist
Phone: 519 780-8122
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Nancy Harttrup
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Nancy Harttrup B.Sc.
Senior Fisheries Biologist
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Attachments: Attachment 1 – Figures

4 RESOURCES

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Attachment 1
Figures

Stantec

Legend

- Saunders Road Site Boundary
- McKay Road Site Boundary
- Study Area 120 m
- Direction of Surface Water Flow
- Regulation Limit (LSRCA)
- Watercourse (Permanent)
- Wooded Area
- Lot
- Municipal Boundary, Lower
- Hydro Line

0 40 80 m

1:1,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2019.
3. Orthoimagery © First Base Solutions, 2021. Imagery Date: 2016.

Project Location
City of Barrie/
Town of Innisfill

160900977 REV4
Prepared by DH on 2022-02-22

Client/Project
CITY OF BARRIE
INNPOWER MINOR TRANSMISSION STATION

Figure No.
1

Title
Natural Heritage Features: Saunders Road

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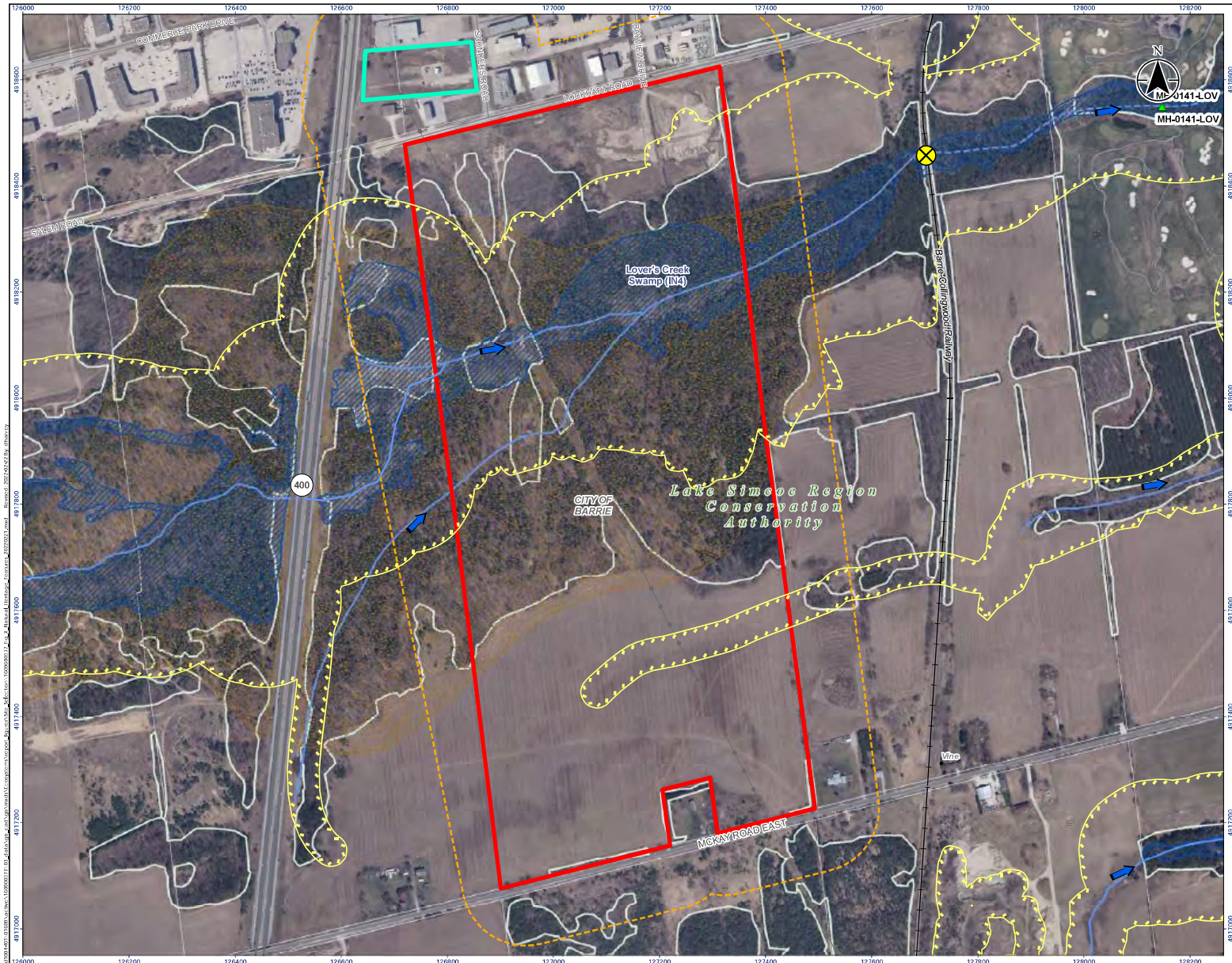

Stantec

Legend

- Saunders Road Site Boundary
- McKay Road Site Boundary
- Study Area 120 m
- Fish Survey Point (ARA)
- Brook Trout Spawning Area (NRSI, 2012)
- Direction of Surface Water Flow
- Regulation Limit (LSRCA)
- Railway
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Deer Wintering Area
- Wetland, Provincially Significant
- Wooded Area
- Lot
- Municipal Boundary, Lower
- Hydro Line

0 225 450 m

1:7,300 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
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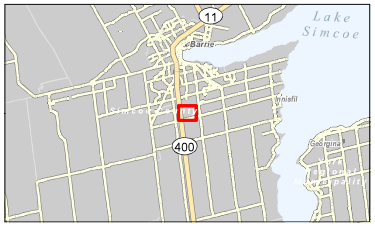

Project Location
City of Barrie/
Town of Innisfil

160900977 REV4
Prepared by DH on 2022-02-22

Client/Project
CITY OF BARRIE
INNPOWER MINOR TRANSMISSION STATION

Figure No.
2

Title
Natural Heritage Features: McKay Road

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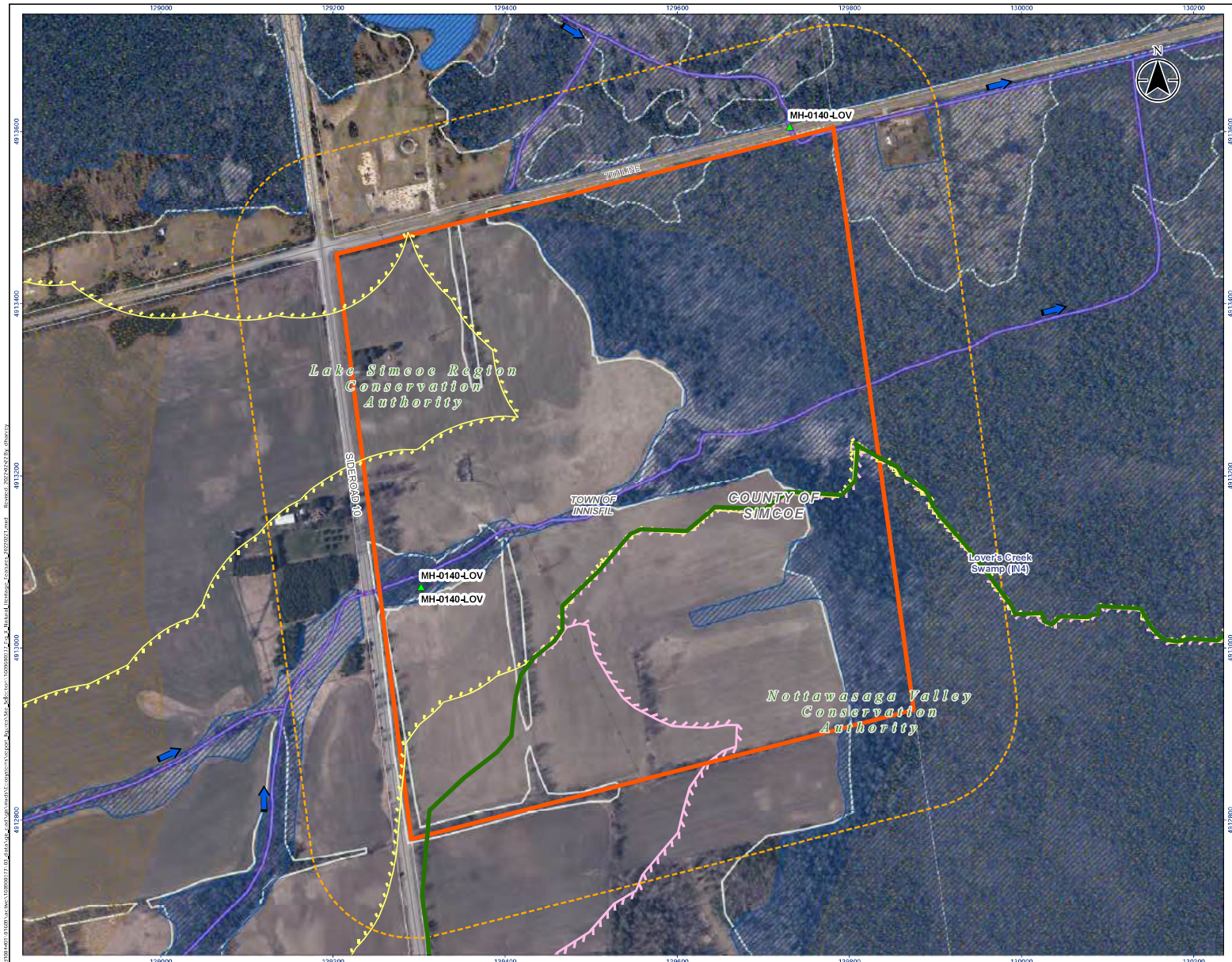

Stantec

Legend

- Side Road 10 Site Boundary
- Study Area 120 m
- Fish Survey Point (ARA)
- Direction of Surface Water Flow
- Conservation Authority Administrative Boundary (Approximate)
- Thermal Regime, Cold
- Regulation Limit (LSRCA)
- Regulation Limit (NVCA, Approximate)
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Deer Wintering Area
- Thermal Regime, Cold
- Waterbody
- Wetland, Provincially Significant
- Wooded Area
- Lot
- Municipal Boundary, Upper
- Municipal Boundary, Lower
- Hydro Line

0 130 260 m

1:4,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
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Project Location
City of Barrie/
Town of Innisfill

160900977 REV4
Prepared by DH on 2022-02-22

Client/Project
CITY OF BARRIE
INNPOWER MINOR TRANSMISSION STATION

Figure No.
3

Title
Natural Heritage Features: Sideroad 10

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APPENDIX B:

Cultural Heritage Checklist

Ontario

Ministry of Tourism, Culture and Sport

Programs & Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7

Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes

A Checklist for the Non-Specialist

The **purpose of the checklist** is to determine:

- if a property(ies) or project area:
  - is a recognized heritage property
  - may be of cultural heritage value
- it includes all areas that may be impacted by project activities, including – but not limited to:
  - the main project area
  - temporary storage
  - staging and working areas
  - temporary roads and detours

Processes covered under this checklist, such as:

- *Planning Act*
- *Environmental Assessment Act*
- *Aggregates Resources Act*
- *Ontario Heritage Act* – Standards and Guidelines for Conservation of Provincial Heritage Properties

Cultural Heritage Evaluation Report (CHER)

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person(s) (see page 5 for definitions) to undertake a cultural heritage evaluation report (CHER).

The CHER will help you:

- identify, evaluate and protect cultural heritage resources on your property or project area
- reduce potential delays and risks to a project

Other checklists

Please use a separate checklist for your project, if:

- you are seeking a Renewable Energy Approval under Ontario Regulation 359/09 – separate checklist
- your Parent Class EA document has an approved screening criteria (as referenced in Question 1)

Please refer to the Instructions pages for more detailed information and when completing this form.

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Project or Property Name
InnPower MTS Project

Project or Property Location (upper and lower or single tier municipality)
Town of Innisfil and City of Barrie

Proponent Name
InnPower Corporation

Proponent Contact Information
Morteza Mirkeshmiri, 705-431-6870, ext. 294, mortezam@innpower.ca

Screening Questions

	Yes	No
1. Is there a pre-approved screening checklist, methodology or process in place?	☐	☑

If Yes, please follow the pre-approved screening checklist, methodology or process.

If No, continue to Question 2.

Part A: Screening for known (or recognized) Cultural Heritage Value

	Yes	No
2. Has the property (or project area) been evaluated before and found **not** to be of cultural heritage value?	☐	☑

If Yes, do **not** complete the rest of the checklist.

The proponent, property owner and/or approval authority will:

- summarize the previous evaluation and
- add this checklist to the project file, with the appropriate documents that demonstrate a cultural heritage evaluation was undertaken

The summary and appropriate documentation may be:

- submitted as part of a report requirement
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

	Yes	No
3. Is the property (or project area):		
a. identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value?	☐	☑
b. a National Historic Site (or part of)?	☐	☑
c. designated under the *Heritage Railway Stations Protection Act*?	☐	☑
d. designated under the *Heritage Lighthouse Protection Act*?	☐	☑
e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?	☐	☑
f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	☐	☑

If Yes to any of the above questions, you need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report, if a Statement of Cultural Heritage Value has not previously been prepared or the statement needs to be updated

If a Statement of Cultural Heritage Value has been prepared previously and if alterations or development are proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No, continue to Question 4.

Part B: Screening for Potential Cultural Heritage Value

	Yes	No
4. Does the property (or project area) contain a parcel of land that:		
a. is the subject of a municipal, provincial or federal commemorative or interpretive plaque?	☐	☑
b. has or is adjacent to a known burial site and/or cemetery?	☐	☑
c. is in a Canadian Heritage River watershed?	☐	☑
d. contains buildings or structures that are 40 or more years old?	☑	☐

Part C: Other Considerations

	Yes	No
5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area):		
a. is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area?	☑	☐
b. has a special association with a community, person or historical event?	☐	☑
c. contains or is part of a cultural heritage landscape?	☐	☑

If Yes to one or more of the above questions (Part B and C), there is potential for cultural heritage resources on the property or within the project area.

You need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report (CHER)

If the property is determined to be of cultural heritage value and alterations or development is proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No to all of the above questions, there is low potential for built heritage or cultural heritage landscape on the property.

The proponent, property owner and/or approval authority will:

- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g. under the *Environmental Assessment Act, Planning Act* processes
- maintained by the property owner, proponent or approval authority

Instructions

Please have the following available, when requesting information related to the screening questions below:

- a clear map showing the location and boundary of the property or project area
  - large scale and small scale showing nearby township names for context purposes
- the municipal addresses of all properties within the project area
- the lot(s), concession(s), and parcel number(s) of all properties within a project area

For more information, see the Ministry of Tourism, Culture and Sport's Ontario Heritage Toolkit or Standards and Guidelines for Conservation of Provincial Heritage Properties.

In this context, the following definitions apply:

- **qualified person(s)** means individuals – professional engineers, architects, archaeologists, etc. – having relevant, recent experience in the conservation of cultural heritage resources.
- **proponent** means a person, agency, group or organization that carries out or proposes to carry out an undertaking or is the owner or person having charge, management or control of an undertaking.

1. Is there a pre-approved screening checklist, methodology or process in place?

An existing checklist, methodology or process may already be in place for identifying potential cultural heritage resources, including:

- one endorsed by a municipality
- an environmental assessment process e.g. screening checklist for municipal bridges
- one that is approved by the Ministry of Tourism, Culture and Sport (MTCS) under the Ontario government's Standards & Guidelines for Conservation of Provincial Heritage Properties [s.B.2.]

Part A: Screening for known (or recognized) Cultural Heritage Value

2. Has the property (or project area) been evaluated before and found not to be of cultural heritage value?

Respond 'yes' to this question, if all of the following are true:

A property can be considered not to be of cultural heritage value if:

- a Cultural Heritage Evaluation Report (CHER) - or equivalent - has been prepared for the property with the advice of a qualified person and it has been determined not to be of cultural heritage value and/or
- the municipal heritage committee has evaluated the property for its cultural heritage value or interest and determined that the property is not of cultural heritage value or interest

A property may need to be re-evaluated, if:

- there is evidence that its heritage attributes may have changed
- new information is available
- the existing Statement of Cultural Heritage Value does not provide the information necessary to manage the property
- the evaluation took place after 2005 and did not use the criteria in Regulations 9/06 and 10/06

Note: Ontario government ministries and public bodies [prescribed under Regulation 157/10] may continue to use their existing evaluation processes, until the evaluation process required under section B.2 of the Standards & Guidelines for Conservation of Provincial Heritage Properties has been developed and approved by MTCS.

To determine if your property or project area has been evaluated, contact:

- the approval authority
- the proponent
- the Ministry of Tourism, Culture and Sport

3a. Is the property (or project area) identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value e.g.:

i. designated under the *Ontario Heritage Act*

- individual designation (Part IV)
- part of a heritage conservation district (Part V)

Individual Designation – Part IV

A property that is designated:

- by a municipal by-law as being of cultural heritage value or interest [s.29 of the *Ontario Heritage Act*]
- by order of the Minister of Tourism, Culture and Sport as being of cultural heritage value or interest of provincial significance [s.34.5]. **Note**: To date, no properties have been designated by the Minister.

Heritage Conservation District – Part V

A property or project area that is located within an area designated by a municipal by-law as a heritage conservation district [s. 41 of the *Ontario Heritage Act*].

For more information on Parts IV and V, contact:

- municipal clerk
- Ontario Heritage Trust
- local land registry office (for a title search)

---

ii. subject of an agreement, covenant or easement entered into under Parts II or IV of the *Ontario Heritage Act*

An agreement, covenant or easement is usually between the owner of a property and a conservation body or level of government. It is usually registered on title.

The primary purpose of the agreement is to:

- preserve, conserve, and maintain a cultural heritage resource
- prevent its destruction, demolition or loss

For more information, contact:

- Ontario Heritage Trust - for an agreement, covenant or easement [clause 10 (1) (c) of the *Ontario Heritage Act*]
- municipal clerk – for a property that is the subject of an easement or a covenant [s.37 of the *Ontario Heritage Act*]
- local land registry office (for a title search)

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iii. listed on a register of heritage properties maintained by the municipality

Municipal registers are the official lists - or record - of cultural heritage properties identified as being important to the community.

Registers include:

- all properties that are designated under the *Ontario Heritage Act* (Part IV or V)
- properties that have not been formally designated, but have been identified as having cultural heritage value or interest to the community

For more information, contact:

- municipal clerk
- municipal heritage planning staff
- municipal heritage committee

---

iv. subject to a notice of:

- intention to designate (under Part IV of the *Ontario Heritage Act*)
- a Heritage Conservation District study area bylaw (under Part V of the *Ontario Heritage Act*)

A property that is subject to a **notice of intention to designate** as a property of cultural heritage value or interest and the notice is in accordance with:

- section 29 of the *Ontario Heritage Act*
- section 34.6 of the *Ontario Heritage Act.* **Note**: To date, the only applicable property is Meldrum Bay Inn, Manitoulin Island. [s.34.6]

An area designated by a municipal by-law made under section 40.1 of the *Ontario Heritage Act* as a **heritage conservation district study area**.

For more information, contact:

- municipal clerk – for a property that is the subject of notice of intention [s. 29 and s. 40.1]
- Ontario Heritage Trust

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v. included in the Ministry of Tourism, Culture and Sport's list of provincial heritage properties

Provincial heritage properties are properties the Government of Ontario owns or controls that have cultural heritage value or interest.

The Ministry of Tourism, Culture and Sport (MTCS) maintains a list of all provincial heritage properties based on information provided by ministries and prescribed public bodies. As they are identified, MTCS adds properties to the list of provincial heritage properties.

For more information, contact the MTCS Registrar at registrar@ontario.ca.

3b. Is the property (or project area) a National Historic Site (or part of)?

National Historic Sites are properties or districts of national historic significance that are designated by the Federal Minister of the Environment, under the *Canada National Parks Act*, based on the advice of the Historic Sites and Monuments Board of Canada.

For more information, see the National Historic Sites website.

3c. Is the property (or project area) designated under the *Heritage Railway Stations Protection Act*?

The *Heritage Railway Stations Protection Act* protects heritage railway stations that are owned by a railway company under federal jurisdiction. Designated railway stations that pass from federal ownership may continue to have cultural heritage value.

For more information, see the Directory of Designated Heritage Railway Stations.

3d. Is the property (or project area) designated under the *Heritage Lighthouse Protection Act*?

The *Heritage Lighthouse Protection Act* helps preserve historically significant Canadian lighthouses. The Act sets up a public nomination process and includes heritage building conservation standards for lighthouses which are officially designated.

For more information, see the Heritage Lighthouses of Canada website.

3e. Is the property (or project area) identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office?

The role of the Federal Heritage Buildings Review Office (FHBRO) is to help the federal government protect the heritage buildings it owns. The policy applies to all federal government departments that administer real property, but not to federal Crown Corporations.

For more information, contact the Federal Heritage Buildings Review Office.

See a directory of all federal heritage designations.

3f. Is the property (or project area) located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?

A UNESCO World Heritage Site is a place listed by UNESCO as having outstanding universal value to humanity under the Convention Concerning the Protection of the World Cultural and Natural Heritage. In order to retain the status of a World Heritage Site, each site must maintain its character defining features.

Currently, the Rideau Canal is the only World Heritage Site in Ontario.

For more information, see Parks Canada – World Heritage Site website.

Part B: Screening for potential Cultural Heritage Value

4a. Does the property (or project area) contain a parcel of land that has a municipal, provincial or federal commemorative or interpretive plaque?

Heritage resources are often recognized with formal plaques or markers.

Plaques are prepared by:

- municipalities
- provincial ministries or agencies
- federal ministries or agencies
- local non-government or non-profit organizations

For more information, contact:

- municipal heritage committees or local heritage organizations – for information on the location of plaques in their community
- Ontario Historical Society's Heritage directory – for a list of historical societies and heritage organizations
- Ontario Heritage Trust – for a list of plaques commemorating Ontario's history
- Historic Sites and Monuments Board of Canada – for a list of plaques commemorating Canada's history

4b. Does the property (or project area) contain a parcel of land that has or is adjacent to a known burial site and/or cemetery?

For more information on known cemeteries and/or burial sites, see:

- Cemeteries Regulations, Ontario Ministry of Consumer Services – for a database of registered cemeteries
- Ontario Genealogical Society (OGS) – to locate records of Ontario cemeteries, both currently and no longer in existence; cairns, family plots and burial registers
- Canadian County Atlas Digital Project – to locate early cemeteries

In this context, adjacent means contiguous or as otherwise defined in a municipal official plan.

4c. Does the property (or project area) contain a parcel of land that is in a Canadian Heritage River watershed?

The Canadian Heritage River System is a national river conservation program that promotes, protects and enhances the best examples of Canada's river heritage.

Canadian Heritage Rivers must have, and maintain, outstanding natural, cultural and/or recreational values, and a high level of public support.

For more information, contact the Canadian Heritage River System.

If you have questions regarding the boundaries of a watershed, please contact:

- your conservation authority
- municipal staff

4d. Does the property (or project area) contain a parcel of land that contains buildings or structures that are 40 or more years old?

A 40 year 'rule of thumb' is typically used to indicate the potential of a site to be of cultural heritage value. The approximate age of buildings and/or structures may be estimated based on:

- history of the development of the area
- fire insurance maps
- architectural style
- building methods

Property owners may have information on the age of any buildings or structures on their property. The municipality, local land registry office or library may also have background information on the property.

Note: 40+ year old buildings or structure do not necessarily hold cultural heritage value or interest; their age simply indicates a higher potential.

A building or structure can include:

- residential structure
- farm building or outbuilding
- industrial, commercial, or institutional building
- remnant or ruin
- engineering work such as a bridge, canal, dams, etc.

For more information on researching the age of buildings or properties, see the Ontario Heritage Tool Kit Guide Heritage Property Evaluation.

Part C: Other Considerations

5a. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) is considered a landmark in the local community or contains any structures or sites that are important to defining the character of the area?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has potential landmarks or defining structures and sites, for instance:

- buildings or landscape features accessible to the public or readily noticeable and widely known
- complexes of buildings
- monuments
- ruins

5b. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) has a special association with a community, person or historical event?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has a special association with a community, person or event of historic interest, for instance:

- Aboriginal sacred site
- traditional-use area
- battlefield
- birthplace of an individual of importance to the community

5c. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) contains or is part of a cultural heritage landscape?

Landscapes (which may include a combination of archaeological resources, built heritage resources and landscape elements) may be of cultural heritage value or interest to a community.

For example, an Aboriginal trail, historic road or rail corridor may have been established as a key transportation or trade route and may have been important to the early settlement of an area. Parks, designed gardens or unique landforms such as waterfalls, rock faces, caverns, or mounds are areas that may have connections to a particular event, group or belief.

For more information on Questions 5.a., 5.b. and 5.c., contact:

- Elders in Aboriginal Communities or community researchers who may have information on potential cultural heritage resources. Please note that Aboriginal traditional knowledge may be considered sensitive.
- municipal heritage committees or local heritage organizations
- Ontario Historical Society's "Heritage Directory" - for a list of historical societies and heritage organizations in the province

An internet search may find helpful resources, including:

- historical maps
- historical walking tours
- municipal heritage management plans
- cultural heritage landscape studies
- municipal cultural plans

Information specific to trails may be obtained through Ontario Trails.

C.2 Cultural Heritage Report

Stantec

Memo

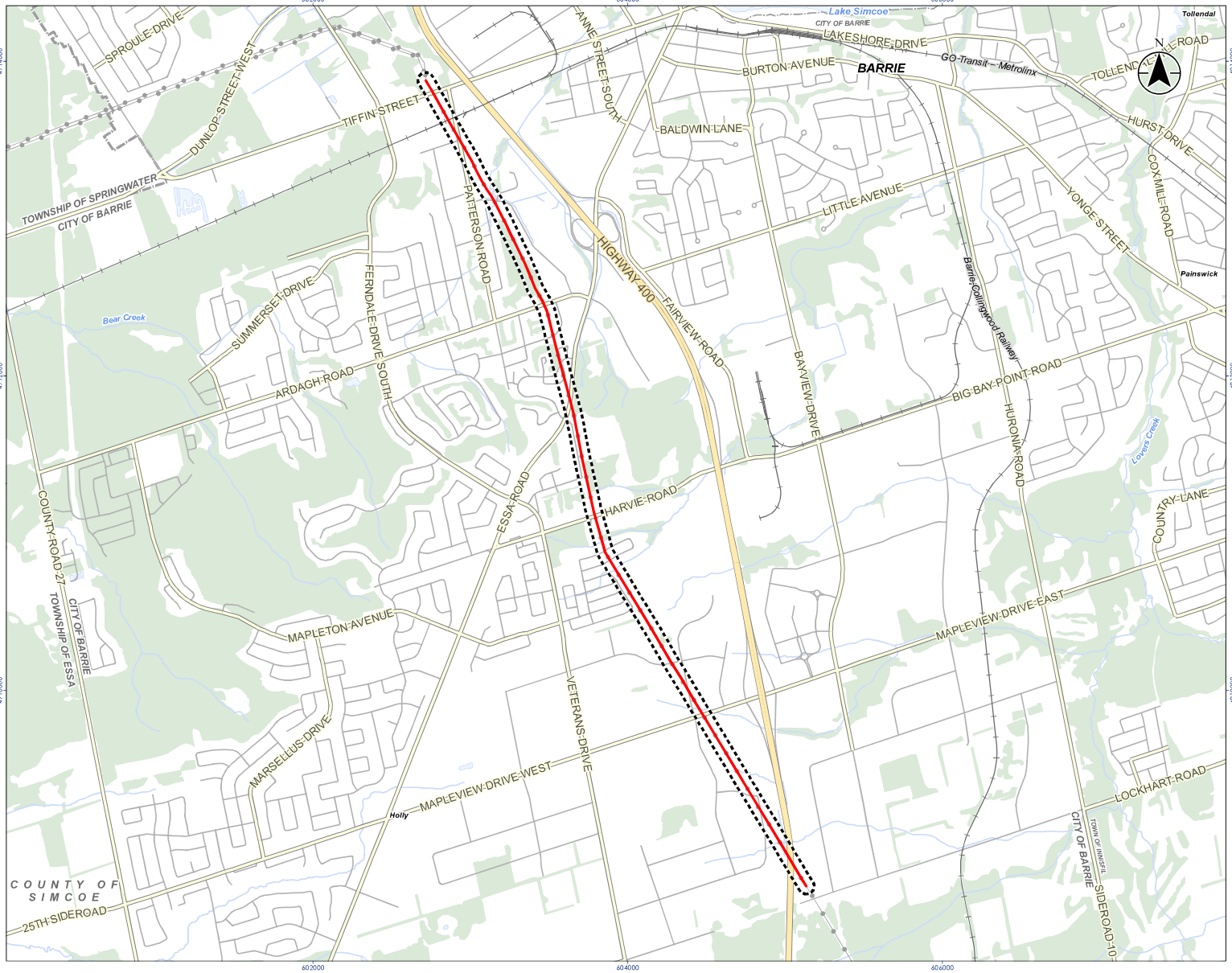
To:	Adam Haulena Hydro One Networks Inc.	From:	Jenn Como, BA (Hons) Lashia Jones, MA, CAHP Stantec Consulting Ltd.
Project/File:	160901024	Date:	November 28, 2023

Reference: Cultural Heritage Overview for Class Environmental Assessment for a Proposed Transmission Upgrade

1 Introduction

In support of the Class Environmental Assessment for a Minor Transmission Facility (Class EA for MTF) being undertaken for the proposed upgrade of one of Hydro One Network Inc.'s (HONI's) transmission lines, Stantec Consulting Ltd. (Stantec) has completed a Cultural Heritage Overview. The objectives of this Cultural Heritage Overview are to identify known and potential built heritage resources and cultural heritage landscapes within, or crossed by, the Project Location, including a 50 metre buffer (the Study Area) (Figure 1). This will determine if the Project requires subsequent cultural heritage studies, such as a *Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment* (CHR) or site-specific *Cultural Heritage Evaluation Reports* (CHERs) or *Heritage Impact Assessments* (HIAs). This Heritage Overview follows the *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes: A Checklist for the Non-Specialist* (the Checklist) published by the Ministry of Citizenship and Multiculturalism (MCM) in 2016.

The upgraded transmission line will be used to connect a new Municipal Transformer Station (MTS) proposed by InnPower to the existing electrical transmission system and the Barrie Transformer Station. A checklist was completed under separate cover to screen for potential cultural heritage resources in and around the proposed InnPower MTS site which is located at the southern end of the transmission line upgrade. No known or potential heritage resources were identified.



Stantec

Legend

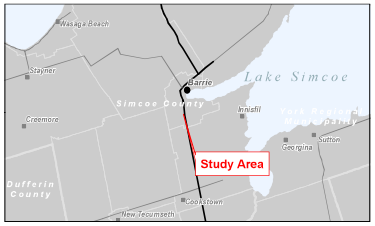
- Project Location
- Study Area (50 m)
- Highway
- Major Road
- Minor Road
- Hydro Line
- Railway
- Watercourse
- Municipal Boundary, Lower
- Waterbody
- Wooded Area

0 0.5 1 km

1:25,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.



Project Location
Barrie, ON

160901024 REV1
Prepared by BF on 2023-11-28
Technical Review by DH on 2023-09-27

Client/Project
HYDRO ONE NETWORKS INC.
MTF CLASS EA FOR PROPOSED TRANSMISSION UPGRADE
CULTURAL HERITAGE OVERVIEW

Figure No.
1

Title
Location of Study Area

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

2 Methodology

The Checklist provides a tool to identify known or recognized built heritage resources and cultural heritage landscapes in the Study Area, as well as commemorative plaques, cemeteries, Canadian Heritage River watersheds, properties with buildings 40 or more years old, and potential cultural heritage landscapes. Since cultural heritage is linked to real property under the *Ontario Heritage Act* (OHA), this analysis included all parcels within or crossed by the Study Area boundaries.

2.1 Regulatory Requirements

The requirement to consider cultural heritage in a Class EA for MTF is discussed in the amended Class EA document issued by Hydro One (Hydro One 2022) and approved by the Government of Ontario (Government of Ontario 2023a). The Class EA document considers cultural heritage, including built heritage resources and cultural heritage landscapes as well as archaeological resources, as one in a series of environmental factors to be considered when undertaking the Class EA Screening Process or Full Class EA Process. One of the objectives of a Class EA for MTF is to determine whether the proposed undertaking will result in significant effects to cultural heritage resources. The significant effects are to be determined based on technical, cultural heritage studies prepared by qualified persons (Hydro One 2022: 22 and 65).

The Class EA document suggests that significant built heritage resources and cultural heritage landscapes should be identified, evaluated, and managed on a project specific basis during the planning and design phase, as per guidelines provided in Ontario Regulation 9/06 (O. Reg. 9/06), Ontario Regulation 10/06 (O. Reg. 10/06), and the Standards and Guidelines for Conservation of Provincial Heritage Properties issued by the MCM in 2010. Cultural heritage resources that retain heritage attributes should be identified early in the EA process and avoided where possible. In addition, the Class EA document specifies that significant built heritage resources should be prevented from undergoing demolition by neglect through consideration of property maintenance measures.

The OHA provides the primary statutory framework for the conservation of cultural heritage resources in Ontario (Government of Ontario 2023b). Conservation of cultural heritage resources is a matter of provincial interest, as reflected in the OHA and MCM policies. In order to confirm and/or identify the presence of previously identified and potential built heritage resources and cultural heritage landscapes within the Study Area, the Checklist published by the MCM was completed.

2.2 Municipal Policy Framework

The Study Area falls within the municipal limits governed by the *City of Barrie Official Plan 2051* (City of Barrie 2023). One of the eight principles used to structure the official plan is Section 8 which is titled "Planning a Cultural City". This section of the official plan contains policies geared towards creating a shared community identity and celebrating Barrie's history.

The following contextual information and policies from Section 8.4 of the *City of Barrie Official Plan 2051* are relevant to the Project:

> Barrie's identity builds from its rich and diverse history. Provincial protection of Barrie's cultural heritage resources are provided through several documents, including the Ontario Heritage Act (which outlines and upholds the process for designating both individual properties and heritage conservation districts) and the Provincial Policy Statement (which defines cultural heritage landscapes). As Barrie grows into a mid-sized city, it is important to balance intensification with the preservation of cultural heritage resources. The following policies guide the preservation of Barrie's cultural and historical landscapes, resources and built forms to ensure they are properly identified, preserved, and protected for future generations:
>
> a) Significant built cultural heritage resources and significant cultural heritage landscapes, as per the Provincial Policy Statement, shall be conserved.
>
> b) Cultural heritage resources and cultural heritage landscapes are to be identified and protected over the long term.
>
> c) A register of cultural heritage resources ('Register') of all known properties of cultural heritage value or interest, which may include properties designated under Part IV of the Ontario Heritage Act, as well as properties which may have cultural heritage value or interest but have not yet been evaluated nor designated per the Ontario Heritage Act, shall be established and maintained.
>
> d) Conservation initiatives will be developed and implemented in collaboration with property owners, local residents, special interest groups, government agencies, and First Nations and Métis communities, where appropriate.
>
> e) Government programs will be leveraged to assist in the implementation of heritage conservation policies.
>
> (City of Barrie 2023)

In addition to these general policies related to cultural heritage resources, Section 8.4 includes more specific policies related to heritage designations, development and site alternation to cultural heritage resources and adjacent lands, and historic neighbourhoods.

2.3 Municipal and Agency Consultation

Agency consultation was conducted to determine the presence of previously identified protected properties within or adjacent to the Study Area. Forms of protection range from inclusion on a municipal register or list of potential heritage resources to designation under the OHA or a provincial easement made under the OHA. In order to determine the presence of any of these protected properties, consultation included correspondence with the following:

- MCM
- Ontario Heritage Trust (OHT)
- The City of Barrie

3 Existing Conditions

3.1 Site Description and Study Area

A vehicular and pedestrian survey of the Study Area was undertaken by Christian Giansante, a Cultural Heritage Specialist with Stantec, on September 11, 2023. The weather conditions were mild and overcast. The site visit consisted of visual examination of the Study Area and adjacent landscape. All photos were taken from the public right-of-way. Photographs were taken on Canon EOS Rebel T7 with a resolution of 6,000 by 4,000 pixels.

The proposed Hydro One transmission line upgrade requires the construction of approximately 6 kilometres of new double circuit 230 kV transmission line to support the proposed InnPower transformer station. The proposed route is located within a developed area of the city of Barrie that includes residential, commercial areas, and greenspaces. The existing Hydro One Barrie transformer station, located northwest of the intersection of Tiffin Street and Patterson Road, marks the northern end of the Study Area (Photo 1). The transformer station is located approximately 135 metres west of Highway 400. The area on Tiffin Street around the transformer station contains primarily commercial properties (Photo 2). Heading south, power lines on timber utility poles line both sides of Patterson Road (Photo 3). Patterson Road is also primarily commercial in character, with some side streets containing residential areas.

The proposed transmission line route continues southeast through greenspace behind the commercial properties on the west side of Morrow Road (Photo 4). Then it passes through a residential neighbourhood behind the houses on the west side of Mayfair Drive (Photo 5). This neighbourhood contains contemporary residences (Photo 6). Before reaching Essa Road, the route passes through greenspace including Mayfair Park and a residential area containing late 20th century townhomes and low-rise apartment buildings. The route passes through greenspace which includes the Beacon Glen Recreational Trails near the intersection of Essa Road and Beacon Road (Photo 7 and Photo 8). South of Essa Road, the route travels along the east side of Beacon Road, past the CTV Barrie station and through greenspace (Photo 9 and Photo 10). It continues southeast along the east side of Thrushwood Drive through a residential neighbourhood and agricultural fields (Photo 11). The residential neighbourhood, which continues along the west side of Thrushwood Drive, contains contemporary residences (Photo 12). Where Thrushwood Drive turns west, the transmission line route continues south through a narrow greenspace into another commercial area before crossing Highway 400 (Photo 13). The commercial area contains a combination of big box stores and plazas (Photo 14). The southern end of the transformer route is located at the site of the proposed InnPower transformer station on Saunders Road, north of Lockhart Road and east of Highway 400 (Photo 15 and Photo 16).

Photo 1: Existing Barrie Transformer Station, looking northwest

Photo 2: Commercial properties along Tiffin Street adjacent to the transformer station, looking west

Photo 3: Utility poles along Patterson Road, looking south

Photo 4: Morrow Road, looking southeast

Photo 5: Mayfair Drive, looking southeast

Photo 6: Representative example of a residence on Mayfair Drive, looking west

Photo 7: Trail entrance, located near the intersection of Essa Road and Beacon Road, looking north

Photo 8: Essa Road, looking north

Photo 9: Beacon Road including the CTV Barrie Station, looking southeast

Photo 10: View of the east side of Beacon Road at Monsterrand Street, looking east

Photo 11: View of agricultural fields on the east side of Thrushwood Drive near Ramblewood Drive, looking northeast

Photo 12: Contemporary residences along Ramblewood Drive, looking west

Photo 13: Thrushwood Drive, looking south

Photo 14: Commercial plaza, east side of Commerce Park Drive, looking south

Photo 15: Lockhart Road, looking northeast towards the approximate location of the proposed InnPower Transformer Station

Photo 16: Saunders Road, looking west towards the proposed transmission line route

3.2 Municipal and Agency Consultation

Consultation occurred via email and included mapping of the Study Area. At the provincial level, Karla Barboza, Team Lead, Heritage with MCM, responded that the MCM is not aware of any properties designated by the Minister or provincial heritage properties within the Study Area. Samuel Bayefsky, Real Property Coordinator with the OHT confirmed that the OHT does not have conservation easements or Trust-owned properties within or adjacent to the Study Area. At the municipal level, Tomasz Wierzba, Supervisor of Growth Management & Heritage Barrie Committee Staff Liaison, confirmed that the city is not aware of any heritage resources within or adjacent to the Study Area.

3.3 Review of Historical Mapping

The 1881 Township of Vespra and Township of Innisfil maps from the *Simcoe Supplement in the Illustrated Atlas of the Dominion of Canada* were reviewed to identify the location of 19th century structures, settlements, and other potential resources within the Study Area (H. Belden 1881). The Study Area is situated within part of Lot 25, Concession 6 in the former Township of Vespra and part of Lots 5 and 6, Concession 14, Lot 6, Concession 13, Lots 6 and 7 Concession 12, and Lots 7 and 8, Concession 11 in the former Township of Innisfil. Table 1 provides 1881 settlement data for the lots within the Study Area.

The route for the Northern Railway and one structure illustrated on the 1881 map remain extant within the Study Area.

Table 1: Review of 1881 Mapping for Vespra and Innisfil Townships

Township	Lot	Concession	Landowner	Parcel	Comment
Vespra	25	6	None Listed	N/A	East half of lot contains race track
Innisfil	5	14	None Listed	N/A	Lot includes a portion of the Northern Railway
Innisfil	6	14	None Listed	N/A	Lot includes a portion of the Northern Railway
Innisfil	6	13	Jas. Harris	Southwest	Structure depicted near where Essa Road and Beacon Road meet
Innisfil	6	12	Jas. Harris	West	No additional structures depicted
Innisfil	6	12	None Listed	East	No structures depicted
Innisfil	7	12	None Listed	N/A	No structures depicted
Innisfil	7	11	None Listed	N/A	No structures depicted
Innisfil	8	11	Wm. Miller	N/A	No structures depicted

3.4 Review of Topographic Mapping

Topographic mapping from the 20th century was also reviewed to confirm a date range for the structures in the Study Area. Specifically, mapping material was reviewed from 1950. The Study Area contains the same railway line identified in the historical mapping, which was operated by the Canadian National Railway Company by 1950 (Department of Nation Defence 1950). The Study Area also contains one extant residence built prior to 1950 at 12 Beacon Road. This is also the same residence identified on the historical mapping.

4 Checklist Results

The Checklist was completed for the Study Area based on the results of background research, a review of historical and topographic maps, and agency consultation. The results are presented in Table 2 and Figure 2.

Table 2: MCM Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes: A Checklist for the Non-Specialist.

Screening Criteria for Known and Potential Built Heritage Resources and Cultural Heritage Landscapes	Identified within the Study Area
Property identified, designated or otherwise protected under the OHA as being of cultural heritage value	Not Identified
A National Historic Site (or part of)	Not Identified
Designated under the *Heritage Railway Stations Protections Act*	Not Identified
Designated under the Heritage *Lighthouse Protection Act*	Not Identified
Identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office	Not Identified
Located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site	Not Identified
Is the subject of a municipal, provincial or federal commemorative or interpretative plaque	Not Identified

Screening Criteria for Known and Potential Built Heritage Resources and Cultural Heritage Landscapes	Identified within the Study Area
Has or is adjacent to a known burial site and/or cemetery	Not Identified
Is in a Canadian Heritage River watershed	Not Identified
Contains buildings or structures that are 40 or more years old	Identified
Local or Aboriginal knowledge that the property is considered a landmark in the local community or contains structures or sites that are important in defining the character of the area	Not Identified
Local or Aboriginal knowledge that the property has a special association with a community, person, or historical event	Not Identified
Local or Aboriginal knowledge that the property contains or is part of a cultural heritage landscape	Identified

The Study Area was determined to meet two criteria of the Checklist as it contains a structure that is 40 or more years old and part of a potential cultural heritage landscape.

The structure identified as 40 or more years old is a late 19th century residence located at 12 Beacon Road (Photo 17 and Photo 18). However, this residence has been heavily modified over time with an addition on the southwest façade, the additional of a garage at the rear, new cladding, and new windows (Photo 19 and Photo 20). The entry porch on the residence's front (northwest) façade is built on a concrete step and also appears to be an addition.

The Study Area contains part of a potential cultural heritage landscape consisting of railway trackage historically associated with the Northern Railway and the development of transportation infrastructure to more firmly connect northern areas of the province around Lake Huron to southern Ontario in the late 19th century. While the present-day railway is located on its original right-of-way, the built components have been modified and modernized over time. The present-day railway has a layout that is typical of single-track railways seen throughout Southern Ontario (Photo 21 and Photo 22). Based on the field program, the railway corridor was not observed to retain physical attributes dating to the late 19th century. Therefore, the identified potential of the railway is limited to historic association with the Northern Railway and its role in the settlement and development of northern portions of the province in the late 19th century.

Photo 17: 12 Beacon Road, including the addition on the southwest facade, looking southeast

Photo 18: 12 Beacon Road, looking south

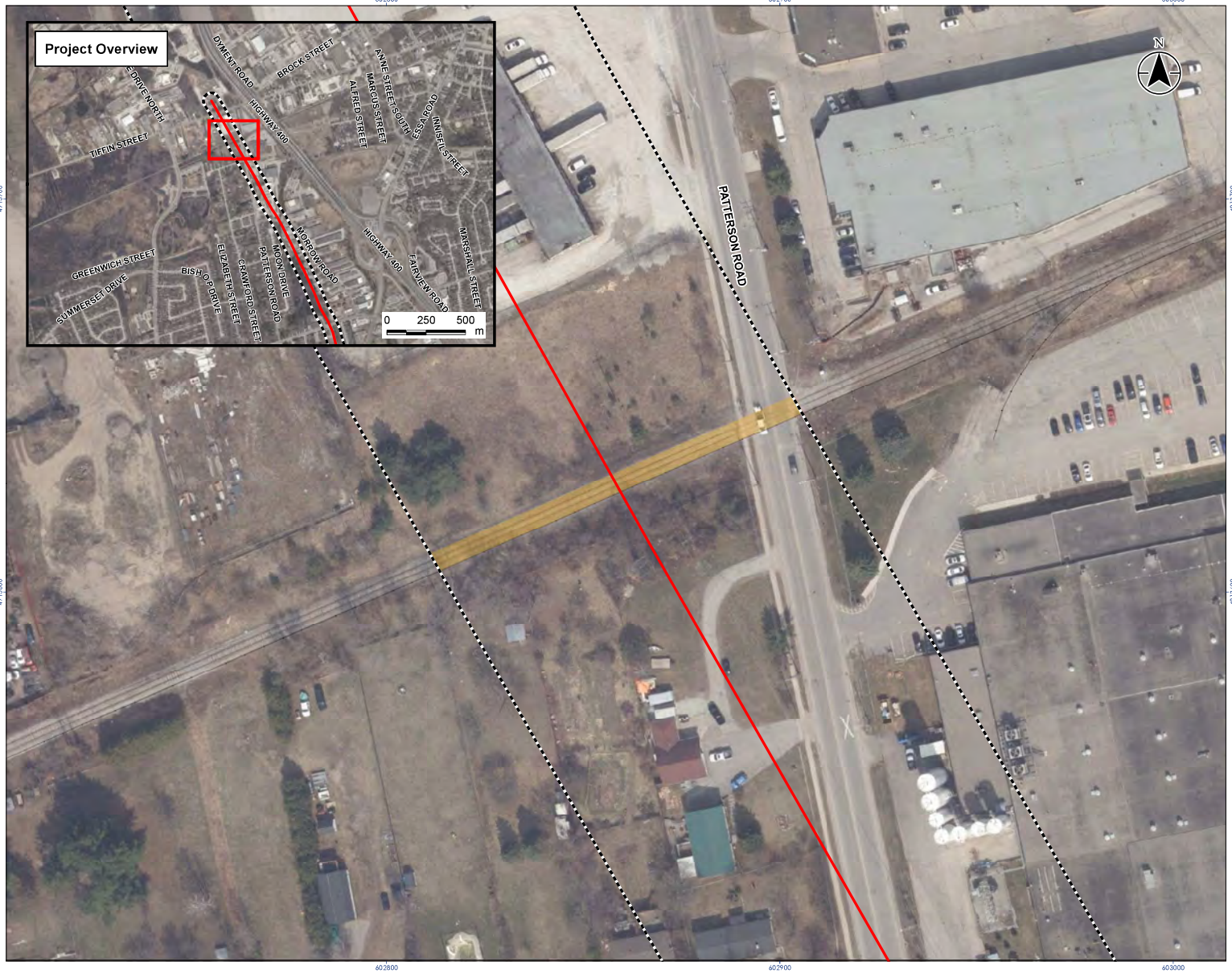
Photo 19: Southeast façade of 12 Beacon Road including garage addition, looking west

Photo 20: Close up showing modern stucco cladding and modern windows, looking west

Photo 21: Canadian National Railway crossing at Patterson Road, looking south

Photo 22: Railway corridor, looking east

Based on the above discussion, no structures with potential for cultural heritage value or interest (CHVI) were identified. The only potential cultural heritage landscape identified within the Study Area is the cultural heritage landscape historically associated with the former Northern Railway line. While this railway line crosses the proposed transmission line route, construction of the transmission line is not anticipated to negatively impact the potential cultural heritage landscape. Since the railway line is still in operation, no surface impacts are anticipated within the right of way of the rail corridor. Therefore, the potential cultural heritage landscape is not at risk of adverse negative direct or indirect impacts; no mitigation measures or further cultural heritage studies are required for the potential cultural heritage landscape.



Stantec

Legend

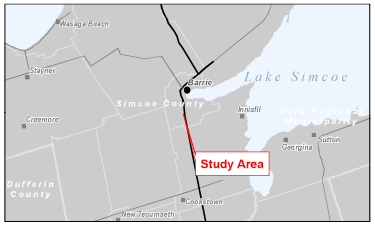
- Project Location
- Study Area (50 m)
- Potential Cultural Heritage Landscape

0 25 50 m

1:1,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.
3. Orthoimagery © First Base Solutions, 2023. Imagery Date, 2021.



Project Location
Barrie, ON

160901024 REV1
Prepared by BF on 2023-11-28
Technical Review by DH on 2023-09-27

Client/Project
HYDRO ONE NETWORKS INC.
MTF CLASS EA FOR PROPOSED TRANSMISSION UPGRADE
CULTURAL HERITAGE OVERVIEW

Figure No.
2

Title
Identified Cultural Heritage Landscapes

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5 Recommendations

One potential cultural heritage landscape was identified within the Study Area. The transmission line installation across the railway line is not anticipated to require encroachment into the railway right-of-way. Therefore, no surface impacts are anticipated within the rail corridor and the potential cultural heritage landscape is not at risk of adverse negative direct or indirect impacts; no mitigation measures, CHERs, or further cultural heritage studies are required for the potential cultural heritage landscape.

Based on the results presented herein, Stantec recommends no further cultural heritage studies for the Project.

6 Closure

This technical memorandum has been prepared for the sole benefit of HONI and may not be used by any third party without the express written consent of Stantec Consulting Ltd., and HONI.

We trust this technical memorandum meets your current requirements. Please do not hesitate to contact us should you require further information or have additional questions about any facet of this memorandum.

Sincerely,

STANTEC CONSULTING LTD.

Jennifer Como

Digitally signed by Jenn Como
Date: 2023.11.28 15:17:15 -05'00'

Jenn Como BA (Hons)
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Mobile: (226) 927-5319
Jenn.como@stantec.com

Digitally signed by Jones, Lashia
Date: 2023.11.28 15:31:23 -05'00'

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Cultural Heritage Specialist
Mobile: (226) 268-5392
Lashia.jones@stantec.com

Attachments: A – MCM Checklist
B – Supplementary Documentation

7 References

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Ministry of Citizenship and Multiculturalism [MCM]. 2016. Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes. Checklist on file at Stantec.

Attachment A MCM Checklist

Project or Property Name

Hydro One Network Inc. Class Environmental Assessment for a Proposed Transmission Upgrade

Project or Property Location (upper and lower or single tier municipality)

City of Barrie

Proponent Name

Hydro One Networks Inc.

Proponent Contact Information

Adam Haulena

Screening Questions

	Yes	No
1. Is there a pre-approved screening checklist, methodology or process in place?	☐	☑

If Yes, please follow the pre-approved screening checklist, methodology or process.

If No, continue to Question 2.

Part A: Screening for known (or recognized) Cultural Heritage Value

	Yes	No
2. Has the property (or project area) been evaluated before and found **not** to be of cultural heritage value?	☐	☑

If Yes, do **not** complete the rest of the checklist.

The proponent, property owner and/or approval authority will:

- summarize the previous evaluation and
- add this checklist to the project file, with the appropriate documents that demonstrate a cultural heritage evaluation was undertaken

The summary and appropriate documentation may be:

- submitted as part of a report requirement
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

	Yes	No
3. Is the property (or project area):		
a. identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value?	☐	☑
b. a National Historic Site (or part of)?	☐	☑
c. designated under the *Heritage Railway Stations Protection Act*?	☐	☑
d. designated under the *Heritage Lighthouse Protection Act*?	☐	☑
e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?	☐	☑
f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	☐	☑

If Yes to any of the above questions, you need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report, if a Statement of Cultural Heritage Value has not previously been prepared or the statement needs to be updated

If a Statement of Cultural Heritage Value has been prepared previously and if alterations or development are proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No, continue to Question 4.

Part B: Screening for Potential Cultural Heritage Value

	Yes	No
4. Does the property (or project area) contain a parcel of land that:		
a. is the subject of a municipal, provincial or federal commemorative or interpretive plaque?	☐	☑
b. has or is adjacent to a known burial site and/or cemetery?	☐	☑
c. is in a Canadian Heritage River watershed?	☐	☑
d. contains buildings or structures that are 40 or more years old?	☑	☐

Part C: Other Considerations

	Yes	No
5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area):		
a. is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area?	☐	☑
b. has a special association with a community, person or historical event?	☐	☑
c. contains or is part of a cultural heritage landscape?	☑	☐

If Yes to one or more of the above questions (Part B and C), there is potential for cultural heritage resources on the property or within the project area.

You need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report (CHER)

If the property is determined to be of cultural heritage value and alterations or development is proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No to all of the above questions, there is low potential for built heritage or cultural heritage landscape on the property.

The proponent, property owner and/or approval authority will:

- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g. under the *Environmental Assessment Act, Planning Act* processes
- maintained by the property owner, proponent or approval authority

Attachment B Supplementary Documentation

From:	Barboza, Karla (MCM) on behalf of Registrar (MCM)
To:	Como, Jenn
Cc:	Registrar (MCM)
Subject:	MCM Response: Reference: Information Request – Class Environmental Assessment & Station Preliminary Design
Date:	Wednesday, August 23, 2023 11:51:43 AM
Attachments:	160900977_Newspaper_map_TransmissionLine_8_5_x_11.pdf

MCM File 0016056 - New InnPower Municipal Transformer Station & Hydro One 230kV Line

Hi Jenn,

I hope this email finds you well.

As you may know, the Ministry developed screening checklists to assist property owners, developers, consultants and others to identify known and potential cultural heritage resources:

- Criteria for Evaluating Archaeological Potential
- Criteria for Evaluating Marine Archaeological Potential
- Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes

I have used the document above (Built Heritage and Cultural Heritage Landscapes) in order to respond to your question:

- Question 3a. i. Is the property (or project area) identified, designated or otherwise protected under the Ontario Heritage Act as being of cultural heritage value e.g. a property that is designated by order of the Minister of Citizenship and Multiculturalism as being of cultural heritage value or interest of provincial significance [s.34.5]?
  MCM Response: To date, no properties have been designated by the Minister.
- Question 3a.v. Is the property (or project area) identified, designated or otherwise protected under the Ontario Heritage Act as being of cultural heritage value included in the Ministry of Citizenship and Multiculturalism's list of provincial heritage properties?
  MCM Response: At this time, we are not aware of any provincial heritage properties within or adjacent to the study area.

  Please note that if the subject lands or parts of the subject lands are owned or controlled by an Ontario Ministry or Prescribed Public Body (PPB) on behalf of the Crown (the list of PPBs is available as O. Reg. 157/10), a Ministry or PPB may have responsibilities under the Standards and Guidelines for Conservation of Provincial Heritage Properties.

MCM would appreciate if any technical cultural heritage studies (e.g. Cultural Heritage Assessment Report, Cultural Heritage Evaluation Report, Heritage Impact Assessment) be sent for our review as part of the EA process.

I hope this helps. Let me know if you have any questions.

Regards,
Karla

Karla Barboza, RPP, MCIP, CAHP
Team Lead, Heritage | Heritage Planning Unit | **Ministry of Citizenship and Multiculturalism** | 416-660-1027 |
karla.barboza@ontario.ca

From: Como, Jenn <Jenn.Como@stantec.com>
Sent: August-21-23 12:29 PM
To: Registrar (MCM) <Registrar@ontario.ca>
Subject: Reference: Information Request – Class Environmental Assessment & Station Preliminary Design

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

Reference: Information Request – Class Environmental Assessment & Station Preliminary Design

Stantec Consulting Ltd., on behalf of Hydro One Networks Inc. (HONI) and InnPower Corp. (InnPower) is undertaking a Class Environmental Assessment (EA) for the proposed new 230 kilovolt InnPower municipal transformer station (MTS), and the proposed 230 kilovolt 2-circuit transmission line to connect to the new MTS. The transmission line will be constructed, operated, and maintained by HONI. In order to complete the Ministry of Citizenship and Multiculturalism *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (the Checklist) for the EA we are seeking information on protected heritage resources (properties, landscapes, or districts) within or adjacent to the Study Area.

We are inquiring about any potential of provincial heritage properties within or adjacent to the Study Area. The cultural heritage Study Area will include a 50 metre buffer around the existing HONI transmission line. A separate Checklist has been completed for the InnPower MTS.

Specifically, the Study Area spans across the following historical lots and concessions of the former Township of Innisfil, now the City of Barrie, in the County of Simcoe:

- Lots 7 and 8, Concession 11
- Lots 6 and 7, Concession 12
- Lot 6, Concession 13
- Lots 5 and 6, Concession 14

And the Study Area spans across the following historical lots and concessions of the former Township of Vespra, now the City of Barrie, in the County of Simcoe:

- Lot 25, Concession 6

Could you please advise if there are any provincial heritage properties within or adjacent to the Study Area?

For the ease of review, mapping has been prepared depicting the transmission line (see attached). This map appears in draft form and may contain confidential information not yet released to the public. We ask that you maintain confidentiality while responding to this inquiry.

Thanks for your help,

Jenn Como BA (Hons)
Cultural Heritage Specialist and Material Culture Analyst

[she/her]
Cell: 226-927-5319
Jenn.como@stantec.com

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From:	Samuel Bayefsky
To:	Como, Jenn
Subject:	RE: Reference: Information Request – Class Environmental Assessment & Station Preliminary Design
Date:	Monday, August 21, 2023 1:39:17 PM
Attachments:	image001.png

Hi Jenn,

Thank you for your email. I can confirm that the Ontario Heritage Trust does not own nor protect via easement any properties within the study area you provided. Should you require a review of properties with Trust plaques, kindly consult the following list: 2023-Open-data-plaques-ENG.pdf (heritagetrust.on.ca).

Kind regards,

Sammy Bayefsky (he/him)
Real Property Coordinator
416-728-5104

ONTARIO HERITAGE TRUST
FIDUCIE DU PATRIMOINE ONTARIEN

From: Como, Jenn <Jenn.Como@stantec.com>
Sent: Monday, August 21, 2023 12:31 PM
To: Samuel Bayefsky <Samuel.Bayefsky@heritagetrust.on.ca>
Subject: Reference: Information Request – Class Environmental Assessment & Station Preliminary Design

CAUTION: External mail. Do not click on links or open attachments unless you recognize the sender and know the content.

Good afternoon Kevin,

Reference: Information Request – Class Environmental Assessment & Station Preliminary Design

Stantec Consulting Ltd., on behalf of Hydro One Networks Inc. (HONI) and InnPower Corp. (InnPower) is undertaking a Class Environmental Assessment (EA) for the proposed new 230 kilovolt InnPower municipal transformer station (MTS), and the proposed 230 kilovolt 2-circuit transmission line to connect to the new MTS. The transmission line will be constructed, operated, and maintained by HONI. In order to complete the Ministry of Citizenship and Multiculturalism *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (the Checklist) for the EA we are seeking information on protected heritage resources (properties, landscapes, or districts) within or adjacent to the Study Area.

We are inquiring about any potential of Ontario Heritage Trust (OHT) conservation easements or OHT

owned properties within or adjacent to the Study Area. The cultural heritage Study Area will include a 50 metre buffer around the existing HONI transmission line. A separate Checklist has been completed for the InnPower MTS.

Specifically, the Study Area spans across the following historical lots and concessions of the former Township of Innisfil, now the City of Barrie, in the County of Simcoe:

- Lots 7 and 8, Concession 11
- Lots 6 and 7, Concession 12
- Lot 6, Concession 13
- Lots 5 and 6, Concession 14

And the Study Area spans across the following historical lots and concessions of the former Township of Vespra, now the City of Barrie, in the County of Simcoe:

- Lot 25, Concession 6

Could you please advise if there are any properties with an OHT conservation easement or any OHT owned properties within or adjacent to the Study Area?

For the ease of review, mapping has been prepared depicting the transmission line (see attached). This map appears in draft form and may contain confidential information not yet released to the public. We ask that you maintain confidentiality while responding to this inquiry.

Thanks for your help,

Jenn Como BA (Hons)
Cultural Heritage Specialist and Material Culture Analyst

[she/her]
Cell: 226-927-5319
Jenn.como@stantec.com

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From: Tomasz Wierzba
To: Como, Jenn
Subject: RE: Reference: Information Request – Class Environmental Assessment & Station Preliminary Design
Date: Wednesday, September 20, 2023 1:38:23 PM

Good Afternoon Jenn,

Our GIS team has concluded a desktop exercise to determine if there are any properties with cultural heritage value in the project area.

I can confirm at this time that there are none; at the very least, none that we are aware of.

This statement applied to only lands within the City's municipal boundaries as we cannot speak to the presence of cultural heritage resources in adjacent municipalities. Further, this statement does not eliminate the possibility of indigenous cultural heritage resources being present in or adjacent to the project area.

Please let me know if you need anything further.

Kindly,

Tomasz
Supervisor of Growth Management & Heritage Barrie Committee Staff Liaison
Pronouns: He/Him/His
Development Services
Barrie City Hall, 70 Collier Street, P.O. Box 400, Barrie ON, L4M 4T5
Office: 705-739-4220 Ext: 4403 |Fax: 705-739-4270 | www.barrie.ca

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From: Como, Jenn <Jenn.Como@stantec.com>
Sent: Monday, September 11, 2023 2:38 PM
To: Tomasz Wierzba <Tomasz.Wierzba@barrie.ca>
Subject: RE: Reference: Information Request – Class Environmental Assessment & Station Preliminary Design

Hello Tomasz,

Apologies for the delay. I reached out to our GIS team was able to get you shapefiles and I've attached the map image again for your reference. The GIS specialist mentioned that the shapefile is projected in NAD 1983 UTM Zone 17N in his email.

Please let me know if you need anything else,

Jenn Como
Cultural Heritage Specialist and Material Culture Analyst

[she/her]
Cell: 226-927-5319
Jenn.como@stantec.com

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From: Tomasz Wierzba <Tomasz.Wierzba@barrie.ca>
Sent: Friday, August 25, 2023 1:33 PM
To: Como, Jenn <Jenn.Como@stantec.com>
Subject: RE: Reference: Information Request – Class Environmental Assessment & Station Preliminary Design

Hi Jenn,

We will look into this next week and get back to you. When we do these types of reviews we typically use our GIS to identify heritage resources within the study area. Do you by chance have the GIS shapefile used to create the attached map? We will use the boarders to fence select any heritage resource and provide you any details we have.

Kindly,

Tomasz
Supervisor of Growth Management & Heritage Barrie Committee Staff Liaison
Pronouns: He/Him/His
Development Services
Barrie City Hall, 70 Collier Street, P.O. Box 400, Barrie ON, L4M 4T5
Office: 705-739-4220 Ext: 4403 |Fax: 705-739-4270 | www.barrie.ca

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From: Como, Jenn <Jenn.Como@stantec.com>
Sent: Monday, August 21, 2023 12:25 PM
To: Tomasz Wierzba <Tomasz.Wierzba@barrie.ca>
Subject: Reference: Information Request – Class Environmental Assessment & Station Preliminary Design

Good afternoon Tomasz,

Reference: Information Request – Class Environmental Assessment & Station Preliminary Design

Stantec Consulting Ltd., on behalf of Hydro One Networks Inc. (HONI) and InnPower Corp. (InnPower) is undertaking a Class Environmental Assessment (EA) for the proposed new 230 kilovolt InnPower municipal transformer station (MTS), and the proposed 230 kilovolt 2-circuit transmission line to connect to the new MTS. The transmission line will be constructed, operated, and maintained by HONI. In order to complete the Ministry of Citizenship and Multiculturalism *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (the Checklist) for the EA we are seeking information on protected heritage resources (properties, landscapes, or districts) within or adjacent to the Study Area.

We are inquiring about any municipal provincial heritage properties or interests within or adjacent to the Study Area. The cultural heritage Study Area will include a 50 metre buffer around the existing HONI transmission line. A separate Checklist has been completed for the InnPower MTS.

Specifically, the Study Area spans across the following historical lots and concessions of the former Township of Innisfil, now the City of Barrie, in the County of Simcoe:

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- Lots 6 and 7, Concession 12
- Lot 6, Concession 13
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And the Study Area spans across the following historical lots and concessions of the former Township of Vespra, now the City of Barrie, in the County of Simcoe:

- Lot 25, Concession 6

Could you please advise if there are any municipal provincial heritage properties or interests within or adjacent to the Study Area?

For the ease of review, mapping has been prepared depicting the transmission line (see attached). This map appears in draft form and may contain confidential information not yet released to the public. We ask that you maintain confidentiality while responding to this inquiry.

Thanks for your help,

Jenn Como BA (Hons)
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C.3 Natural Heritage Screening Report

Stantec

Memo

To:	Adam Haulena Hydro One Networks Inc.	From:	Marla Larson, Andrew Taylor Stantec Consulting Ltd.
Project/File:	160901024/160900977	Date:	April 30, 2024

Reference: InnPower Municipal Transformer Station & Hydro One 230 kV Line - Natural Heritage Screening Technical Memo

1 Introduction

The proposed InnPower Municipal Transformer Station (MTS) & Hydro One 230 kilovolt (kV) Line Project (the "Project") is located in the City of Barrie, Ontario, Canada. An EA is being carried out to assess the potential environmental effects of the Project. The Project is subject to the Class Environmental Assessment for Minor Transmission Facilities (MTF Class EA) (Hydro One 2022), which has been approved under the Ontario Environmental Assessment Act. The MTF Class EA is a streamlined process for transmission projects with a predictable range of effects are carried out in consideration of environmental features and have feasible environmental mitigation and/or protection measures in place.

This Natural Heritage Screening Technical Memo provides the results of the desktop analysis and field investigations, which were undertaken in 2023. The memo provides information on Species at Risk (SAR) and their habitats, designated natural heritage features, and recommended general mitigation measures.

1.1 Study Area

The Study Area for the Project is shown on Figure 1, Attachment A. The Study Area encompasses any land, structure, and air space in, on or over which any part of the Project is proposed. The desktop background review was completed for the Study Area, which encompasses a 120 metres (m) radius (Adjacent Lands) surrounding the Transmission Line and proposed MTS Site. Field studies were focused within the entire Hydro One Right-of-way (ROW) width (approximately 30 m) for the transmission line upgrade (6 km) and the property parcel associated with the MTS (i.e., proposed MTS Site).

2 Background Review

2.1 Background Information Sources

A variety of background documents and information sources were reviewed to obtain records of natural heritage features within the Study Area. Records of terrestrial and aquatic SAR and provincially rare species, occurrences of amphibians, reptiles, birds and mammals, Provincially Significant Wetlands (PSWs), Areas of Natural and Scientific Interest (ANSIs), and fish and fish habitat data were obtained from the following sources:

- Natural Heritage Information Centre (NHIC), (MNRF 2023a)
- Land Information Ontario (LIO), (MNRF 2023b)
- Lake Simcoe Region Conservation Authority (LSRCA) (LSRCA 2016)

- Nottawasaga Valley Conservation Authority (NVCA) (NVCA 2020)
- Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature 2020)
- Ontario Mammal Atlas (OMA; Dobbyn 1994)
- Ontario Breeding Bird Atlas (OBBA; Cadman et al. 2007)
- Fisheries and Oceans Canada Aquatic SAR Map (DFO 2024)
- Ontario Butterfly Atlas (Toronto Entomologists' Association 2023)
- eBird Online Database (eBird 2023)
- iNaturalist Online Observations (iNaturalist 2023)

2.2 Desktop Study Results

2.2.1 TERRESTRIAL DESIGNATED FEATURES

The proposed InnPower MTS Site is in an industrial park located in the south end of Barrie. There are no natural features on the Site, such as wetlands, woodlands, or ANSIs. The proposed MTS Site is situated within the LSRCA watershed; however, there are no LSRCA regulated areas within the proposed MTS Site. The 6 km Transmission Line overlaps with various permanent watercourses and a small unevaluated wetland regulated by LSRCA.

2.2.2 TERRESTRIAL SPECIES OF CONSERVATION CONCERN

Species of Conservation Concern (SOCC) are those species that are provincially rare (S1-S3 ranked species) or provincially designated special concern species. This category excludes species with a provincial status of threatened or endangered, which are described in Section 2.2.3. Status rankings (Sranks) for wildlife are based on the number of occurrences in Ontario and have the following meanings:

- S1: critically imperiled; often fewer than 5 occurrences
- S2: imperiled; often fewer than 20 occurrences
- S3: vulnerable; often fewer than 80 occurrences
- S4: apparently secure; uncommon but not rare
- S#B: breeding status rank
- S#N: Non-breeding status rank

Based on a review of background information, 12 SOCC are known to occur in the vicinity of the Study Area, as shown in Table 2.1. The potential for SOCC to be present in the Study Area is limited by habitat suitability and availability; therefore, species listed in Table 2.1 may not occur in the Study Area.

Table 2.1 Terrestrial Species of Conservation Concern

Common Name	Scientific Name	SRANK	Provincial Status (ESA)	Source
Amphibians				
Western Chorus Frog	*Pseudacris triseriata*	S4	NAR	ORAA 2020
Birds				
Barn Swallow	*Hirundo rustica*	S4B	SC	OBBA 2007
Common Nighthawk	*Chordeiles minor*	S4B	SC	OBBA 2007
Eastern Wood-pewee	*Contopus virens*	S4B	SC	NHIC 2023a
Grasshopper sparrow	*Ammodramus savannarum*	S4B	SC	NHIC 2023a
Wood Thrush	*Hylocichla mustelina*	S4B	SC	NHIC 2023a
Insects				
Monarch	*Danaus plexippus*	S2N, S4B	SC	TEA 2023
Reptiles				
Common Five-lined Skink (Great Lakes/St. Lawrence population)	Plestiodon fasciatus pop. 2	S4	SC	ORAA 2020
Eastern Milksnake	Lampropeltis triangulum	S4	NAR	NHIC 2023a, ORAA 2020
Midland Painted Turtle	Chrysemys picta marginata	S5	NAR	NHIC 2023a
Northern Map Turtle	Graptemys geographica	S3	SC	ORAA 2020
Snapping Turtle	Chelydra serpentina	S3	SC	NHIC 2023a

2.2.3 TERRESTRIAL SPECIES AT RISK

For this report, SAR are those species listed as endangered or threatened under the provincial Endangered Species Act, 2007 (ESA). The ESA was created to protect SAR and their habitats in Ontario. Endangered, threatened, and extirpated species listed on the Species at Risk in Ontario (SARO) list (O. Reg. 230/08 under the ESA) automatically receive legal protection from harm or harassment under the ESA. In addition to species protection, the ESA prohibits damage or destruction of habitat.

Eleven SAR that have the potential to occur within the MTS Study Area were identified during the background review. These species, their status and a brief habitat description is provided in Table 2.2

Table 2.2 SAR Species with Potential to Occur within the MTS Study Area

Species	SAR Legislation and Status		Habitat
	Ontario ESA, SARO List	Federal SARA, Schedule 1	
Birds			
Bank Swallow	THR	THR	Nests in sandy embankments and aggregate pits.
Bobolink	THR	THR	Generally, prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands.
Chimney Swift	THR	THR	They are more likely to be found in and around urban settlements where they nest and roost (rest or sleep) in chimneys and other manmade structures.
Eastern Meadowlark	THR	THR	Generally, prefers grassy pastures, meadows, and hay fields. Nests are always on the ground and usually hidden in or under grass clumps.
Eastern Whip-poor-will	THR	THR	The Eastern Whip-poor-will is usually found in areas with a mix of open and forested areas, such as savannahs, open woodlands, or openings in more mature, deciduous, coniferous, and mixed forests. It forages in these open areas and uses forested areas for roosting (resting and sleeping) and nesting.
Red-headed Woodpecker	END	END	The Red-headed Woodpecker lives in open woodland and woodland edges and is often found in parks, golf courses and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching.
Mammals			
Little Brown Myotis	END	END-END	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius; Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm dbh).
Northern Myotis	END	END-END	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius; Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.)
Tri-colored Bat	END	END-END	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. The Tri-coloured Bat roosts in colonies in tree cavities in a wide variety of deciduous and coniferous forest stands. It is strongly associated with forest watercourses and streamside vegetation.
Plants			
Butternut	END	END	In Ontario, Butternut usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry rocky soil. This species does not do well in the shade, and often grows in sunny openings and near forest edges.

Reptiles			
Blandings Turtle	THR	END	Typically found in shallow water, usually in large wetlands.

2.2.4 AQUATIC HABITAT

A total of 15 mapped watercourses or drainage features are present within the Study Area (MNRF 2023c). Locations of each feature are shown on Figure 2, Attachment A. A summary of available background information for each feature is available in Table 2.3. Restricted in-water work timing windows are also identified for each feature in Table 2.3 and are set by the MNRF to provide additional protection for fish during sensitive life stages (i.e., spawning, rearing). Typically, in-water works (below the historic high-water mark) are not permitted during these time frames.

Table 2.3 Aquatic Habitat Features Present Within the Site

Watercourse Name (Stantec ID)	Flow Regime (MNRF 2023a)	Thermal Regine (MNRF 2023c)	Fish Present (MNRF 2023c)	MNRF In-water Restricted Timing Window* (MNR 2013)
Hotchkiss Creek (WC-1)	Permanent	Cold	Yes	October 1 to July 15
Tributary to Hotchkiss Creek (WC-2)	Permanent	Unknown	Yes	March 15 to July 15
Tributary to Hotchkiss Creek (WC-3a)	Permanent	Unknown	Yes	March 15 to July 15
Tributary to Hotchkiss Creek (WC-3b)	Permanent	Unknown	Yes	March 15 to July 15
Tributary to Hotchkiss Creek (WC-4)	Permanent	Unknown	Yes	March 15 to July 15
Tributary to Hotchkiss Creek (WC-5)	Permanent	Unknown	Yes	March 15 to July 15
Tributary to Lake Simcoe (WC-6)	Permanent	Unknown	No	Not Applicable
Tributary to Lake Simcoe (WC-7)	Permanent	Cold	Yes	October 1 to July 15
Tributary to Lake Simcoe (WC-8)	Permanent	Cold	Yes	October 1 to July 15
Tributary to Lovers Creek[1] (WC-9)	Permanent	Unknown	Yes	October 1 to July 15
Tributary to Lovers Creek (WC-10)	Permanent	Unknown	Yes	October 1 to July 15

Watercourse Name (Stantec ID)	Flow Regime (MNRF 2023a)	Thermal Regine (MNRF 2023c)	Fish Present (MNRF 2023c)	MNRF In-water Restricted Timing Window* (MNR 2013)
Unnamed Watercourse (WC-11)	Permanent	Unknown	Yes	October 1 to July 15
Tributary to Lovers Creek (WC-12a)	Permanent	Unknown	Yes	October 1 to July 15
Tributary to Lovers Creek (WC-12b)	Permanent	Unknown	Yes	October 1 to July 15
Tributary to Lovers Creek (WC-12c)	Permanent	Unknown	Yes	October 1 to July 15

* Suggested timing windows to be confirmed by MNRF prior to any in-water works.
[1]An unmapped segment of this feature is present within the Study Area

There are no records of aquatic SAR within the Site (MNRF 2023b, DFO 2023).

3 Field Investigation

3.1 Survey Methods

Stantec staff visited the site on October 26 and 27, 2023 to complete SAR and wildlife habitat assessments. Wildlife habitat assessments focused on the identification on identifying wildlife habitat features that could support SAR and/or SOCC identified in the background records review and verifying the presence of aquatic features and their potential to support fish.

3.2 Results

3.2.1 TERRESTRIAL FEATURES

There were no SAR or SOCC observed within the Hydro One ROW and MTS property during the site visit on October 26 and 27, 2023, however the field visit was completed outside of the active season for wildlife. Based on the presence of suitable habitat, and results of the background records review, the following SAR/SOCC may occur in the Study Area:

- Chimney Swift – may nest/roost in chimneys of urban buildings and homes. Buildings will remain intact throughout the Study Area, so no impacts to Chimney Swift are anticipated.
- Bat SAR - A group of suitable bat maternity roost trees is present in the southern half of the Study Area in ELC community WODM4-3 (Figure 1. Attachment A); bat SAR may use this forested community. Bat SAR may also be present in other forested habitat within the Study Area.
- Eastern Wood-pewee and Wood Thrush may occur within the forested habitat throughout the Study Area.
- Monarch may occur in the meadow and thicket habitat throughout the Study Area.

3.2.2 AQUATIC FEATURES

The results of the visual assessment for each aquatic feature are summarized in Table 3.1.

Table 3.1 Summary of Field Investigations for Aquatic Features

Watercourse Name (Stantec ID)	Notes	Fish Habitat
Hotchkiss Creek (WC-1)	Permanent feature, average width 1.5 m, average depth 0.2 m	Direct fish habitat
Tributary to Hotchkiss Creek (WC-2)	Drainage ditch entering underground piped storm drainage prior to confluence with Hotchkiss Creek (WC-1)	Not fish habitat
Tributary to Hotchkiss Creek (WC-3a)	Drainage ditch lined with rip-rap, trickle flow	Potential seasonal fish habitat
Tributary to Hotchkiss Creek (WC-3b)	Dry swale, continues into WC-3a	Not fish habitat
Tributary to Hotchkiss Creek (WC-4)	No visible feature	Not fish habitat
Tributary to Hotchkiss Creek (WC-5)	No visible feature	Not fish habitat
Tributary to Lake Simcoe (WC-6)	Dry swale within project boundary	Not fish habitat
Tributary to Lake Simcoe (WC-7)	Poorly defined swale, dry during site assessment	Not fish habitat
Tributary to Lake Simcoe (WC-8)	Pool below culvert outfall with trickle flow into stormwater pond	Potential fish habitat
Tributary to Lovers Creek (WC-9)	Small defined channel with trickle flow into stormwater ponds	Potential fish habitat
Tributary to Lovers Creek (WC-10)	Stormwater conveyance from nearby commercial areas	Not fish habitat
Unnamed Watercourse (WC-11)	Multiple poorly defined drainage ditches, some isolated pools of standing water but no connectivity to other features	Not fish habitat
Tributary to Lovers Creek (WC-12a)	Permanent feature, average width 1 m, average depth 0.15 m	Fish habitat
Tributary to Lovers Creek (WC-12b)	Poorly defined drainage into WC-12a	Potential seasonal fish habitat
Tributary to Lovers Creek (WC-12c)	Poorly defined drainage into WC-12a	Potential seasonal fish habitat

4 Recommended Mitigation

The following general mitigation measures are recommended to reduce impacts to wildlife in the Study Area:

- Avoid construction activities with the potential to remove migratory bird habitat, such as vegetation clearing, to the extent possible during the breeding season, which is generally from April 1 to August 31 in southern Ontario (ECCC 2022). Should vegetation clearing activities be unavoidable during this window, a program inclusive of preventative and mitigation measures (i.e. nest sweeps) should be implemented to reduce and avoid impacts to migratory birds and their nests.
- Implement a sedimentation and erosion control plan, with particular focus on areas of the Study Area in proximity to the wetlands, water bodies and watercourses. Maintain until the restoration measures have been assessed and determined to be secure and stable and keep additional materials on site in the event of an emergency.
- If removal of above-ground habitat features (rock slabs or piles, brush) is needed, these features will be relocated to a suitable location nearby under the direction of a biologist or retained outside the active work zone during construction and returned post-construction to the same location. Removal of features will be done by hand, if possible, to allow wildlife to flee without harm.
- If wildlife is encountered during construction, personnel are required to move away from the animal and provide reasonable time for the animal to move off the construction site.
- In some instances, handling wildlife may be required, such as the movement of an animal to outside of harm's way, or the transportation of an injured animal to an authorized wildlife rehabilitator; however, this activity should occur under the direction of a professional with knowledge of wildlife handling.
- Delineate boundaries of the work zone to avoid accidental encroachment into natural areas.
- Clearing should be reduced to the extent possible in sensitive areas such as woodlands and wetlands.
- Clearing should be done during dry soil conditions to the extent practical to limit disturbance to vegetation and terrain.
- Native topsoil should be preserved through topsoil salvage and separation.
- High-traffic or erosion-prone areas should be revegetated with suitable protective cover during and post-construction.
- Should significant *Phragmites australis* stands be identified during field investigations, a *Phragmites australis* management plan should be developed.
- Where disturbed temporary work areas overlap with natural areas, the permanent easement should be seeded with a native seed mix.
- Replaced soils should contain native seed bank, facilitating successful revegetation.

Habitat in the Study Area may support SOCC (Eastern Wood-pewee, Wood Thrush, and Monarch) and SAR (Chimney Swift and Bat SAR). Further surveys may be required to confirm presence/absence of species in the Study Area.

Bat SAR (Little Brown Myotis, Northern Myotis, Tri-coloured Bat)

- If a proposed activity or project is expected to adversely affect (e.g., remove, stub, etc.) potential maternity or day roost trees in treed habitats, but the timing of tree removal will avoid the bat active season (April 1 – September 30 in Southern Ontario / May 1 to August 31 in Northern Ontario), then bat surveys of treed habitats would not be needed.
- If the active season cannot be avoided, bat exit surveys would be needed if suitable bat maternity trees are to be removed.
- Submission of an Information Gathering Form (IGF) to the Ministry of Environment, Conservation and Parks (MECP) is recommended, to determine permitting requirements under the ESA.

Eastern Wood-pewee and Wood Thrush

- Limit tree removal to the extent possible within deciduous and mixed forests.
-
- To avoid contravention of the MBCA, mitigation measures must be implemented to prevent the disturbance, destruction or taking of a nest, egg, or shelter of a migratory bird. Disturbances to nests of protected bird species should be performed outside of the primary nesting period (April 1 – August 31) unless an avian biologist is retained to conduct nest sweeps of the Study Area a maximum of seven days prior to work.

Monarch

- Avoid mowing areas with milkweed where eggs and caterpillars are developing, generally mid-May until end of August, where possible.

Aquatic Features

In addition to the above recommendations, general mitigations for working near water are as follows:

- Wash, refuel and/or service equipment a minimum of 30 m from drainage features and wetlands to reduce the risk of deleterious substances from entering the features. Check machinery regularly for fluid leaks.
- Develop a Spill Management Plan and have it on site for implementation in the event of an accidental spill. Keep an emergency spill kit on site.
- Stabilize materials requiring stockpiling (fill, topsoil, etc.) and keep a safe distance (> 30 m) from drainage features and wetlands.
- Timing restrictions for in-water work, if required.
- A fish rescue/relocation plan, if required.

5 Closure

Stantec prepared this Natural Heritage Screening Technical Memo in support of the process to complete the Minor Transmission Facilities Class Environmental Assessment. Results of this report identified four SAR (Chimney Swift, Little Brown Myotis, Northern Myotis, Tri-coloured Bat) and three SOCC species (Eastern Wood-pewee, Wood Thrush, and Monarch) with potential suitable habitat within the Site Boundaries.

Please contact the undersigned if you have any questions regarding the enclosed information.

Closing,

STANTEC CONSULTING LTD.

Marla Larson

Digitally signed by Larson, Marla
Date: 2024.05.01 14:57:52 -04'00'

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Junior Ecologist
Phone: (226) 962-0319
marla.larson@stantec.com

Andrew Taylor

Digitally signed by Andrew Taylor
Date: 2024.05.01 14:53:40 -04'00'

Andrew Taylor B.Sc
Senior Ecologist
Phone: (519) 820-6149
andrew.taylor@stantec.com

Attachments: Attachment A – Figures
Figure 1 - Transmission Line Background Review
Figure 2 - Ecological Land Classification and Watercourses

6 References

Cadman, M. D., D.A. Sutherland, G.G. Beck, D. Lepage, A.R. Couturier. 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. (eds) *Bird Studies Canada, Environment Canada,* Ontario Field Ornithologists, Ontario Ministry of natural resources, and Ontario Nature, Toronto, xxii + 706pp.

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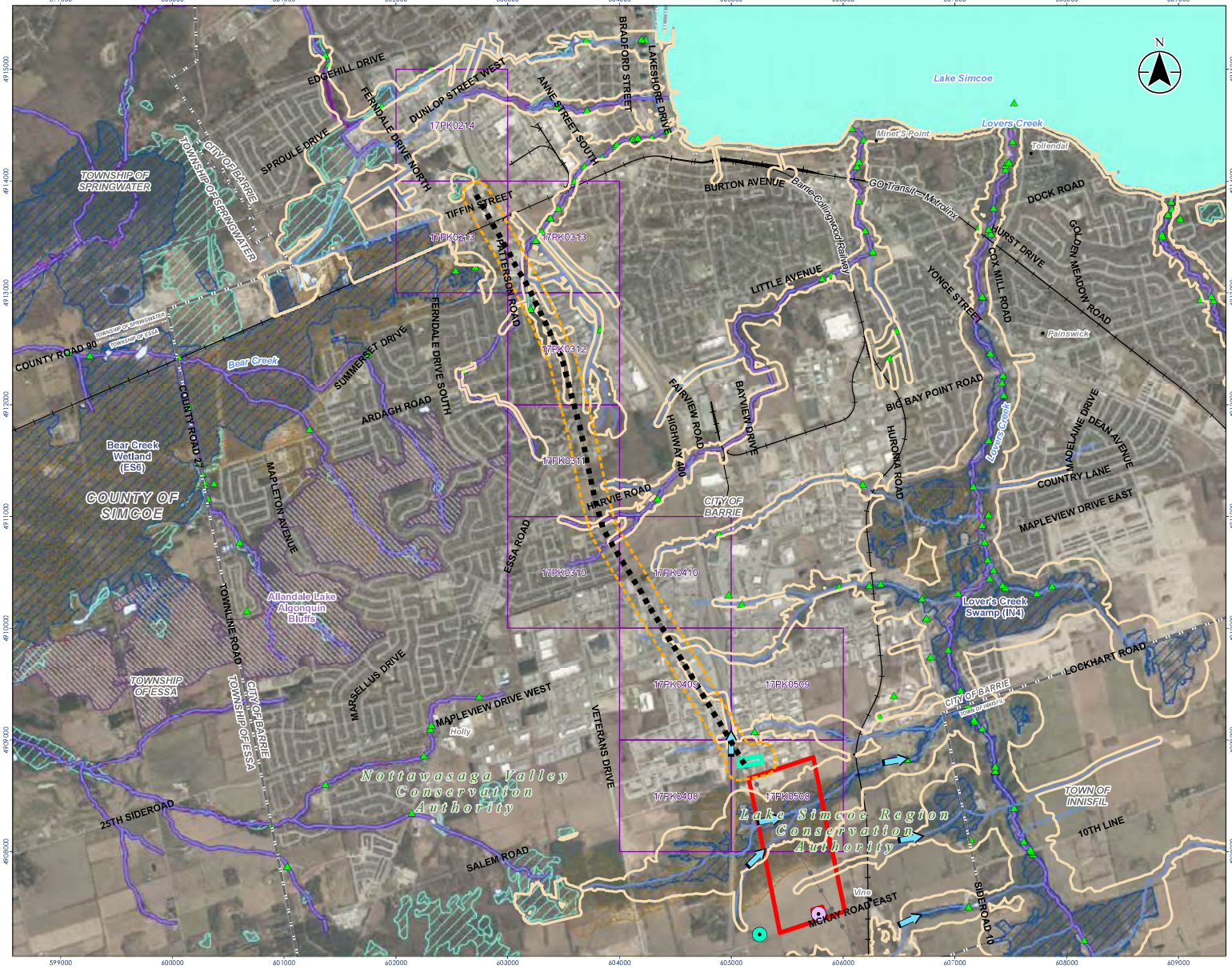
Attachment A Figures



Stantec

Legend

- Saunders Road Site Boundary
- Site 1 Boundary
- Study Area 120 m
- Transmission Line
- 110 McKay Road
- 36 McKay Road
- Fish Survey Point (ARA)
- Direction of Surface Water Flow
- Constructed Drain
- Hydro Line
- Railway
- Watercourse (Intermittent)
- Watercourse (Permanent)
- ANSI, Life Science
- Deer Wintering Area
- Regulation Limit (LSRCA)
- Thermal Regime, Cold
- Thermal Regime, Cool
- Waterbody
- Wetland, Provincially Significant
- Wetland, Not evaluated per OWES
- 1 km UTM Grid

0 500 1,000 m

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Notes

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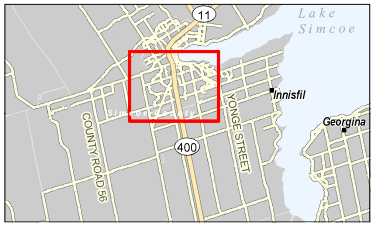

Project Location
City of Barrie/
Town of Innisfill

160901024 REV2
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Client/Project
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INNPOWER MINOR TRANSMISSION STATION

Figure No.
1

Title
Transmission Line Background Review

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Stantec

Legend

- Transformer Station
- Transmission Line (To Be Assessed in EA)
- Transmission Line (120 m)
- ELC Community Boundary

Base Features

- Flow Direction
- Thermal Regime, Cold
- Waterbody
- Wetland, Provincially
- Wetland, Not evaluated per OWES

ELC Description

CVC_1 (Business Sector)

CVC_2 (Light Industry)

CVI_4 (Power Generation)

CVR (Residential)

CVR_1 (Low Density Residential)

CVR_3 (Single Family Residential)

MEFM1 (Dry - Fresh Forb Meadow Ecosite), THDM4 (Dry - Fresh Deciduous Regeneration Thicket Ecosite)

MEMM3 (Dry - Fresh Mixed Meadow Ecosite)

TAGM1 (Coniferous Plantation)

THDM2 (Dry - Fresh Deciduous Shrub Thicket Ecosite)

WODM5 (Fresh - Moist Deciduous Woodland Ecosite)

0 100 200 m

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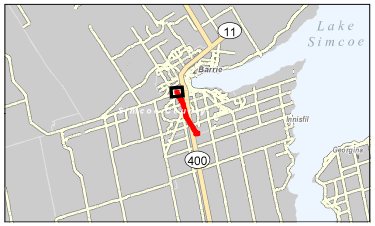

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Figure No.
2.1

Title
Ecological Land Classification and Watercourses

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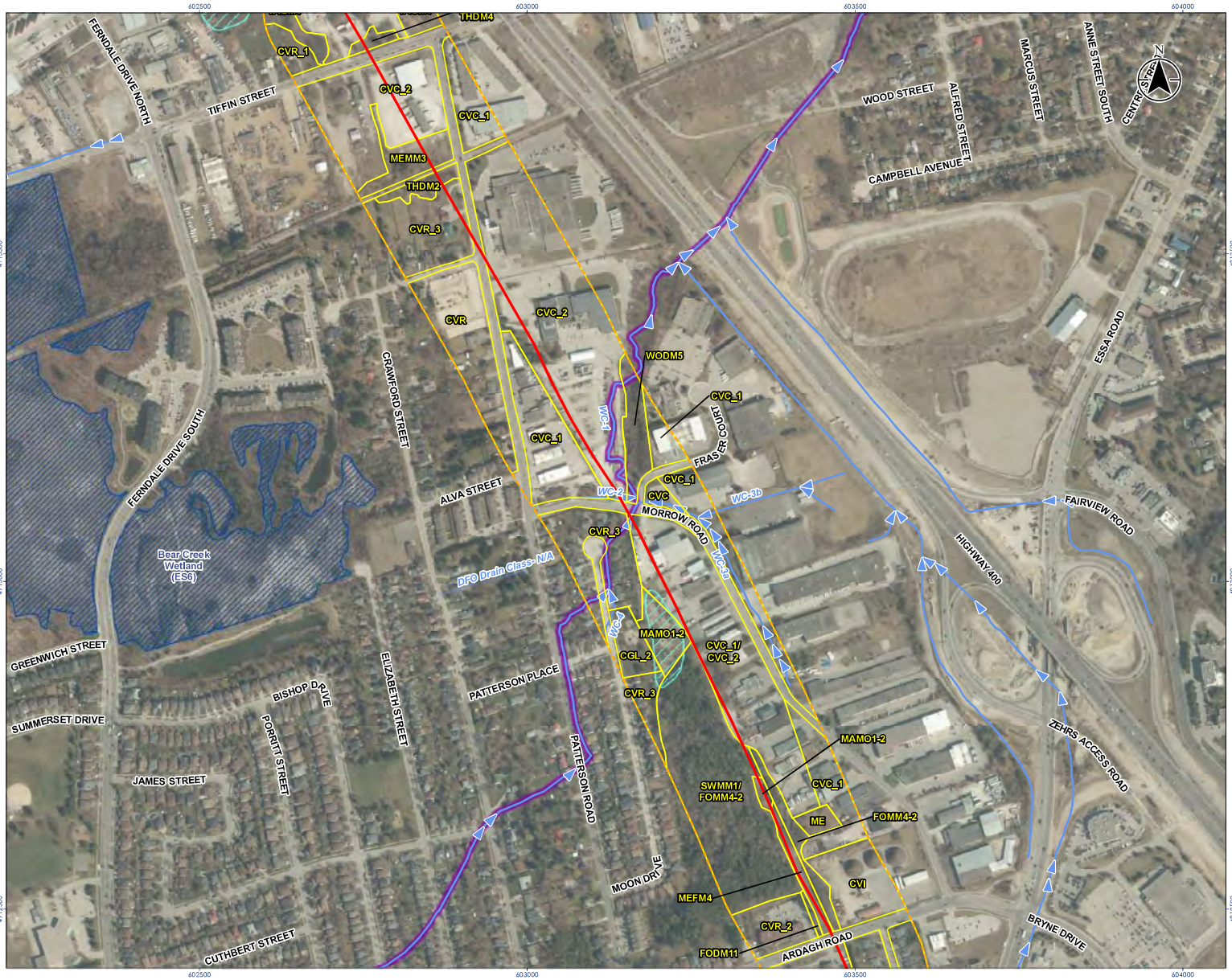

Stantec

Legend

- Transmission Line (To Be Assessed in EA)
- Transmission Line (120 m)
- ELC Community Boundary

Base Features

- Flow Direction
- Constructed Drain
- Thermal Regime, Cold
- Wetland, Provincially Significant
- Wetland, Not evaluated per OWES

ELC Description

- CGL_2 (Parkland)
- CVC (Commercial and Institutional)
- CVC_1 (Business Sector)
- CVC_1 (Business Sector), CVC_2 (Light Industry)
- CVC_2 (Light Industry)
- CVI (Transportation and Utilities)
- CVI_4 (Power Generation)
- CVR (Residential)
- CVR_1 (Low Density Residential)
- CVR_2 (High Density Residential)
- CVR_3 (Single Family Residential)
- FODM11 (Naturalized Deciduous Hedgerow Ecosite)
- FOMM4-2 (Dry – Fresh White Cedar – Poplar Mixed Forest Type)
- MAMO1-2 (Cattail Graminoid Organic Meadow Marsh Type)
- ME (Meadow)
- MEFM1 (Dry – Fresh Forb Meadow Ecosite), THDM4 (Dry – Fresh Deciduous Regeneration Thicket Ecosite)
- MEFM4 (Fresh – Moist Forb Meadow Ecosite)
- MEMM3 (Dry – Fresh Mixed Meadow Ecosite)
- SWMM1 (White Cedar Mineral Mixed Swamp Ecosite), FOMM4-2 (Dry – Fresh White Cedar – Poplar Mixed Forest Type)
- TACM1 (Coniferous Plantation)
- THDM2 (Dry – Fresh Deciduous Shrub Thicket Ecosite)
- WODM5 (Fresh – Moist Deciduous Woodland Ecosite)

0 100 200 m

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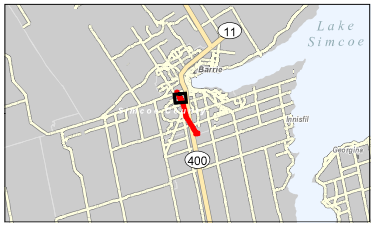

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Figure No.
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Title
Ecological Land Classification and Watercourses

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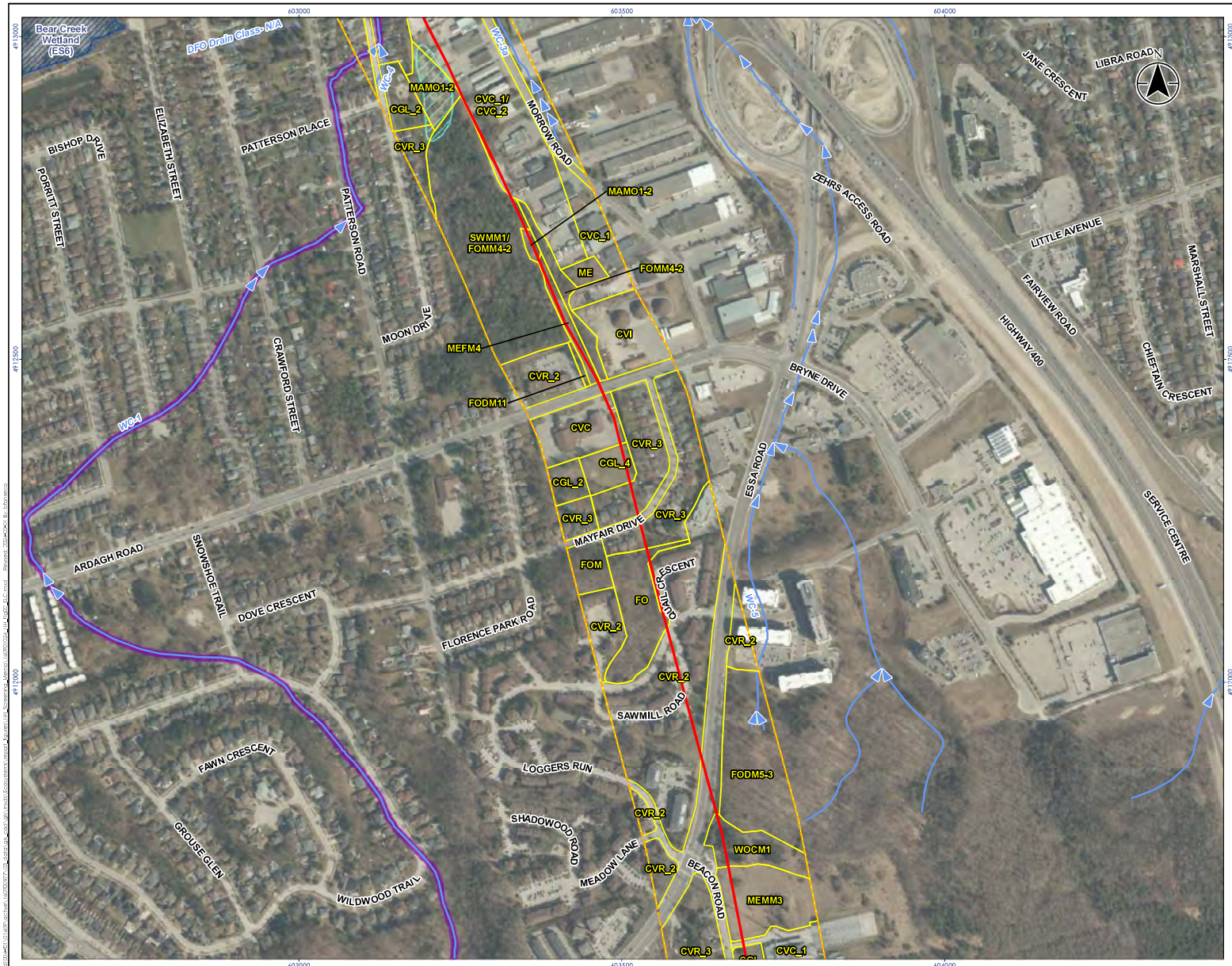

Stantec

Legend

- Transmission Line (To Be Assessed in EA)
- Transmission Line (120 m)
- ELC Community Boundary
- Thermal Regime, Cold
- Wetland, Provincially Significant
- Wetland, Not evaluated per OWES

Base Features

- Flow Direction
- Watercourse (Intermittent)
- Constructed Drain

ELC Description

- CGL (Green Lands)
- CGL_2 (Parkland)
- CGL_4 (Recreational)
- CVC (Commercial and Institutional)
- CVC_1 (Business Sector)
- CVC_1 (Business Sector), CVC_2 (Light Industry)
- CVI (Transportation and Utilities)
- CVR_2 (High Density Residential)
- CVR_3 (Single Family Residential)
- FO (Forest)
- FODM11 (Naturalized Deciduous Hedgerow Ecosite)
- FODM5-3 (Dry – Fresh Sugar Maple – Oak Deciduous Forest Type)
- FOM (Mixed Forest)
- FOMM4-2 (Dry – Fresh White Cedar – Poplar Mixed Forest Type)
- MAMO1-2 (Cattail Graminoid Organic Meadow Marsh Type)
- ME (Meadow)
- MEFM4 (Fresh – Moist Forb Meadow Ecosite)
- MEMM3 (Dry – Fresh Mixed Meadow Ecosite)
- SWMM1 (White Cedar Mineral Mixed Swamp Ecosite), FOMM4-2 (Dry – Fresh White Cedar – Poplar Mixed Forest Type)
- WOCM1 (Dry – Fresh Coniferous Woodland Ecosite)

0 100 200 m

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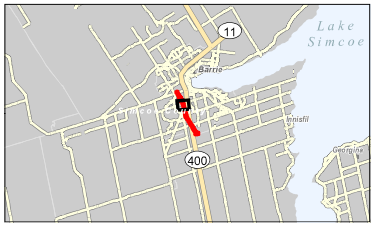

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Figure No.
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Title
Ecological Land Classification and Watercourses

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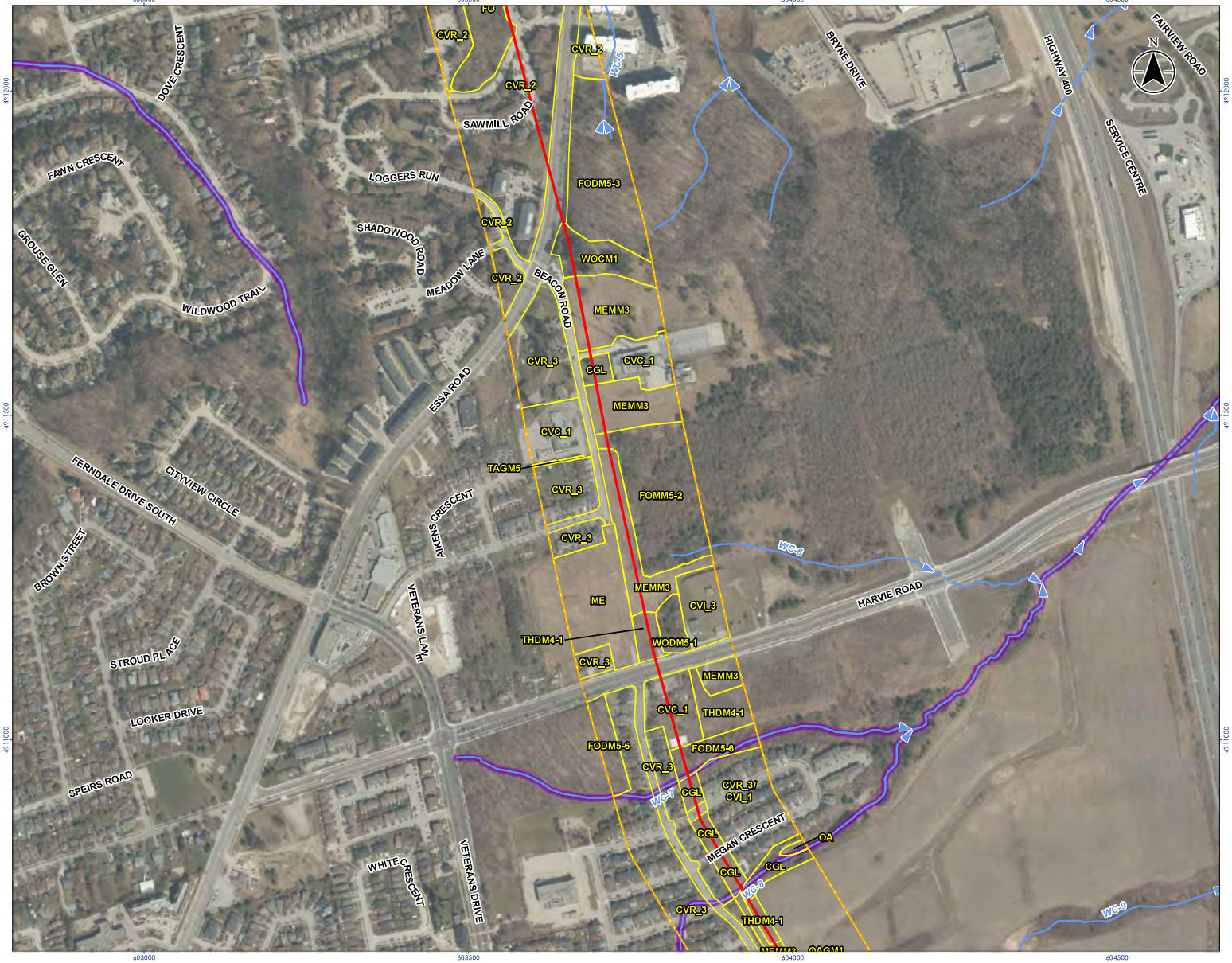

Stantec

Legend

- Transmission Line (To Be Assessed in EA)
- Transmission Line (120 m)
- ELC Community Boundary
- Thermal Regime, Cold

Base Features

- Flow Direction
- Watercourse (Intermittent)

ELC Description

- CGL (Green Lands)
- CVC_1 (Business Sector)
- CVL_3 (Sewage and Water Treatment)
- CVR_2 (High Density Residential)
- CVR_3 (Single Family Residential)
- CVR_3 (Single Family Residential), CVL_1 (Transportation)
- FO (Forest)
- FODM5-3 (Dry – Fresh Sugar Maple – Oak Deciduous Forest Type)
- FODM5-6 (Dry – Fresh Sugar Maple – Basswood Deciduous Forest Type)
- FOMM5-2 (Dry – Fresh Poplar Mixed Forest Type)
- ME (Meadow)
- MEMM3 (Dry - Fresh Mixed Meadow Ecosite)
- OA (Open Water)
- OAGM1 (Annual Row Crops)
- TAGM5 (Fencerow)
- THDM4-1 (Native Deciduous Regeneration Thicket Type)
- WOCM1 (Dry - Fresh Coniferous Woodland Ecosite)
- WODM5-1 (Fresh - Moist Poplar Deciduous Woodland Type)

0 100 200 m

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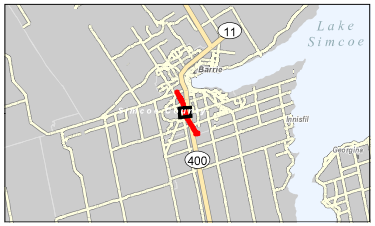

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Title
Ecological Land Classification and Watercourses

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Stantec

Legend

- Transmission Line (To Be Assessed in EA)
- Transmission Line (120 m)
- ELC Community Boundary
- Thermal Regime, Cold

Base Features

- Flow Direction
- Watercourse (Intermittent)

ELC Description

- CGL (Green Lands)
- CVC_1 (Business Sector)
- CVI_3 (Sewage and Water Treatment)
- CVR_3 (Single Family Residential)
- CVR_3 (Single Family Residential), CVI_1 (Transportation)
- FODM5-6 (Dry – Fresh Sugar Maple – Basswood Deciduous Forest Type)
- FOMM5-2 (Dry – Fresh Poplar Mixed Forest Type)
- MASM1-1 (Cattail Mineral Shallow Marsh Type)
- ME (Meadow)
- MEMM3 (Dry – Fresh Mixed Meadow Ecosite)
- OA (Open Water)
- OAGM1 (Annual Row Crops)
- THD (Deciduous Thicket)
- THDM4-1 (Native Deciduous Regeneration Thicket Type)
- WODM4 (Dry – Fresh Deciduous Woodland Ecosite)
- WODM4-3 (Sugar Maple Deciduous Woodland Type)
- WODM5-1 (Fresh – Moist Poplar Deciduous Woodland Type)

0 100 200 m

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Notes

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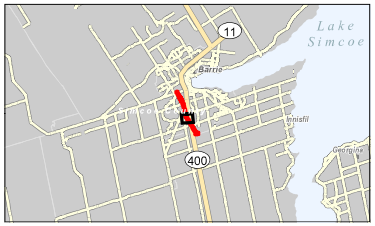

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Figure No.
2.5

Title
Ecological Land Classification and Watercourses

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Stantec

Legend

- Transmission Line (To Be Assessed in EA)
- Transmission Line (120 m)
- ELC Community Boundary

Base Features

- Flow Direction
- Watercourse (Intermittent)

ELC Description

CGL (Green Lands)

CGL (Green Lands), THDM5 (Fresh - Moist Deciduous Thicket Ecosite), MEMM4 (Fresh - Moist Mixed Meadow Ecosite)

CVC_1 (Business Sector)

CVC_1 (Business Sector), CVC_2 (Light Industry)

CVR_3 (Single Family Residential)

MASM1-1 (Cattail Mineral Shallow Marsh Type)

MEMM3 (Dry - Fresh Mixed Meadow Ecosite)

OA (Open Water)

OAGM1 (Annual Row Crops)

THDM5-1 (Native Deciduous Regeneration Thicket Type)

THDM5 (Fresh - Moist Deciduous Thicket Ecosite), MEMM4 (Fresh - Moist Mixed Meadow Ecosite)

WODM4 (Dry - Fresh Deciduous Woodland Ecosite)

WODM4-3 (Sugar Maple Deciduous Woodland Type)

0 100 200 m

1:6,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2019.
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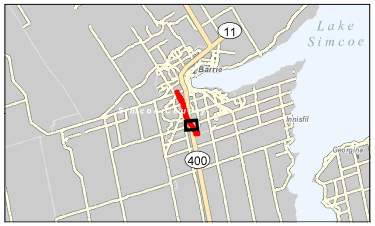

Project Location
City of Barrie/
Town of Innisfill

160901024 REV1
Prepared by BF on 2024-02-01
Technical Review by DH on 2023-01-09

Client/Project
INNPOWER CORPORATION
INNPOWER MINOR TRANSMISSION STATION

Figure No.
2.6

Title
Ecological Land Classification and Watercourses

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Stantec

Legend

- T Transformer Station
- Transmission Line (To Be Assessed in EA)
- Transmission Line (120 m)
- ELC Community Boundary

Base Features

- Flow Direction
- Watercourse (Intermittent)
- Archaeology and Landuse Study Area
- Wetland, Provincially Significant

ELC Description

CGL (Green Lands) , THDM5 (Fresh - Moist Deciduous Thicket Ecosite), MEMM4 (Fresh - Moist Mixed Meadow Ecosite)

CVC_1 (Business Sector)

CVC_1 (Business Sector), CVC_2 (Light Industry)

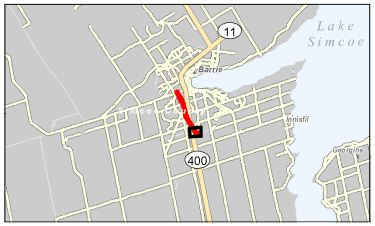
THDM5 (Fresh - Moist Deciduous Thicket Ecosite), MEMM4 (Fresh - Moist Mixed Meadow Ecosite)

0 100 200 m

1:6,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2019.
3. Orthoimagery © First Base Solutions, 2024. Imagery Date, 2023.



Project Location
City of Barrie/
Town of Innisfill

160901024 REV1
Prepared by BF on 2024-02-01
Technical Review by DH on 2023-01-09

Client/Project
INNPOWER CORPORATION
INNPOWER MINOR TRANSMISSION STATION

Figure No.
2.7

Title
Ecological Land Classification and Watercourses

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C.4 Archaeological Assessment Report – Stage 1 AA Report

Stage 1 Archaeological Assessment: InnPower Municipal Transformer Station & Hydro One 230 kV Line

Part of Lot 25, Concession 6, Vespra Township, and Parts of Various Lots and Concessions, Innisfil Township, now the City of Barrie, Simcoe County, Ontario

May 15, 2024

Prepared for:
InnPower Corporation
7251 Yonge Street
Innisfil, Ontario L9S 0J3

and

Hydro One Networks Inc.
483 Bay Street, North Tower, 12th Floor
Toronto, Ontario M5G 2P5

Prepared by:

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Licensee: Sarah Henderson, MA
License Number: P394
Project Information Form Number:
P394-0115-2023
Project Numbers: 160901024/160900977

ORIGINAL REPORT

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Executive Summary

Stantec was retained by InnPower Corporation and Hydro One Networks Inc. to conduct an archaeological assessment of lands for the proposed InnPower Municipal Transformer Station & Hydro One 230 kV Line Project (the Project). The Project is subject to the Class Environmental Assessment for Minor Transmission Facilities (Hydro One 2022), an approved planning process under the Environmental Assessment Act (EA Act) designed for proponents to characterize the existing environment, assess potential environmental effects and mitigation, identify and evaluate alternatives, conduct consultation and document study findings (Government of Ontario 1990a).

The archaeology study area for the Project comprises approximately 142 hectares, starting at the InnPower Transformer Station on the north side of Tiffin Street and moving south just to the west of Highway 400 and terminating at Lockhart road to the east of Highway 400. The study area is within part of Lot 25, Concession 6, Geographic Township of Vespra; and part of Lots 5, 6, 7, and 8, Concessions 11, 12, 13 and 14 Geographic Township of Innisfil, Simcoe County, Ontario.

Stage 1 archaeological assessment was conducted under Project Information Form number P394-0115-2023, issued by the Ministry of Citizenship and Multiculturalism (MCM) to Sarah Henderson, MA. The Stage 1 archaeological assessment involved background research and a property inspection conducted on October 31, 2023 and November 1, 2023 to evaluate the archaeological potential of the study area. The Stage 1 archaeological assessment determined parts of the study area to have archaeological potential.

Based on the Stage 1 archaeological assessment results presented in this report, Stantec recommends:

1. No further archaeological assessment for parts of the study area retaining no or low archaeological potential.
2. Stage 2 archaeological assessment for parts of the study area retaining archaeological potential. The objective of the Stage 2 archaeological assessment will be to document archaeological resources within the study area and to determine whether these archaeological resources require further assessment. For portions of the study area retaining archaeological potential not accessible for ploughing, the Stage 2 archaeological assessment will consist of test pit survey at five metre intervals as outlined in Section 2.1.2 of the MCM's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011). The MCM's standards require that each test pit be at least 30 centimetres in diameter, excavated to at least five centimetres into subsoil, and have soil screened through six-millimetre hardware cloth to facilitate the recovery of any cultural material that may be present. Prior to backfilling, each test pit will be examined for stratigraphy, cultural features, or evidence of fill. If the archaeological field team judges any lands to be low and wet, steeply sloped, or disturbed during the course of the Stage 2 field work, those areas will not require physical survey, but will be photographically documented instead in accordance with Section 2.1 of the MCM's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011).
3. For all lands **accessible** for ploughing, the Stage 2 physical survey of the study area will involve the pedestrian survey method at five-metre intervals as per Section 2.1.1 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). In these instances, it is important to have all agricultural land ploughed in advance of the archaeological assessment. Ploughing must be deep enough to provide total topsoil exposure, but not deeper than previous

ploughing, and must be able to ensure at least 80% ground surface visibility. It is our understanding that approximately 4 ha of land are agricultural fields that are accessible for ploughing.

4. As outlined in ASI 2018 report, the five village sites are within a one kilometre radius of the study area of which ossuaries have not been identified, and it is recommended that construction monitoring be undertaken for any areas within both 1,000 metres of these sites and 300 metres from water

Full and detailed recommendations are found in the main body of the report.

The MCM is asked to enter this report into the *Ontario Public Register of Archaeological Reports*.

The Executive Summary highlights key points from the report only; for complete information and findings, the reader should examine the complete report.

Project Personnel

Licensed Archaeologist:	Sarah Henderson, MA (P394)
Project Manager:	Leslie Greener, B.Sc., EP
Task Manager:	Clarice Choo, M.Sc.
Licensed Field Director:	Sarah Henderson, MA (P394)
Report Writer:	Sarah Henderson, MA (P394)
Mapping:	Mike Alcazaren
Quality Review:	Parker Dickson, MA
Independent Review:	Colin Varley, MA, RPA (P002)

Acknowledgements

Proponent Contact:	Adam Haulena, Hydro One Networks Inc.
	Morteza Mirkeshmiri, P. Eng., InnPower Corporation
Ministry of Citizenship and Multiculturalism:	Robert von Bitter, Archaeological Data Coordinator

1 Project Context

1.1 Development Context

Stantec was retained by InnPower Corporation and Hydro One Networks Inc. (collectively, the Client) to conduct an archaeological assessment of lands for the proposed InnPower Municipal Transformer Station & Hydro One 230 kilovolt (kV) Line Project (the Project). The Project is subject to the Class Environmental Assessment for Minor Transmission Facilities (Hydro One 2022), an approved planning process under the Environmental Assessment Act (EA Act). designed for proponents to characterize the existing environment, assess potential environmental effects and mitigation, identify and evaluate alternatives, conduct consultation and document study findings (Government of Ontario 1990a).

The archaeology study area for the Project consists of the hydro corridor and a 120-metre buffer surrounding the corridor comprising of approximately 142 hectares. The northern most limit of the study area is located at the InnPower Transformer Station on the north side of Tiffin Street and travels south terminating at Lockhart Road of the east of Highway 400, Barrie, Ontario (Figure 1 and Figure 2.1-2.7). The study area is within part of Lot 25, Concession 6, Geographic Township of Vespra; and part of Lots 5, 6, 7, and 8, Concessions 11, 12, 13 and 14, Geographic Township of Innisfil, now City of Barrie, Simcoe County, Ontario.

1.1.1 Objectives

In compliance with the provincial standards and guidelines set out in 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), regulated by the Ministry of Citizenship and Multiculturalism (MCM), the objectives of the Stage 1 archaeological assessment are to:

- Provide information about the study area's geography, history, previous archaeological fieldwork, and current land conditions.
- Evaluate the study area's archaeological potential which will support recommendations for Stage 2 survey for all or parts of the property.
- Recommend appropriate strategies for Stage 2 survey.

To meet these objectives, Stantec archaeologists:

- Reviewed of relevant archaeological, historical, and environmental literature pertaining to the study area.
- Reviewed of the land use history, including historical atlases.
- Examined of the *Ontario Archaeological Sites Database* to determine the presence of registered archaeological sites in and around the study area.
- Queried of the *Ontario Public Register of Archaeological Reports* to identify previous archaeological within or within 50 metres of the study area.
- Completed a property inspection of the study area by a licensed archaeologist.

The Client provided permission to enter the study area to conduct the archaeological assessment.

1.2 Historical Context

"Contact" is typically used as a chronological benchmark in discussing Indigenous archaeology in Canada and describes the contact between Indigenous and European cultures. There is no definitive moment of contact and the understanding of when Indigenous and European nations first began to influence one another is evolving with new study of archaeological and historical evidence, and from Indigenous oral tradition and history. Contact in what is now the province of Ontario is broadly assigned to the 16th century (Loewen and Chapdelaine 2016).

1.2.1 Pre-Contact Indigenous Resources

It has been demonstrated that Indigenous people began occupying southern Ontario as the Laurentide glacier receded, as early as 11,000 years ago (Ellis and Ferris 1990:13). Much of what is understood about the lifeways of these Indigenous peoples is derived from archaeological evidence and ethnographic analogy. In Ontario, Indigenous culture prior to the period of contact with European peoples has been distinguished into cultural periods based on observed changes in material culture. These cultural periods are largely based in observed changes in formal lithic tools, and separated into the Early Paleo, Late Paleo, Early Archaic, Middle Archaic, Late Archaic and Terminal Archaic periods. Following the advent of ceramic technology in the Indigenous archaeological record, cultural periods are separated into the Early Woodland, Middle Woodland, and Late Woodland periods, based primarily on observed changes in formal ceramic decoration. It should be noted that these cultural periods do not necessarily represent specific cultural identities but are a useful paradigm for understanding changes in Indigenous culture through time. The current understanding of Indigenous archaeological culture is summarized in Table 1 below, based on Ellis and Ferris (1990). The provided time periods are based on the "Common Era" calendar notation system, i.e., Before Common Era (BCE) and Common Era (CE).

Table 1: Generalized Cultural Chronology for Simcoe County

Cultural Period	Characteristics	Time Period	Comments
Early Paleo	Fluted Projectiles	9000 – 8400 BCE	Spruce parkland/caribou hunters
Late Paleo	Hi-Lo Projectiles	8400 – 8000 BCE	Smaller but more numerous sites
Early Archaic	Kirk and Bifurcate Base Points	8000 – 6000 BCE	Slow population growth
Middle Archaic	Brewerton-like points	6000 – 2500 BCE	Environment similar to present
Late Archaic	Lamoka (narrow points)	2500 – 1800 BCE	Increasing site size
	Broad Points	1800 – 1500 BCE	Large chipped lithic tools
	Small Points	1500 – 1100 BCE	Introduction of bow hunting
Terminal Archaic	Hind Points	1100 – 950 BCE	Emergence of true cemeteries
Early Woodland	Meadowood Points	950 – 400 BCE.	Introduction of pottery
Middle Woodland	Dentate/Pseudo-Scallop Pottery	400 BCE – 500 CE	Increased sedentism
	Princess Point	550 – 900 CE	Introduction of corn
Late Woodland	Early Late Woodland	900 – 1300 CE	Emergence of agricultural villages
	Middle Late Woodland	1300 – 1400 CE	Long longhouses (100+ metres)
	Late Late Woodland	1400 – 1650 CE	Tribal warfare and displacement

Between 9000 and 8000 BCE, Indigenous populations were sustained by hunting, fishing, and foraging and lived a relatively mobile existence across an extensive geographic territory. Despite these wide territories, social ties were maintained between groups; one method was through gift exchange, evident through exotic lithic material documented on many sites (Ellis 2013:35-40).

By approximately 8000 BCE, evidence exists and becomes more common for the production of ground-stone tools such as axes, chisels and adzes. These tools themselves are believed to be indicative specifically of woodworking. This evidence can be extended to indicate an increase in craft production and arguably craft specialization. This latter statement is also supported by evidence, dating to approximately 7000 BCE of ornately carved stone objects which would be laborious to produce and have explicit aesthetic qualities (Ellis 2013:41). This is indirectly indicative of changes in social organization which permitted individuals to devote time and effort to craft specialization. Since 8000 BCE, the Great Lakes basin experienced a low-water phase, with shorelines significantly below modern lake levels (Stewart 2013: Figure 1.1.C). It is presumed that the majority of human settlements would have been focused along these former shorelines. At approximately 6500 BCE the climate had warmed considerably since the recession of the glaciers and the environment had grown more similar to the present day. By approximately 4500 BCE, evidence exists from southern Ontario for the utilization of native copper, i.e., naturally occurring pure copper metal (Ellis 2013:42). The recorded origin of this material along the north shore of Lake Superior indicates the existence of extensive exchange networks across the Great Lakes basin.

At approximately 3500 BCE, the isostatic rebound of the North American plate following the melt of the Laurentide glacier had reached a point which significantly affected the watershed of the Great Lakes basin. Prior to this, the Upper Great Lakes had drained down the Ottawa Valley via the French and Mattawa River valleys. Following this shift in the watershed, the drainage course of the Great Lakes basin had changed to its present course. This also prompted a significant increase in water-level to approximately modern levels (with a brief high-water period); this change in water levels is believed to have occurred catastrophically (Stewart 2013:28-30). This change in geography coincides with the earliest evidence for cemeteries (Ellis 2013:46). By 2900 to 2500 BCE, the earliest evidence exists for the construction of fishing weirs (Ellis et al. 1990: Figure 4.1; Stevens 2004). Construction of these weirs would have required a large amount of communal labour and are indicative of the continued development of social organization and communal identity. The large-scale procurement of food at a single location also has significant implications for permanence of settlement within the landscape. This period is also marked by further population increase and by 1500 BCE evidence exists for substantial permanent structures (Ellis 2013:45-46).

By approximately 950 BCE, the earliest evidence exists for populations using ceramics. Populations are understood to have continued to seasonally exploit natural resources. This advent of ceramic technology correlated, however, with the intensive exploitation of seed foods such as goosefoot and knotweed as well as mast such as nuts (Williamson 2013:48). The use of ceramics implies changes in the social organization of food storage as well as in the cooking of food and changes in diet. Fish also continued to be an important facet of the economy at this time. Evidence continues to exist for the expansion of social organization (including hierarchy), group identity, ceremonialism (particularly in burial), interregional exchange throughout the Great Lakes basin and beyond, and craft production (Williamson 2013:48-54).

By approximately 550 CE, evidence emergences for the introduction of maize into southern Ontario. This crop would have initially only supplemented Indigenous people's diet and economy (Birch and Williamson 2013:13-14). Maize-based agriculture gradually became more important to societies and by approximately 900 CE permanent communities emerge which are primarily focused on agriculture and the storage of crops, with satellite locations oriented toward the procurement of other resources such as hunting, fishing, and foraging. By approximately 1250 CE, evidence exists for the common cultivation of historic Indigenous cultigens, including maize, beans, squash, sunflower, and tobacco. The extent archaeological record demonstrates many cultural traits similar to historical Indigenous nations (Williamson 2013:55).

1.2.2 Post-Contact Indigenous Resources

The Project is located within the traditional territory of the ancestral Huron-Wendat Nation, known historically as "Huronia". Huronia was a small area in south-central Ontario that was inhabited by a group of Iroquoian-speaking horticulturalists in the early 17th century, known to the French missionaries and fur traders as the Huron, but who referred to themselves as Wendat. This region, between Lake Simcoe and Georgian Bay, was subdivided into several smaller areas, each occupied by a named tribal group or nation. The Petun, a people who were closely related to the Huron, resided west of Huronia, near present-day Collingwood, and together they may have formed a single cultural tradition preceding the 17th century (Ramsden 1990). Huronia consists of several early 17th century Huron sites, typically situated in the area west of Lake Simcoe. However, earlier sites labelled as Huron by archaeologists are more broadly distributed. Two notable concentrations of sites occurring in the Trent and Duffin-Rouge valleys appear to have represented early Huron territories with several relocated villages spanning two hundred years or more (Ramsden 1990).

In 1649, the Seneca and the Mohawk led a campaign into southern Ontario and dispersed the Huron-Wendat Nation from Huronia (Heidenreich 1978). The Seneca permanently occupied settlements with strategic importance on the north shore of Lake Ontario, often situated at natural landfalls; for example, at the Toronto Carrying Place portage routes up to Lake Simcoe (Williamson 2008:50-52). These settlements were also of great economic importance, serving as staging points for Seneca fur trappers *en route* to the north shore of Lake Ontario to and from New York State (Konrad 1981). The Nine Mile portage at Kempenfeldt Bay, north of the Project, was frequently used by the Seneca during the latter part of the 17th century in conducting raids further north against the Ojibway nations (Rudachyk n.d.).

By 1690, Ojibway-speaking people (primarily Mississauga and Chippewa) had begun moving south into the lower Great Lakes basin (Konrad 1981; Rogers 1978). By 1718, a community of Mississauga was settled at Matchedash Bay, north of the Project and, by 1736, this settlement is estimated to have had a population of approximately 150 people (Rogers 1978:762). The Mississauga and Chippewa economy, since the turn of the 18th century, focused on fishing and the fur trade, supplemented by agriculture and hunting.

The expansion of the fur trade led to increased interaction between European and Indigenous people, and ultimately intermarriage between European men and Indigenous women. During the 18th century the progeny of these marriages began to identify as Métis and no longer identified directly with either their paternal or maternal cultures. The ethnogenesis of the Métis progressed with the establishment of distinct Métis communities along the major waterways in the Great Lakes of Ontario. Métis communities were

primarily focused around the upper Great Lakes and along Georgian Bay, however Métis people have historically lived throughout Ontario. Between 1815 and 1828, many Metis families had moved into the area of Penetanguishene, north of the Project (Métis Nation of Ontario 2024; Stone and Chaput 1978:607-608).

Though differentiation among and between these groups is noted in Euro-Canadian sources, there was a considerably different view by Indigenous groups concerning their self-identification during the first few centuries of European contact. These peoples relied upon kinship ties that cut across European notions of nation identity (Bohaker 2006:277-283). Many of the British-imposed nation names, such as Chippewa, Ottawa, Potawatomi, or Mississauga, artificially separated how self-identified Indigenous peoples' classified themselves; these groups were culturally and socially more alike than contemporary European documentation might indicate (Bohaker 2006:1-8).

Since contact with European explorers and immigrants, and, later, with the establishment of provincial and federal governments (the Crown), the lands within Ontario have been included in various treaties, land claims, and land cessions. Though not an exhaustive list, Morris (1943) provides a general outline of some of the treaties within the Province of Ontario from 1783 to 1923. Based on Morris (1943) and Map of Ontario Treaties and Reserves (Ministry of Indigenous Affairs 2023), the Project is situated within the described limits of the 1818 Nottawasaga Purchase (Treaty No. 18), also known as the Lake Simcoe-Nottawasaga Treaty, between the Crown and the Chippewa (marked as a star on Figure 3). The Treaty area is described as:

> *Bounded by the District of London on the west, by Lake Huron on the north, by the Penetanguishene purchase (made in 1815) on the east; by the south shore of Kempenfeldt Bay; the western shore of Lake Simcoe and Cooks Bay and the Holland River to the north west angle of the Township of King.*
>
> (Morris 1943:23-24)

The nature of Indigenous settlement size, population distribution, and material culture shifted as European settlers encroached upon Indigenous territory. However, despite this shift, "written accounts of material life and livelihood, the correlation of historically recorded villages to their archaeological manifestations, and the similarities of those sites to more ancient sites have revealed an antiquity to documented cultural expressions that confirms a deep historical continuity to…systems of ideology and thought" (Ferris 2009:114). As a result, Indigenous peoples have left behind archaeological resources throughout the region which show continuity with past peoples, even if they have not been explicitly recorded in Euro-Canadian documentation.

1.2.3 Euro-Canadian Resources

At the time of contact, the Wendat had settled along the southern shores of Georgian Bay: those living to the east of the Nottawasaga were nicknamed the Petun by the French because of the tobacco they grew. The Wendat living in the area north of Lake Simcoe were nicknamed the Huron. The Nottawasaga River was an important resource and trade route and was shared between the two nations. Frequent attacks by the Haudenosaunee forced both the Huron-Wendat and the Petun peoples to disperse by the mid 17th century (Garrad 2014). The Ojibway moved southward into these lands by the 18th century for trading purposes and the Saugeen Ojibway Nation identify the lands encompassing the Bruce Peninsula south to

the Maitland River system and east to the Nottawasaga River as their traditional territory (Saugeen Ojibway Nation 2022).

Initial Euro-Canadian activity in present-day Simcoe County is linked to French explorers and missionaries (Leitch 1967:33). Simcoe County was initially part of France's vast colonial holdings in North America called New France. In 1763, at the end of the Seven Years War, the Treaty of Paris was signed, which ceded New France to Great Britain. Much of New France was reorganized into the Province of Quebec. Euro-Canadian activity in Simcoe County during the second half of the 18th century was centred around the fur trade, with both British and French trappers being active in the area (Leitch 1967:46). In 1783, Great Britain recognized the independence of the United States, and this resulted in an exodus of United Empire Loyalists entering Canada.

Simcoe County was largely absent of immigrant settlers prior to the end of the Anglo-American war from 1812-1815 and it was not until around the 1830s that settlements really began to develop in this area, owing partially to an influx of British officers receiving land grants and other privileges (Belden H. 1881). The population of the county soared from 838 in 1824 to 10,825 in 1837 (Belden H. 1881). In 1837, the county was separated from the Home District and organized as the Simcoe District. In 1850, the *Baldwin Act* abolished the district system, and the Simcoe District was reorganized as a county (Hunter 1909). Simcoe County is bordered by Lake Huron in the northwest, the District of Muskoka to the north, Ontario County and Lake Simcoe in the east, Grey and Dufferin counties in the west, and Peel and York counties to the south. Simcoe County consists of 19 townships, the study area is within the townships of Vespra and Innisfil.

The Township of Vespra initially was surveyed in 1811 by Samuel S. Wilmot and was finalized in 1835 by various other surveyors in parts and encompassed a total of 67,720 acres (Anderson and Anderson 1987). Settlement within this township started as a 'layover' at the start of the Nine-Mile Portage trail and in 1819 the government constructed the first store house, encouraging traders and others to settle within the township (Hunter 1909). As more transportation routes were constructed within the township allowing for accessibility to lands after 1832 a considerable influx of settlers occurred and by 1850 the township held a population of 1254 (Anderson and Anderson 1987). The town site of Barrie began to develop in 1833 and by 1853 was incorporated as a town. The town continued to grow and develop and by 1897 Barrie had absorbed Allendale village (Hunter 1909) and eventually pushed south into the Township of Innisfil.

The Township of Innisfil was surveyed in 1820, encompassing a total of 68,653 acres (Innisfil Township Council 1951). The township was slow to grow as Yonge Street bypassed the township. Initially, no roadways were located within the township and the main method of travel to the township was along the shoreline of Lake Simcoe and Cook's Bay or between Holland Landing and the Nine Mile Portage at Barrie. Once Governor Simcoe's military road (Yonge Street) had been extended from the head of Kempenfelt Bay to the present village of Churchill, lands within the township could more easily be accessed by settlers (Poulton 2011).

The first sawmill in Vespra Township was constructed at what is now Tollendale. Twelve years later, the first grist mill was built in the township. During the next four years, the township developed enough to have a post office, several churches, and a store. By 1850, the township had reached a population of 1,807 and was finally able to be incorporated as the Township of Innisfil (Innisfil Township Council 1951).

Following the construction of the Northern Railway, the township became an important shipping hub for lumber (Mika and Mika 1981).

In May 1853, the Ontario, Simcoe and Huron Union Railroad Company ran the first steam train from Toronto to Aurora. By 1855, the company completed the 95-mile portage line from Toronto to Collingwood, which drew much commerce to the communities along the line (Messenger 1968). In 1858, the line was renamed the Northern Railway Company of Canada, coined "The Northern". The Northern and associated companies constructed many connecting rail lines to Meaford, Penetanguishene, and Gravenhurst. In 1888, "The Northern" was absorbed by the Grand Trunk Railway Company of Canada (Messenger 1968).

In 1861, the Grand Trunk Railway Company of Canda had accumulated a large amount of debt due to a lack of rail traffic, and although the debt continued to grow, the company continued to expand their rail line network through the purchasing of other rail companies (Cooper 2023). This continual growth without the ability to sustain its already existing expenses resulted in the Grand Trunk Railway Company of Canada filing for bankruptcy in 1919. As a result, the federal government took control of the railway and, in 1923, the company was amalgamated with the Canadian National Railways, now Canadian National (CN) (Cooper 2023). The study area encompasses a portion of this historical rail line that is no longer in operation.

The 1881 *Illustrated Historical Atlas of the County of Simcoe, Ontario*'s maps of the Township of Vespra, and the Township of Innisfil (Belden. H. 1881) illustrate the level of development within and around the study area by the second half of the 19th century (Figure 4). The 1881 township maps depict the presence of Tiffin Street, Essa Road, Ardagh Road, Harvie Road, Mapleview Drive, and Lockhart Road. One farmstead or homestead is illustrated to be within the study area and just to the east of the study area along Essa Road is a church (Belden. H. 1881). For the most part, the map shows the study area to be primarily agricultural in nature with farmsteads and historical transportation routes. One homestead is indicated along the west edge of the study area in Lot 6, Concession 13, near the intersection of present-day Essa Road and Beacon Road; the name of the landowner is obscured by markings on the map. In addition, a schoolhouse is indicated on the east side of Essa Road along the east edge of Lot 6, Concession 13. Historical county atlases were produced primarily to identify factories, offices, residences, and landholdings of subscribers and were funded by subscription fees. Landowners who did not subscribe were not always listed on the maps (Caston 1997:100). Structures were not necessarily depicted or placed accurately (Gentilcore and Head 1984). However, the 1881 map of the study area is detailed and by the late 19th century, much of the current road system was constructed and is still recognizable today. Review of historical mapping has inherent accuracy difficulties due to potential error in georeferencing. Georeferencing is conducted by assigning spatial coordinates to fixed locations and using these points to spatially reference the remainder of the map. Due to changes in "fixed" locations over time, such as road intersections, errors/difficulties of scale and the relative idealism of the historical cartography, historical maps may not translate accurately into real space points.

1.2.4 The Natural Environment

The northern portion of the study area is partly located within the Simcoe Lowlands, which consist primarily of sedimentary bedrock overlain by glacial, fluvial and lacustrine clay sediments (Chapman and Putnam 1984). The remainder of the study area is contained within the Peterborough Drumlin Field, a

rolling till plain with an area of about 4,500 square kilometres (Chapman and Putnam 1984). Extending from Hastings County in the east to Simcoe County in the west, the physiographic region contains approximately 3,000 drumlins and many other drumlinoid hills and surface flutings. In general, the region is between 180 and 250 metres above sea level (Chapman and Putnam 1984). With respect to agricultural use of the land in the region there is a roughly even split between crops and pasturage (Chapman and Putnam 1984). The study area is a mix of sedimentary clay to the north and to the south within the Drumlin fields the soil is to be noted to be gravel with some stoney sections and lend itself to small agricultural farms as a result (Chapman and Putnam 1984). The study area is located across three major soil types: Tioga series with varying mixes of sand and loam; a Tioga and Vasey sandy loam complex; and Dundonald sandy loam (Hoffman et al. 1962). Each of the soil types is characterised by good drainage. Tioga series soils are formed on gentle to steep slopes and are stone free to moderately stony (Hoffman et al. 1962:45). The Tioga-Vasey complex is composed of 70% Tioga sandy-loam and 30% Vasey sandy loam and is a moderately to very stoney soil formed on moderate to steep slopes (Hoffman et al. 1962:74). The Dundonald sandy loam is a stone free soil formed on gentle slopes (Hoffman et al. 1962:52). Each of the soil types is useful for general agricultural purposes and would have been suitable for Indigenous and early Euro-Canadian farming practices.

Both physiographic regions are within the Simcoe Lake Basin, a low-lying area that drains into Lake Simcoe (Chapman and Putnam 1984). Three creeks that are part of this watershed, Hotchkiss Creek, Whiskey Creek, and tributaries of Lovers Creek, pass through the study area.

1.2.5 Registered Archaeological Sites and Surveys

In Canada, archaeological sites are registered within the Borden system, a national grid system designed by Charles Borden in 1952 (Borden 1952). The grid covers the entire surface area of Canada and is divided into major units containing an area that is two degrees in latitude by four degrees in longitude. Major units are designated by upper case letters. Each major unit is subdivided into 288 basic unit areas, each containing an area of 10 minutes in latitude by 10 minutes in longitude. The width of basic units reduces as one moves north due to the curvature of the earth. In southern Ontario, each basic unit measures approximately 13.5 kilometres east-west by 18.5 kilometres north-south. In northern Ontario, adjacent to Hudson Bay, each basic unit measures approximately 10.2 kilometres east-west by 18.5 kilometres north-south. Basic units are designated by lower case letters. Individual sites are assigned a unique, sequential number as they are registered. These sequential numbers are issued by the MCM who maintain the *Ontario Archaeological Sites Database*. The study area under review is within Borden Block BcGw and BcGv.

Information concerning specific site locations is protected by provincial policy and is not fully subject to the *Freedom of Information and Protection of Privacy Act* (Government of Ontario 1990b). The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The MCM will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

An examination of the *Ontario Archaeological Sites Database* has shown that there are 39 registered archaeological sites located within a one-kilometre radius of the study area (Table 2) (Government of

Ontario 2024a). Among these, there are three sites within 300 metres of the study area: BcGw-27 (Molson Site) is within approximately 200 metres of the study area, and BcGw-15 (Little Site) and BcGw-101 are both within the study area. BcGw-15 and BcGw-101 are discussed further below (for site locations see Tile 1 in the Supplemental Documentation).

BcGw-15 (the Little Site) was identified in 1976 by J. Hunter and later confirmed by G. Warrick and P. Lennox in 1985. There is no archaeological report within the registry for this site; however, the site records describe the site to be a Middleport village site that consists of chipped and ground lithics, ceramics, and calcined bone and shell spread over approximately 1.5 hectares. The recommendation was for immediate excavation as the site was under threat of development, however there is no record of this excavation ever occurring.

BcGw-101 was identified by Earthworks Archaeological Services Inc. (EAS) in 2020 (EAS 202). The site was identified through test pit survey and recommended to undergo Stage 3 excavations. Stage 3 excavation occurred under Project Information Form (PIF) number P380-0081-2020, Archaeological Services Inc. (ASI). The site record was consulted and the site has been determined to no longer hold any cultural heritage value or interest, the report has been submitted to the MCM and is pending review.

Table 2: Registered Archaeological Sites within One Kilometre of the Study Area

Borden #	Site Name	Cultural Affiliation	Site Type
BcGv-13	Painswick	Indigenous	Village
BcGv-20	Heritage Glen	Indigenous	Village
BcGv-21	Little Heritage Glen	Iroquoian	Campsite
BcGv-22	Warnica Brick House	Euro-Canadian	Farmstead, homestead
BcGv-23	George F. Warnica Jr.	Euro-Canadian	Homestead
BcGv-24	Pink Barn	Euro-Canadian	Homestead
BcGv-25	Bradford Road	Euro-Canadian	Homestead
BcGv-26	Quantz	Euro-Canadian	Homestead
BcGv-37	Wice	Euro-Canadian	Homestead
BcGv-39	Lockhart	Indigenous	Findspot
BcGv-40	George Warnica	Euro-Canadian	Unknown
BcGv-51	J. Pratt	Euro-Canadian	Farmstead
BcGv-62	23-333H1	Euro-Canadian	Unknown
BcGv-7	Huronia Road	Indigenous	Campsite, cabin, hamlet
BcGw-101	BcGw-101	Unknown	Unknown
BcGw-15	Little	Indigenous	Village
BcGw-27	Molson	Indigenous	Village
BcGw-28	Little 2	Indigenous	Village
BcGw-29	Birch	Euro-Canadian, Indigenous	Cabin
BcGw-30	Kennel	Indigenous	Campsite
BcGw-32	Mystery	Indigenous	Hunting
BcGw-33	Gnarly Man	Euro-Canadian	Cabin

Table 2: Registered Archaeological Sites within One Kilometre of the Study Area

Borden #	Site Name	Cultural Affiliation	Site Type
BcGw-36	Pern	Indigenous	Findspot
BcGw-51	Spruce Hollow	Indigenous	Unknown
BcGw-52	Poplar	Indigenous	Findspot
BcGw-55	Wellington	Indigenous	Unknown
BcGw-56	R.Black Site	Euro-Canadian	Homestead
BcGw-57	Holly	Indigenous	Campsite
BcGw-61	Asparagus	Indigenous	Scatter
BcGw-62	-	Euro-Canadian	Homestead
BcGw-63	Standing Tree	Indigenous	Camp/campsite
BcGw-64	Fowler	Indigenous	Cache
BcGw-70	Steven Patrick	Indigenous	Village
BcGw-73	Stapleton	Indigenous	-
BcGw-75	Bear Creek West Subdivision	Indigenous	Scatter
BcGw-76	Bear Creek West subdivision	-	-
BcGw-86	Hatinienhwi'skwa	Indigenous	Village
BcGw-93	-	Indigenous	Village
BcGw-95	Little-Johnstone	Euro-Canadian	Homestead

A query of the *Ontario Public Register of Archaeological Reports* and a subsequent search by the MCM identified three previous archaeological studies within 50 metres of the study area (Government of Ontario 2024b) (Table 3); all of which occurred within the study area and are discussed further below.

Table 3: Previous Archaeological Assessments within 50 metres of the Study Area

Year	Title	Consultant	PIF Number
2017	*Stage 1 Archaeological Assessment Harvie road Improvements Part of Lots 5-7, concessions 12-13 (Former Township of Innisfil, County of Simcoe)*	Archaeological Services Inc.	P094-0226-2017
2018	*Stage 2 Archaeological Assessment Harvie road Improvements Part of Lots 5-7, concessions 12-13 (Former Township of Innisfil, County of Simcoe) City of Barrie, Ontario*	Archaeological Services Inc.	P1066-0077-2018
2020	*Stage 1&2 Archaeological Assessment 108, 116, and 122 Harvie road Part of Lot 6 Concession 13 Geographic Township of Innisfil City of Barrie, Simcoe County*	Earthworks Archaeological Services Inc.	P321-0157-2020

In 2017, Archaeological Services Inc. (ASI) conducted a Stage 1 archaeological assessment as part of the Harvie Road Improvements Class EA. ASI determined the subject lands to have archaeological potential and recommended Stage 2 archaeological assessment (ASI 2017). A part of the ASI (2017) assessment overlaps with the current study area (Figure 5).

In 2018, ASI conducted Stage 2 archaeological assessment as part of the Harvie Road Improvements Class EA. ASI determined that the subject lands do not require further archaeological assessment (ASI 2018). However, "Five ancestral Huron-Wendat Villages, the Molson (BcGw-27), Little (BcGw-15), Little 2 (BcGw-28), Hatinienhwi'skwa (BCGW-86), and Kha'ajati'nienha' (BcGw-87) sites, for which ossuaries have not been identified, are located within one kilometre of the [ASI] Study Area', and it was recommended that construction monitoring be undertaken for any areas within both 1,000 metres of these sites and 300 metres from water (ASI 2018). A part of the ASI (2018) assessment overlaps with the current study area (Figure 5).

In 2020, EAS undertook a Stage 1-2 archaeological assessment of a 2.51-hectare area located at 108, 116 and 122 Harvie Road as part of a due diligence exercise. During the archaeological investigation, archaeological remains were identified and registered as BcGw-101 and a recommendation for Stage 3 archaeological assessment was made (EAS 2020). BcGw-101 underwent Stage 3 assessment under PIF number P380-0081-2020, however the report is still awaiting entry to the MCM's register, the site record indicates that no further work is required. A part of the EAS (2020) assessment overlaps with the current study area (Figure5).

1.3 Existing Conditions

The study area comprises approximately 142 hectares of Hydro One Networks Inc.'s existing hydro corridor plus a 120-metre buffer surrounding the corridor. The study area is within part of Lot 25, Concession 6, Geographic Township of Vespra; and part of Lots 5, 6, 7, and 8, Concessions 11, 12, 13 and 14, Geographic Township of Innisfil, Simcoe County, now City of Barrie, Ontario. The study area consists of several roadways, industrial complexes, Residential and commercial lots with manicured lawns, farmland, and scrub brush, as well as wetlands associated with primary and secondary waterways.

2 Field Methods

The Stage 1 archaeological assessment was completed under PIF number P394-0115-2023 issued by the MCM to Sarah Henderson. Sarah Henderson (P394) conducted a property inspection of the study area on October 31, 2023, and November 1, 2023. During the property inspection, the weather was partly cloudy skies and a light snow had fallen overnight, but by mid morning it had melted away and field conditions and lighting were suitable and at no time were they detrimental to the identification of features of archaeological potential.

The property inspection was carried out systematically every 20 to 30 metres, reviewing the entire extent of the study area to identify the presence or absence of archaeological potential. Photographic images of the study area are presented in Section 7. Location and orientation information associated with representative photographs taken in the field is provided in Figure 6.1 to 6.7.

The property inspection started at the northern end of the study area just north of Tiffin Street. The study area consisted of a transformer station, which is heavily disturbed, surrounded by wooded and scrub land (Photos 1 and 2). As one moves south of Tiffin Street, the study area includes industrial and commercial lots with some residential housing (Photos 3 to 5). The historical rail line crosses the study area at this point (Photo 6). South of this area is Patterson Park, which consists of a playground and a forested area with a residential area surrounding it (Photos 7 to 9) Commercial lots and apartment complexes lie to the east of the park and along Ardagh Road (Photos 10 and 11). The hydro corridor runs through the park land and behind the commercial and residential lots and has a deep ditch/culvert running through the middle of it just before reaching Ardagh Road (Photo 12). South of Ardagh Road, there is a mix of residential lots and parkland (Photos 13 and 14).

Essa Road runs through the study area, with residential lots to the north of it and a mix of forested and residential lots to the south. South of Essa Road, to the east of the hydro corridor, is a large, forested area called the Essa Pindex Recreational Trail (Photo 15). The Barrie CTV station is situation to within these lands and the forested area continues south, terminating in scrubland just before Harvie Road (Photos 16 and 17). Residential lots are situated on the western side of the hydro corridor (Photo 18).

At Harvie Road, there is a mix of residential lots on the north side with deep back yards that back onto the scrubland depicted in Photo 17: on the eastern side, there is a fenced off complex that appears to be heavily disturbed (Photos 19 and 20). South of Harvie Road, the study area continues through another subdivision, however, the hydro corridor has a planned path through this area (Photo 21) and proceeds into an agricultural field that includes a portion of Whiskey Creek (Photos 22 and 23). South of this agricultural field, the study area becomes commercial properties with their associated parking lots and scrubland between them until Lockhart Road (Photos 24 to 31). South of Lockhart Road, the study area consists of scrubland and forest.

3 Analysis and Conclusions

Archaeological potential is established by determining the likelihood of archaeological resources on a subject property. Stantec applied archaeological potential criteria commonly used by the MCM (Government of Ontario 2011) to determine areas of archaeological potential within the region under study. Features and characteristics that indicate the potential for archaeological resources are defined within Section 1.3.1 of the 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011, 17-18) and include:

- Previously identified archaeological sites.
- Water sources:
  - Primary water sources (lakes, rivers, streams, creeks).
  - Secondary water sources (intermittent streams and creeks; springs; marshes; swamps).
  - Features indicating past water sources (e.g., glacial lake shorelines indicated by the presence of raised gravel, sand, or beach ridges; relic river or stream channels indicated by clear dip or swale in the topography; shorelines of drained lakes or marshes; and cobble beaches).
  - Accessible or inaccessible shoreline (e.g., high bluffs, swamps, or marsh fields by the edge of a lake; sandbars stretching into marsh).
- Elevated topography (eskers, drumlins, large knolls, plateau).
- Pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground; Distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases (there may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings).
- Resource areas including:
  - Food or medicinal plants.
  - Scarce raw minerals (e.g., quartz, copper, ochre, or outcrops of chert).
  - Early Euro-Canadian industry (fur trade, mining, logging).
- Areas of Euro-Canadian settlement. These include places of early military or pioneer settlements (e.g., pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches and early cemeteries. There may be commemorative markers of their history, such as local, provincial, or federal monuments or heritage parks.
- Early historical transportation routes (e.g., trails, passes, roads, railways, portage routes).
- Property listed on a municipal register or designated under the *Ontario Heritage Act* (Government of Ontario 1990c) or site.
- Property that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations.

Many of the above features of archaeological potential have a buffer assigned to them, extending the zone of archaeological potential beyond the physical feature. Section 1.4 of the MCM's *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011, 20-21) employs the following buffers:

- 300-metre buffer for previously identified archaeological sites, water sources; areas of early Euro-Canadian settlement, or locations identified through local knowledge or informants
- 100-metre buffer for early historical transportation route

If no buffer is present, the potential is restricted to the physical limits or the feature: elevated topography, pockets of well-drained sandy soil, distinctive land formations, and resource areas.

There are three waterways that cross within the study area as well, Hotchkiss Creek, Whiskey Creek and the tributaries of Lovers Creek. The three major soil types found within the study area, Tioga sandy loam, Tioga and Vasey sandy loam complex, and Dundonald sandy loam are characterised by good drainage and would have been suitable for Indigenous and early Euro-Canadian farming practices.

An examination of the *Ontario Archaeological Sites Database* identified 39 registered archaeological sites within one kilometre of the study area, with three sites within 300 metres of the study area: BcGw-27 (Molson Site) is an Indigenous village that is located about 204 metre to the west of the study area, BcGw-15 (Little Site) is an Indigenous village located within the study area, and BcGw-101 is an Indigenous site located within the study area.

Archaeological potential can be extended to areas of early Euro-Canadian settlement, including places of military or pioneer settlements; early transportation routes; and properties listed on the municipal register or designated under the *Ontario Heritage Act* (Government of Ontario 1990c) or property that local histories or informants have identified with possible historical events. Historical mapping indicates that 19th century homesteads or farmsteads, churches, historical transportation routes (e.g., Tiffin Street, Essa Road, Ardagh Road, and Harvie Road etc.), and a historical rail line are all within the study area or within close proximity to the study area.

When the above listed criteria are applied, portions of the study area retain archaeological potential. Other portions of the study area retain no or low archaeological potential due to previous disturbance, and/or permanently low and wet conditions.

4 Recommendations

Based on the Stage 1 archaeological assessment results presented in this report, Stantec recommends:

1. No further archaeological assessment for parts of the study area retaining no or low archaeological potential.
2. Stage 2 archaeological assessment for parts of the study area retaining archaeological potential. The objective of the Stage 2 archaeological assessment will be to document archaeological resources within the study area and to determine whether these archaeological resources require further assessment. For portions of the study area retaining archaeological potential not accessible for ploughing, the Stage 2 archaeological assessment will consist of test pit survey at five-metre intervals as outlined in Section 2.1.2 of the MCM's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011). The MCM's standards require that each test pit be at least 30 centimetres in diameter, excavated to at least five centimetres into subsoil, and have soil screened through six-millimetre hardware cloth to facilitate the recovery of any cultural material that may be present. Prior to backfilling, each test pit will be examined for stratigraphy, cultural features, or evidence of fill. If the archaeological field team judges any lands to be low and wet, steeply sloped, or disturbed during the course of the Stage 2 field work, those areas will not require physical survey, but will be photographically documented instead in accordance with Section 2.1 of the MCM's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011).
3. For all lands **accessible** for ploughing, the Stage 2 physical survey of the study area will involve the pedestrian survey method at five-metre intervals as per Section 2.1.1 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). In these instances, it is important to have all agricultural land ploughed in advance of the archaeological assessment. Ploughing must be deep enough to provide total topsoil exposure, but not deeper than previous ploughing, and must be able to ensure at least 80% ground surface visibility. It is our understanding that approximately 4 ha of land are agricultural fields that are accessible for ploughing.
4. As outlined in ASI 2018 report, the five village sites are within a one kilometre radius of the study area of which ossuaries have not been identified, and it is recommended that construction monitoring be undertaken for any areas within both 1,000 metres of these sites and 300 metres from water

The MCM is asked to enter this report into the *Ontario Public Register of Archaeological Reports.*

5 Advice on Compliance with Legislation

In accordance with Section 7.5.9 of the MCM's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011), the following standard statements are a required component of archaeological reporting and are provided from the MCM's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011).

This report is submitted to the Minister of Citizenship and Multiculturalism as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c. O.18 (Government of Ontario 1990c). The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection, and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the study area of a development proposal have been addressed to the satisfaction of the MCM, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* (Government of Ontario 1990c) for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the *Ontario Public Register of Archaeological Reports* referred to in Section 65.1 of the *Ontario Heritage Act* (Government of Ontario 1990c)

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990c) The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990c)

The *Funeral, Burial and Cremation Services Act,* 2002, S.O. 2002, c. 33 (Government of Ontario 2002), requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry Public and Business Service Delivery is also immediately notified.

Archaeological sites recommended for further archaeological fieldwork remain subject to Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990c) and may not be altered, or have artifacts removed, except by a person holding an archaeological license.

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7 Images

7.1 Photographs

Photo 1: Transformer station, facing north

Photo 2: Lands surrounding transformer station, facing southeast

Photo 3: Commercial property, looking west

Photo 4: Industrial property, looking northeast

Photo 5: Residential properties, facing south southeast

Photo 6: Historical rail line, facing east

Photo 7: Residential area surrounding Patterson Park, facing north northwest

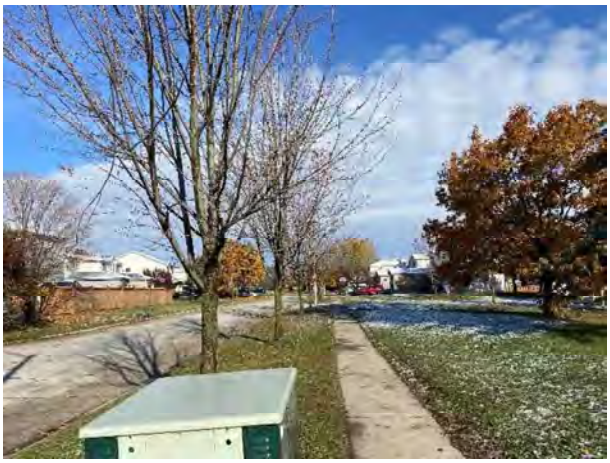


Photo 8: Patterson Park playground, facing northeast

Photo 9: Patterson Park forested section, facing east

Photo 10: Apartment complex with graded slope, facing east northeast

Photo 11: Commercial lot along Ardagh Road, facing north northwest

Photo 12: Hydro corridor with ditch, facing north northwest

Photo 13: Residential area, facing west

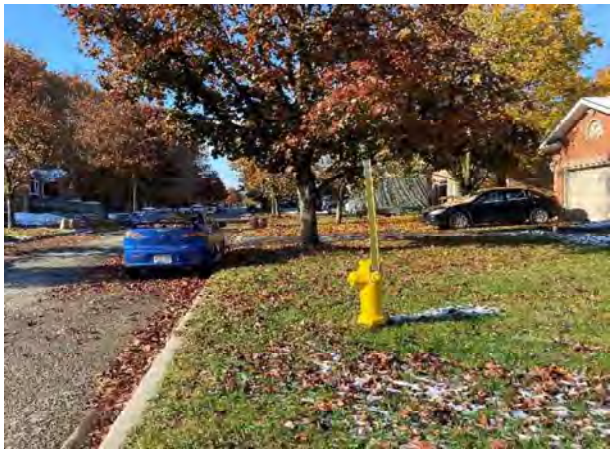


Photo 14: Mayfair Park, with gentle slope to valley floor of park area, facing south southwest

Photo 15: Essa Pindex Recreational Trail, facing north

Photo 16: Barrie CTV station with scrubland and forested area surrounding, facing northeast

Photo 17: Scrub land north of Harvie Road, facing south

Photo 18: Residential lots and lawns along Essa Road, facing southwest

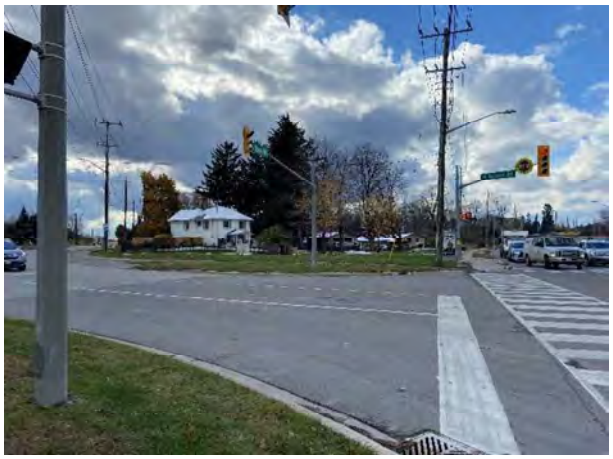


Photo 19: Deep disturbance, facing north

Photo 20: Residential lots backing on to scrubland, facing northwest

Photo 21: Maintained lawn along hydro corridor between subdivision, facing southeast

Photo 22: Agricultural field, facing east northeast

Photo 23: Whiskey Creek, facing northeast

Photo 24: Bryne Drive and commercial lots, facing northwest

Photo 25: Store fronts and parking lot, facing southwest

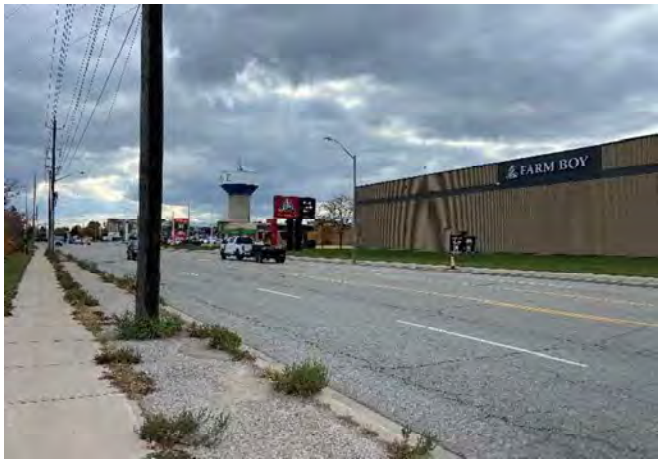


Photo 26: Shopping outlet and parking lot, facing south

Photo 27: Commercial properties along Bryne Drive, facing south-southeast

Photo 28: Scrubland between commercial properties, facing north

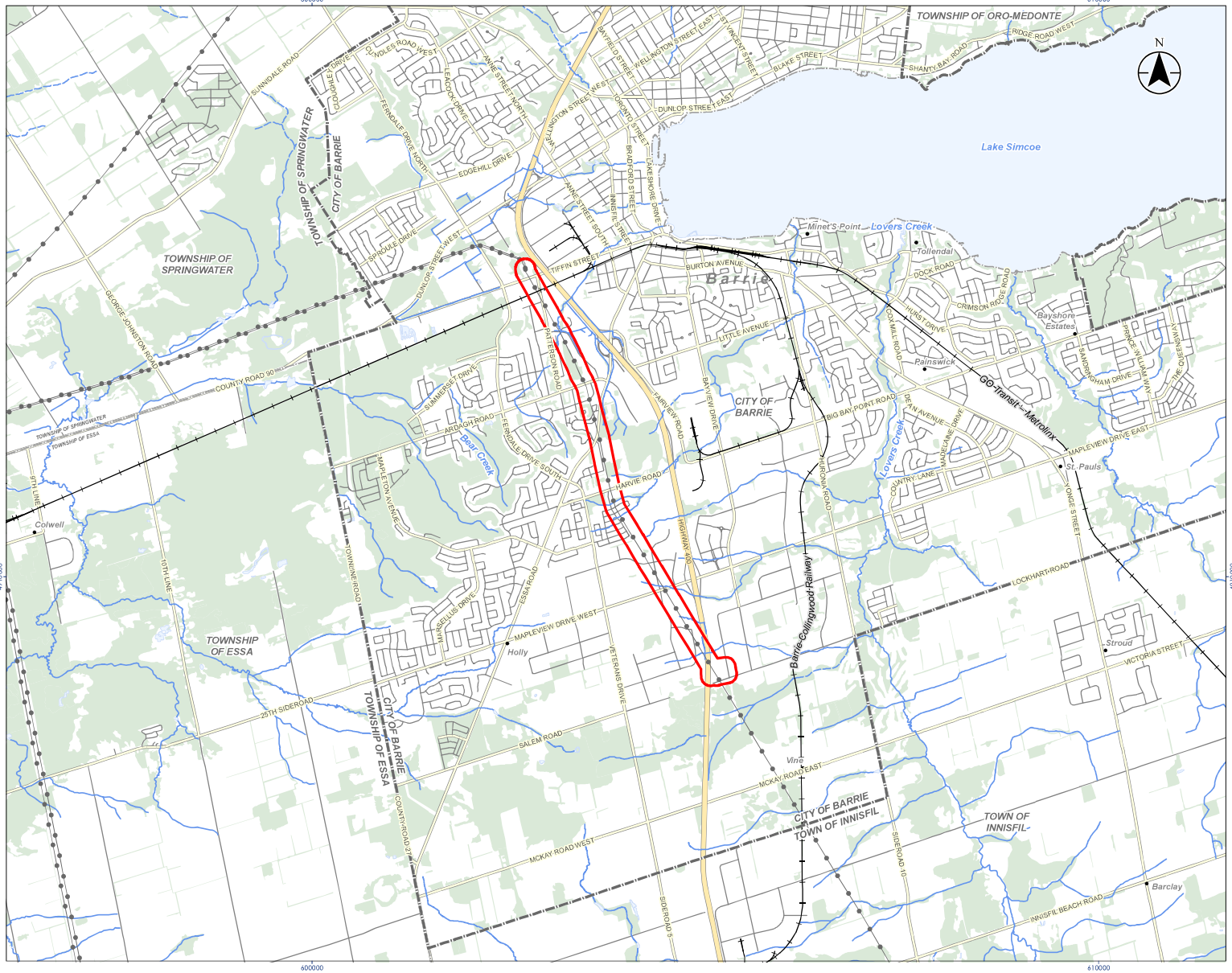
Photo 29: Green space behind commercial properties on Commerce Park Drive, facing north

Photo 30: Ditching along Commerce Park Drive, facing south southwest

Photo 31: Lockhart Road, facing east

8 Maps

General maps of the study area for the Stage 1 archaeological assessment follow on succeeding pages.



Stantec

Legend

- Study Area
- Highway
- Major Road
- Minor Road
- Hydro Line
- Railway
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Waterbody
- Wooded Area
- Municipal Boundary, Upper
- Municipal Boundary, Lower

0 1 2 km

1:50,000 (At original document size of 11x17)

Notes

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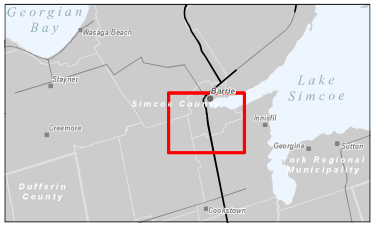

Project Location
City of Barrie/
Town of Innisfill

160901024 REVA
Prepared by DH on 2024-01-22

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER
MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV

Figure No.
1

Title
Location of the Project

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Stantec

Legend

- Study Area
- Railway
- Watercourse (Permanent)
- Municipal Boundary, Lower
- Waterbody

0 100 200 m

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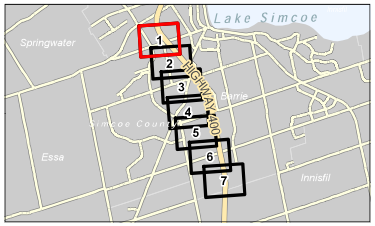

Project Location
City of Barrie

160901024 REV4
Prepared by DH on 2024-01-22
Technical Review by DH on 2023-12-21

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
2.1

Title
Location of Study Area

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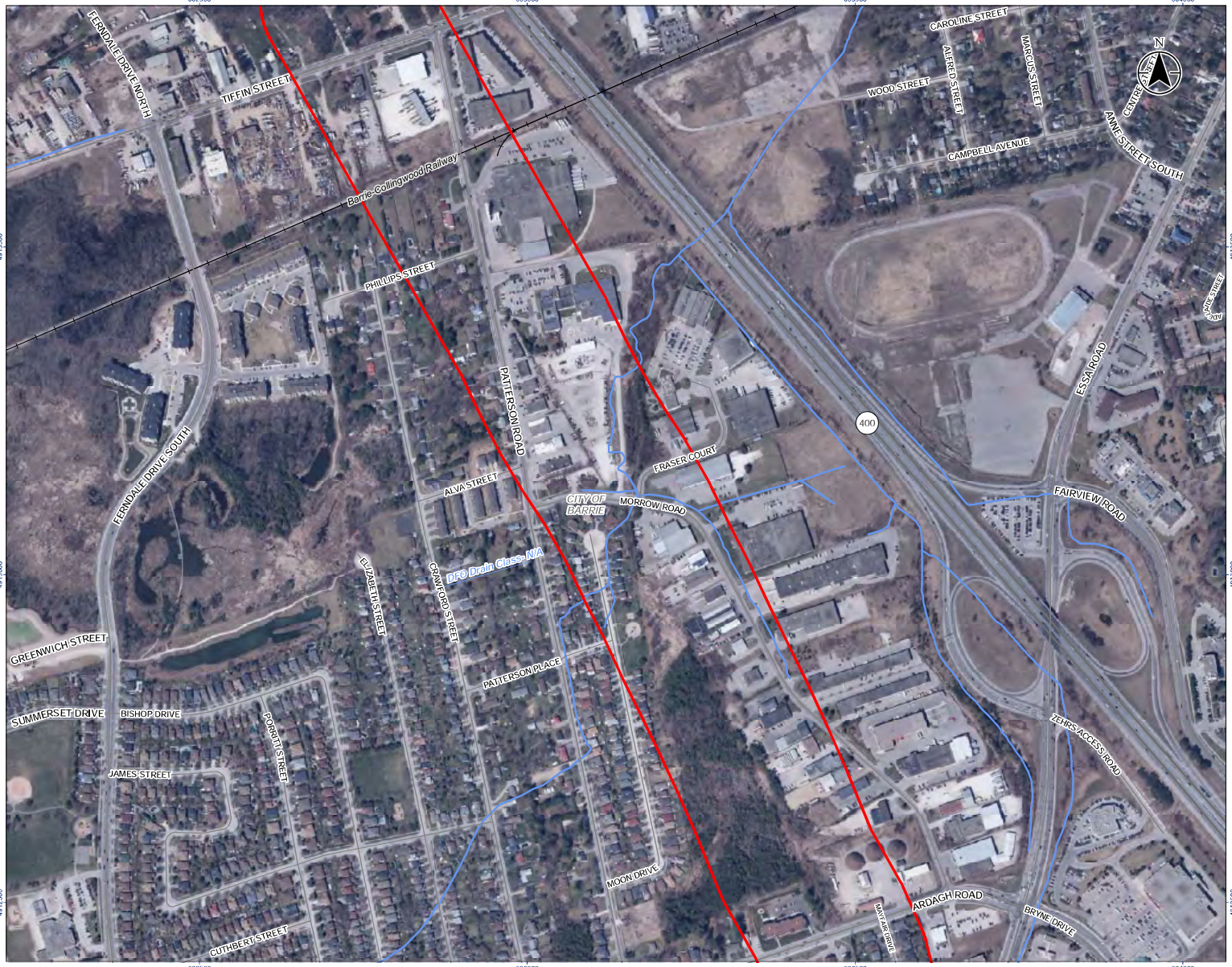

Stantec

Legend

- Study Area
- Railway
- Constructed Drain
- Watercourse (Permanent)
- Municipal Boundary, Lower

0 100 200 m

1:6,000 (At original document size of 11x17)

Notes

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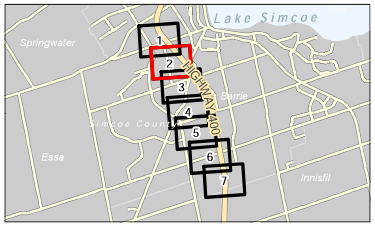

Project Location
City of Barrie

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Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
2.2

Title
Location of Study Area

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Stantec

Legend

- Study Area
- Constructed Drain
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Municipal Boundary, Lower

0 100 200 m

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Notes

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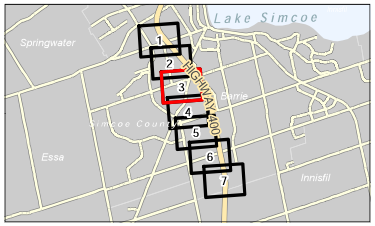

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City of Barrie

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Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
2.3

Title
Location of Study Area

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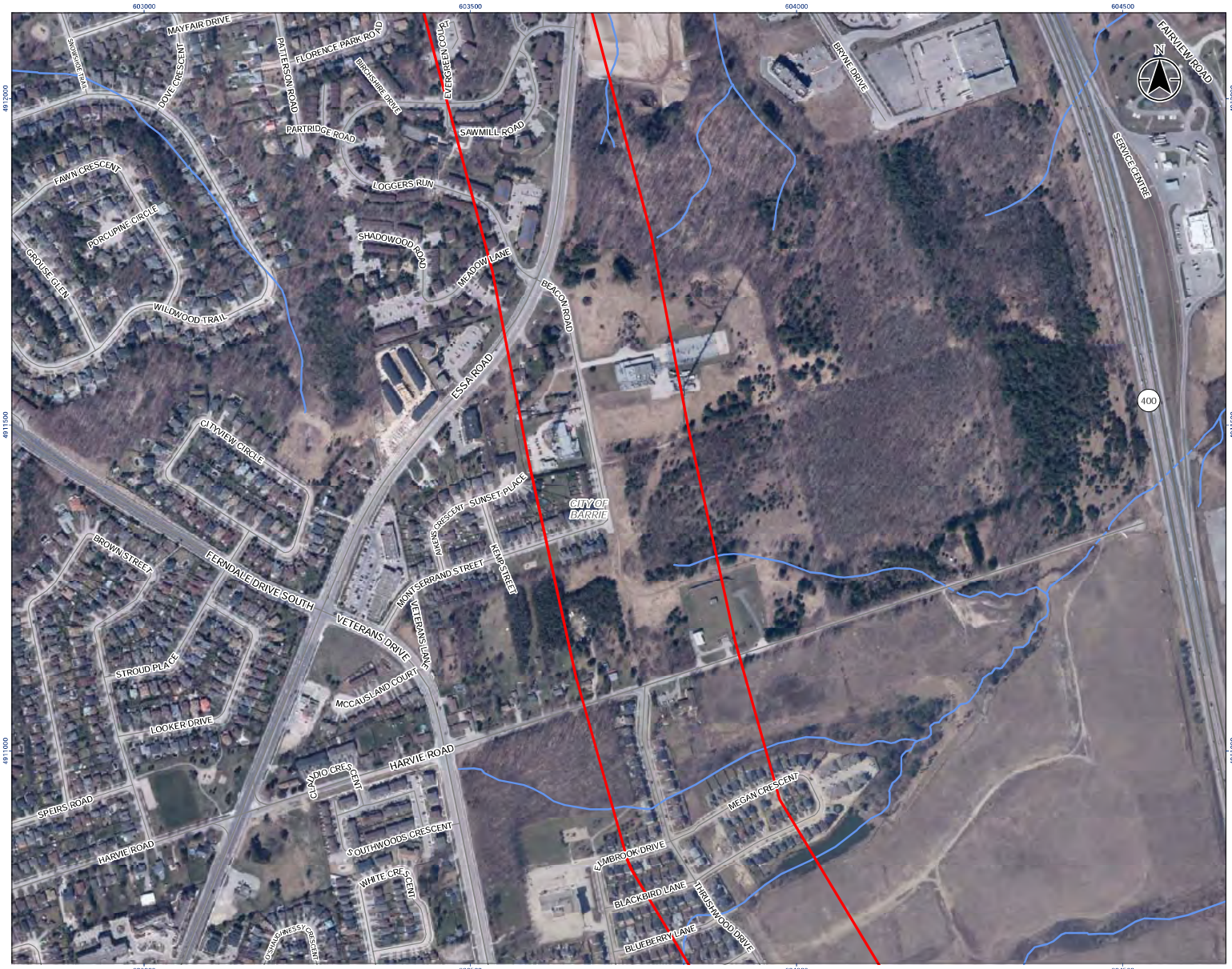

Stantec

Legend

- Study Area
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Municipal Boundary, Lower

0 100 200 m

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Notes

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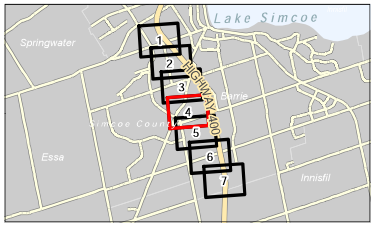

Project Location
City of Barrie

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Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
2.4

Title
Location of Study Area

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Stantec

Legend

- Study Area
- Railway
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Municipal Boundary, Lower

0 100 200 m

1:6,000 (At original document size of 11x17)

Notes

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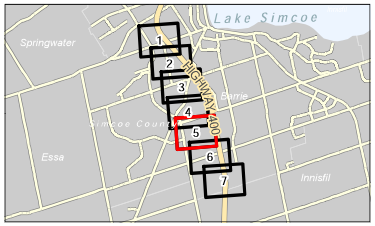

Project Location
City of Barrie

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Prepared by DH on 2024-01-22
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Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
2.5

Title
Location of Study Area

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Stantec

Legend

- Study Area
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Municipal Boundary, Lower

0 100 200 m

1:6,000 (At original document size of 11x17)

Notes

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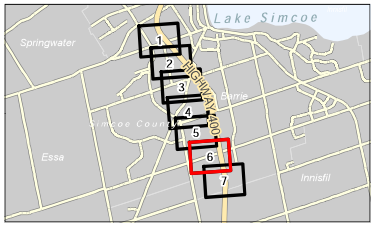

Project Location
City of Barrie

160901024 REV4
Prepared by DH on 2024-01-22
Technical Review by DH on 2023-12-21

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
2.6

Title
Location of Study Area

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Stantec

Legend
- Study Area
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Municipal Boundary, Lower

0 100 200 m

1:6,000 (At original document size of 11x17)

Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
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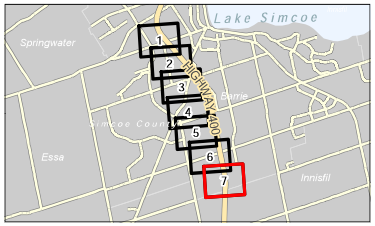

Project Location
City of Barrie

160901024 REV4
Prepared by DH on 2024-01-22
Technical Review by DH on 2023-12-21

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
2.7

Title
Location of Study Area

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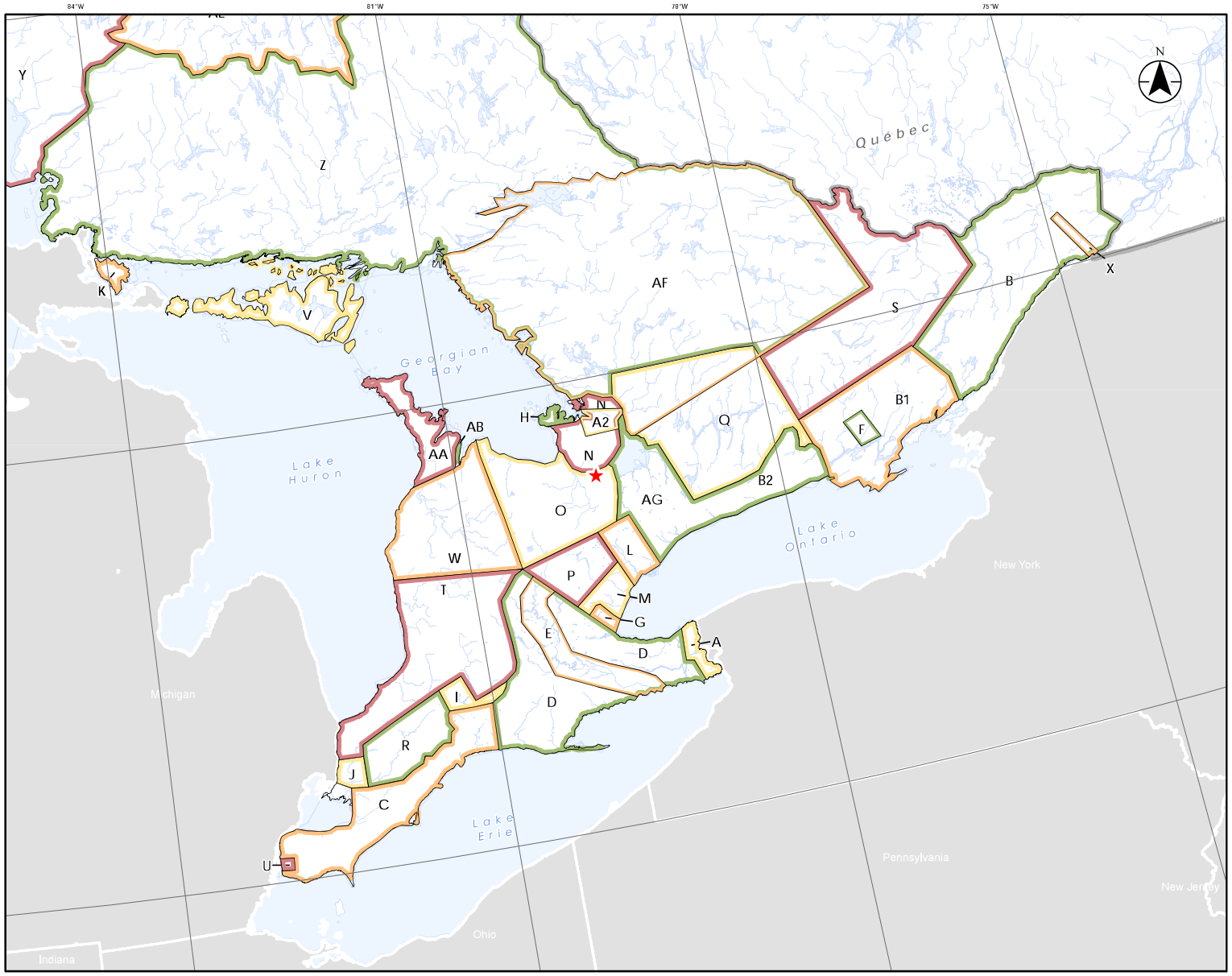

Stantec

Legend

★ Project Location

Waterbody

A Treaty No. 381, May 9th, 1781 (Mississauga and Chippewa)
AA Treaty No. 72, October 30th, 1854 (Chippewa)
AB Treaty No. 82, February 9th, 1857 (Chippewa)
AF Treaty No. 9, James Bay 1905, 1906 (Ojibway and Cree)
AF Williams Treaty, October 31st and November 15th, 1923 (Chippewa and Mississauga)
AG Williams Treaty, October 31st, 1923 (Chippewa)
A2 John Collins' Purchase, 1785 (Chippewa)
B Crawford's Purchase, October 9th, 1783 (Algonquin and Iroquois)
B1 Crawford's Purchase, October 9th, 1783 (Mississauga)
B2 Crawford's Purchase, 1783, 1787, 1788 (Mississauga)
C Treaty No. 2, May 19th, 1790 (Odawa, Chippewa, Pottawatomi, and Huron)
D Treaty No. 3, December 2nd, 1792 (Mississauga)
E Haldimand Tract: from the Crown to the Mohawk, 1793
F Tyendinaga: from the Crown to the Mohawk, 1793
G Treaty No. 3 3/4: from the Crown to Joseph Brant, October 24th, 1795
H Treaty No. 5, May 22nd, 1798 (Chippewa)
I Treaty No. 6, September 7th, 1796 (Chippewa)
J Treaty No. 7, September 7th, 1796 (Chippewa)
K Treaty No. 11, June 30th, 1798 (Chippewa)
L Treaty No. 13, August 1st, 1805
M Treaty No. 13A, August 2nd, 1805
N Treaty No. 16, November 18th, 1815 (Chippewa)
O Treaty No. 18, October 17th, 1818 (Chippewa)
P Treaty No. 19, October 28th 1818 (Chippewa)
Q Treaty No. 20, November 5th, 1818 (Chippewa)
R Treaty No. 21, March 9th, 1819 (Chippewa)
S Treaty No. 27, May 31st, 1819 (Mississauga)
T Treaty No. 27½, April 25th, 1825 (Ojibwa and
U Treaty No. 35, August 13th, 1833 (Wyandot or
V Treaty No. 45, August 9th, 1836 (Chippewa and Odawa, "For All Indians To Reside Thereon")
W Treaty No. 45½, August 9th, 1836
X Treaty No. 57, June 1st, 1847 (Iroquois of St. Regis)
Y Treaty No. 60, Robinson, Superior, September 7th, 1850 (Ojibwa)
Z Treaty No. 61, Robinson, Huron, September 9th, 1850 (Ojibwa)

0 50 100 Km
1:3,000,000 (At original document size of 11x17)

Notes
1. Coordinate System: NAD 1983 Statistics Canada Lambert
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.
3. Treaty boundaries adapted from Morris 1943 (1964 reprint). For cartographic representation only.

Project Location
City of Barrie

160901024 REVA
Prepared by MDA on 2024-01-22

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
3

Title
Treaties and Purchases (Adapted from Morris 1943)

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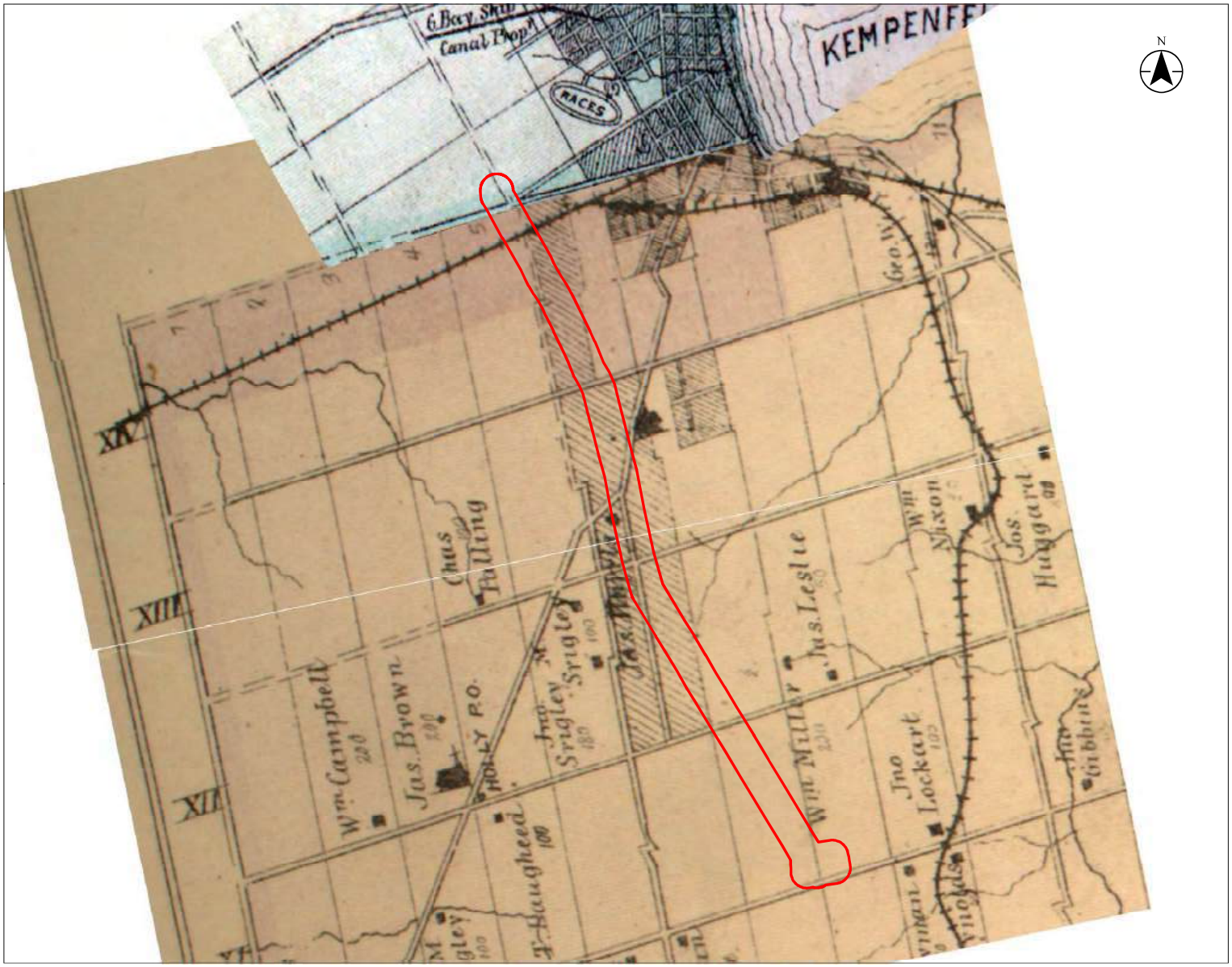


N

Stantec

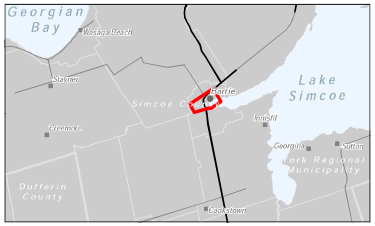
Legend

Study Area (approximate)

HISTORICAL IMAGE NOT TO SCALE

Notes

1. Belden, H. 1881. Simcoe Supplement in [illegible] Toronto: H. Belden



Project Location
City of Barrie/
Town of Innisfill

160901024 REVA
Prepared by MDA on 2024-01-22

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
4

Title
Portion of the 1881 Map of County of Simcoe, Canada West

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Stantec

Legend

- Study Area
- Previously Assessed - No Further Archaeological Work Required (ASI 2018)
- Previously Assessed - Stage 2 Testpit Survey Recommended (ASI 2017)
- Previously Assessed (Earthworks Archaeological Services Inc., 2020)
- Watercourse (Intermittent)
- Watercourse (Permanent)

0 100 200 m

1:5,000 (At original document size of 11x17)

Notes

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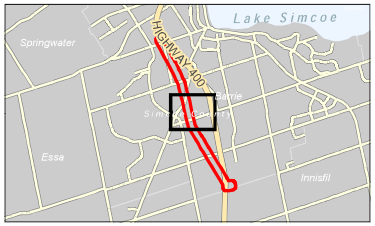

Project Location
City of Barrie

160901024 REV4
Prepared by MDA on 2024-01-22
Technical Review by DH on 2023-01-09

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
5

Title
Previous Assessments

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Stantec

Legend

- Photo Location and Direction
- Area of Archaeological Potential - Stage 2 Test Pit Survey Recommended
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Construction Monitoring
- Study Area
- Railway
- Watercourse (Permanent)
- Waterbody

0 100 200 m

1:6,000 (At original document size of 11x17)

Notes

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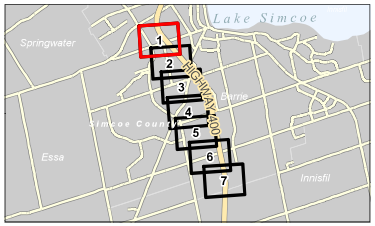

Project Location
City of Barrie

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Prepared by MDA on 2024-05-15
Technical Review by DH on 2023-12-21

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
6.1

Title
Stage 1 Archaeological Assessment Results

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Stantec

Legend

- Photo Location and Direction
- Area of Archaeological Potential - Stage 2 Test Pit Survey Recommended
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Construction Monitoring
- Study Area
- Railway
- Constructed Drain
- Watercourse (Permanent)

0 100 200 m

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Notes

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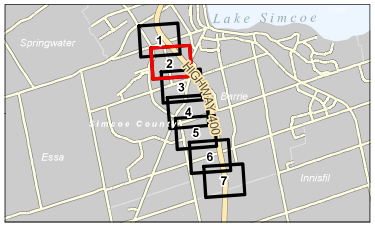

Project Location
City of Barrie

160901024 REV4
Prepared by MDA on 2024-05-15
Technical Review by DH on 2023-12-21

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
6.2

Title
Stage 1 Archaeological Assessment Results

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Stantec

Legend

- Photo Location and Direction
- Area of Archaeological Potential - Stage 2 Test Pit Survey Recommended
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Construction Monitoring
- Study Area
- Constructed Drain
- Watercourse (Intermittent)
- Watercourse (Permanent)

0 100 200 m

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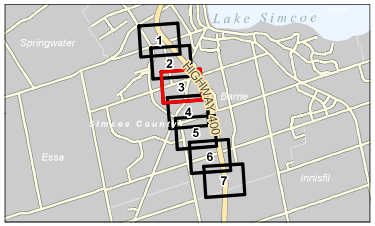

Project Location
City of Barrie

160901024 REV4
Prepared by MDA on 2024-05-15
Technical Review by DH on 2023-12-21

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
6.3

Title
Stage 1 Archaeological Assessment Results

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Stantec

Legend

- Photo Location and Direction
- Area of Archaeological Potential - Stage 2 Test Pit Survey Recommended
- Low and Permanently Wet Area, Low to No Archaeological Potential - No Further Archaeological Work Required
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Area of Archaeological Potential - Stage 2 Pedestrian Survey Recommended
- Construction Monitoring
- Previously Assessed - No Further Archaeological Work Required
- Study Area
- Watercourse (Intermittent)
- Watercourse (Permanent)

0 100 200 m

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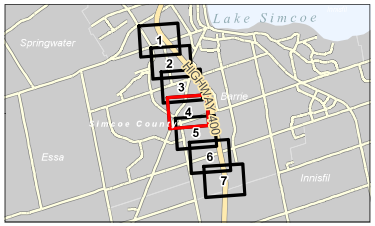

Project Location
City of Barrie

160901024 REV4
Prepared by MDA on 2024-05-15
Technical Review by DH on 2023-12-21

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
6.4

Title
Stage 1 Archaeological Assessment Results

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Stantec

Legend

- Photo Location and Direction
- Area of Archaeological Potential - Stage 2 Test Pit Survey Recommended
- Low and Permanently Wet Area, Low to No Archaeological Potential - No Further Archaeological Work Required
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Area of Archaeological Potential - Stage 2 Pedestrian Survey Recommended
- Construction Monitoring
- Previously Assessed - No Further Archaeological Work Required
- Study Area
- Railway
- Watercourse (Intermittent)
- Watercourse (Permanent)

0 100 200 m

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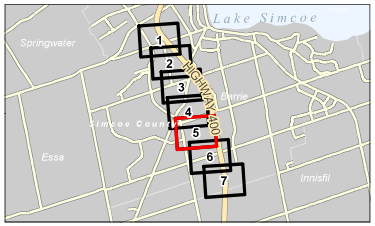

Project Location
City of Barrie

160901024 REV4
Prepared by MDA on 2024-05-15
Technical Review by DH on 2023-12-21

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
6.5

Title
Stage 1 Archaeological Assessment Results

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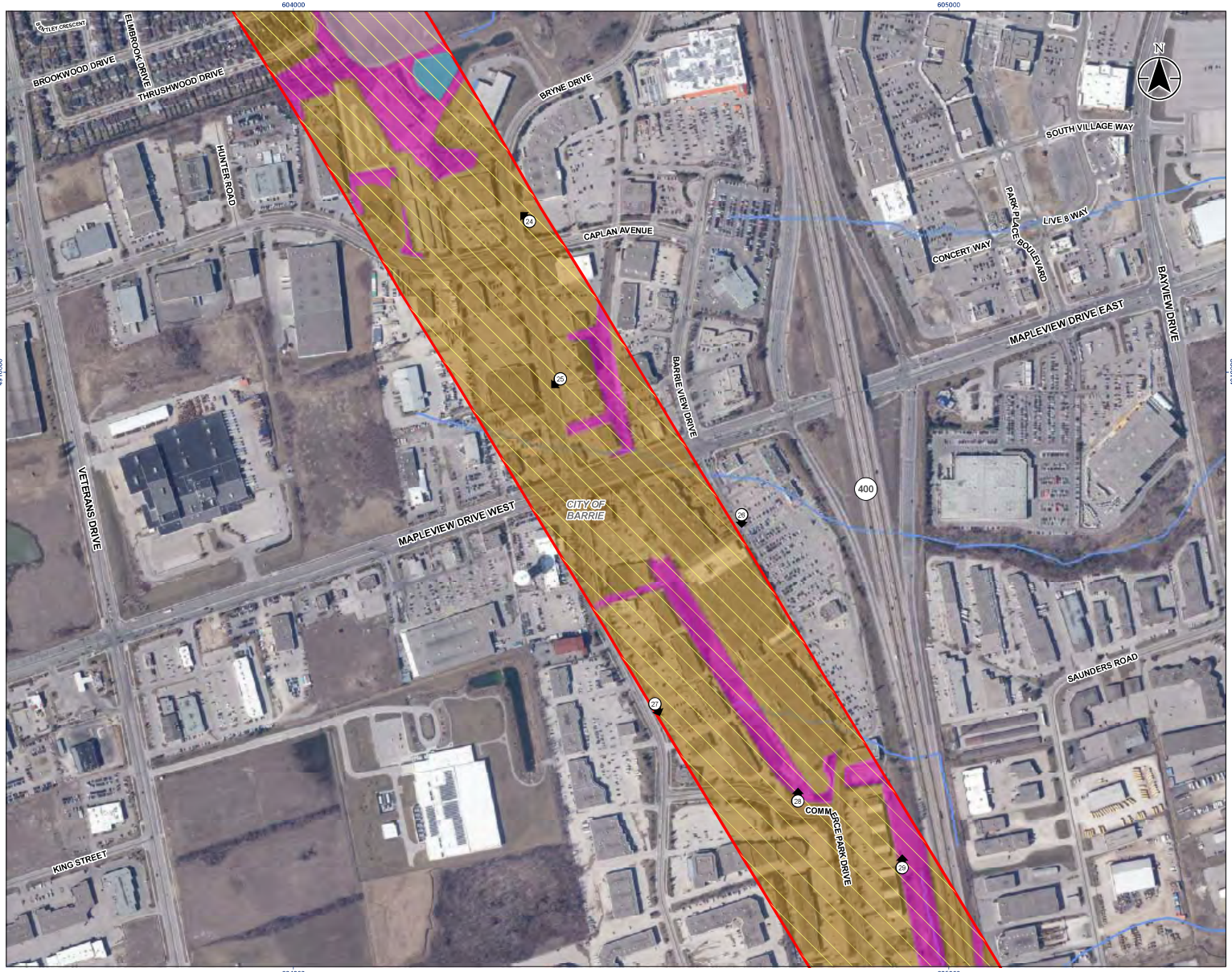

Stantec

Legend

- Photo Location and Direction
- Area of Archaeological Potential - Stage 2 Test Pit Survey Recommended
- Low and Permanently Wet Area, Low to No Archaeological Potential - No Further Archaeological Work Required
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Area of Archaeological Potential - Stage 2 Pedestrian Survey Recommended
- Construction Monitoring
- Study Area
- Watercourse (Intermittent)
- Watercourse (Permanent)

0 100 200 m

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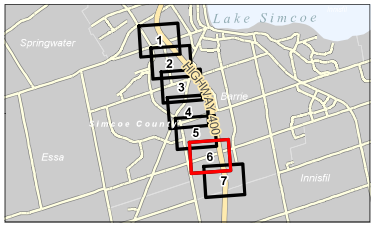

Project Location
City of Barrie

160901024 REV4
Prepared by MDA on 2024-05-15
Technical Review by DH on 2023-12-21

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
6.6

Title
Stage 1 Archaeological Assessment Results

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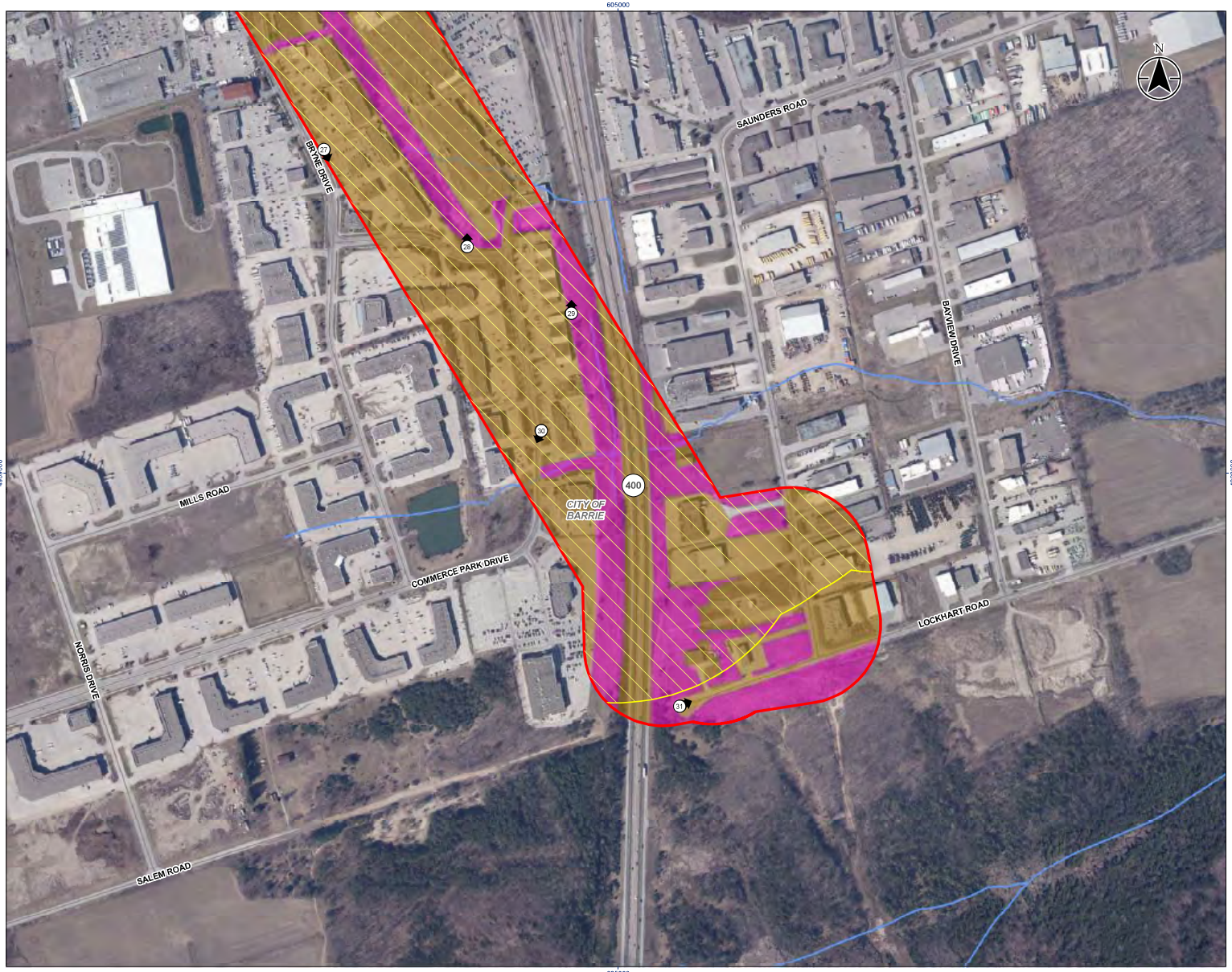

Stantec

Legend

- Photo Location and Direction
- Area of Archaeological Potential - Stage 2 Test Pit Survey Recommended
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Required
- Construction Monitoring
- Study Area
- Watercourse (Intermittent)
- Watercourse (Permanent)

0 100 200 m

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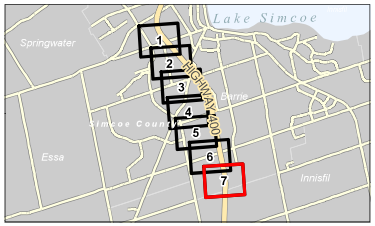

Project Location
City of Barrie

160901024 REV4
Prepared by MDA on 2024-05-15
Technical Review by DH on 2023-12-21

Client/Project
HONI/ INNPOWER
STAGE 1 ARCHAEOLOGICAL ASSESSMENT: INNPOWER MUNICIPAL TRANSFORMER STATION & HYDRO ONE 230 KV LINE

Figure No.
6.7

Title
Stage 1 Archaeological Assessment Results

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9 Closure

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential archaeological resources associated with the identified property.

All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available and the results of the work. The conclusions are based on the conditions encountered by Stantec at the time the work was performed. Due to the nature of archaeological assessment, which consists of systematic sampling, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire property.

This report has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities, or claims, howsoever arising, from third party use of this report. We trust this report meets your current requirements. Please do not hesitate to contact us should you require further information or have additional questions about any facet of this report.

Quality Review:	*signed original on file*	Independent Review	*signed original on file*
	Signature		Signature
	Parker Dickson Senior Associate, Senior Archaeologist		Colin Varley Senior Associate, Senior Archaeologist
	Printed Name and Title		Printed Name and Title

C.5 Acoustic Assessment Report

ACOUSTIC ASSESSMENT REPORT FOR SAUNDERS TRANSFORMER STATION, BARRIE, ONTARIO

Final Report

October 5, 2023

Prepared for:
InnPower Corporation
7251 Yonge Street,
Innisfil Ontario, L9S 0J3

Prepared by:
Stantec Consulting Ltd.
400 – 2100 Derry Road West
Mississauga, ON L5N 0B

Project Number:
160900977

Limitations and Sign-off

The conclusions in the Report titled Acoustic Assessment Report for Saunders Transformer Station are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

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This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by: Digitally signed by Cho, Jihyun Date: 2023.10.04 14:15:13 -04'00'

Signature

Jihyun Cho (Ken), Ph.D., P.Eng.
Senior Acoustics, Noise and Vibration

Printed Name

Reviewed by: Digitally signed by Salim, Mohammed Date: 2023.10.04 14:30:30 -04'00'

Signature

Mohammed Salim, MBA, P.Eng.
Senior Acoustics, Noise and Vibration

Printed Name

Approved by: Digitally signed by Christopher Hugh Date: 2023.10.05 09:38:02 -04'00'

Signature

Chris Hugh, P.Eng.
Associate, Senior Acoustic Engineer

Printed Name

Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by InnPower Corporation (InnPower) on behalf of Hydro One to prepare an Acoustic Assessment Report (AAR) as part of the Minor Transmission Facility (MTF) Class Environmental Assessment (EA) process for the construction of Saunders Transformer Station near the intersection of Highway 400 and Lockhart Road in the City of Barrie, Ontario.

The proposed site is currently an empty lot within an industrial zoned area. The proposed Saunders Transformer Station (Saunders TS) will be a Jones-style municipal transformer station with two (2) 50/67/83 MVA transformers. The Saunders TS will also include transmission lines and distribution feeders.

The two 230/27.6 kV, 50/67/83 MVA transformers are the primary noise sources. The sound power level for the transformer was estimated based on the transformer power capacity. Both transformers were assumed to be operating simultaneously at the maximum capacity during daytime, evening, and nighttime periods (24-hour operation). This report is prepared using the guidelines provided in the Ontario Ministry of the Environment, Conservation and Parks (MECP) publications, Section 22 of Ontario Regulation (O. Reg.) 1/17 and Chapter 3 of the EASR publication "*Environmental Activity and Sector Registry – Limits and Other Requirements*", dated September 2017 (EASR Publication).

This acoustic assessment considers representative receptors surrounding the project site. Two (2) points of reception (PORs) close to the project site, including an accessible vacant lot receptor and a daycare, were identified, and considered in this assessment. The identified receptors are located at varying distances from the Highway 400 where day and night background noise levels are dominated by road traffic and/or industrial activities. No existing residential PORs were identified for the assessment.

Acoustic modelling of the noise sources under predictable worst-case operating conditions was completed using the computerized modelling software (CADNA/A), configured to implement the ISO 9613-2 environmental sound propagation algorithms. Under the predictable worst-case noise emission scenario, the proposed transformer station is predicted to be able to operate in compliance with the applicable EASR Publication limits for daytime, evening, and nighttime. Noise mitigation is not required based on the modelled parameters described in this report.

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Appendix C Land Use Zoning Maps

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Acronyms / Abbreviations

AAR	Acoustic Assessment Report
Cadna/A	Computer Aided Noise Abatement Software
dB	Decibel
dBA	Decibel, A-Weighted Sound Pressure Level
EA	Environmental Assessment
EASR	Environmental Activity and Sector Registry
ISO	International Organization for Standardization
L_{eq}	Energy Equivalent Sound Level
MECP	Ministry of the Environment, Conservation, and Parks
MTF	Minor Transformer Facility
MVA	Mega Volt Ampere
NAICS	North American Industry Classification System
NPC	Noise Pollution Control
POR	Point of Reception
SLL	Sound Level Limit
TS	Transformer Station

1 Introduction

Stantec Consulting Ltd. (Stantec) was retained by InnPower Corporation (InnPower) on behalf of Hydro One to prepare an Acoustic Assessment Report (AAR) as part of the Minor Transmission Facility (MTF) Class Environmental Assessment (EA) process for the construction of Saunders Transformer Station near the intersection of Highway 400 and Lockhart Road in the City of Barrie, Ontario. The proposed Saunders Transformer Station (Saunders TS) will be a Jones-style municipal transformer station with two (2) 50/67/83 MVA transformers.

This report is prepared in accordance with the guidelines provided in the Ontario Ministry of the Environment, Conservation and Parks (MECP) publications, Section 17 of Ontario Regulation (O. Reg.) 1/17 [1] and Chapter 3 of the EASR publication "*Environmental Activity and Sector Registry – Limits and Other Requirements*", dated September 2017 (EASR Publication) [2].

This assessment focuses on potential noise impacts from proposed facility noise sources on nearby noise sensitive receptors. The project does not have any significant sources of vibration, and therefore, vibration is not assessed in this report. This report is structured to correspond to each of the items listed in the MECP Acoustic Assessment Checklist provided in Appendix A.

2 Site Description

Saunders TS is transformer station planned to be located in the City of Barrie, Ontario with two (2) 230/27.6 kV, 50/67/83 MVA transformers. The transformer station is owned by InnPower Corporation, and the NAICS code for a transformer station is 22112.

The project site will be located the south end of the city near the intersection of Highway 400 and Lockhart Road in the City of Barrie, Ontario (approximate UTM coordinates 605154 m E and 4908792 m N). The proposed site is currently an empty lot within the industrial zoned area in accordance with Zoning By-law 054-04 (former Town of Innisfil Land) [7]. The equipment associated with the proposed Saunders TS will include two transformers, transmission lines and distribution feeders. Figure 2.1 shows the project location and project layout drawing is included in Appendix B.

The Saunders TS will be located in an area classified as Class 1 as defined in Chapter 3 of the EASR publication as an acoustical environment that is dominated by activities of people such as traffic and industry during the day and nighttime periods. The proposed site is surrounded by industrial zoned area. The land use zoning map for the area is provided in Appendix C.

The Saunders TS will operate 24 hours per day and 365 days per year.

Stantec

Legend

- Site Boundary
- Source
- Point of Reception (POR)
- Building Footprint

0 150 300 m

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Notes

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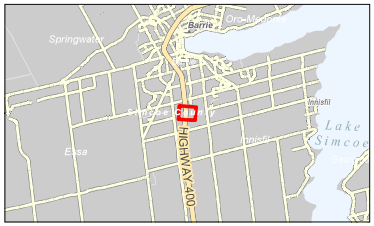

Project Location
County of Simcoe

160900977 REV0
Prepared by PRM on 2023-08-25

Client/Project
INNPOWER CORPORATION
ACOUSTIC ASSESSMENT REPORT FOR
SAUNDERS TRANSFORMER STATION

Figure No.
2.1

Title
Project Location, Noise Source and Noise Sensitive Receptor

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3 Noise Source Summary

Environmental noise relates to the propagation of sound in the outdoor environment and is subject to the effects of atmospheric conditions. Sound is attenuated by distance as it propagates from the noise source, is screened by intervening structures/foliage, and absorbed by the ground and atmosphere.

The energy equivalent sound level (L_{eq}) is the parameter used to represent the time-varying aspects of environmental noise. L_{eq} is defined as the equivalent steady, continuous level that has the same acoustical energy as the actual time-varying sound levels for a specified time period. The L_{eq} is commonly expressed in A-weighted decibels (dBA), which represents the response of the human ear to various frequencies of sound. A one-hour L_{eq} is used to assess peak operation of the Saunders TS.

The two 230/27.6 kV, 50/67/83 MVA transformers are the primary noise sources. The sound power level for the transformer was estimated based on the transformer power capacity using NEMA standard [3]. Both transformers were assumed to be operating simultaneously at the maximum capacity during daytime, evening, and nighttime periods (24-hour operation). The details of the sound power estimation for the transformer are provided in Appendix D.

A summary of the significant noise sources considered in the assessment is provided in Table 3.1, including sound power levels, sound characteristics, and any noise control measures. The locations of the transformers are shown on Figure 2.1.

Table 3.1: Significant Noise Source Summary Table

Source ID	Source Description [3]	Sound Power Level (dBA)[1]	Source Location	Sound Characteristics[2]	Noise Control Measures
TR1	Transformer (83 MVA)	109	O	T	U
TR2	Transformer (83 MVA)	109	O	T	U

NOTE:

1. The estimated sound power level does not include 5 dB tonal penalty. The tonal penalty is included in the acoustic model. Total sound power is based on NEMA standard [3].
2. The sound characteristics of transformer are assumed to be tonal.

Source Location: O = outside of building; I = inside of building

Sound Character:

T = Tonal	C = Cyclical
S = Steady	Q = Quasi-Steady Impulsive
B = Buzzing	I = Impulsive
	INT = Intermittent

Noise Control Measures

S = Silencer/Muffler	L = Lagging
A = Acoustic Lining, plenum	B = Barrier
U = Uncontrolled	R = Replaced with quieter unit
E = Acoustic Enclosure	O = Other

The MECP NPC-104 Guideline [4] prescribes adjustments for sources with special qualities or characters of sound. They are punitive adjustments which apply to noise sources with subjectively annoying characteristics, including tonal sounds, quasi-impulsive sounds and beating sounds (sounds with cyclically varying amplitudes). Transformers are expected to exhibit a tonal characteristic; therefore, a +5 dB tonal penalty was applied in the noise impact assessment.

No other insignificant noise source was identified in the project site.

4 Points of Reception (PORs)

In accordance with Chapter 3 of the EASR publication, noise impact is evaluated at Points of Reception (PORs) located on properties that contain one or more of the following noise sensitive land uses:

- Permanent, seasonal, or rental residences;
- Hotels, motels and campgrounds;
- Schools, universities, libraries and childcare centres;
- Hospitals and clinics, nursing/retirement homes;
- Churches and places of worship (if not located on industrial or commercial zoned lot); and,
- Vacant lot (other than an inaccessible vacant lot)

The proposed site is located near the intersection of Highway 400 and Lockhart Road. The lands surrounding the project site are zoned for industrial and commercial uses. In accordance with Zoning By-law 054-04 (Former Town of Innisfil Lands), the land on the south of the project site is transferred to the City of Barrie in 2009 and will be incorporated within a comprehensive new City of Barrie Zoning By-law in late 2023 or early 2024.

Noise sensitive receptors in all cardinal directions were considered and identified two (2) closest noise sensitive receptors. Two (2) representative PORs close to the project site were identified and considered in this assessment which includes the closest vacant lot to the southeast and a daycare centre to the northwest. The identified PORs are located at varying distances from the Highway 400 where background noise levels are considered to be dominated by road traffic and/or industrial activities. No existing residential units were identified in the area for the assessment.

The receptor locations considered are given below in accordance with NPC-300 guide [5]:

- Receptor location at 4.5 m above ground for the vacant lot for assumed two-storey dwelling. The centre of one hectare area on the northwest corner of the vacant lot was considered since the total area of the vacant lot is greater than one hectare (10,000 m^2).
- Receptor location at 1.5 m above ground for the daycare centre. No outdoor POR associated with the daycare was identified.

Figure 2.1 shows the POR locations in relation to the Facility. The receptors considered in this assessment are also listed in Table 4.1.

Table 4.1: Summary of Points of Noise Reception

POR ID	POR Description	Receptor Location	Receptor Height (m)	Approximate Distance from Project (m)	UTM Coordinates (16U)	
					X (m)	Y (m)
POR1	Vacant Lot	Estimated	4.5	650	605803	4908804
POR2	Daycare Centre (Lakeland Childcare)	Façade	1.5	370	604835	4909001

5 Applicable Noise Guidelines

MECP EASR Publications, Section 22 of Ontario Regulation (O. Reg.) 1/17 and Chapter 3 of the EASR publication "*Environmental Activity and Sector Registry – Limits and Other Requirements*" is applicable to the project.

5.1 Noise Criteria limits

The EASR Publication provides sound level limits (SLL) for areas based on the classifications of the PORs. The MECP classifications, based on ambient background sound, as provided in the NPC-300 from the MECP are given below:

- Class 1 Area is used to describe an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the urban hum.
- Class 2 Area defines an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 Areas. That means, absence of urban hum or a low ambient sound level is expected during early evening (i.e., between 19:00 and 23:00) than that in Class 1 Areas.
- Class 3 Area means a rural area with an acoustical environment dominated by natural sounds having little or no road traffic. Examples are small communities with populations of less than 1,000, agricultural areas, rural recreational areas, such as a cottage or a resort area, and wilderness areas.
- Class 4 Area is a newly classified area that would otherwise be defined as Class 1 (urban) or Class 2 (suburban). It has a relaxed criterion compared to any other Classes, is added for the new sound-sensitive developments in the industrial areas.

The EASR Publication states that non-impulsive (steady) one-hour sound levels ($L_{eq\text{-}1hr}$) from stationary sound sources shall not exceed the higher of the background or exclusionary limits provided for each Class as listed in Table 5.1.

Table 5.1: MECP Exclusion Limits for Class 1, 2 and 3 Areas

Time Period	Class 1 Area Sound Level Limits (dBA)		Class 2 Area Sound Level Limits (dBA)		Class 3 Area Sound Level Limits (dBA)	
	Plane of Window POR	Outdoor POR	Plane of Window POR	Outdoor POR	Plane of Window POR	Outdoor POR
Daytime (07:00 – 19:00)	50	50	50	50	45	45
Evening (19:00 – 23:00)	50	50	50	45	40	40
Night-time (23:00 – 07:00)	45	N/A	45	N/A	40	N/A

5.2 Project sound level limits

The Saunders TS is expected to operate during daytime, evening, or nighttime hours. POR1 is located almost 1 km away from Highway 400 and considered to be a Class 2 Area (suburban). However, POR2 is located in an industrial area adjacent to the highway and is considered to be a Class 1 Area (urban). The applicable SLLs for the PORs assessed are summarized in Table 5.2 below.

Table 5.2: Project Sound Level Limits

POR ID	POR Description	Receptor Location	Sound Level Limits at POR (dBA)			Sound Level Limit Source
			Daytime	Evening	Night	
POR1	Vacant Lot	Estimated	50	50	45	Exclusionary Limits Class 2
POR2	Daycare	Façade	50	50	N/A	Exclusionary Limits Class 1

Note: "N/A" means not applicable. The daycare centre is considered to be operating for daytime and evening periods only.

6 Impact Assessment

The following subsections discuss the analysis methods and modelling results of the assessment.

6.1 Analysis Method

The EASR Publication requires that the established noise criteria be applied and compared against the predictable worst-case steady state operation noise for the project. This means that the basis of the acoustic assessment should be "the hour when the noise emissions from the stationary source(s) have the greatest impact at a point of reception, relative to the applicable limit."

The predictable worst-case scenario for Saunders TS was modelled with simultaneous operation of both transformers with 100% capacity. A predictive analysis was performed using the commercially available software package CADNA/A, published by Datakustik GmbH and configured to implement the ISO 9613-2 [6] environmental sound propagation algorithms. The CADNA/A sound modelling software is widely accepted by the consulting industry and MECP.

The modelling considered the following factors for predicting noise at the receptor locations:

- Source sound power level and directivity;
- Distance attenuation;
- Source-receptor geometry, including heights and elevations;
- Barrier effects of the building and surrounding topography; and,
- Ground and atmospheric attenuation.

The model considers a downwind condition (conservative), in which the wind direction is always oriented from each source location towards each POR. Stationary sources emitting sound into the environment were modeled conservatively as concentrated point sources.

Representative site terrain data was considered as flat. A ground absorption factor of 0.7 was used for vegetation and forested areas, and 0.0 was used for the hard ground in the assessment. Two orders of reflection (e.g., two sound reflections from nearby buildings) were considered in the assessment. Typical Ontario meteorological values were used to initialize several parameters in the model. These included a temperature of 10 degrees Celsius and a relative humidity of 70%.

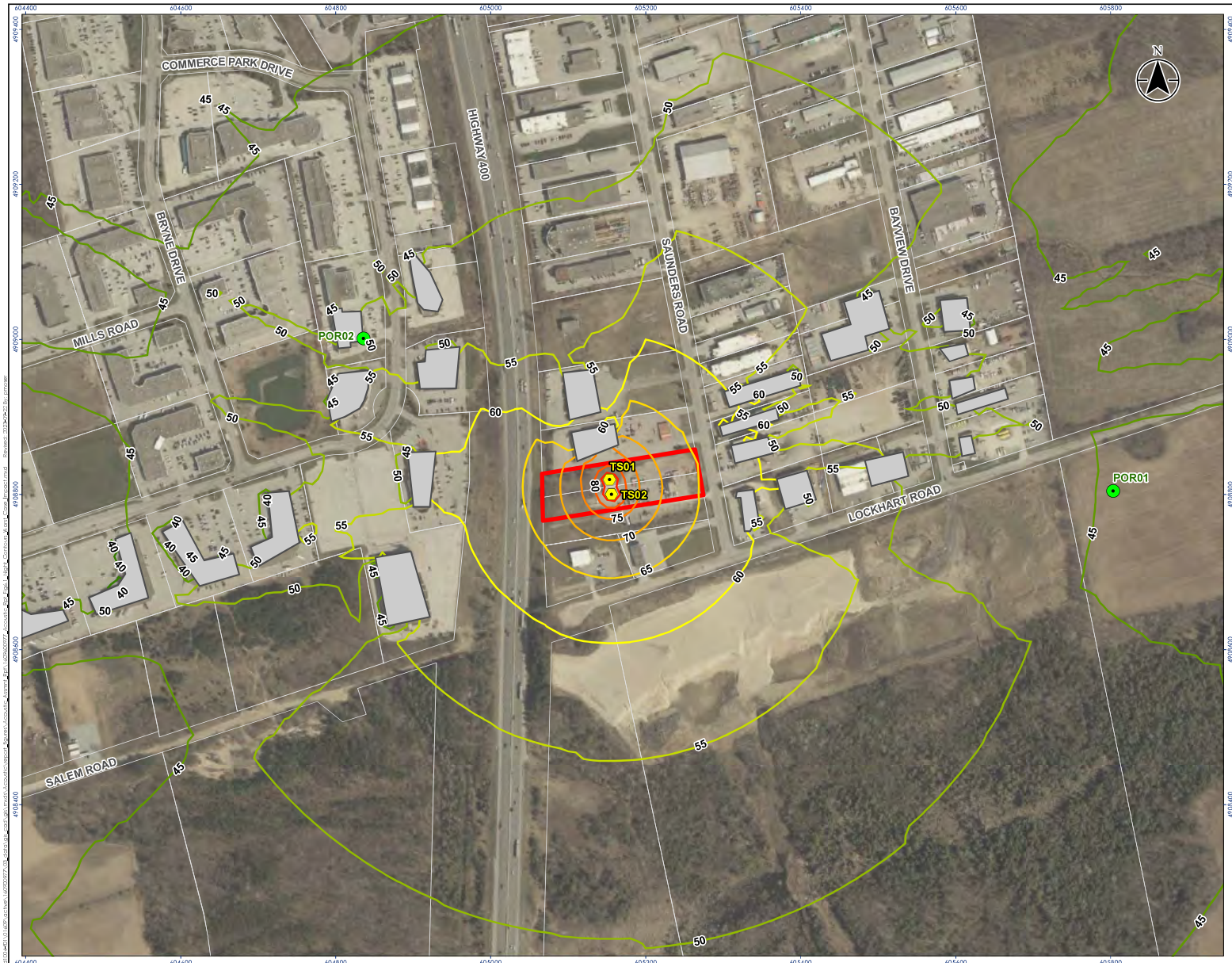
6.2 Results

The combined steady sound levels ($L_{eq\text{-}1hr}$) for the predictable worst-case project operations were calculated at the identified PORs using noise emissions from the individual significant sources, as summarized in Table 3.1. Noise contours for the predictable worst-case operation are shown in Figure 6.1, and an acoustic assessment summary is provided in Table 6.1 as required by the MECP.

The noise impacts on representative PORs are summarized in Table 6.2. The values provided in the table represent individual contributions at the receptor locations from each of the sources identified in Table 3.1. Sample calculations are presented in Appendix E.

Predicted combined sound levels at the modelled PORs from the proposed transformers are within the applicable sound level limits. Therefore, no mitigation is required for the project.

A signed statement from the qualified licensed practitioner is provided in Appendix F.



Stantec

Legend

- Site Boundary
- Source
- Point of Reception (POR)
- Building Footprint

Noise Contours for the Worst-Case Impact (Nighttime at 4.5 m above ground)

- 40 dBA
- 45 dBA
- 50 dBA
- 55 dBA
- 60 dBA
- 65 dBA
- 70 dBA
- 75 dBA
- 80 dBA
- 85 dBA

0 150 300 m

1:5,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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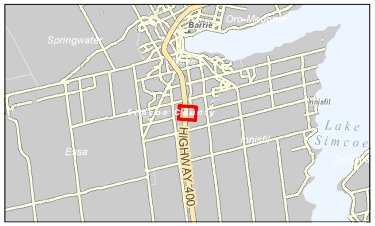

Project Location
County of Simcoe

160900977 REV0
Prepared by PRM on 2023-09-22

Client/Project
INNPOWER CORPORATION
ACOUSTIC ASSESSMENT REPORT FOR SAUNDERS TRANSFORMER STATION

Figure No.
6.1

Title
Noise Contours for the Worst-Case Impact (Nighttime at 4.5 m above ground)

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Table 6.1: Acoustic Assessment Summary Table (Unmitigated)

POR Name	POR Description	Time of Day	Sound Level at Point of Reception (L_{eq}, dBA)	Sound Level Limit (L_{eq}, dBA)	Compliance with Performance Limit (Y/N)	Verified by Acoustic Audit (Y/N)
POR01	Vacant Lot	Daytime and Evening	45	50	Y	N
		Nighttime	45	45	Y	N
POR02	Daycare Centre	Daytime and Evening	49	50	Y	N

Table 6.2: Point of Reception Impact Table

Source ID	Source Description	POR01		POR02	
		Distance (m)	L_{eq} (dBA)	Distance (m)	L_{eq} (dBA)
TS01	Transformer	650	42	366	45
TS02	Transformer	647	42	378	47
Total			45		49

7 Conclusion

Stantec was retained by InnPower Corporation on behalf of Hydro One to prepare a noise impact assessment as part of the Minor Transmission Facility (MTF) Class EA process for the proposed transformers at Saunders Transformer Station.

Two (2) representative PORs surrounding the project site were identified and considered in this assessment. As required by the guideline, the worst-case noise impact from the identified noise sources was considered for the prediction.

The assessment results indicate that under the predictable worst-case noise emission scenario, the proposed transformer station is predicted to operate in compliance with the applicable EASR Publication limits for daytime, evening, and nighttime periods. No noise mitigation is required based on the analysis described in this report. It is recommended that the analysis should be updated if site plan or equipment selection is refined.

8 References

[1] Ontario Ministry of the Environment, Conservation and Parks (MECP) publications, Section 22 of Ontario Regulation (O. Reg.) 1/17

[2] Chapter 3 of the EASR publication "*Environmental Activity and Sector Registry – Limits and Other Requirements*", September 2017.

[3] NEMA TR 1-2013, Transformers, Step Voltage Regulators and Reactors, National Electrical Manufacturers Association, 2014

[4] Ontario Ministry of the Environment, Conservation and Parks (MECP). Publication NPC-104, Sound Level Adjustments, 1977.

[5] Ontario Ministry of the Environment, Conservation and Parks (MECP). Publication NPC-300, Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning, 2013.

[6] ISO-9613-2. Acoustics – Attenuation of Sound during propagation outdoors. Part 2 – General method of calculation.

[7] Zoning By-law 054-04, former Town of Innisfil Lands, 2009

APPENDICES

Appendix A Acoustic Assessment Checklist

Ontario

Ministry of the Environment, Conservation and Parks

Acoustic Assessment Report Check-List

Company Name

Company Address

Unit Number	Street Number	Street Name	PO Box

City/Town	Province	Postal Code

Location of Facility

The attached Acoustic Assessment Report was prepared in accordance with the guidance in the ministry document "Information to be Submitted for Approval of Stationary Sources of Sound" (NPC-233) dated October 1995 and the minimum required information identified in the check-list on the reverse of this sheet has been submitted.

Company Contact

Company Contact

Last Name	First Name	Middle Initial

Title	Telephone Number

Signature	Date (yyyy/mm/dd)

Technical Contact

Technical Contact
Stantec Consulting Ltd.

Last Name	First Name	Middle Initial
Cho	Jihyun	

Representing	Telephone Number
Stantec Consulting Ltd.	437-533-8848

Signature	Date (yyyy/mm/dd)
조지현 Digitally signed by Cho, Jihyun Date: 2023.10.04 14:15:34 -04'00'	2023/09/21

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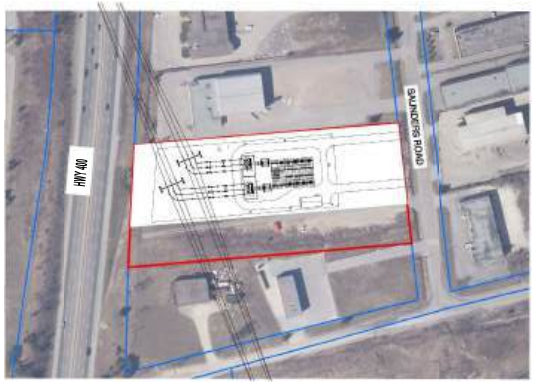
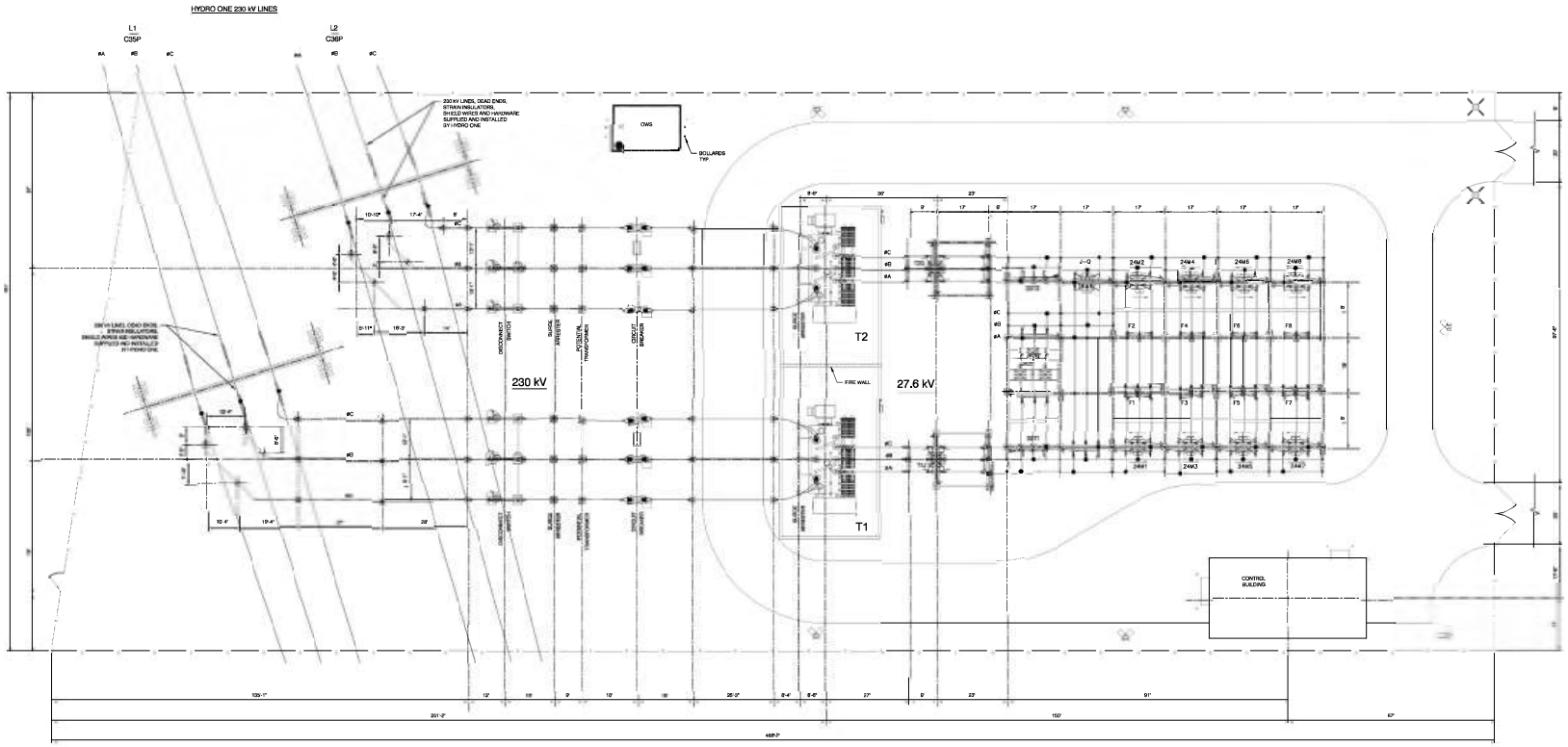
	Required Information	Submitted	Explanation/Reference
1.0	**Introduction (Project Background and Overview)**	☑ Yes	Section 1
2.0	**Facility Description**		
	2.1 Operating hours of Facility and significant Noise Sources	☑ Yes	Section 3
	2.2 Site Plan identifying all significant Noise Sources	☑ Yes	Section 2 and Section 3
3.0	**Noise Source Summary**		
	3.1 Noise Source Summary Table	☑ Yes	Table 3.1
	3.2 Source noise emissions specifications	☑ Yes	Section 3
	3.3 Source power/capacity ratings	☑ Yes	Appendix D
	3.4 Noise control equipment description and acoustical specifications	☑ Yes	Section 3
4.0	**Point of Reception Noise Impact Calculations**		
	4.1 Point of Reception Noise Impact Table	☑ Yes	Table 4.1
	4.2 Point(s) of Reception (POR) list and description	☑ Yes	Section 4
	4.3 Land-use Zoning Plan	☑ Yes	Appendix C
	4.4 Scaled Area Location Plan	☑ Yes	Appendix C
	4.5 Procedure used to assess noise impacts at each POR	☑ Yes	Section 6.1
	4.6 List of parameters/assumptions used in calculations	☑ Yes	Section 6.1 and Appendix E
5.0	**Acoustic Assessment Summary**		
	5.1 Acoustic Assessment Summary Table	☑ Yes	Table 6.1
	5.2 Rationale for selecting applicable noise guideline limits	☑ Yes	Section 5
	5.3 Predictable Worst Case Impacts Operating Scenario	☑ Yes	Section 6.1
6.0	**Conclusions**		
	6.1 Statement of compliance with the selected noise performance limits	☑ Yes	Section 7
7.0	**Appendices (Provide details such as)**		
	Listing of Insignificant Noise Sources	☐ Yes	n/a
	Manufacturer's Noise Specifications	☐ Yes	n/a
	Calculations	☑ Yes	
	Instrumentation	☐ Yes	n/a
	Meteorology during Sound Level Measurements	☐ Yes	n/a
	Raw Data from Measurements	☐ Yes	n/a
	Drawings (Facility / Equipment)	☑ Yes	

Appendix B Project Layout



LOCATION VIEW AREA



Stantec

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Consultant

Notes

1. All dimensions in inch unless otherwise stated.
2. Layout is preliminary and for reference only. No electrical mechanical, lighting, lightning, or grounding studies have been performed. The layout will be dependant on the realisation of such studies

Legend

References

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Issued/Revision	By	Appd	YYYY.MM.DD
B PRELIMINARY	V.D.	V.D.	2022.01.20
A PRELIMINARY	V.D.	V.D.	2022.01.19
0 PRELIMINARY	V.D.	V.D.	2022.01.12

File Name: 160900977EL0002.DWG — 2022.02.04

Prepared: VINCENT OUIMET, Ing. — Drawn: JEAN-FRANÇOIS LAVOIE

Checked: KATHERINE CLAY, Ing. — Project Manager: ABDELLE KADDOUR, Ing.

Permit-Seal

innpower

Client/Project

Title

SAUNDERS SUBSTATION
230-27.6 kV
GENERAL LAYOUT

Project No. 160900977 — Scale 1" : 15'-0"

Iss./Rev.: B — Sheet 01 of 01 — Drawing No. EL-D-0002

Appendix C Land Use Zoning Maps

Stantec

Legend

- Site Boundary
- Source
- Zoning Limits
  - AG - Agriculture
  - C4 - General Commercial
  - EP - Environmental Protection Area
  - GI - General Industrial
  - HI - Highway Industrial
  - LI - Light Industrial

0 150 300 m

1:5,000 (At original document size of 11x17)

Notes

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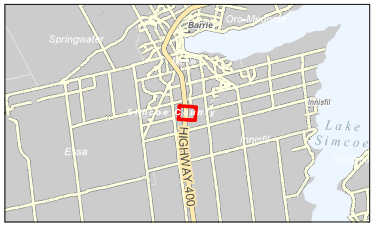

Project Location
County of Simcoe

160900977 REV0
Prepared by PRM on 2023-08-25

Client/Project
INNPOWER CORPORATION
ACOUSTIC ASSESSMENT REPORT FOR SAUNDERS TRANSFORMER STATION

Appendix
C

Title
Land Use Zoning Map

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Appendix D Sound Power Estimation

Estimation of Transformer Sound Power Level
Project: InnPower

Equipment Parameters

Capacity (kVA)	Basic Insulation Level (kV)	Cooling Type [a]	NEMA SPL (dBA) [d]	Fan (Y/N)	Height (m) [b]	Length (m) [b]	Depth (m) [b]	Measurement Distance (m) [e]	Contour Length (m)	Measurement Surface Area (m^2) [f]
83333	900 - 1050 kV BIL	ONAF	83	Yes	3	10.5	5.5	2	48	240

Predicted Sound Power using NEMA Level [g]

Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	Total (dBA)
Location Cor 1 [c]	-1	5	7	2	2	-4	-9	-14	-21	
Corrected Lw	105.8	111.8	113.8	108.8	108.8	102.8	97.8	92.8	85.8	109.2

Note:

a. Cooling type is assumed as ONAF

Cooling Class Letter Description									
Internal	First Letter		O	Liquid with flash point less than or equal to 300 Dec. C					
	(Cooling medium)		K	Liquid with flash point greater than 300 Deg. C					
			L	Liquid with no measureable flash point					
	Second Letter		N	Natural convection through cooling equipment and windings					
	(Cooling mechanism)		F	Forced circulation through cooling equipment, natural convection in windings					
			D	Forced circulation through cooling equipment, directed flow in main windings					
External	Third Letter		A	Air					
	(Cooling medium)		W	Water					
	Fourth Letter		N	Natural convection					
	(Cooling Medium)		F	Forced circulation					

b. Assumed dimension based on site plan

c. Location Correction

Cor 1 - Outdoor or Indoor (Large room)

Cor 2 - Indoor (Small room)

d. NEMA TR 1-2013, Transformers, Step Voltage Regulators and Reactors

e. IEEE Std C57.12.90-2015, IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers

f. IEC 60076-10, Power Tranformers - Part 10: Determination of Sound Levels

g. D. A. Bies and C. H. Hansen, Engineering Noise Control, 4th Edition, 2009, Spon Press, London and New York

Appendix E Sample Calculations

Receiver
Name: Vacant Lot
ID: POR01
X: 605803.43 m
Y: 4908804.32 m
Z: 4.50 m

Point Source, ISO 9613, Name: "Transformer", ID: "TS02"																					
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1	605155.98	4908799.88	3.00	0	D	32	71.4	0.0	0.0	0.0	0.0	67.2	0.0	-5.0	0.0	0.0	4.8	0.0	0.0	4.3
1	605155.98	4908799.88	3.00	0	D	63	90.6	0.0	0.0	0.0	0.0	67.2	0.1	-5.0	0.0	0.0	4.8	0.0	0.0	23.5
1	605155.98	4908799.88	3.00	0	D	125	102.7	0.0	0.0	0.0	0.0	67.2	0.3	3.3	0.0	0.0	1.5	0.0	0.0	30.4
1	605155.98	4908799.88	3.00	0	D	250	105.2	0.0	0.0	0.0	0.0	67.2	0.7	1.9	0.0	0.0	2.8	0.0	0.0	32.5
1	605155.98	4908799.88	3.00	0	D	500	110.6	0.0	0.0	0.0	0.0	67.2	1.2	-1.5	0.0	0.0	4.8	0.0	0.0	38.9
1	605155.98	4908799.88	3.00	0	D	1000	107.8	0.0	0.0	0.0	0.0	67.2	2.4	-1.7	0.0	0.0	4.8	0.0	0.0	35.1
1	605155.98	4908799.88	3.00	0	D	2000	104.0	0.0	0.0	0.0	0.0	67.2	6.3	-1.7	0.0	0.0	4.8	0.0	0.0	27.4
1	605155.98	4908799.88	3.00	0	D	4000	98.8	0.0	0.0	0.0	0.0	67.2	21.2	-1.7	0.0	0.0	4.8	0.0	0.0	7.3
1	605155.98	4908799.88	3.00	0	D	8000	89.7	0.0	0.0	0.0	0.0	67.2	75.7	-1.7	0.0	0.0	4.8	0.0	0.0	-56.3
1	605155.98	4908799.88	3.00	0	N	32	71.4	0.0	0.0	0.0	0.0	67.2	0.0	-5.0	0.0	0.0	4.8	0.0	0.0	4.3
1	605155.98	4908799.88	3.00	0	N	63	90.6	0.0	0.0	0.0	0.0	67.2	0.1	-5.0	0.0	0.0	4.8	0.0	0.0	23.5
1	605155.98	4908799.88	3.00	0	N	125	102.7	0.0	0.0	0.0	0.0	67.2	0.3	3.3	0.0	0.0	1.5	0.0	0.0	30.4
1	605155.98	4908799.88	3.00	0	N	250	105.2	0.0	0.0	0.0	0.0	67.2	0.7	1.9	0.0	0.0	2.8	0.0	0.0	32.5
1	605155.98	4908799.88	3.00	0	N	500	110.6	0.0	0.0	0.0	0.0	67.2	1.2	-1.5	0.0	0.0	4.8	0.0	0.0	38.9
1	605155.98	4908799.88	3.00	0	N	1000	107.8	0.0	0.0	0.0	0.0	67.2	2.4	-1.7	0.0	0.0	4.8	0.0	0.0	35.1
1	605155.98	4908799.88	3.00	0	N	2000	104.0	0.0	0.0	0.0	0.0	67.2	6.3	-1.7	0.0	0.0	4.8	0.0	0.0	27.4
1	605155.98	4908799.88	3.00	0	N	4000	98.8	0.0	0.0	0.0	0.0	67.2	21.2	-1.7	0.0	0.0	4.8	0.0	0.0	7.3
1	605155.98	4908799.88	3.00	0	N	8000	89.7	0.0	0.0	0.0	0.0	67.2	75.7	-1.7	0.0	0.0	4.8	0.0	0.0	-56.3
1	605155.98	4908799.88	3.00	0	E	32	66.4	0.0	0.0	0.0	0.0	67.2	0.0	-5.0	0.0	0.0	4.8	0.0	0.0	-0.7
1	605155.98	4908799.88	3.00	0	E	63	85.6	0.0	0.0	0.0	0.0	67.2	0.1	-5.0	0.0	0.0	4.8	0.0	0.0	18.5
1	605155.98	4908799.88	3.00	0	E	125	97.7	0.0	0.0	0.0	0.0	67.2	0.3	3.3	0.0	0.0	1.5	0.0	0.0	25.4
1	605155.98	4908799.88	3.00	0	E	250	100.2	0.0	0.0	0.0	0.0	67.2	0.7	1.9	0.0	0.0	2.8	0.0	0.0	27.5
1	605155.98	4908799.88	3.00	0	E	500	105.6	0.0	0.0	0.0	0.0	67.2	1.2	-1.5	0.0	0.0	4.8	0.0	0.0	33.9
1	605155.98	4908799.88	3.00	0	E	1000	102.8	0.0	0.0	0.0	0.0	67.2	2.4	-1.7	0.0	0.0	4.8	0.0	0.0	30.1
1	605155.98	4908799.88	3.00	0	E	2000	99.0	0.0	0.0	0.0	0.0	67.2	6.3	-1.7	0.0	0.0	4.8	0.0	0.0	22.4
1	605155.98	4908799.88	3.00	0	E	4000	93.8	0.0	0.0	0.0	0.0	67.2	21.2	-1.7	0.0	0.0	4.8	0.0	0.0	2.3
1	605155.98	4908799.88	3.00	0	E	8000	84.7	0.0	0.0	0.0	0.0	67.2	75.7	-1.7	0.0	0.0	4.8	0.0	0.0	-61.3

Point Source, ISO 9613, Name: "Transformer", ID: "TS01"																					
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
2	605153.49	4908819.18	3.00	0	D	32	71.4	0.0	0.0	0.0	0.0	67.3	0.0	-5.0	0.0	0.0	4.8	0.0	0.0	4.3
2	605153.49	4908819.18	3.00	0	D	63	90.6	0.0	0.0	0.0	0.0	67.3	0.1	-5.0	0.0	0.0	4.8	0.0	0.0	23.5
2	605153.49	4908819.18	3.00	0	D	125	102.7	0.0	0.0	0.0	0.0	67.3	0.3	3.4	0.0	0.0	1.4	0.0	0.0	30.4
2	605153.49	4908819.18	3.00	0	D	250	105.2	0.0	0.0	0.0	0.0	67.3	0.7	2.0	0.0	0.0	2.8	0.0	0.0	32.5
2	605153.49	4908819.18	3.00	0	D	500	110.6	0.0	0.0	0.0	0.0	67.3	1.3	-1.5	0.0	0.0	4.8	0.0	0.0	38.8
2	605153.49	4908819.18	3.00	0	D	1000	107.8	0.0	0.0	0.0	0.0	67.3	2.4	-1.6	0.0	0.0	4.8	0.0	0.0	35.0
2	605153.49	4908819.18	3.00	0	D	2000	104.0	0.0	0.0	0.0	0.0	67.3	6.3	-1.6	0.0	0.0	4.8	0.0	0.0	27.3
2	605153.49	4908819.18	3.00	0	D	4000	98.8	0.0	0.0	0.0	0.0	67.3	21.3	-1.6	0.0	0.0	4.8	0.0	0.0	7.1
2	605153.49	4908819.18	3.00	0	D	8000	89.7	0.0	0.0	0.0	0.0	67.3	76.0	-1.6	0.0	0.0	4.8	0.0	0.0	-56.7
2	605153.49	4908819.18	3.00	0	N	32	71.4	0.0	0.0	0.0	0.0	67.3	0.0	-5.0	0.0	0.0	4.8	0.0	0.0	4.3
2	605153.49	4908819.18	3.00	0	N	63	90.6	0.0	0.0	0.0	0.0	67.3	0.1	-5.0	0.0	0.0	4.8	0.0	0.0	23.5
2	605153.49	4908819.18	3.00	0	N	125	102.7	0.0	0.0	0.0	0.0	67.3	0.3	3.4	0.0	0.0	1.4	0.0	0.0	30.4
2	605153.49	4908819.18	3.00	0	N	250	105.2	0.0	0.0	0.0	0.0	67.3	0.7	2.0	0.0	0.0	2.8	0.0	0.0	32.5
2	605153.49	4908819.18	3.00	0	N	500	110.6	0.0	0.0	0.0	0.0	67.3	1.3	-1.5	0.0	0.0	4.8	0.0	0.0	38.8
2	605153.49	4908819.18	3.00	0	N	1000	107.8	0.0	0.0	0.0	0.0	67.3	2.4	-1.6	0.0	0.0	4.8	0.0	0.0	35.0
2	605153.49	4908819.18	3.00	0	N	2000	104.0	0.0	0.0	0.0	0.0	67.3	6.3	-1.6	0.0	0.0	4.8	0.0	0.0	27.3
2	605153.49	4908819.18	3.00	0	N	4000	98.8	0.0	0.0	0.0	0.0	67.3	21.3	-1.6	0.0	0.0	4.8	0.0	0.0	7.1
2	605153.49	4908819.18	3.00	0	N	8000	89.7	0.0	0.0	0.0	0.0	67.3	76.0	-1.6	0.0	0.0	4.8	0.0	0.0	-56.7
2	605153.49	4908819.18	3.00	0	E	32	66.4	0.0	0.0	0.0	0.0	67.3	0.0	-5.0	0.0	0.0	4.8	0.0	0.0	-0.7
2	605153.49	4908819.18	3.00	0	E	63	85.6	0.0	0.0	0.0	0.0	67.3	0.1	-5.0	0.0	0.0	4.8	0.0	0.0	18.5
2	605153.49	4908819.18	3.00	0	E	125	97.7	0.0	0.0	0.0	0.0	67.3	0.3	3.4	0.0	0.0	1.4	0.0	0.0	25.4

Point Source, ISO 9613, Name: "Transformer", ID: "TS01"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
2	605153.49	4908819.18	3.00	0	E	250	100.2	0.0	0.0	0.0	0.0	67.3	0.7	2.0	0.0	0.0	2.8	0.0	0.0	27.5
2	605153.49	4908819.18	3.00	0	E	500	105.6	0.0	0.0	0.0	0.0	67.3	1.3	-1.5	0.0	0.0	4.8	0.0	0.0	33.8
2	605153.49	4908819.18	3.00	0	E	1000	102.8	0.0	0.0	0.0	0.0	67.3	2.4	-1.6	0.0	0.0	4.8	0.0	0.0	30.0
2	605153.49	4908819.18	3.00	0	E	2000	99.0	0.0	0.0	0.0	0.0	67.3	6.3	-1.6	0.0	0.0	4.8	0.0	0.0	22.3
2	605153.49	4908819.18	3.00	0	E	4000	93.8	0.0	0.0	0.0	0.0	67.3	21.3	-1.6	0.0	0.0	4.8	0.0	0.0	2.1
2	605153.49	4908819.18	3.00	0	E	8000	84.7	0.0	0.0	0.0	0.0	67.3	76.0	-1.6	0.0	0.0	4.8	0.0	0.0	-61.7

Receiver
Name: Daycare
ID: POR02
X: 604835.91 m
Y: 4909001.00 m
Z: 1.50 m

Point Source, ISO 9613, Name: "Transformer", ID: "TS01"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
3	605153.49	4908819.18	3.00	0	D	32	71.4	0.0	0.0	0.0	0.0	62.3	0.0	-4.9	0.0	0.0	3.6	0.0	0.0	10.4
3	605153.49	4908819.18	3.00	0	D	63	90.6	0.0	0.0	0.0	0.0	62.3	0.0	-4.9	0.0	0.0	4.3	0.0	0.0	28.9
3	605153.49	4908819.18	3.00	0	D	125	102.7	0.0	0.0	0.0	0.0	62.3	0.2	-0.5	0.0	0.0	5.1	0.0	0.0	35.7
3	605153.49	4908819.18	3.00	0	D	250	105.2	0.0	0.0	0.0	0.0	62.3	0.4	1.4	0.0	0.0	4.8	0.0	0.0	36.4
3	605153.49	4908819.18	3.00	0	D	500	110.6	0.0	0.0	0.0	0.0	62.3	0.7	-1.5	0.0	0.0	7.4	0.0	0.0	41.7
3	605153.49	4908819.18	3.00	0	D	1000	107.8	0.0	0.0	0.0	0.0	62.3	1.3	-2.6	0.0	0.0	9.2	0.0	0.0	37.6
3	605153.49	4908819.18	3.00	0	D	2000	104.0	0.0	0.0	0.0	0.0	62.3	3.5	-2.7	0.0	0.0	11.5	0.0	0.0	29.5
3	605153.49	4908819.18	3.00	0	D	4000	98.8	0.0	0.0	0.0	0.0	62.3	12.0	-2.7	0.0	0.0	14.0	0.0	0.0	13.3
3	605153.49	4908819.18	3.00	0	D	8000	89.7	0.0	0.0	0.0	0.0	62.3	42.8	-2.7	0.0	0.0	16.8	0.0	0.0	-29.4
3	605153.49	4908819.18	3.00	0	N	32	71.4	0.0	0.0	0.0	0.0	62.3	0.0	-4.9	0.0	0.0	3.6	0.0	0.0	10.4
3	605153.49	4908819.18	3.00	0	N	63	90.6	0.0	0.0	0.0	0.0	62.3	0.0	-4.9	0.0	0.0	4.3	0.0	0.0	28.9
3	605153.49	4908819.18	3.00	0	N	125	102.7	0.0	0.0	0.0	0.0	62.3	0.2	-0.5	0.0	0.0	5.1	0.0	0.0	35.7
3	605153.49	4908819.18	3.00	0	N	250	105.2	0.0	0.0	0.0	0.0	62.3	0.4	1.4	0.0	0.0	4.8	0.0	0.0	36.4
3	605153.49	4908819.18	3.00	0	N	500	110.6	0.0	0.0	0.0	0.0	62.3	0.7	-1.5	0.0	0.0	7.4	0.0	0.0	41.7
3	605153.49	4908819.18	3.00	0	N	1000	107.8	0.0	0.0	0.0	0.0	62.3	1.3	-2.6	0.0	0.0	9.2	0.0	0.0	37.6
3	605153.49	4908819.18	3.00	0	N	2000	104.0	0.0	0.0	0.0	0.0	62.3	3.5	-2.7	0.0	0.0	11.5	0.0	0.0	29.5
3	605153.49	4908819.18	3.00	0	N	4000	98.8	0.0	0.0	0.0	0.0	62.3	12.0	-2.7	0.0	0.0	14.0	0.0	0.0	13.3
3	605153.49	4908819.18	3.00	0	N	8000	89.7	0.0	0.0	0.0	0.0	62.3	42.8	-2.7	0.0	0.0	16.8	0.0	0.0	-29.4
3	605153.49	4908819.18	3.00	0	E	32	66.4	0.0	0.0	0.0	0.0	62.3	0.0	-4.9	0.0	0.0	3.6	0.0	0.0	5.4
3	605153.49	4908819.18	3.00	0	E	63	85.6	0.0	0.0	0.0	0.0	62.3	0.0	-4.9	0.0	0.0	4.3	0.0	0.0	23.9
3	605153.49	4908819.18	3.00	0	E	125	97.7	0.0	0.0	0.0	0.0	62.3	0.2	-0.5	0.0	0.0	5.1	0.0	0.0	30.7
3	605153.49	4908819.18	3.00	0	E	250	100.2	0.0	0.0	0.0	0.0	62.3	0.4	1.4	0.0	0.0	4.8	0.0	0.0	31.4
3	605153.49	4908819.18	3.00	0	E	500	105.6	0.0	0.0	0.0	0.0	62.3	0.7	-1.5	0.0	0.0	7.4	0.0	0.0	36.7
3	605153.49	4908819.18	3.00	0	E	1000	102.8	0.0	0.0	0.0	0.0	62.3	1.3	-2.6	0.0	0.0	9.2	0.0	0.0	32.6
3	605153.49	4908819.18	3.00	0	E	2000	99.0	0.0	0.0	0.0	0.0	62.3	3.5	-2.7	0.0	0.0	11.5	0.0	0.0	24.5
3	605153.49	4908819.18	3.00	0	E	4000	93.8	0.0	0.0	0.0	0.0	62.3	12.0	-2.7	0.0	0.0	14.0	0.0	0.0	8.3
3	605153.49	4908819.18	3.00	0	E	8000	84.7	0.0	0.0	0.0	0.0	62.3	42.8	-2.7	0.0	0.0	16.8	0.0	0.0	-34.4

Point Source, ISO 9613, Name: "Transformer", ID: "TS02"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
4	605155.98	4908799.88	3.00	0	D	32	71.4	0.0	0.0	0.0	0.0	62.6	0.0	-4.9	0.0	0.0	3.1	0.0	0.0	10.7
4	605155.98	4908799.88	3.00	0	D	63	90.6	0.0	0.0	0.0	0.0	62.6	0.0	-4.9	0.0	0.0	3.6	0.0	0.0	29.3
4	605155.98	4908799.88	3.00	0	D	125	102.7	0.0	0.0	0.0	0.0	62.6	0.2	-0.4	0.0	0.0	4.1	0.0	0.0	36.3
4	605155.98	4908799.88	3.00	0	D	250	105.2	0.0	0.0	0.0	0.0	62.6	0.4	1.4	0.0	0.0	3.2	0.0	0.0	37.7
4	605155.98	4908799.88	3.00	0	D	500	110.6	0.0	0.0	0.0	0.0	62.6	0.7	-1.6	0.0	0.0	4.8	0.0	0.0	44.1
4	605155.98	4908799.88	3.00	0	D	1000	107.8	0.0	0.0	0.0	0.0	62.6	1.4	-2.6	0.0	0.0	5.1	0.0	0.0	41.3
4	605155.98	4908799.88	3.00	0	D	2000	104.0	0.0	0.0	0.0	0.0	62.6	3.7	-2.7	0.0	0.0	5.7	0.0	0.0	34.9
4	605155.98	4908799.88	3.00	0	D	4000	98.8	0.0	0.0	0.0	0.0	62.6	12.4	-2.7	0.0	0.0	6.5	0.0	0.0	20.1
4	605155.98	4908799.88	3.00	0	D	8000	89.7	0.0	0.0	0.0	0.0	62.6	44.2	-2.7	0.0	0.0	7.8	0.0	0.0	-22.1
4	605155.98	4908799.88	3.00	0	N	32	71.4	0.0	0.0	0.0	0.0	62.6	0.0	-4.9	0.0	0.0	3.1	0.0	0.0	10.7
4	605155.98	4908799.88	3.00	0	N	63	90.6	0.0	0.0	0.0	0.0	62.6	0.0	-4.9	0.0	0.0	3.6	0.0	0.0	29.3
4	605155.98	4908799.88	3.00	0	N	125	102.7	0.0	0.0	0.0	0.0	62.6	0.2	-0.4	0.0	0.0	4.1	0.0	0.0	36.3
4	605155.98	4908799.88	3.00	0	N	250	105.2	0.0	0.0	0.0	0.0	62.6	0.4	1.4	0.0	0.0	3.2	0.0	0.0	37.7
4	605155.98	4908799.88	3.00	0	N	500	110.6	0.0	0.0	0.0	0.0	62.6	0.7	-1.6	0.0	0.0	4.8	0.0	0.0	44.1
4	605155.98	4908799.88	3.00	0	N	1000	107.8	0.0	0.0	0.0	0.0	62.6	1.4	-2.6	0.0	0.0	5.1	0.0	0.0	41.3
4	605155.98	4908799.88	3.00	0	N	2000	104.0	0.0	0.0	0.0	0.0	62.6	3.7	-2.7	0.0	0.0	5.7	0.0	0.0	34.9
4	605155.98	4908799.88	3.00	0	N	4000	98.8	0.0	0.0	0.0	0.0	62.6	12.4	-2.7	0.0	0.0	6.5	0.0	0.0	20.1
4	605155.98	4908799.88	3.00	0	N	8000	89.7	0.0	0.0	0.0	0.0	62.6	44.2	-2.7	0.0	0.0	7.8	0.0	0.0	-22.1
4	605155.98	4908799.88	3.00	0	E	32	66.4	0.0	0.0	0.0	0.0	62.6	0.0	-4.9	0.0	0.0	3.1	0.0	0.0	5.7
4	605155.98	4908799.88	3.00	0	E	63	85.6	0.0	0.0	0.0	0.0	62.6	0.0	-4.9	0.0	0.0	3.6	0.0	0.0	24.3
4	605155.98	4908799.88	3.00	0	E	125	97.7	0.0	0.0	0.0	0.0	62.6	0.2	-0.4	0.0	0.0	4.1	0.0	0.0	31.3

Point Source, ISO 9613, Name: "Transformer", ID: "TS02"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
4	605155.98	4908799.88	3.00	0	E	250	100.2	0.0	0.0	0.0	0.0	62.6	0.4	1.4	0.0	0.0	3.2	0.0	0.0	32.7
4	605155.98	4908799.88	3.00	0	E	500	105.6	0.0	0.0	0.0	0.0	62.6	0.7	-1.6	0.0	0.0	4.8	0.0	0.0	39.1
4	605155.98	4908799.88	3.00	0	E	1000	102.8	0.0	0.0	0.0	0.0	62.6	1.4	-2.6	0.0	0.0	5.1	0.0	0.0	36.3
4	605155.98	4908799.88	3.00	0	E	2000	99.0	0.0	0.0	0.0	0.0	62.6	3.7	-2.7	0.0	0.0	5.7	0.0	0.0	29.9
4	605155.98	4908799.88	3.00	0	E	4000	93.8	0.0	0.0	0.0	0.0	62.6	12.4	-2.7	0.0	0.0	6.5	0.0	0.0	15.1
4	605155.98	4908799.88	3.00	0	E	8000	84.7	0.0	0.0	0.0	0.0	62.6	44.2	-2.7	0.0	0.0	7.8	0.0	0.0	-27.1

Appendix F Signed Practitioner's Statement

Stantec Consulting Ltd.
400 – 2100 Derry Road West
Mississauga, ON L5N 0B

September 21, 2023

File: 160900977

Reference: ACOUSTIC ASSESSMENT REPORT FOR SAUNDERS TRANSFORMER STATION

The document entitled Acoustic Assessment Report (AAR) for Saunders Transformer Station (Project) has been prepared for the exclusive use of InnPower Corporation be half of Hydro One in support of their Environmental Activity and Sector Registry (EASR) Registration under O. Reg. 1/17. The EASR is required for the Project construction emissions (including a worker camp and temporary effluent treatment plant).

The combined sound level resulting from sound discharged from the Project at each affected point of noise reception, as determined using an acoustic assessment, is less than the applicable sound level limit set out in Chapter 3 of the EASR publication.

To ensure minimization of potential errors and omissions, quality review and independent review of the report were employed in preparing the report, following the quality control review process based on Stantec's Standard Operating Procedure. Operational and other parameters were determined for the purpose of preparing the Acoustic Assessment Report following the requirements under Chapter 3 of the EASR publication.

The assessment in the Acoustic Assessment Report represents the conditions of the Project at the time of the assessment. The conclusions presented herein represent the best judgment of the assessor based on current environmental standards and information provided to the undersigned practitioner at the time the document was prepared and do not take into account any subsequent changes. Stantec Consulting Ltd. attests that to the best of our knowledge, the information presented in this report is accurate as of the date it is signed.

Operation and maintenance of the transformers will be conducted per the manufacturer's requirement and to ensure that the Project is operating within the permissible sound level limits as specified in the guidelines.

Yours truly,

Stantec Consulting Ltd.

Reference: **ACOUSTIC ASSESSMENT REPORT FOR SAUNDERS TRANSFORMER STATION**

Jihyun Cho P.Eng. (PEO# 100142971)
Senior Acoustic, Noise and Vibration Engineer
Phone: (437) 533-8848
jihyun.cho@stantec.com

APPENDIX – A4

NOTIFICATION OF CONDITIONAL APPROVAL OF CONNECTION PROPOSAL

February 26, 2026

Tracey Morden
Chief Compliance Officer & Vice President Corporate Services
7251 Yonge Street
Innisfil, ON
L9S 0J3

ieso
Connecting Today.
Powering Tomorrow.

Independent Electricity System Operator
Station A, Box 4474
Toronto, ON M5W 4E5
t 905.403.6900
www.ieso.ca

Dear Tracey Morden:

RE: IPC New Transformer Station (the "project")
Notification of Conditional Approval of Connection Proposal
CAA ID Number: 2024-789

The IESO has now had an opportunity to review and assess your company's project as described in your System Impact Assessment application. The IESO has concluded that the proposed connection will not result in a material adverse impact on the reliability of the integrated power system. The IESO is therefore pleased to grant **conditional approval** as detailed in the attached System Impact Assessment report. Please note that any further material change to your proposed connection, or changes to the information available or system assumptions made by the IESO at the time the assessment for the project was carried out, may require a re-assessment by the IESO and may result in a nullification of the conditional approval.

The likelihood of your project being re-assessed due to changes in the system assumptions made by the IESO will be reduced once your project attains the "committed" status as per Section 3.3 of Market Manual 0.1.4: Connection Assessment and Approval (formerly Market Manual 1.4: Connection Assessment and Approval). Therefore, if your project is not "committed" at this point, you are reminded of your obligation to provide updates and notifications in order for the IESO to give your project this classification. Meanwhile, in the event you are required to make a project related decision and are concerned about the validity of the Notification of Conditional Approval of this project and the connection requirements presented in the System Impact Assessment, please contact us at connection.assessments@ieso.ca.

Please note that this conditional approval does not in any way constitute an endorsement of the proposed connection for the purposes of obtaining a contract with the IESO for the procurement of supply, generation, demand response, demand management or ancillary services.

You may now initiate the IESO's **Market Registration** process. To do so, please contact Market Registration at market.registration@ieso.ca at least eight months prior to your expected energization date. The SIA report, attached hereto, details the requirements that your company must fulfill during this process, including demonstrating that the facility *as installed* will not be materially different from the facility *as approved* by the IESO.

Your conditional right to connect is balanced by an obligation to demonstrate installed equipment meets performance requirements. During the **Market Registration** process, you shall be required to demonstrate this obligation has been fulfilled in accordance with Market Manual 0.1.6: Performance Validation (formerly Market Manual 1.6: Performance Validation).

All information submitted in this process will be used by the IESO solely in support of its obligations under the *Electricity Act, 1998*, the *Ontario Energy Board Act, 1998*, the *Market Rules* and associated polices, standards and procedures and in accordance with its licence. All information submitted will be assigned the appropriate confidentiality level upon receipt.

When your company has successfully completed the IESO's **Market Registration** process, the IESO will provide you with a **final** approval, in the form of a Registration Approval Notification (RAN) documents, thereby confirming that the facility is fully authorized to connect to the IESO-controlled grid.

If you have any questions or require further information, please contact me.

Yours truly,

Zeeshan Idrees
Engineering Manager – Connection Assessments
Telephone: *905-855-4105*
E-mail: *muhammadzeeshan.idrees@ieso.ca*
cc: *IESO Records*

APPENDIX – A5

SYSTEM IMPACT ASSESSMENT REPORT

System Impact Assessment Report

Final Report - Public

CAA ID: 2024-789
Project: IPC New Transformer Station
Connection Applicant: InnPower Corporation

February 26, 2026

ieso
Connecting Today.
Powering Tomorrow.

Acknowledgement

The IESO wishes to acknowledge the assistance of Hydro One in completing this assessment.

Disclaimers

IESO

This report has been prepared solely for the purpose of assessing whether the connection applicant's proposed connection with the IESO-controlled grid would have an adverse impact on the reliability of the integrated power system and whether the IESO should issue a notice of conditional approval or disapproval of the proposed connection under Chapter 4, section 6 of the Market Rules.

Conditional approval of the project is based on information provided to the IESO by the connection applicant and Hydro One at the time the assessment was carried out. The IESO assumes no responsibility for the accuracy or completeness of such information, including the results of studies carried out by Hydro One at the request of the IESO. Furthermore, the conditional approval is subject to further consideration due to changes to this information, or to additional information that may become available after the conditional approval has been granted.

If the connection applicant has engaged a consultant to perform connection assessment studies, the connection applicant acknowledges that the IESO will be relying on such studies in conducting its assessment and that the IESO assumes no responsibility for the accuracy or completeness of such studies including, without limitation, any changes to IESO base case models made by the consultant. The IESO reserves the right to repeat any or all connection studies performed by the consultant if necessary to meet IESO requirements.

Conditional approval of the proposed connection means that there are no significant reliability issues or concerns that would prevent connection of the proposed project to the IESO-controlled grid. However, the conditional approval does not ensure that a project will meet all connection requirements. In addition, further issues or concerns may be identified by the transmitter(s) during the detailed design phase that may require changes to equipment characteristics and/or configuration to ensure compliance with physical or equipment limitations, or with the Transmission System Code, before connection can be made.

This report has not been prepared for any other purpose and should not be used or relied upon by any person for another purpose. This report has been prepared solely for use by the connection applicant and the IESO in accordance with Chapter 4, section 6 of the Market Rules. This report does not in any way constitute an endorsement of the proposed connection for the purposes of obtaining a contract with the IESO for the procurement of supply, generation, demand response, demand management or ancillary services.

The IESO assumes no responsibility to any third party for any use, which it makes of this report. Any liability which the IESO may have to the connection applicant in respect of this report is governed by Chapter 1, section 13 of the Market Rules. In the event that the IESO provides a draft of this report to the connection applicant, the connection applicant must be aware that the IESO may revise drafts of this report at any time in its sole discretion without notice to the connection applicant. Although the IESO will use its best efforts to advise you of any such changes, it is the responsibility of the connection applicant to ensure that the most recent version of this report is being used. The IESO provides no comment, representation or opinion, express or implied, with respect to who should bear the cost of IESO requirements for connection in this report and disclaims any liability in connection therewith.

Hydro One

The results reported in this report are based on the information available to Hydro One, at the time of the study, suitable for a System Impact Assessment of this connection proposal.

The short circuit and thermal loading levels have been computed based on the information available at the time of the study. These levels may be higher or lower if the connection information changes as a result of, but not limited to, subsequent design modifications or when more accurate test measurement data is available.

This study does not assess the short circuit or thermal loading impact of the proposed facilities on load and generation customers.

In this report, short circuit adequacy is assessed only for Hydro One circuit breakers. The short circuit results are only for the purpose of assessing the capabilities of existing Hydro One circuit breakers and identifying upgrades required to incorporate the proposed facilities. These results should not be used in the design and engineering of any new or existing facilities. The necessary data will be provided by Hydro One and discussed with any connection applicant upon request.

The ampacity ratings of Hydro One facilities are established based on assumptions used in Hydro One for power system planning studies. The actual ampacity ratings during operations may be determined in real-time and are based on actual system conditions, including ambient temperature, wind speed and facility loading, and may be higher or lower than those stated in this study.

The additional facilities or upgrades which are required to incorporate the proposed facilities have been identified to the extent permitted by a System Impact Assessment under the current IESO Connection Assessment and Approval process. Additional facility studies may be necessary to confirm constructability and the time required for construction. Further studies at more advanced stages of the project development may identify additional facilities that need to be provided or that require upgrading.

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Project Description

InnPower Corporation (the "connection applicant" and "distributor") is planning to connect a new Municipal Transformer Station (MTS), InnPower MTS, to provide electric supply to a maximum load of 89 MW in the Barrie area (the "project"). The project will connect to the Hydro One Networks Inc. (the "transmitter") owned 230 kV circuits, E28 and E29 at Barrie Transformer Station (TS) (~9 km from Essa TS) via two new 7 km tap lines, which will be owned by the transmitter. The project will include two 50/66.7/83.3 MVA, 230/27.6 kV transformers, each with a 230 kV disconnect switch and circuit breaker on the high voltage side of the transformer.

System studies have concluded that, under stressed system conditions, the increased loading driven by regional load growth and contributions from this project is expected to result in voltage instability at Barrie TS and Stayner TS 230 kV buses. To mitigate these issues, the transmitter is coordinating with the IESO to install a new autotransformer (T5) at Essa TS along with associated stations reconfigurations, scheduled to be in service by Q1 2031.

To ensure system reliability, the transmitter, in coordination with IESO, will implement a Load Rejection (L/R) Remedial Action Scheme (RAS) by Q1 2029. This scheme will automatically trip the project's load in addition to other loads in the vicinity, as detailed in Appendix E: Detailed Study Results (Confidential) of this report. This will be implemented as per the CAA ID 2025-839 Alliston TS T2 – Load Increase project.

The proposed in-service date of the project is Q4 2029.

Notification of Conditional Approval

This assessment concludes that the proposed connection of the project is expected to have no material adverse impact on the reliability of the integrated power system, provided that all requirements in this report are implemented. Therefore, the assessment supports the release of the Notification of Conditional Approval for connection of the project.

Assessment Findings

System studies were carried out to identify the impact of the project on loading of transmission facilities, system voltages, voltage stability, transient performance, load security, and restoration and to verify that the applicable reliability standards are met. The studied scenarios and main assumptions are available in Appendix D: Study Scope of Work (Confidential) of this report. The detailed study results are available in Appendix E: Detailed Study Results (Confidential) of this report. Based on the assessment results, we have identified the following finding:

1. Under peak load conditions, prior to the connection of autotransformer T5 at Essa TS, and with the largest critical generation unit in service, the integration of the project exacerbates pre-project steady state voltage stability margin violations at the Barrie TS and Stayner TS 230 kV buses. These violations occur during an outage of autotransformer T3 or T4 at Essa TS, followed by a contingency on the companion autotransformer. Before the project, up to 156 MW load rejection is needed to address voltage violation issues, however after the incorporation of the

project up to 180 MW of load rejection is needed. However, only up to 150 MW of load rejection is permissible under these events according to ORTAC load security criteria

IESO Requirements for Connection

Specific Requirements:

The following specific requirements are applicable for the incorporation of the project and its connection facilities. Specific requirements pertain to the level of reactive power compensation needed, operation restrictions, special protection system, upgrading of equipment and any project specific items not covered in the general requirements.

Requirements for the Connection Applicant

1. To address the issues identified in the Assessment Findings, the connection applicant shall coordinate with the transmitter to incorporate the project's load in the new remedial action scheme (RAS) by Q4 2029, and make the project load selectable for load rejection upon receiving a trip signal following the single contingencies as per the selection matrix shown in Table 19.

   Telemetry, including but not limited to, MW, Mvar and breaker status for the feeders/equipment tripped by the RAS, as specified by the IESO at the time of registration, shall be provided.

2. The connection applicant is required to implement the requirements specified in the Protection Impact Assessment (PIA) prepared by the transmitter.

Requirements for the Transmitter

1. To address the voltage instability at Barrie TS and Stayner TS 230 kV buses due to Essa zone load growth, including this project, as described in the Assessment Findings, the transmitter shall install autotransformer T5 at Essa TS by Q1, 2031.

2. To address the adverse impact of this project, as described in the Assessment Findings, the transmitter shall install a new RAS by Q1 2029. This RAS must incorporate the project as per the selection matrix shown in Table 19.

   During the IESO Market Registration process, a new Facility Description Document (FDD) for Essa RAS must be provided and finalized at least nine months prior to in-service. The FDD must contain the finalized RAS matrix as well as expected operating times. The actual operating times must be measured during commissioning and documented as a Performance Validation Record.

   If the FDD or performance testing as per the Performance Validation Record indicates a change in design or slower than expected operating times, as compared to what was assumed in this assessment, then further analysis of the project will need to be done by the IESO. This may delay the grant of IESO final approval to place the project in-service.

   The transmitter shall ensure that the RAS facilities comply with NPCC Reliability Reference Directory #7 for NPCC Type I RAS.

   Telemetry, as specified by the IESO at the time of registration, shall be provided.

General Requirements:

The connection applicant shall satisfy all applicable requirements specified in the Market Rules, the Transmission System Code (TSC) and reliability standards. Some of the general requirements that are applicable to this project are presented in detail in Appendix A: General Requirements of this report.

Recommendation

1. Power transformers with a high side, wye grounded winding with terminal voltage greater than 200 kV are subject to North American Electric Reliability Corporation (NERC) standard TPL-007, Transmission System Planned Performance for Geomagnetic Disturbance Events. As per NERC standard TPL-007, the Planning Coordinator in conjunction with its Transmission Planner are required to implement a process(es) to obtain Geomagnetic Disturbance (GMD) measurement data, via geomagnetically-induced currents (GIC) monitors, which will aid in model validation and situational awareness. This data will more accurately support the owner of the applicable power transformer(s) to conduct a thermal impact assessment if required in the future. As such, it is recommended that the connection applicant makes provision(s) to install monitoring equipment for GIC on the new transformer(s).

Appendix A: General Requirements

The connection applicant shall satisfy all applicable requirements specified in the Market Rules, the Transmission System Code and reliability standards. This section highlights some of the general requirements that are applicable to the project.

1. The connection applicant must notify the IESO at connection.assessments@ieso.ca as soon as they become aware of any changes to the project scope or data used in this assessment. The IESO will determine whether these changes require a re-assessment.

2. The connection applicant shall ensure that the Bulk Power System (BPS) elements are in compliance with the applicable Northeast Power Coordinating Council (NPCC) criteria and the Bulk Electric System (BES) elements are in compliance with the applicable NERC reliability standards. To determine the standard requirements that are applicable, the IESO provides mapping tools titled "NPCC Criteria Mapping Spreadsheet" for BPS elements and "NERC Reliability Standard Mapping Tool/Spreadsheet" for BES elements at the IESO's website of Applicability Criteria for Compliance with Reliability Requirements.

   Note, the connection applicant may request an exception to the application of the BES definition. The procedure for submitting an application for exemption can be found in Market Manual 11.4: "Ontario Bulk Electric System (BES) Exception" at the IESO's website.

   The IESO's criteria for determining applicability of NERC reliability standards and NPCC Criteria can be found in the Market Manual 11.1: "Applicability Criteria for Compliance with NERC Reliability Standards and NPCC Criteria" at the IESO's website.

   Compliance with these reliability standards will be monitored and assessed as part of the IESO's Ontario Reliability Compliance Program. For more details about compliance with applicable reliability standards, the connection applicant is encouraged to contact orcp@ieso.ca and also visit the Ontario Reliability Compliance Program webpage.

   However, like any other system element in Ontario, the BPS and BES classifications of the project will be periodically re-evaluated as the electrical system evolves.

3. In accordance with Appendix 4.3 of the Market Rules, the connection applicant shall ensure the project has the capability to maintain the power factor within the range of 0.9 lagging and 0.9 leading as measured at the defined meter point of the project.

4. The connection applicant shall ensure that the project's equipment meets the voltage requirements specified in section 4.2 and section 4.3 of the Ontario Resource and Transmission Assessment Criteria (ORTAC).

5. According to Section 6.1.2 of the TSC, the connection applicant must ensure the project's transmission connection equipment is designed to withstand the fault levels in the area. According to Section 6.4.4 of the TSC, if any future system changes result in an increased fault level higher than the project's equipment capability, the connection applicant is required to replace that equipment with higher rated equipment capable of withstanding the increased fault level, up to the maximum fault level specified in Appendix 2 of the TSC.

It is the connection applicant's responsibility to verify that all equipment and circuit breakers within the project are appropriately sized for the local fault levels.

6. The connection applicant shall ensure that the circuit breakers/switchers installed at the project have rated interrupting time that satisfies Appendix 2 of the TSC. Fault interrupting devices installed at the project must be able to interrupt fault currents at the applicable maximum continuous voltage as specified in Section 4.2 and Section 4.3 of ORTAC.

7. The connection applicant shall ensure that the protection systems are designed to satisfy all the requirements of the TSC. New protection systems must be coordinated with existing protection systems. Protection systems within the project shall only trip the appropriate equipment isolating the fault.

   Associated overvoltage protective relaying must be set to ensure that the project's equipment does not automatically trip for voltages up to 5% above the equipment's corresponding maximum continuous voltage as specified in section 4.2 of the ORTAC.

   BPS elements are deemed by the IESO to be essential to system reliability and security and must be protected by redundant protection systems in accordance with Section 8.2 of the TSC. These redundant protection systems must satisfy all requirements of the TSC, and in particular, they must be physically separated and not use common components, common battery banks, or common instrument transformer secondary windings.

   The protection systems for transmission voltage BES elements (whose rated voltage is higher than 100 kV) must be redundant. Redundancy must be present in protective relaying for normal fault clearing and control circuitry associated with protective functions including trip coils of the circuit breakers or other interrupting devices. These redundant protection systems must not use common instrument transformer secondary windings. A single communication system, if used, must be monitored and reported and a single DC supply, if used, must be monitored and reported for both low voltage and open circuit.

   As the electrical system evolves, transmission voltage non-BPS or non-BES elements (whose rated voltage is higher than 100 kV) within the project, may be re-classified as BPS elements or BES elements. The connection applicant is recommended to design the protection systems for these elements according to the protection requirements for BPS elements or have adequate provisions for future upgrades to meet those requirements.

8. In accordance to Reference 4 of Appendix 4.3 of the Market Rules, distributors connected to the IESO-controlled grid with directly connected load facilities of aggregated rating above 20 MVA and with the capability to regulate distribution voltages under load, shall install and maintain facilities and equipment to provide voltage reduction capability. After connecting the project, the connection applicant will have directly connected load facilities of aggregated rating above 20 MVA and the project has the capability to regulate voltages under load. As such, the connection applicant shall install and maintain facilities and equipment to provide voltage reduction capability at the project. Voltage reduction capability represents the capability of reducing demand by lowering the distribution voltage by 3% and 5% within five minutes from receiving directions from the IESO. The IESO uses voltage reductions to reduce load when supply resources are limited. The voltage reduction capability can be provided using the proposed under-load tap changers (ULTC) at the project.

9. The connection applicant has a total peak load at all its owned facilities, including the project, which is greater than 25 MW. According to Section 10.4.6 of Chapter 5 of the Market Rules and Section 11.3 of the Market Manual 7.1, the connection applicant is required to participate in the automatic Under-Frequency Load Shedding (UFLS) program and must select 35% of total peak load among its owned facilities for under-frequency tripping, based on a date and time specified by the IESO that approximates system peak, according to Section 10.4 of Chapter 5 of the Market Rules.

   The UFLS relay connected loads shall be set to achieve the amounts to be shed as stated in Section 11.3 of Market Manual 7.1. Table 1: UFLS Relay Settings summarizes UFLS relay settings as a function of the total peak load of all facilities, including the project, owned by the connection applicant.

Table 1: UFLS Relay Settings

Aggregate Summer Peak Load	UFLS Stage	Frequency Threshold (Hz)	Total Nominal Operating Time (s)	Load Shed at stage as % of Connection Applicant's Load	Cumulative Load Shed at stage as % of Connection Applicant's Load
25 MW or more and less than 50 MW	1	59.5	0.3	≥ 35	≥ 35
50 MW or more and less than 100 MW	1	59.5	0.3	≥ 17	≥ 17
	2	59.1	0.3	≥ 18	≥ 35
100 MW or greater	1	59.5	0.3	7 – 9	7 – 9
	2	59.3	0.3	7 – 9	15 – 17
	3	59.1	0.3	7 – 9	23 – 25
	4	58.9	0.3	7 - 9	32 - 34
	Anti-Stall	59.5	10.0	3 – 4	35 - 37

   The connection applicant, in conjunction with the transmitter, must also ensure that capacitor banks connected to the same station bus as the load are shed by UFLS facilities at 59.5 Hz with a time delay of 3 seconds.

   The maximum load that can be connected to any single UFLS relay is 150 MW to ensure that the inadvertent operation of a single under-frequency relay during the transient period following a system disturbance does not lead to further system instability.

   The IESO will review the requirements annually and inform the relevant market participants of their automatic UFLS obligations.

10. The connection applicant shall ensure that the connection equipment is designed to be fully operational in all reasonably foreseeable ambient conditions. Failures of the connection

equipment must be contained within the project and have no adverse impact on the IESO-controlled grid.

11. In accordance with Section 7.5 of Chapter 4 of the Market Rules, the connection applicant shall provide to the IESO the applicable telemetry data listed in Appendix 4.17 of the Market Rules on a continual basis. The data shall be provided in accordance with the performance standards set forth in Appendix 4.22, subject to Section 7.6A of Chapter 4 of the Market Rules. Additional telemetry quantities may be applicable. The whole telemetry list will be finalized during the IESO's Market Registration process.

    The connection applicant must install monitoring equipment that meets the requirements set forth in Appendix 2.2 of Chapter 2 of the Market Rules. As part of the IESO's Market Registration process, the connection applicant must also complete end to end testing of all necessary telemetry points with the IESO to ensure that standards are met and that sign conventions are understood. All found anomalies must be corrected before IESO's final approval to connect any phase of the project is granted.

12. The connection applicant must initiate the IESO's Market Registration process at least eight months prior to the commencement of any project related outages.

    The connection applicant is required to provide "as-built" equipment data for the project during the IESO Market Registration process. If the submitted equipment data differs materially from the ones used in this assessment, then further analysis of the project may need to be done by the IESO before final approval to connect is granted.

    At the sole discretion of the IESO, performance tests may be required at generation and transmission facilities. The objectives of these tests are to demonstrate that equipment performance meets the IESO requirements, and to confirm models and data are suitable for IESO purposes. The transmitter may also have its own testing requirements. The IESO and the transmitter will coordinate their tests, share measurements and cooperate on analysis to the extent possible.

    Once the IESO's Market Registration process has been successfully completed, the IESO will provide the connection applicant with a Registration Approval Notification (RAN) document, confirming that the project is fully authorized to connect to the IESO-controlled grid. For more details about this process, the connection applicant is encouraged to contact IESO's Market Registration at market.registration@ieso.ca

    Be advised that any registration changes could have an impact on a market participant's monthly global adjustment charges. Such registration changes include but are not limited to:

    - New facility registrations
    - Modifications to existing facility registration
    - Electrical configuration changes
    - Meter installation reconfigurations
    - Full or partial transfers of a facility to a separate legal entity
    - Transferring a facility between the retail electricity market and the IESO-administered wholesale electricity market (IAM)

Note that any newly registered facility in the IAM will automatically be treated as a Class B facility, unless stated otherwise in Ontario Regulation 429/04. It is the sole responsibility of the market participant to declare if any such provisions of Ontario Regulation 429/04 are applicable.

Subject to compliance with all regulatory requirements, a new facility may become eligible to participate in the Industrial Conservation Initiative (ICI) program (i.e. to be treated as a Class A facility) after the facility has been registered in the IAM for the entire duration of a base period (i.e. the facility has registered withdrawals from the IESO-controlled grid from May 1 to April 30 of the following calendar year).

13. The connection applicant shall ensure the wholesale metering installations comply with (i) the Ontario Market Rules, e.g., Chapter 6 - Wholesale Metering, Chapter 6 - Appendices, Chapter 9 - Settlements and Billing, Chapter 9 - Appendices, Chapter 10-Transmssion Service and Planning, (ii) the applicable market manuals, e.g., Market Manual 3 Series: Metering, and (iii) IESO wholesale metering hardware standards and policies. The connection applicant is encouraged to seek advice from a metering service provider (MSP) or from the IESO in early stages of the project design.

14. The Ontario Resource and Transmission Assessment Criteria (ORTAC) states that the transmission system must be planned such that, following design criteria contingencies on the transmission system, affected loads can be restored with the restoration times listed below:

    a. All load must be restored within approximately a target of 8 hours;
    b. When the amount of load interrupted is greater than 150MW, the amount of load in excess of 150MW must be restored within approximately a target of 4 hours;
    c. When the amount of load interrupted is greater than 250MW, the amount of load in excess of 250MW must be restored within a target of 30 minutes.

15. During the IESO Market Registration process, a Facility Description Document (FDD) for the proposed Essa RAS must be provided six months prior to in-service. The FDD must contain the finalized RAS matrix as well as expected operating times. The actual operating times must be measured during commissioning, documented as a Performance Validation Record, and posted on Hydro One - IESO secured web portal.

    If the FDD or performance testing as per the Performance Validation Record indicates a change in design or slower than expected operating times, than what was assumed in this assessment, then further analysis of the project will need to be done by the IESO. This may delay the grant of IESO final approval.

16. As per Market Manual 1.4: Connection Assessment and Approval, the connection applicant will be required to provide a status report of its proposed project with respect to its progress upon request of the IESO using the project status report form on the IESO website. Failure to comply with project status requirements listed in Market Manual 1.4: Connection Assessment and Approval will result in the project being withdrawn.

    The connection applicant will be required to also provide updates and notifications in order for the IESO to determine if the project is "committed" as per Section 3.3 of Market Manual 1.4: Connection Assessment and Approval.

Appendix B: Project Data (Confidential)

Appendix C: Facility Classification and Additional Telemetries (Confidential)

Appendix D: Study Scope of Work (Confidential)

Appendix E: Detailed Study Results (Confidential)

Appendix F: Protection Impact Assessment (Confidential)

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Powering Tomorrow.

APPENDIX – A6

FLEET MANAGEMENT POLICY

INNPOWER CORPORATION
CORPORATE POLICY

Policy Number: CP-22-08	**Revisions:** 3
Title: Fleet Management Policy	**Revision Number:** 3
Resolution Number: 13-147	**Resolution Number: 25-91**
Date: November 23, 2009	**Revised Date:** September 3, 2025
Issued By: Executive Office	**Revisions Require CEO Approval – 2 years 2027**

1. PURPOSE/DEFINITION:

To provide an organizational policy for consistent management of InnPower owned and leased fleet of vehicles and equipment as well as establish efficient and effective delivery of municipal services by providing safe, reliable, economical, and environmentally responsible transportation. Furthermore, to ensure that departments' fleet vehicles and equipment; meet their respective needs; are maintained in a way which prolongs vehicle use and value to maximize capital investment returns; meet growth demands; and for accurate budgeting for maintenance and replacement costs.

2. APPLICATION:

This policy applies to all employees of InnPower, including volunteers and employees of other agencies performing work for InnPower that have access to an InnPower owned or leased vehicle. It applies to the management of all InnPower vehicles and equipment used in the delivery of InnPower services from the purchase of the unit, management of the unit throughout its lifecycle, to its disposal at the end of the unit's useful life.

3. POLICY STATEMENT:

The Fleet Management Policy provides the framework for a consistent approach to the management of fleet vehicles/equipment throughout the organization. This includes the purchase, use, maintenance, repair, and replacement of these assets in alignment with the Corporate Purchasing Policy.

The policy is intended to provide a framework for consistent practice and ensure accountability in the ongoing monitoring of vehicle use and maintenance related costs. It also provides internal controls for the proper use of InnPower owned fleet assets and serves as a management tool to assist with sound decision making regarding the timing of vehicle/equipment purchases, unit specifications, and financial planning initiatives to ensure adequate funding is available when needed.

4. ADMINISTRATION:

4.1. Purchasing of Fleet Units

All requests for modifications to the organizations' fleet shall be made in writing, using prudent justification, to the Chief Operating Officer (COO).

4.2. All units will be planned and approved through the capital budget project process. Unit

costs will be detailed within the project detail sheets such that it reflects the base unit description (e.g. 4 WD Crew Cab ½ Ton pick-up), as well as listing the priced attachments to arrive at the total purchase value before taxes.

Replacement costs will be revisited biennially by the Fleet Manager, and with the assistance of Purchasing Services, The Fleet department will determine the relevant base model pricing as part of the biennial capital and operational budget planning process.

4.3. **Unit Standardization**
InnPower vehicles shall display a magnetic or vinyl logo decal on the left and right sides of the vehicle. It is the responsibility of all employees using InnPower vehicles to ensure that the decaling displayed is in accordance with this policy and are kept visible to the best of their ability.

4.4. Equipment shall display the vehicle or unit number on each side of the vehicle, a three-digit designated unit number. The numeric numbers shall be 2 inches in height and where possible be InnPower blue in colour and reflectorized.

4.5. Where it is determined by management or supervisory staff that additional information would benefit the public or aid in a certain operation, additional decaling may be added to a vehicle, piece of machinery or piece of equipment. All pick-up trucks, and other passenger vehicles shall be purchased in the colour of bright white. All service trucks (cab and chassis) and trailers shall be purchased in the colour of bright white and where metal service bodies are being added, they shall be painted to match the colour of the cab and chassis. All service bodies which are constructed from aluminum shall be left in this state.

4.6. All equipment and machinery shall be purchased in the colour specific to the supplier (e.g., forklifts).

4.7. Vehicle accessorizing standards are for guidance purposes. Due to the diversity of vehicle purchases, the Accessorizing Standards can be established but the appropriate Manager should be allowed some flexibility in amending vehicle accessories that best suits a particular application. Standard equipment on vehicle purchases may include non-standard accessories offered by the dealer and their purchase should not be disqualified.

The following list provides a guideline of standard accessories for vehicle purchases:

Fleet	PW	PS	PB	Auto	Std Radio	Air	Floor Mats	Trailer Hitch	Light Bar	Strobe Lts	Push Bar	Running Boards	Tool Box	Std Tires & wheels	Racking	Box Cap/ Cover	Box liner	Winch	4x4
Van	X	X	X	X	X	X	X			X				X	X				
Med-HD Full Size PU	X	X	X	X	X	X	X	X	X	X		**	X	X		X	X		X
Light Duty Full Size PU	X	X	X	X	X	X	X	X	X	X		**	X	X		X	X		X
Compact-Mid Size PU	X	X	X	X	X	X	X			X		**	X	X		X	X		X
SUV	X	X	X	X	X	X	X			X		**		X					X
Car	X	X	X	X	X	X	X			X		**		X					

X - indicates an approved accessory. Other accessories will be permitted if provided by the dealer as a standard option or package deal.
** - indicates an approved accessory provided the top of the rocker panel is higher than 15" (38cm).

The COO or designate will be allowed some flexibility in amending vehicle accessories that best suit a particular application.

4.8. **Fleet Greening**

InnPower is committed to taking all reasonable actions required to reduce the environmental impact of our current fleet units and future fleet additions.

At the time of procurement or replacement of a fleet unit, Staff will first review and consider electric vehicles (EVs), hybrid options, and other carbon reducing, vehicle/equipment options. Through the capital budget planning process, Staff will identify units suitable for alternative fuel/EV/hybrid conversion and every effort will be given to procuring these technologies, where applicable. When identifying these units, Staff will weigh the appropriateness and performance of these vehicles/equipment to perform their required task(s).

When applicable, capital budget funding requests will be reflective of the anticipated financial and environmental costs of the alternative fuel vehicles versus traditional fuel vehicles, however in the event that supply chain issues are prevalent, and significant delays in procurement would compromise service levels, traditional fuel vehicles may be purchased in their place with excess funds returned to the funding source.

Where traditional fuel units are present in the InnPower fleet, green operating practices, such as monitoring/reducing fuel consumption through reducing idling times and optimizing route patterns will be applied. Additionally, other available technologies to assist in improving the sustainability of our vehicles and equipment will be applied where appropriate and applicable. This includes, but is not limited to: telematics systems, maintenance program improvements, alternative fuel sources, and aftermarket accessories.

4.9. **Unit Operation**

InnPower employees and its contractors serve as ambassadors of the utility and as such, shall exhibit exemplary driving habits. Drivers shall always practice good, courteous, defensive driving habits at all times.

4.10. All drivers shall comply with all applicable laws and Regulations, including but not limited to the Highway Traffic Act (Ontario) or of the jurisdiction for which the vehicle is being operated. All traffic offenses and fines, including but not limited to; speeding and parking tickets are the responsibility of the driver and will be paid by the employee in which the vehicle was signed out. To be eligible to drive a company vehicle, verification of appropriate licence(s) shall be undertaken and reviewed regularly. When two employees are in a vehicle that needs to be backed up, one employee shall get out of the vehicle and assist the driver in backing up the vehicle in a safe manner.

4.11. The consumption of any alcoholic beverage, smoking (includes vaping), or use of any controlled substance within or upon any InnPower vehicle is expressly prohibited.

4.12. The operators' manual for each vehicle is provided when the vehicle is issued. In each manual is the manufacturer's recommended lubrication intervals. The daily, weekly, and bi-weekly service intervals are the responsibility of the operator. The Fleet Department shall be responsible for the vehicle's scheduled maintenance. It is the responsibility of employees using these shared vehicles to report any vehicle issues to the Fleet Department.

4.13. All vehicle accidents will be reported to the Department Supervisor or on-call Supervisor at the time of the accident regardless of the extent of the damage. An incident or accident form will be filled out and submitted for review by the Health and Safety Committee. Failure to report accidents may be cause for disciplinary procedure including termination of driving privileges.

No employee is authorized to use an InnPower vehicle for personal use without the prior consent of the President & CEO or designate unless the vehicle is used for on-call. Employees will reimburse InnPower for personal use at the appropriate rate as determined by the Canada Revenue Agency.

When available and practical employees should use work vehicles for all work related purposes.

4.14. The use of mobile electronic devices is only permitted with hands free devices according to Provincial statutes and regulations.

4.15. Employees of InnPower are expected at all times (including after-hours) to present an image of professionalism and pride in the manner in which it takes care of its assets. Therefore, all vehicle and equipment operators are expected to maintain their vehicles in a clean and orderly fashion. Exteriors will be washed on a regular basis and interiors will be kept free of trash and debris. Vehicle operators will report damaged decals, peeling paint and rusted exteriors to their supervisor and make arrangements to have any deficiencies repaired as needed.

4.16. **Unit Records**

Accurate and complete unit maintenance records are a key tool for making fleet management decisions. Unit maintenance costs are unique to each unit.

Pertinent records maintained for each unit include, but are not limited to:

- Unit maintenance logs
- Commercial Vehicle Operator Registration (CVOR), where applicable
- Fuel usage logs
- Cumulative costs of parts, labour, and overhead by a unit over its life.
- Annual condition assessment
- Environmental impact metrics

Accurate records of maintenance, repairs or alterations are to be kept with the Fleet department and retained as specified by InnPower's Record's Retention Requirements.

When units are purchased, asset details are to be recorded by the Fleet department. When received, the Fleet department will send communication to Finance for addition to InnPower's asset list, and to Legal Services for addition to the fleet insurance coverage policy.

4.17. **Fuel**

All fuel will be purchased and dispensed by the Town of Innisfil Roads' division, except for vehicles traveling outside of the municipality or in extenuating circumstances. Fuel is available 24 hours per day and is accessed with a fueling access security device. Each assigned vehicle operator will be issued a fueling access security device for their assigned vehicle. Failure to use fueling access security devices properly not only affects the reliability of the preventative maintenance programs but also destroys the integrity of vehicle mileage statistics. In these cases, credit cards may be used for the charging of fuel expenses. All fuel receipts as a result of these charges shall be recorded with the unit number of the vehicle for which the fuel was purchased and an odometer reading for the vehicle at the time of fill up.

4.18. **Fleet Maintenance**

Major repairs of all equipment shall be completed by the Fleet department. Under no

circumstances shall equipment be repaired, altered, or modified in any way by anyone except personnel authorized by the appropriate department. When making repairs, the department's budget, and the practicality of the repair of a vehicle that may be close to the end of its useful life will be considered. Operationally non-critical items such as hour meters and odometers are necessary and need to be kept in working order. This allows for better records to determine replacement intervals and to justify additional equipment. The vehicle should be in as good condition as practical when it is turned in for sale to bring as much revenue back to InnPower as possible.

Maintenance costs represent a significant portion of the total cost to own and operate a fleet unit or piece of heavy equipment and tend to increase as a unit or equipment ages. Escalating maintenance costs are a key factor in determining when to replace a fleet vehicle. In addition to the added cost of maintenance as a vehicle ages, there is an additional cost to the municipality when a unit is out of service due to unplanned maintenance activities. Preventive maintenance is the key to avoiding the repair or replacement of costly major vehicle components such as engines, transmissions, and drive trains.

4.19. Adjustments to the manufacturer's recommendations may be required based on the specific vehicle's use. For example, when an engine idles it incurs wear and tear that will require future maintenance. The maintenance schedule for a vehicle that runs at idle 50 percent of the time may be as frequent as that of a comparable one that is driven more kilometers. Overly frequent or delinquent preventive maintenance intervals are counterproductive to controlling costs

4.20. Procurement, transferring, repair, and replacement of all two-way radio equipment is the responsibility of the Fleet department. Vehicles are not authorized to carry any radio or communications equipment that is not specifically approved for use by that department. Under no circumstances shall radio and communication equipment be repaired, altered, or modified in any way by anyone except personnel authorized by the Fleet department.

4.21. The primary purposes of GPS/Telematics technology are to enhance asset management protection, ensure safety compliance and development and enhance efficiency optimization of fleet vehicles. The technology is not intended to be used as a primary investigative tool for employee discipline. Notwithstanding, where the technology discloses that employees have been involved in activity that can be reasonably characterized as fraudulent and/or criminal in nature, the Company reserves the right to use the technology to support investigations leading to possible discipline or discharge or as an investigative aid in any investigation arising out of such activity. In all other cases, the technology will not be used as a primary source of investigation into any allegation of employee misconduct for which discipline is a potential response.

In any case other than the foregoing, where specific performance issues are identified solely through a review of the GPS/Telematics data, InnPower's response to such performance issues will be counselling and/or training rather than discipline.

In circumstances where evidence of inappropriate behaviour is obtained independently, such as but not limited to:

- a complaint from a member of the public.
- a complaint or inquiry from a law enforcement or governmental agency.

The data may be reviewed to determine whether it provides relevant information relating

to the complaint or inquiry. In appropriate circumstances, the company may seek to rely on the information gathered in support of its response to the complaint.

No information with respect to the activity of a specific employee will be released externally without prior consent of the employee unless required by law.

After Hours Use: GPS data will not be monitored after hours except where reasonably necessary due to emergency circumstances, or where the vehicle is in use for business purposes after hours. Recorded data will not be reviewed for disciplinary purposes except where there is independent evidence of conduct which may affect the employer's reputational interests, or which may be reasonably characterized as criminal in nature.

4.22. Accurate records of maintenance, repairs or alterations are to be kept at the vehicle department's home site for the lifetime of the vehicle as per Commercial Vehicle Operators Registration (CVOR) requirements.

4.23. **Replacement Assessment**

Replacement assessments are used, in conjunction with capital planning timelines, to assist in determining when to replace a vehicle. The useful life of a unit, cost of maintenance and repair, and the physical (mechanical) condition of the unit identify if there is a point, outside of the capital planning process, that a unit needs to be replaced.

Useful Life (Weighted 20%)

The useful life of a vehicle varies by unit type and can be evaluated by years of service and/or use (kilometers driven/engine hours). Where a unit is evaluated by both criteria, an average score of both is used to determine the amount of useful life remaining. This value is represented as a percentage of the useful life consumed.

Cost of Maintenance (Weighted 20%)

Cost of maintenance is calculated as the total amount spent on maintenance and repairs (excluding repairs caused by accident damage) and represented as a percentage of the purchase price*. Where a historical purchase price is not available, the purchase price of a similar unit or the anticipated replacement value (on the date of the assessment) will be used.

*In periods of hyperinflation, Staff will determine if this valuation is best calculated using the anticipated replacement to ensure this factor remains focused on fiscal responsibility.

Physical/Mechanical Condition (60%)

Physical and Mechanical condition is evaluated by the mechanic performing the annual inspection each year. Its condition is determined to be Excellent, Good, Acceptable, Below Standard, or Poor and assigned a corresponding point value.

Replacement Assessment	**Points**	Useful Life/Cost of Maintenance	Physical/Mechanical Condition
		Range	**Rating**
Excellent	1	0% - 20%	Excellent
Good	2	21% - 40%	Good
Satisfactory	3	41% - 60%	Acceptable
Qualifies for Replacement	4	61% - 80%	Below Standard
Needs Immediate Consideration	5	81% +	Poor

4.24. **Unit Replacement Timing**

For capital planning purposes, units are expected to be replaced at the end of their useful life (see table above). However, replacement assessments of fleet units are monitored and analyzed on an ongoing basis to identify the point when a vehicle is reasonably depreciated but not yet incurring significant maintenance costs.

By replacing vehicles at this point, escalating maintenance costs can be avoided, and optimization of vehicle resale value can be realized. The three criteria to be considered when establishing the vehicle replacement schedule are: useful life, cost of maintenance, and condition. Given the unique utilization of InnPower's vehicle fleet, a universal management guide does not exist that can be applied.

Circumstances will vary between service areas/departments and will impact the actual replacement strategy for every asset. Even within departments a vehicle is maintained and replaced on a different schedule based on its service level and working environment:

- Vehicles deteriorate differently depending on factors such as quality of manufacture and the severity of usage. The fleet policy is flexible enough to acknowledge unique factors contributing to the deterioration of a vehicle.

- The Fleet department must track operating and repair costs and, in collaboration with Unit Owners, recommend units for replacement through the biennial budget process when units become inefficient or ineffective due to escalating repair costs or change of use requirements.

Different vehicles and equipment also wear out more rapidly than others depending on their utilization type and frequency. Although planning is based on the useful lifecycle timelines outlined in this policy, where preventative maintenance has been effective, condition is satisfactory or better, and cost is not prohibitive, unit life may be extended.

4.25. **Unit Disposition**

The vehicle/equipment should be made ready for sale in as good of condition as possible without incurring unnecessary expense in order to maximize revenues to InnPower including removal of all InnPower identification and decals. Vehicles are also to be washed and cleaned ready for auction or disposal through other opportunities.

4.26. **Closure of Replacement Unit Capital Projects**

Replacement vehicle capital requests must contain the information concerning the vehicle number and be accompanied by all pertinent data concerning condition assessment. Funding for the replacement vehicle must not include any expected residual sale value of the vehicle being removed from the fleet.

Once a replacement unit has been delivered and put into service, the old unit must be disposed of within a short and reasonable amount of time, unless identified as a back up unit. Fleet Services will be advised at that time to remove the vehicle from the InnPower insurance policy.

5. EXCEPTIONS

5.1. **Unit Replacement Timing: Accelerated Replacements**

The consideration of accelerated replacement of a vehicle often arises when major expenditures are necessary to restore a vehicle to a safe reliable operating condition (e.g.,

major component failure or incident damage). The economic effect of such repairs cannot be avoided because the cost to InnPower is normally about the same whether the vehicle is sold in un-repaired condition or restored to repaired condition.

However, replacement prior to the normal criteria for vehicles will result in an acceleration of all future replacement cost cycles required to satisfy a continuing vehicle need. An acceleration of cost cycles causes a sizable increase in the total present value cost of all future cycles and should be avoided whenever possible. Major vehicle repair should always be made, with two exceptions:

- Major expenditures for repair should not be made when the cost of the repair plus the vehicle salvage in un-repaired condition exceeds its wholesale value in repaired condition.

- Major deferrable expenditures should not be made when a vehicle is in the final six (6) months of its retention cycle. During this period the penalty for early replacement is small and, therefore, the vehicle should be replaced rather than repaired.

Under all cases of early replacement, a review of similar equipment type life cycle must also be reviewed, and adjustments made to the reserve contribution, if justified. Funds allocated in any given year for the replacement fleet must be maintained within the established limits for each division for that budget year.

Therefore, an accelerated replacement may require a delayed replacement of another fleet asset. In an accelerated replacement, a request will be presented to the InnPower to amend the capital project timelines and increase the annual financial commitment. This request must be made to InnPower by the unit owner after consultation with the Fleet department and at the recommendation of a trained technician, knowledgeable in equipment usage and maintenance.

This section applies only to accelerated replacements due to regular unit use. Replacements of unit

September 12, 2025

Danny Persaud, President & CEO

Date

APPENDIX B: NEEDS ASSESSMENT REPORT

South Georgian Bay/Muskoka Region Scoping Assessment Outcome Report

October 31, 2025

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1. Introduction

This Scoping Assessment Outcome Report is part of the Ontario Energy Board's regional planning process, as defined through the Transmission System Code, Distribution System Code, and Independent Electricity System Operator (IESO) license.

This is the third cycle of regional planning for the South Georgian Bay/Muskoka Region (SGBM Region). It was initiated in April 2025 with a Needs Assessment led by Hydro One Networks Inc. (Hydro One) and a Technical Working Group (TWG) comprised of Hydro One, the IESO and the Local Distribution Companies (LDCs) with assets in the region. A Needs Assessment Report was published on August 27, 2025 and is available at the South Georgian Bay/Muskoka link, where needs that require further regional coordination were identified. In this Scoping Assessment, the TWG reviewed the nature and timing of all the needs identified in the region through the Needs Assessment process, to determine the most appropriate planning approach.

The Scoping Assessment process considers which of three potential planning approaches is most appropriate for addressing the region's needs, including: an Integrated Regional Resource Plan (IRRP) – where both wires and non-wires options have the potential to address the needs and are considered as alternatives; a Regional Infrastructure Plan (RIP), which considers only wires (transmission and distribution) options; or a local plan undertaken by the transmitter and the affected local distribution company or customer, where no further regional coordination is needed.

This Scoping Assessment report:

- Lists the needs requiring more comprehensive planning, as identified in the Needs Assessment report.
- Reviews the areas to be studied and the potential for grouping of needs on a geographic basis if splitting the region into sub-regions would be beneficial). This Scoping Assessment does not recommend splitting the region into sub-regions.
- Considers impacts on planning assumptions and potential outcomes on needs resulting from local and provincial policy goals.
- Determines if an IRRP is the appropriate regional planning approach where there are needs requiring regional coordination or more comprehensive integrated planning. This Scoping Assessment recommends an IRRP.
- Establishes the Terms of Reference for an IRRP.
- Establishes the composition of the IRRP Technical Working Group.

2. Technical Working Group

The Scoping Assessment was carried out with the following participants:

- Independent Electricity System Operator (IESO)
- Hydro One Networks Inc. (Transmission), as the lead transmitter
- Alectra Utilities Corporation (Alectra)
- Hydro One Networks Inc. (Distribution)
- Newmarket-Tay Power Distribution Ltd (NT Power)
- InnPower
- Orangeville Hydro
- Elexicon Energy
- Lakeland Power
- EPCOR Electricity Distribution Ontario Inc. (EPCOR)
- Wasaga Distribution Inc.

3. Categories of Needs, Analysis and Results

3.1 Overview of the SGBM Region

The South Georgian Bay/Muskoka Region, shown in Figure 1, roughly comprises the cities of Barrie, Kawartha Lakes, and Orilla, the Districts of Muskoka and Parry Sound, the region of Durham and the counties of Grey, Dufferin, Haliburton and Simcoe.

Indigenous communities that may be potentially impacted or may have an interest based on treaty territory, traditional territory, or traditional land uses, include:

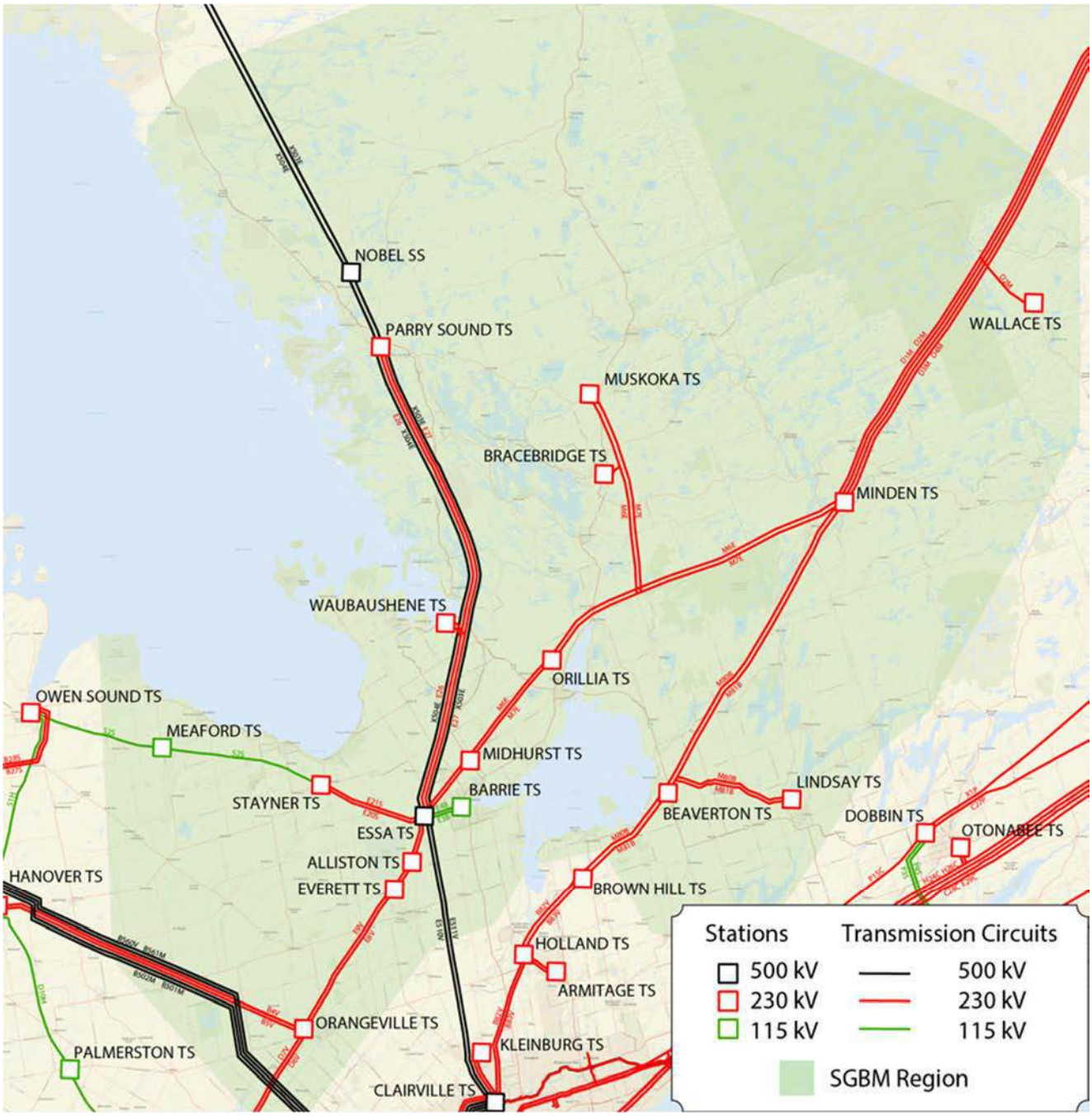
- Alderville First Nation
- Algonquins of Ontario
- Algonquins of Pikwakanagan First Nation
- Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Nawash First Nation
- Chippewas of Rama First Nation
- Chippewas of Saugeen First Nation
- Curve Lake First Nation
- Dokis First Nation
- Haudenosaunee Confederacy Chiefs Council
- Henvey Inlet First Nation
- Hiawatha First Nation
- Kawartha Nishnawbe
- Magnetawan First Nation
- Mississaugas of Scugog Island First Nation
- Mississaugas of the Credit First Nation
- Moose Deer Point First Nation
- Nipissing First Nation
- Shawanaga First Nation
- Six Nations of the Grand River
- Wahta Mohawks
- Wasauksing First Nation
- Wendat Nation
- Whitefish River First Nation
- Métis Nation of Ontario
- Metis Nation of Ontario Region 7

Electrically, the SGBM region includes 16 transformer stations that serve distribution systems at the 44 kV level, with the exception of Orangeville TS which serves 44 kV and 27 kV voltage levels. These transformer stations are supplied from:

- Two 500/230 kV autotransformers at Essa TS which receive power from generation in the North of the Province through Hanmer TS, and aggregated generation incoming from Claireville TS in the Toronto Region.

- Four 230 kV transmission lines that channel power through Minden TS from Des Joachims TS in the North.
- Two 230 kV transmission lines from Orangeville TS to Essa TS, that convey power predominantly from Bruce Generation Station in the West.
- One 115 kV transmission line from Owen Sound TS to Essa TS, which delivers power from Bruce and other generation sources in the South Georgian Bay.

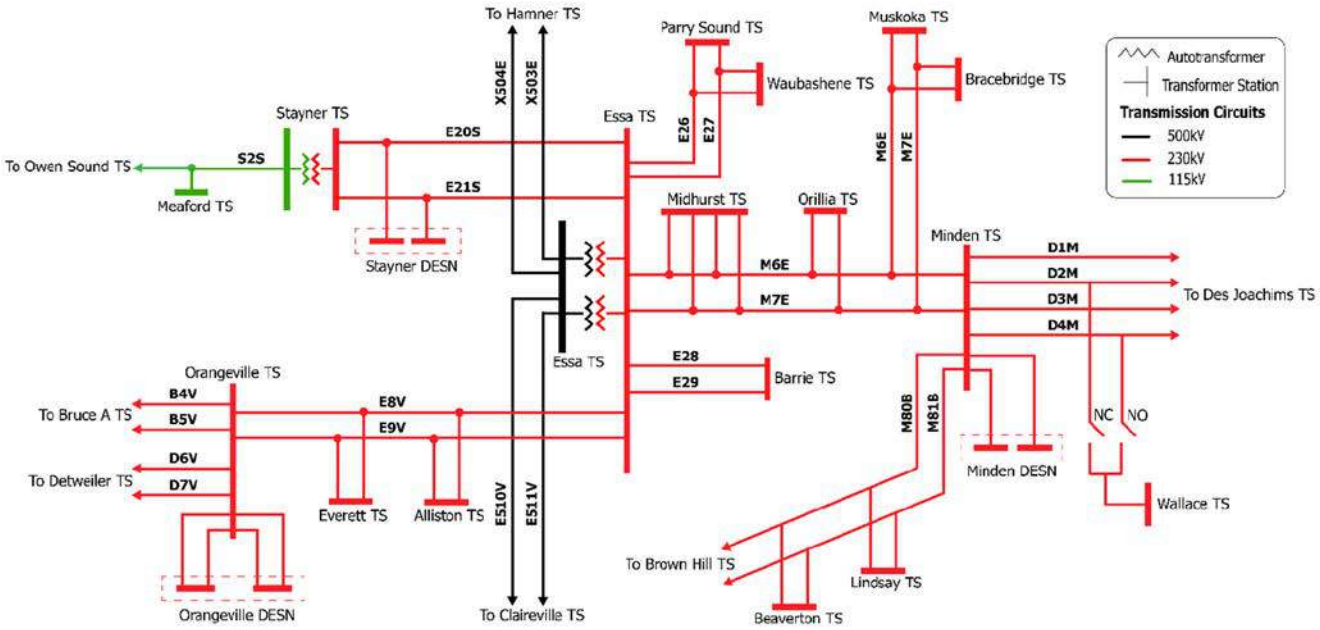
Figure 1 | SGBM Region Electricity Infrastructure



Additionally, the SGBM Region has an internal wind-based generation source in the Henvey Inlet area. The single-line diagram of the SGBM region is shown in Figure 2.

According to the load forecasts produced for the Needs Assessment, the coincident, normal-weather, net demand of the SGBM Region is expected to grow from 1,300 MW in 2025 to 1,600 MW in 2034.

Figure 2 | Single Line Diagram of SGBM Region



3.2 Previous Regional Plans

For the first cycle of the regional planning process for SGBM Region, the IESO recommended that two Integrated Regional Resource Plans (IRRP) should be developed to address the identified needs: one for the Barrie/Innisfil sub-region and one for the Parry Sound/Muskoka sub-region. For the Barrie/Innisfil sub-region it was recommended to upgrade Barrie TS to a 230 kV supply to meet the capacity and end-of-life needs, and to rebuild and upgrade circuits supplying Barrie TS to 230 kV level. For the Parry Sound/Muskoka sub-region the IRRP recommended to upgrade Parry Sound TS and Minden TS transformers to 83 MVA, and to address load restoration criteria violations with the installation of 230 kV switches on M6E and M7E at Orillia TS.

Following the first IRRP, a Regional Infrastructure Plan was published in August 2017 to address transmission needs identified in the Needs Assessment and the IRRP. Some of these needs were further refined and developed in the RIP.

The second cycle of regional planning concluded in December 2022 with the publication of the RIP, where the following needs and action plans were determined:

Everett TS Station Capacity – Modify CT ratio of the low voltage transformer breaker (modified in 2024)

Barrie TS Station Capacity - Construct new 230/27.6 kV 83 MVA Inn Power MTS and extend 230 kV E28B/E29B circuits to connect. Planned in-service year: 2027.

Waubaushene TS Station Capacity – Replace and upgrade existing 230/44 kV 83 MVA T5/T6 transformers with 125 MVA units. Planned in-service year: 2027.

M6E/M7E (Orillia TS x Coopers FLS JCT) Asset Replacement – Replace end-of-life (EOL) transmission line conductor (25 km). Planned in-service year: 2026.

E8V / E9V (Orangeville TS x Essa JCT) Asset Replacement – Replace EOL transmission line conductor and associated assets (56 km). Planned in-service year: 2027.

D1M/D2M (Minden TS x Otter Creek JCT) – Replace EOL transmission line conductor and associated assets (62 km). Planned in-service year: 2028.

Wallace TS Asset Replacement – Replace existing EOL 230/44 kV 42 MVA transformers (T3/T4) with new 230/44 kV 42 MVA units. Planned in-service year: 2025.

Midhurst TS Asset Replacement – Replace existing 230/44 kV 125 MVA EOL transformer (T4) with a new 230/44 kV 125 MVA unit. Planned in-service year: 2026.

Orillia TS Asset Replacement – Replace existing EOL 230/44kV 125MVA transformer (T2) with new 230/44kV 125MVA unit. Planned in-service year: 2025.

Bracebridge TS Asset Replacement – Replace existing EOL 230/44kV 83MVA transformer (T1) with new 230/44kV 83MVA unit. Planned in-service year: 2026.

Alliston TS Asset Replacement – Replace existing EOL 230/44kV 83MVA transformer (T3/T4) with new 230/44kV 83MVA units. Planned in-service year: 2030.

3.3 Needs Identified

The Needs Assessment for the third planning cycle, led by Hydro One, provided an update on needs identified in the previous planning cycle and the implementation of projects recommended to address them. Furthermore, it identified a number of new needs in the South Georgian Bay/Muskoka region based on the most up-to-date sustainment plans and a new 10-year demand forecast, and based on a sensitivity analysis that considered uncertainty in the load forecast as well as variability of drivers such as electrification. A summary of the current projects and plans underway to respond to existing needs, plus the new needs, are outlined below.

3.3.1 Station Capacity Needs

Station Capacity Needs refer to the ability of a station to deliver power from the grid down to the distribution system. Table 1 shows the status of the needs including how they have been addressed, if they are new or updated, and the recommended action.

Table 1 | Station Capacity Needs

#	Station / Equipment	New or Updated Need	Recommendation	Status
1	Everett TS	Exceeds normal supply capacity arround 2030 - 2033 (or arround 2027 - 2029 in high-growth scenario)	Assess and reaffirm the need in the next phase of this regional planning cycle	To be studied further
2	Midhurst TS	T1/T2 projected to reach capacity by 2030 (or 2028 in high-growth scenario). T3/T4 projected to reach capacity by 2029 (or 2027 in high-growth scenario).	Assess and reaffirm the need in the next phase of this regional planning cycle	To be studied further
3	Alliston TS	Previous regional planning cycle identified these transformers would be replaced in 2030, however Hydro One has since revised its assessment on the condition of these units and delayed the replacement outside of the study period to 2040.	Assess and reaffirm the need in the next phase of this regional planning cycle	To be studied further
4	Lindsay TS	High-growth scenario shows capacity concerns within study period.	Reassess the high-growth scenario needs in the next phase of the regional planning cycle	Reassess growth
5	Muskoka TS	High-growth scenario shows capacity concerns within study period.	Reassess the high-growth scenario needs in the next phase of the regional planning cycle	Reassess growth
6	Barrie TS	N/A	Construct new 230/27.6 kV 83 MVA Innpower MTS and extend 230 kV E28B/E29B circuits to connect. The planned in-service year is 2029.	Resolved
7	Waubaushene TS	N/A	Replacing and upgrading existing 230/44 kV, 83 MVA T5/T6 transformers with 125 MVA units. The planned in-service year is 2028.	Resolved

3.3.2 Supply Capacity Needs

Supply Capacity Needs refer to the ability of the system to supply power through the transmission lines to a local area. Table 2 shows two transmission line-related needs that have also been identified in previous planning cycles. The status of the needs and the recommended action are also specified in the table.

Table 2 | Supply Capacity Needs

#	Station / Equipment	New or Updated Need	Recommendation	Status
8	M6E/M7E	Essa x Midhurst and Coopers Fls JCT x Minden sections will exceed their LTE supply capacity during the study period and will require mitigating solutions to allow for increased flow.	Flows on this path are heavily influenced by area load and generation both within and outside of the SGB-Muskoka region. To be further explored in the next phase of this regional planning cycle.	To be studied further
9	E8V/E9V	N/A	Upgrade of these circuits is presently underway with an in-service date planned for 2029.	Resolved

3.3.3 Bulk System Considerations

Bulk System Considerations refer to CLAN (Claireville Area North) and CLAS (Claireville Area South) limits that can affect broader economic operation by potentially affecting local system reliability. Local reliability adverse effects might be due to remedial actions which may be required to manage limits (eg, RAS, LR), or to limitations of procurement opportunities which would further introduce

economic constraints and limit available options for addressing local needs. Further study in the next phase of the planning cycle is recommended (Table 3).

Table 3 | Bulk System Considerations

#	Station / Equipment	New or Updated Need	Recommendation	Status
10	CLAN/Flow North	Operational concerns on area interface limits on the CLAN (Claireville Area North) and FN (Flow North) limits were identified.	To be addressed in bulk studies.	To be studied further

3.3.4 Asset Replacement Needs

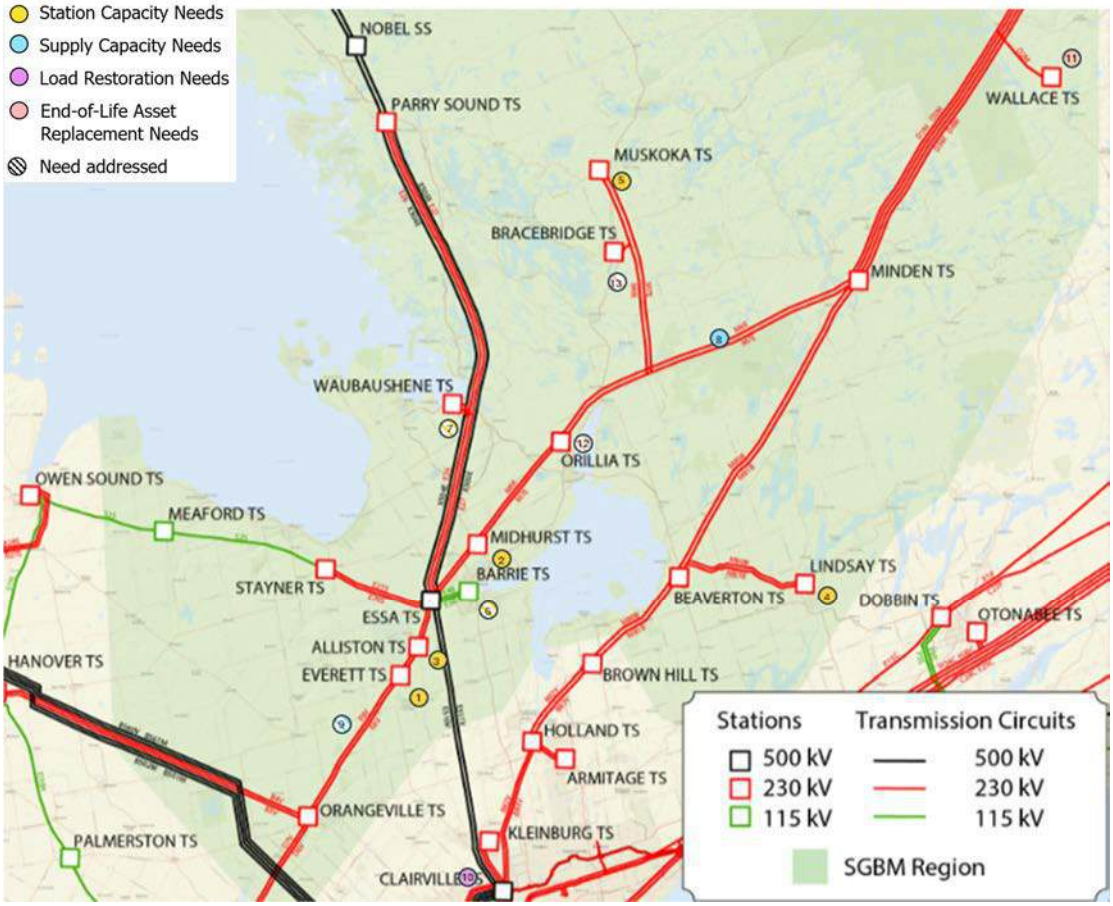
Asset Replacement Needs are identified when the equipment is at the end of life or when its condition is deteriorated enough to require replacement with no capacity increase. Table 4 lists the asset replacement needs identified in previous planning cycles, which have scheduled plans of replacement, and the recommendation for updated needs at Wallace TS.

Table 4 | Asset Replacement Needs

#	Station / Equipment	New or Updated Need	Recommendation	Status
11	Wallace TS	High-growth scenario shows capacity concerns within study period.	T3/T4 transformers will be replaced with like for like 230/44 kV, 42 MVA standard step-down transformer. The planned in-service year is in 2034. Reassess the high-growth scenario needs in the next phase of the regional planning cycle.	Reassess growth
12	Orillia TS	N/A	T2 transformer will be replaced with like for like 230/44kV 125MVA standard step-down transformer. The planned in-service year is in 2026.	Resolved
13	Bracebridge TS	N/A	T1 transformer will be replaced with like for like 230/44kV 83MVA standard step-down transformer. The planned in-service year is in 2026.	Resolved

The geographic location of the assets and the respective needs listed in tables 1 to 4, are shown in Figure 3.

Figure 3 | Identified Needs in the SGBM Region



3.3.5 Determination of Study Scope

The TWG has discussed the identified needs in SGBM Region and potential planning approaches to address them. The preferred planning approach is generally informed by:

- Timing of the need, including lead time to develop solutions
- The potential linkages between needs and their required coordination, particularly if across overlapping LDC territories or planning regions
- The opportunity for public engagement to inform outcomes
- The potential for exploring multiple types of options to meet the needs (including non-wires solutions)
- The potential for implications on the upstream bulk power system.
- The opportunity to explore effects of different load forecast scenarios.

As recommended in the Needs Assessment, many of the needs identified for the SGBM Region require further consideration to:

- Account for updated load forecasts that include high, reference, and low growth scenarios, which encompass a long-term planning horizon (20 years to the future).
- Comprehensively integrate the potential of distributed energy resources (DER), and Demand-Side management (DSM), as non-wires solutions into the local demand of each distribution station.

- Reevaluate the timing of needs.
- Consider and coordinate the effects of Flow North, Claireville-North (CLAN) and Claireville-South (CLAS) power transfers at the bulk system level, in the transmission corridors of the SGBM Region.

According to these reasons and considering the additional need to incorporate input from community engagement activities, the TWG recommends developing an Integrated Regional Resource Plan for the SGBM Region, as the next step of the third planning cycle.

The TWG has also determined that, as the identified needs span all areas of SGBM Region, bulk system planning is current underway with the potential to affect the entire area, and there may be alternatives that address multiple needs across the region, there is no benefit to defining sub-regions for separate study within this IRRP process. Therefore, the recommended IRRP scope covers SGBM Region in its entirety. A Draft Terms of Reference for the SGBM Region IRRP is attached in Appendix B.

4. Conclusion and Next Steps

The Scoping Assessment concludes that:

- An IRRP is to be undertaken for SGBM Region.
- The IRRP Working Group will include the IESO, Hydro One Distribution, and Hydro One Transmission, Alectra, InnPower, Orangeville Hydro, Elexicon Energy, Lakeland Power, EPCOR Electricity Distribution, Newmarket-Tay Power Distribution, and Wasaga Distribution.
- The IRRP will co-ordinate its findings with the South & Central Ontario Bulk Supply Study, and vice-versa.
- A 12-month timeline for completion of the IRRP is expected.

An IRRP was recommended based on:

1. The potential for diverse types of solutions (including wires and non wires), and long-term uncertainty associated with regional development plans and the potential impact of municipal, provincial, and federal decarbonization and electrification policies.
2. Consideration of Bulk-level power transfer which can affect the SGBM transmission corridors, and
3. The opportunities for engagement with local communities and stakeholders.

The draft Terms of Reference for the SGBM Region IRRP is attached in Appendix B.

Appendix A – List of Acronyms

Acronym	Definition
CLAN	Claireville Area North
CLAS	Claireville Area South
DER	Distributed Energy Resource
DSM	Demand-Side Management
EOL	End of Life
FIT	Feed-in-Tariff
GTA	Greater Toronto Area
IESO	Independent Electricity System Operator
IRRP	Integrated Regional Resource Plan
kV	Kilovolt
LDC	Local Distribution Company
LMC	Load Meeting Capability
MW	Megawatt
NERC	North American Electric Reliability Corporation
NPCC	Northeast Power Coordinating Council
OEB	Ontario Energy Board
ORTAC	Ontario Resource and Transmission Assessment Criteria
RIP	Regional Infrastructure Plan
SGBM	South Georgian Bay / Muskoka
TS	Transformer Station
TWG	Technical Working Group

Appendix B – SGBM Region Integrated Regional Resource Plan (IRRP) Terms of Reference

1. Introduction and Background

The South Georgian Bay/Muskoka Region (SGBM Region) is one of the 21 electricity planning regions in Ontario as identified through the Ontario Energy Board's (OEB) Regional Planning Process.

These Terms of Reference establish the objectives, scope, roles and responsibilities, deliverables and timelines for an Integrated Regional Resource Plan (IRRP) for SGBM Region.

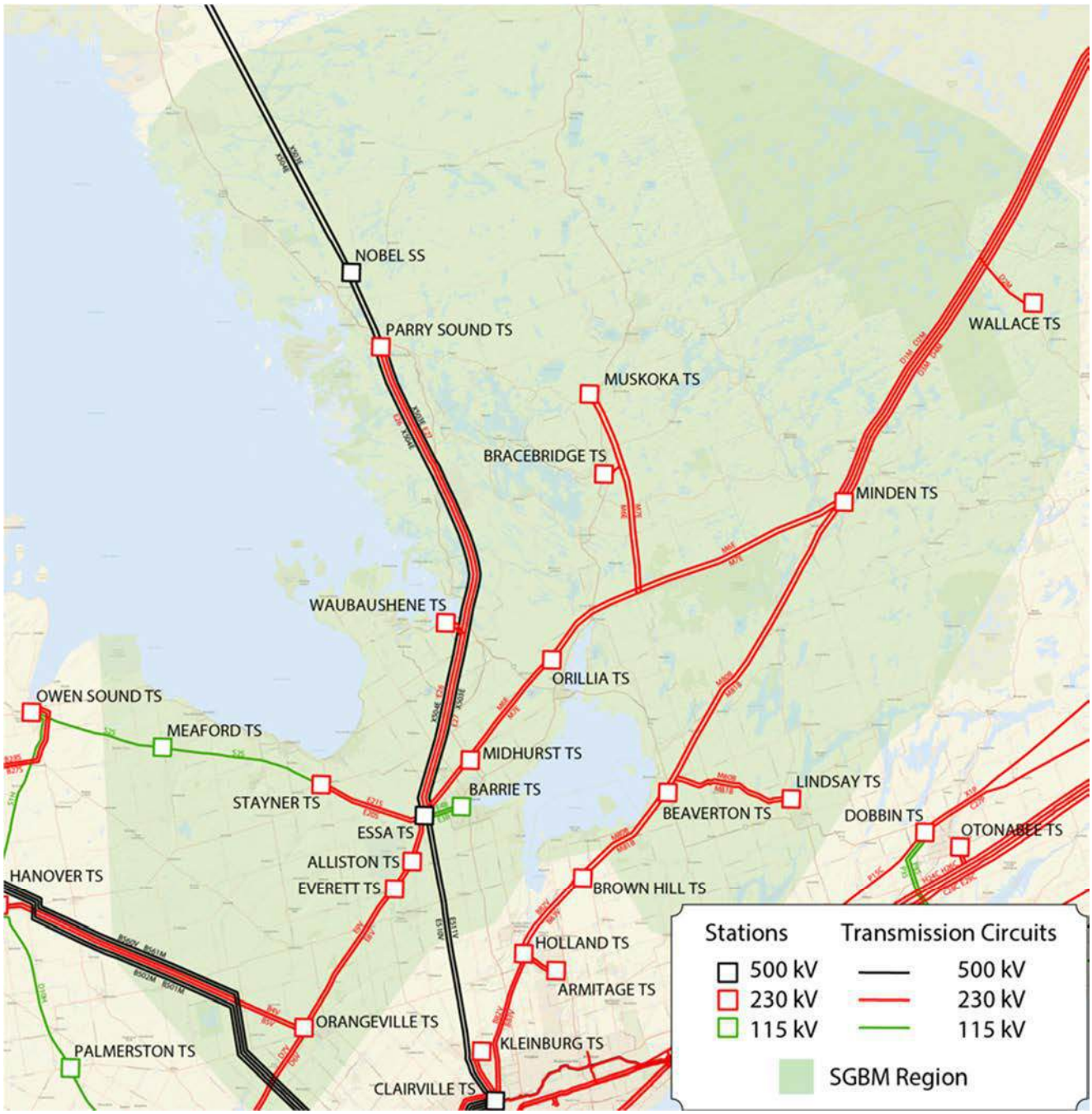
1.1 South Georgian Bay/Muskoka Region (SGBM Region)

The South Georgian Bay/Muskoka Region, shown in Figure B-1, roughly comprises the City of Barrie, the Districts of Muskoka and Parry Sound, the region of Durham and the Counties of Grey, Dufferin, Haliburton and Simcoe.

Indigenous communities that may be potentially impacted or may have an interest based on treaty territory, traditional territory, or traditional land uses, include:

- Alderville First Nation
- Chippewas of Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Curve Lake First Nation
- Haudenosaunee Confederacy Chiefs Council c/o Haudenosaunee Development Institute
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation
- Mississaugas of Credit First Nation
- Six Nations of the Grand River
- Metis Nation of Ontario

Figure B-1 | SGBM Region Electricity Infrastructure



1.2 Background

In August 2025, Hydro One completed the South Georgian Bay/Muskoka Needs Assessment Report for the SGBM Region. Several needs were identified, and a Scoping Assessment was subsequently commenced to determine the preferred planning approach. An IRRP was recommended on the basis of the need to reassess the anticipated load growth, the potential

for diverse types of solutions (including wires and non wires), and the possible effects of bulk-level power flow constraints, particularly along the North/South and CLAN/CLAS interfaces.

2. Objectives

1. To assess the adequacy of electricity supply to customers in the South Georgian Bay Muskoka (SGBM) Region over the next 20 years.
2. To address customer-driven electricity needs by developing a flexible, comprehensive, integrated electricity plan for the SGBM Region.
3. To develop an implementation plan, while maintaining flexibility in order to accommodate changes in key assumptions over time.

3. Scope

Needs to be Addressed

The IRRP will develop and recommend an integrated plan to meet the needs of SGBM Region. The plan is a joint initiative involving the IESO, Hydro One Distribution, and Hydro One Transmission, Alectra, InnPower, Orangeville Hydro, Elexicon Energy, Lakeland Power, EPCOR Electricity Distribution, Newmarket-Tai Power Distribution, and Wasaga Distribution. As well, the plan will account for input from the community through engagement activities. The plan will integrate the electricity demand outlook scenarios, DSM, DER uptake, transmission and distribution system capabilities, and align with relevant community plans, bulk system developments, and policy direction as applicable.

The SGBM Region IRRP will:

- Prepare a 20-year electricity demand forecast for the Region's stations and establish needs over this timeframe.
- Examine the Load Meeting Capability and reliability of the existing transmission system supplying the SGMB Region, taking into account system reinforcements committed during the last planning cycle, facility ratings and performance of transmission elements, transformers, local generation, and other facilities such as reactive power devices.
- Establish feasible integrated alternatives to address remaining needs, considering a mix of DSM, generation, transmission and distribution facilities, and other electricity system initiatives in order to address the needs of the SGBM Region.
- Evaluate options using decision-making criteria including but not limited to: technical feasibility, economics, reliability performance, environmental and social factors.

The SGBM Region IRRP includes the following needs, that were identified in the Needs Assessment as requiring coordination:

Table B-1 | Needs Identified in the Needs Assessment as Requiring Coordination

Need #	Location of Need	Need Type	Need Description
1	M6E/M7E	Supply Capacity	Supply Capacity need identified on (Essa x Midhurst, Minden x Coopers Fls JCT). Further coordination is required to reaffirm need, solution and timing.
2	Alliston T3/T4	Station Capacity	Alliston TS (T3/T4) is a 230-44kV 83MVA transformer station and will exceed its normal supply capacity within the study period. Further coordination is required to reaffirm need, solution and timing.
3	Everett T1/T2	Station Capacity	Everett TS (T3/T4) is a 230-44 kV 83 MVA transformer station and will exceed its normal supply capacity within the study period. Further coordination is required to reaffirm need, solution and timing.
4	Midhurst T1/T2, T3/T4	Station Capacity	Midhurst TS (T1/T2) and (T3/T4) are 230-44kV 125 MVA transformer stations and will both exceed their normal supply capacity within the study period. Further coordination is required to reaffirm need, solution and timing.
5	Claireville Area North and Flow North	Bulk System Considerations	Operational issues identified, will be studied in Bulk System Plan

In addition to the needs described in Table B-1, the Needs Assessment identified future loading issues at Lindsay TS, Muskoka TS, and Wallace TS, that would occur in high load growth scenarios. The IRRP will reassess these needs with updated load forecasts, DER and DSM considerations.

Other identified needs in the Needs Assessment not listed in Table B-1 above will proceed with Local Planning or Regional Infrastructure Planning as appropriate. Hydro One will keep the Working Group informed on project development.

4. Data and Assumptions

The plan will consider the following data and assumptions:

- Demand Data
  - Historical coincident and non-coincident peak demand information and trends for the region
  - Historical weather correction, for median and extreme conditions
  - Gross peak demand forecast scenarios by TS, etc.
  - Coincident peak demand data

    - Identified potential future load customers, including transit expansions, electrification of personal vehicles, space heating/cooling, water heating, and other end-uses due to provincial and local GHG emissions reduction policies and targets

- Conservation and Demand Management
    - LDC DSM plans
    - Incorporation of verified LDC results and other DSM programs/opportunities in the area
    - Long-term conservation forecast for LDC customers, based on region's share of the provincial target found in the DSM Framework
    - Conservation potential studies, if available
    - Potential for DSM at transmission-connected customers' facilities, if applicable
    - Load segmentation data for each TS based on customer type (residential, commercial, institutional, industrial)
    - Local building codes, energy performance requirements, etc.

- Local resources
    - Existing local generation resources, including distributed energy resources (DER), district energy resources, customer-based generation, as applicable
    - Existing or committed renewable generation from Feed-in-Tariff (FIT) and non-FIT procurements
    - Expected performance/dependability/output of local generation resources coincident with the local peak demand period
    - Future district energy plans, combined heat and power, energy storage, or other generation proposals, including requirements for on-site back-up and emergency generation

- Relevant local and provincial plans and studies, as applicable
    - LDC Distribution System Plans
    - Community Energy Plans and Municipal Energy Plans
    - Municipal policies with an impact on electricity usage
    - Municipal Growth Plans
    - Future transit plans impacting electricity use, including personal vehicle electrification, transit expansion, and transit electrification
    - Pathways to Decarbonization and Powering Ontario's Growth reports

- Criteria, codes and other requirements
    - Ontario Resource and Transmission Assessment Criteria (ORTAC)
        - Supply capability
        - Load security
        - Load restoration requirements o
    - NERC Reliability Standards and NPCC Reliability Criteria and Directories, as applicable

    - OEB Transmission System Code o OEB Distribution System Code
    - Reliability considerations, such as the frequency and duration of interruptions to transmission delivery points
    - Other applicable requirements, including municipal requirements

- Existing system capability
    - Transmission line ratings as per transmitter records
    - System Limits as modelled, defined and determined by the IESO and incorporated into the IESO Power Flow base cases
    - Transformer station ratings (10-day LTR) as per asset owner
    - Load transfer capabilities
    - Technical and operating characteristics of local generation

- Asset renewal considerations/sustainment plans
    - Transmission assets
    - Distribution assets, as applicable

- Other considerations, as applicable

5. Technical Working Group

The IRRP Technical Working Group will consist of planning representatives from the following organizations:

- Independent Electricity System Operator (IESO), IRRP lead
- Hydro One Networks Inc. (Transmission), lead transmitter
- Alectra Utilities Corporation (Alectra)
- Hydro One Networks Inc. (Distribution)
- Newmarket-Tay Power Distribution Ltd (NT Power)
- InnPower
- Orangeville Hydro
- Elexicon Energy
- Lakeland Power
- EPCOR Electricity Distribution Ontario Inc. (EPCOR)
- Wasaga Distribution Inc.

Authority and Funding

Each entity involved in the study will be responsible for complying with regulatory requirements as applicable to the actions/tasks assigned to that entity under the implementation plan resulting from this IRRP. For the duration of the study process, each participant is responsible for their own funding.

6. Engagement

Integrating early and sustained engagement with communities and stakeholders in the planning process was recommended and adopted by the provincial government to enhance the regional planning and siting processes in 2013. These recommendations were subsequently referenced in the 2013 Long Term Energy Plan. As such, the Technical Working Group is committed to conducting plan-level engagement throughout the development of the SGBM Region IRRP.

The first step in engagement will consist of the development of a public engagement plan, which will be made available for comment before it is finalized. The data and assumptions as outlined in Section 5 will help to inform the scope of community and stakeholder engagement to be considered for this IRRP.

7. Activities, Timeline, and Primary Accountability

Table B-2 | IRRP Timelines & Activities

Activity	Lead Responsibility	Deliverable(s)	Timeframe
1. Prepare Terms of Reference considering stakeholder input	IESO	Finalized Terms of Reference	October 2025
2. Develop the planning forecast scenarios for the SGBM region		Long-term planning forecast scenarios	Q4 2025 – Q1 2026
Establish historical coincident and non-coincident peak demand information	IESO		
Establish historical weather correction, median and extreme conditions	IESO		
Establish gross peak demand forecast for High, Reference, and Low scenarios, for Summer and Winter seasons	LDCs		
Establish existing, committed, and potential DER	IESO, LDCs		
Establish near- and long-term conservation forecast based on planned energy efficiency activities and codes and standards	IESO		
Develop planning forecast scenarios for sensitivity analyses	IESO		
3. Confirm load transfer capabilities under normal and emergency conditions	LDCs	Load transfer capabilities under normal and emergency conditions	Q1 – Q2 2026

Activity	Lead Responsibility	Deliverable(s)	Timeframe
4. Provide and review relevant community plans, if applicable	LDCs, communities, stakeholders, and IESO	Relevant community plans	Q1 – Q2 2026
5. Complete system studies to identify needs over a 20-year time horizon • Obtain DSA / PSS/E base case • Apply reliability criteria as defined in ORTAC and other applicable criteria to demand forecast scenarios • Confirm and refine the need(s) and timing/load levels	IESO	Summary of needs based on demand forecast scenarios for the 20-year planning horizon	Q2 – Q3 2026
6. Develop options and alternatives		Develop flexible planning options for forecast scenarios	Q2 – Q3 2026
Conduct a screening to identify which wires and non-wires options warrant further analysis	IESO		
Verify the load meeting capability (LMC) of the system to better determine timing of needs and support options development	IESO		
Develop screened-in energy efficiency options	IESO and LDCs		
Develop screened-in local generation/demand management options, with consideration for previous LAPS findings	IESO and LDCs		
Confirm the transmission and distribution alternatives: advancement of EOL transformer replacement plans and/or load transfers	IESO, Hydro One Transmission, and LDCs		
Develop portfolios of integrated alternatives	IESO, Hydro One Transmission, and LDCs		

Activity	Lead Responsibility	Deliverable(s)	Timeframe
Technical comparison and evaluation	IESO, Hydro One Transmission, and LDCs		
7. Plan and undertake community & stakeholder engagement		• Community and Stakeholder Engagement Plan • Input from local communities, First Nation communities, and Métis Nation of Ontario	Ongoing as required
Early engagement including with local municipalities and First Nation communities within study area, First Nation communities who may have an interest in the study area, and the Métis Nation of Ontario	IESO, Hydro One Transmission, and LDCs		
Develop communications materials	IESO, Hydro One Transmission, and LDCs		
Undertake community and stakeholder engagement	IESO, Hydro One Transmission, and LDCs		
Summarize input and incorporate feedback	IESO, Hydro One Transmission, and LDCs		
8. Develop recommendations and implementation plan based on community and stakeholder input	IESO	• Implementation plan • Monitoring activities and identification of decision triggers • Procedures for annual review	Q3 – Q4 2026
9. Prepare the IRRP report detailing the recommended near, medium, and long-term plan for approval by all parties	IESO	IRRP report	December 2026

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APPENDIX C: SCOPING ASSESSMENT OUTCOME REPORT

NEEDS ASSESSMENT REPORT

South Georgian Bay - Muskoka

Date: August 27, 2025

Needs Assessment Report

South Georgian Bay - Muskoka

August 27, 2025

Lead Transmitter:

Hydro One Networks Inc.

Prepared by:

Prepared by: South Georgian Bay-Muskoka Technical Working Group

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Disclaimer

This Needs Assessment (NA) Report was prepared for the purpose of identifying potential needs in the South Georgian Bay - Muskoka and to recommend which needs a) do not require further regional coordination and can be directly addressed by developing a preferred plan as part of the NA phase and b) require further assessment and regional coordination. The results reported in this NA are based on the input and information provided by the Technical Working Group (TWG) for this region. Updates may be made based on the best available information throughout the planning process.

The TWG participants, their respective affiliated organizations, and Hydro One Networks Inc. (collectively, "the Authors") shall not, under any circumstances whatsoever, be liable to each other, to any third party for whom the Needs Assessment Report was prepared ("the Intended Third Parties") or to any other third party reading or receiving the Needs Assessment Report ("the Other Third Parties"). The Authors, Intended Third Parties and Other Third Parties acknowledge and agree that: (a) the Authors make no representations or warranties (express, implied, statutory or otherwise) as to this document or its contents, including, without limitation, the accuracy or completeness of the information therein; (b) the Authors, Intended Third Parties and Other Third Parties and their respective employees, directors and agents (the "Representatives") shall be responsible for their respective use of the document and any conclusions derived from its contents; (c) and the Authors will not be liable for any damages resulting from or in any way related to the reliance on, acceptance or use of the document or its contents by the Authors, Intended Third Parties or Other Third Parties or their respective Representatives.

Executive Summary

REGION **South Georgian Bay - Muskoka** Region (the "Region")

LEAD Hydro One Networks Inc. ("HONI")

START DATE: April 29, 2025 **END DATE:** August 27, 2025

The second Regional Planning cycle for the **South Georgian Bay - Muskoka** Region was completed December 6, 2022 with the publication of the Regional Infrastructure Plan ("RIP") report - South Georgian Bay-Muskoka Regional Infrastructure Plan (RIP).

In accordance with the Regional Planning process, the Regional Planning cycle should be triggered at least once every five years. Considering these timelines, the 3rd Regional Planning cycle was triggered in **April 2025** for this Region. The planning horizon for this Needs Assessment ("NA") is ten years. A 20-year planning assessment is undertaken in the next phase of regional planning, i.e., IRRP and RIP phases.

The purpose and scope of the NA is to:

a) Identify any new needs and reaffirm needs identified in the previous regional planning cycle; and,
b) Recommend which needs:
   i) require further assessment and regional coordination to develop a preferred plan (and hence, proceed to the next phases of regional planning); and,
   ii) do not require further regional coordination (i.e., can be addressed directly between Hydro One and the impacted LDC(s) to develop a preferred plan and/or no regional investment is required at this time and the need may be reviewed during the next regional planning cycle).

The Technical Working Group (TWG) comprises of representatives from Local Distribution Companies ("LDC"), the Independent Electricity System Operator ("IESO"), and Hydro One Transmission. They provide input and relevant information for the region and undertake a technical assessment to identify the electrical infrastructure needs in the region. They collaborate to develop both summer and winter gross and net peak electricity demand forecasts (including input from municipalities), which form the basis for the technical assessment. The following are key considerations of the technical assessment:

a) Current and future station capacity and transmission adequacy.
b) System reliability needs and operational concerns.
c) Major HV transmission equipment requiring replacement with consideration to "right-sizing"; and,
d) Sensitivity analysis to capture uncertainty in the load forecast as well as variability of demand drivers such as electrification.

In this Needs Assessment, TWG has identified the following regional needs and recommendations:

Needs that require further regional coordination.

#	Need Location	Need Description
1	M6E/M7E (Supply Capacity)	Supply Capacity need identified on (Essa x Midhurst, Minden x Coopers Fls JCT). Further coordination is required to reaffirm need, solution and timing.
2	Alliston T3/T4 (Supply Capacity)	Alliston TS (T3/T4) is a 230-44kV 83MVA transformer station and will exceed its normal supply capacity within the study period. Further coordination is required to reaffirm need, solution and timing.
3	Everett T1/T2 (Supply Capacity)	Everett TS (T3/T4) is a 230-44kV 83MVA transformer station and will exceed its normal supply capacity within the study period. Further coordination is required to reaffirm need, solution and timing.
4	Midhurst T1/T2, T3/T4 (Supply Capacity)	Midhurst TS (T1/T2) and (T3/T4) are 230-44kV 125MVA transformer stations and will both exceed their normal supply capacity within the study period. Further coordination is required to reaffirm need, solution and timing.
5	Claireville Area North and Flow North	Operational issues identified, will be studied in Bulk System Plan

Needs that do not require further regional coordination.

#	Need Location	Need Description
6	E8V/E9V (Asset Renewal + Supply Capacity)	Essa TS x Orangeville TS line section will be upgraded as per Ministry of Energy's – Energy for Generations report. This upgrade planned for 2029 will resolve supply capacity needs identified on section (Essa x Alliston JCT) and asset renewal needs. Further coordination is not required.

List of LDC(s) to be involved in further regional planning phases:

- Alectra Utilities Corporation (Alectra)
- Hydro One Distribution
- InnPower
- Orangeville Hydro
- Elexicon Energy
- Lakeland Power
- EPCOR Electricity Distribution Ontario Inc
- NT Power Distribution
- Wasaga Distribution Inc.

List of LDC(s) which are not required to be involved in further regional planning phases:

- n/a

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1. INTRODUCTION

The second cycle of the Regional Planning process for the South Georgian Bay - Muskoka Region was completed in December 2022 with the publication of the South Georgian Bay-Muskoka Regional Infrastructure Plan (RIP). The RIP report included a common discussion of all the options and recommended plans for preferred wire infrastructure investments to address the near- and medium-term needs.

This Needs Assessment initiates the third regional planning cycle for the South Georgian Bay - Muskoka Region. The purpose of this Needs Assessment ("NA") is to:

a) Identify any new needs and reaffirm needs identified in the previous regional planning cycle; and,
b) Recommend which needs:
   i) require further assessment and regional coordination to develop a preferred plan (and hence, proceed to the next phases of regional planning); and,
   ii) do not require further regional coordination (i.e., can be addressed directly between Hydro One and the impacted LDC(s) to develop a preferred plan and/or no regional investment is required at this time and the need may be reviewed during the next regional planning cycle).

The planning horizon for this NA assessment is ten years. A flow chart of the Regional Planning Process is shown in Figure 1 below.

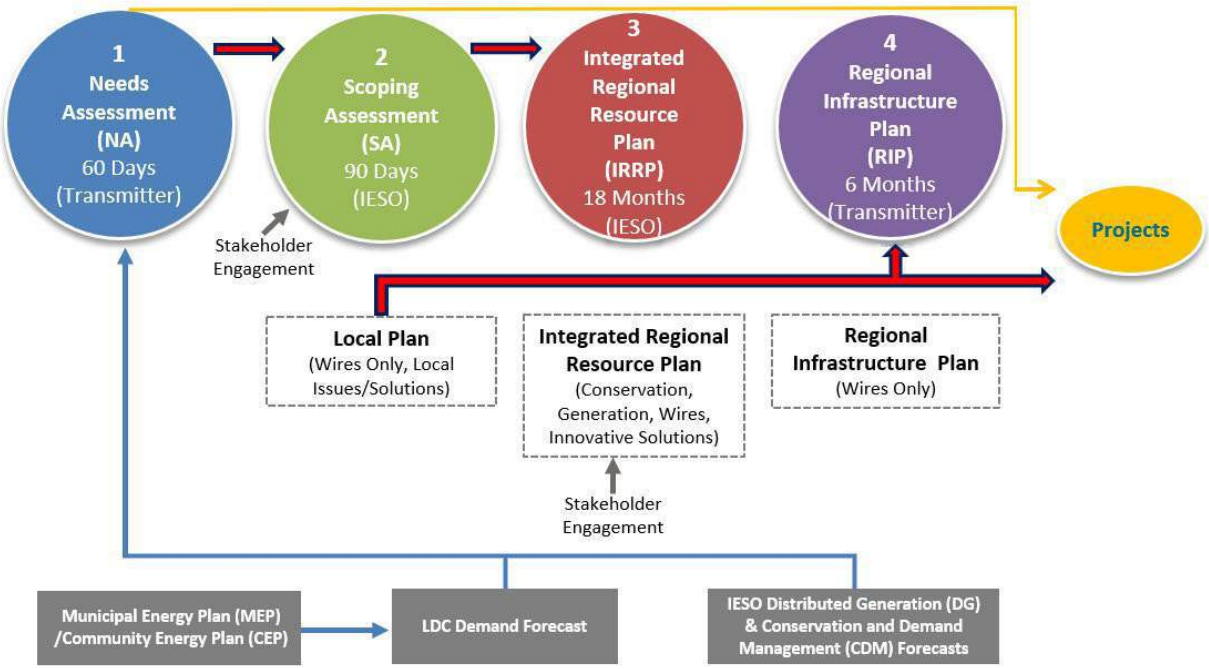

Figure 1: Regional Planning Process

This report was prepared by the South Georgian Bay - Muskoka Technical Working Group("TWG"), led by Hydro One Networks Inc. The report presents the results of the assessment based on information provided by the Hydro One, the Local Distribution Companies ("LDC") and the Independent Electricity System Operator ("IESO"). Participants of the TWG are listed below in Table 1.

Table 1: South Georgian Bay - Muskoka Region TWG Participants

Sr. no.	Name of TWG Participants
1	Independent Electricity System Operator (IESO)
2	Alectra Utilities Corporation (Alectra)
3	Hydro One Networks Inc. (Transmission & Distribution)
4	InnPower
5	Orangeville Hydro
6	Elexicon Energy
7	Lakeland Power
8	EPCOR Electricity Distribution Ontario Inc
9	NT Power Distribution
10	Wasaga Distribution Inc.

2. REGIONAL ISSUE/TRIGGER

In accordance with the Regional Planning process, the Regional Planning cycle should be triggered at least once every five years. As such, the 3rd Regional Planning cycle was triggered for the South Georgian Bay - Muskoka region.

3. SCOPE OF NEEDS ASSESSMENT

The scope of this NA covers the South Georgian Bay - Muskoka region and includes:

- Review and reaffirm needs/plans identified in the previous cycle RIP (as applicable),
- Identify any new needs resulting from this assessment,
- Recommend which need(s) require further assessment and regional coordination in the next phase of the regional planning cycle to develop a preferred plan; and,
- Recommend which needs do not require further regional coordination (i.e., can be addressed directly between Hydro One and the impacted LDC(s) to develop a preferred plan and/or no regional investment is required at this time and the need may be reviewed during the next regional planning cycle).

The Technical Working Group TWG may also identify additional needs during the next phases of the planning process, namely Scoping Assessment ("SA"), Integrated Regional Resource Plan ("IRRP"), Local plan (LP) and RIP, based on updated information available at that time.

The planning horizon for this NA assessment is 10 years.

4. REGIONAL DESCRIPTION AND CONNECTION CONFIGURATION

Electrical supply to the South Georgian Bay-Muskoka region is provided through two (2) 500/230kV auto-transformers at Essa TS, the 230kV transmission lines connecting Minden TS to Des Joachims TS, the 230kV circuits E8V and E9V coming from Orangeville TS, and the single 115kV circuit S2S connecting to Owen Sound TS. There are sixteen (16) Hydro One step-down transformer stations in the region, most of which are supplied by circuits radiating out from Essa TS, and the majority of the distribution system is at 44kV, except for Orangeville TS which has 27.6kV and 44kV feeders.

The geographical boundaries of the South Georgian Bay - Muskoka region is shown in Figure 2 below.

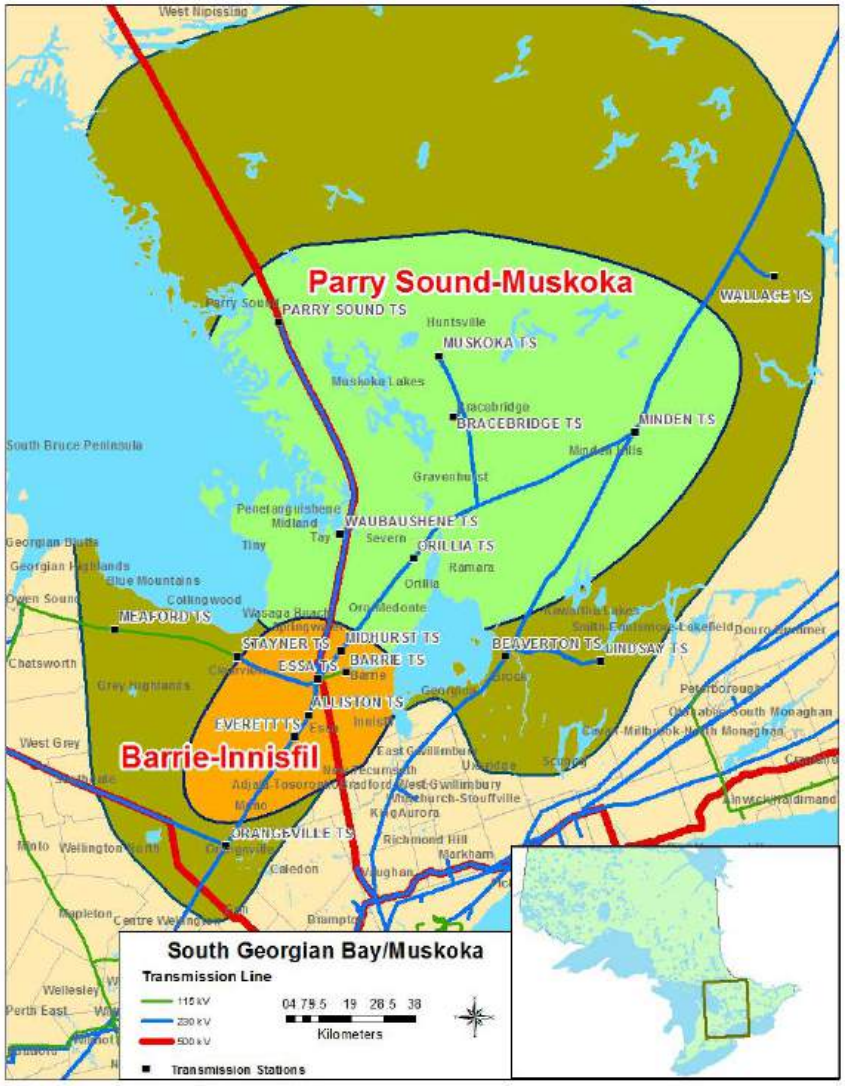

Figure 2: Map of South Georgian Bay - Muskoka Regional Planning Area

The circuits and stations of the area are summarized in the Table 2 below:

Table 2: Transmission Station and Circuits in the South Georgian Bay - Muskoka Region

115kV circuits	230kV circuits	Hydro One Transformer Stations		Generation Stations
S2S	D1M / D2M D3M / D4M E8V / E9V E20S / E21S E26 / E27 E28 / E29 M6E / M7E M80B / M81B	Alliston TS Barrie TS Beaverton TS Bracebridge TS Essa TS * Everett TS Lindsay TS Meaford TS Midhurst TS	Minden TS Muskoka TS Orangeville TS Orillia TS Parry Sound TS Stayner TS* Wallace TS Waubaushene TS	Henvey Inlet North /South) 700MW

*Stations with Autotransformers installed

The single line diagram of the Transmission Network of South Georgian Bay - Muskoka region is shown in Figure 3 below.

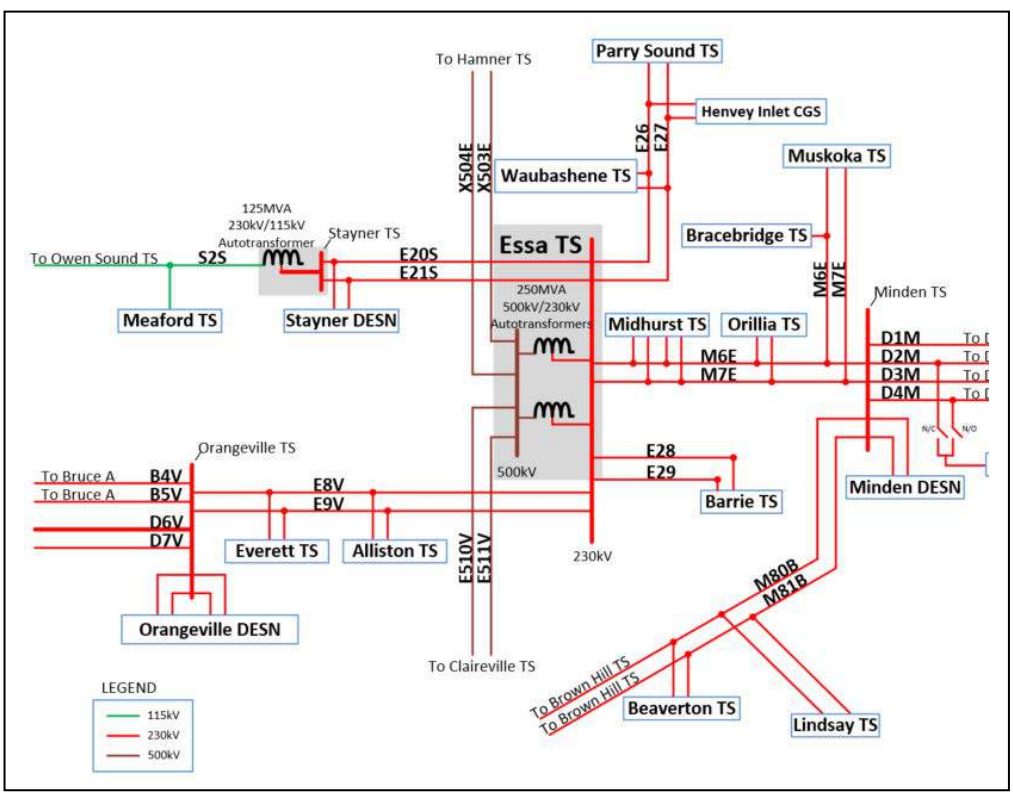

Figure 3: South Georgian Bay - Muskoka Transmission Single Line Diagram

5. INPUTS AND DATA

TWG participants, including representatives from LDCs, IESO, and Hydro One provided information and input for the **South Georgian Bay - Muskoka** NA. With respect to the load forecast information, the OEB Regional Planning Process Advisory Group (RPPAG) recently published a document called "Load Forecast Guideline for Ontario" in Oct. 2022. The objective of this document is to provide guidance to the TWG in the development of the load forecasts used in the various phases of the regional planning process with a focus on the NA and the IRRP. One of the inputs into the LDC's load forecast that is called for in this guideline is information from Municipal Energy Plans (MEP) and/or Community Energy Plans (CEP). The list of all the Municipalities falling under the geographical boundaries of the region are given in Appendix-E.

The information provided includes the following:

- **South Georgian Bay - Muskoka** 10-year summer and winter Load Forecasts for all supply stations inclusive of the inputs provided by the municipalities (e.g. through their MEPs & CEPs).
- Known capacity and reliability needs, operating issues, and/or major assets requiring replacement/ refurbishment; and
- Planned/foreseen transmission and distribution investments that are relevant to Regional Planning for the **South Georgian Bay - Muskoka**.
- Captured uncertainty in the load forecast as well as variability of electric demand drivers to identify any emerging needs and/or advancement or deferment of recommended investments

6. ASSESSMENT METHODOLOGY

The following methodology and assumptions are made in development of this Needs Assessment:

6.1 Technical Assessments and Study Assumptions

The technical assessment of needs was undertaken based on:

- Current and future station capacity and transmission adequacy.
- System reliability and operational considerations.
- Asset renewal for major high voltage transmission equipment requiring replacement with consideration to "right-sizing"; and,
- Load forecast data was requested from industrial customers in the region, and
- This assessment is based on both summer and winter peak loads. Three load forecasts were developed i.e. Normal Growth scenario, High and Low Growth scenarios. The High and Low Growth scenario was developed to conduct a sensitivity analysis to cover unforeseen

developments such as fuel switching, Government policies, higher than expected EV charging trend during peak load conditions, etc.

- Consideration of existing or planned distributed energy resources

The following other assumptions are made in this report.

- The study period for this Needs Assessment is 2024-2034.
- The Region is marginally winter peaking; however, the assessment was done on both summer and winter peak loads due to summer equipment ratings being lower.
- Network line and auto-transformation capacity adequacy is assessed by using coincidence peak loads in the area.
- Load-serving station and radial line capacity adequacy is assessed by comparing the non-coincident peak load with the station's normal planning supply capacity, assuming a 90% lagging power factor for stations having no low-voltage capacitor banks and 95% lagging power factor for stations having low-voltage capacitor banks.
- Normal planning supply capacity for Hydro One transformer stations is determined by the seasonal 10-Day Limited Time Rating (LTR) of a single transformer at that station.
- Normal planning supply capacity for LDC transformer stations is in accordance with LDC methodology.
- Adequacy assessment is conducted as per Ontario Resource Transmission Assessment Criteria (ORTAC).
- Transmission-connected Resources (e.g. Generators) were set to historical generation output of 98% and 85% availability for the seasons under study, information provided by the IESO.

6.2 Information Gathering Process

6.2.1. Load forecast:

The LDCs provided their load forecasts for summer and winter for all the stations supplying their loads in the South Georgian Bay - Muskoka region for the 10-year study period including the inputs from the Municipalities such as MEPs and CEPs. The IESO provided a Conservation and Demand Management ("CDM") and Distributed Generation ("DG") forecast for the South Georgian Bay - Muskoka region. The region's extreme summer/winter non-coincident peak gross load forecasts for each station were prepared by applying the LDC load forecast growth rates to the actual 2024 summer peak extreme weather corrected loads. The extreme summer/winter weather correction factors were provided by Hydro One. The net extreme summer weather forecasts were produced by reducing the gross load forecasts for each station by the percentage CDM and then by the amount of effective DG capacity provided by the IESO for that station. It is to be noted that as contracts for existing DG resources in the region begin to expire, at which point the load forecast has a decreasing contribution from local DG resources, and an increase in net demand. This

extreme summer/winter weather corrected net load forecast for the individual stations in the South Georgian Bay - Muskoka region is given in Appendix A.

6.2.2. Sensitivity Analysis:

A sensitivity analysis was undertaken by the TWG to capture uncertainty in the load forecast as well as variability of drivers such as electrification. Hence, the NA recommendations are not necessarily linked to sensitivity scenarios; but rather these scenarios are used to identify any emerging needs for consideration in developing recommendations. The impact of sensitivity analysis for the high and low growth scenarios are provided in section 8 of this report.

6.2.3. Asset Renewal Needs for Major HV Equipment:

List of major HV transmission equipment planned and/or identified to be refurbished and/or replaced based on asset condition assessment, relevant for Regional Planning purposes. This includes HV transformers, autotransformers, HV Breakers, HV underground cables and overhead lines. The scope of equipment considered is given in section 7.1.

6.2.4. System Reliability and Operational Issues:

Relevant information regarding system reliability and operational issues in the region as feedback provided by the IESO and Hydro One operation teams during the NA phase.

7. NEEDS

This section describes emerging new needs identified in the South Georgian Bay - Muskoka Region and/or updates on previously identified needs since the completion of Previous Regional Planning (RP) cycle.

Needs that were identified in the previous regional planning cycle with associated projects that were recently completed and reaffirmed needs that are underway are briefly described below with relevant updates and will not be discussed further in this report.

1. **Everett TS Station Capacity** - CT ratio of the low voltage transformer breaker CTs were modified in 2024. However, additional capacity needs are identified and will be studied in this cycle.
2. **Barrie TS Station Capacity** - Construct new 230/27.6kV 83MVA Innpower MTS and extend 230kV E28B/E29B circuits to connect. The planned in-service year is 2029.
3. **Waubaushene TS Station Capacity** – Replacing and upgrading existing 230/44kV 83MVA T5/T6 transformers with 125MVA units. The planned in-service year is 2028.
4. **M6E/M7E (Orillia TS x Coopers FLS JCT) Asset Replacement** – Updated condition assessments have confirmed that the conductor and key components remain in acceptable asset condition, as a result, this need has been postponed beyond the study period of this RP cycle. A new capacity need, however, has been identified and will be studied in this RP cycle.
5. **E8V/E9V (Orangeville TS x Essa JCT) Asset Replacement** – Updated condition assessments have confirmed that the conductor and key components remain in acceptable asset condition, as a result, this need was postponed to 2035 i.e., beyond the study period of this RP cycle. However, IESO has identified a capacity need via the Central & South Bulk study and System Impact Assessments, which will be discussed in this RP cycle.
6. **D1M/D2M (Minden TS x Otter Creek JCT)** – Updated condition assessments have confirmed that the conductor and key components remain in acceptable asset condition, as a result, this need has been postponed beyond the study period of this RP cycle.
7. **Wallace TS Asset Replacement** – T3/T4 transformers will be replaced with like for like 230/44kV 42MVA standard step-down transformer. The planned in-service year is in 2034.
8. **Midhurst TS Asset Replacement** – T4 transformer will be replaced with like for like 230/44kV 125MVA standard step-down transformer. The planned in-service year is in 2034.
9. **Orillia TS Asset Replacement** – T2 transformer will be replaced with like for like 230/44kV 125MVA standard step-down transformer. The planned in-service year is in 2026.
10. **Bracebridge TS Asset Replacement** – T1 transformer will be replaced with like for like 230/44kV 83MVA standard step-down transformer. The planned in-service year is in 2026.
11. **Alliston TS Asset Replacement** – T3/T4 transformers will be replaced with like for like 230/44kV 83MVA standard step-down transformers. The planned in-service year is in 2040. However, a new capacity need has been identified and will be studied in this RP cycle.

Note: The planned in-service year for the above projects is tentative and is subject to change.

All near, and mid-term needs that are discussed as a part of this report are summarized in Table 3 below.

Table 3: Near/Mid-term Needs Identified in this NA and/or Updated from Previous RIP

Need Location	Need Description/Update	NA Report Section
Asset Renewal Needs		
No new Asset Renewal needs identified in this Regional Planning Cycle.		
Station Capacity Needs		
Alliston TS (T3/T4)	Projected to reach capacity in 2032	7.2.1
Everett TS (T1/T2)	Projected to reach capacity in 2030	7.2.2
Midhurst TS (T1/T2)	Projected to reach capacity in 2030	7.2.3
Midhurst TS (T3/T4)	Projected to reach capacity in 2029	7.2.4
Transmission Line Capacity Needs		
230kV M6E/M7E	Projected to reach capacity in mid-term	7.3.1
230kV E8V/E9V	Need identified by IESO in Central & South Bulk study and System Impact Assessments	7.3.2
System Reliability, Operation and Load restoration Needs		
Claireville Area North and Flow North	Operational issues identified, will be studied in the area Bulk System Plan	7.4

7.1 Asset Renewal Needs for Major HV Transmission Equipment

In addition to the previously identified asset renewal needs from the second regional planning cycle, Hydro One and the TWG identified new asset renewal needs for major HV transmission equipment over the next 10 years in the **South Georgian Bay - Muskoka** Region. They are listed in Table 4 below. Hydro One is the only Transmission Asset Owner (TAO) in the Region

Asset renewal needs are determined by asset condition assessment. Asset condition assessment is based on a range of considerations such as:

- Equipment deterioration due to aging infrastructure or other factors,
- Technical obsolescence due to outdated design,
- Lack of spare parts availability or manufacturer support, and/or
- Potential health and safety hazards, etc.

The major high voltage equipment information shared and discussed as part of this process is listed below:

- 230/115kV autotransformers
- 230 and 115kV load serving step down transformers
- 230 and 115kV breakers where:
  replacement of six breakers or more than 50% of station breakers, the lesser of the two
- 230 and 115kV transmission lines requiring refurbishment where:
  Leave to Construct (i.e., section 92) approval is required for any alternative to like-for-like
- 230 and 115kV underground cable requiring replacement where:
  Leave to Construct (i.e., section 92) approval is required for any alternative to like-for-like

The asset renewal assessment considers the following options for "right sizing" the equipment:

- Maintaining the status quo
- Replacing equipment with similar equipment with *lower* ratings and built to current standards
- Replacing equipment with similar equipment with *lower* ratings and built to current standards by transferring some load to other existing facilities
- Eliminating equipment by transferring all the load to other existing facilities
- Replacing equipment with similar equipment and built to current standards (i.e., "like-for-like" replacement)
- Replacing equipment with higher ratings and built to current standards

From Hydro One's perspective as a facility owner and operator of its transmission equipment, doing nothing is generally not an option for major HV equipment due to safety and reliability risk of equipment failure. This also results in increased maintenance costs and longer duration of customer outages.

Table 4: Major HV Transmission Assets Requiring Replacement in the SGB Muskoka Region

Station/Circuit	Need Description	Planned ISD
Orillia TS	T2 transformer will be replaced with new like for like 230/44kV 125MVA standard step-down transformers	2026
Bracebridge TS	T1 transformer will be replaced with new like for like 230/44kV 83MVA standard step-down transformers	2026
Wallace TS	T3/T4 transformers will be replaced with new like for like 230/44kV 42MVA standard step-down transformers	2034
Midhurst TS	T4 transformer will be replaced with new like for like 230/44kV 125MVA standard step-down transformers	2034

7.1.1 E8V/E9V (Orangeville TS x Essa JCT)

This double circuit 230kV transmission line was in-serviced in 1950. Based on asset condition assessment, this line section requires conductor refurbishment at the end of the study period (2035) to ensure supply reliability and safety is maintained. In conjunction with the existing asset renewal need, these circuits were identified to have a capacity need via the Central & South Bulk study and System Impact Assessments by IESO and recently announced in the *Energy For Generations*[1] report issued by the Ministry of Energy and Mines (June 2025) as a key investment to facilitate growth in the province and strengthen the north-south electricity corridor (more information in section 7.3.2). The in-service date requested in the report precedes the asset renewal upgrade timeline and the upgrade will naturally replace existing components installed on the line. It is recommended this need requires further coordination. The expected in-service date is 2029.

7.2 Station Capacity Needs

A Station Capacity assessment was performed over the study period 2024-2034 for the 230kV and 115kV Transforming stations in the **South Georgian Bay - Muskoka** Region using the summer and winter peak load forecasts that were provided by the Technical Working Group. Based on the results, the following Station capacity needs have been identified during the study period:

7.2.1 Alliston TS (T3/T4)

Alliston TS (T3/T4) is a 230-44kV 50-83MVA Step Down transformer station supplied by the E8V/E9V circuits. This station presently has a summer 10-day LTR of 100MW and will exceed its normal supply capacity in 2032 based on the summer demand forecast.

Previous regional planning cycle identified these transformers would be replaced in 2030, however Hydro One has since revised its assessment on the condition of these units and delayed the replacement outside of the study period to 2040.

It is recommended the capacity need be assessed and reaffirmed in the next phase of this regional planning cycle.

7.2.2 Everett TS (T1/T2)

Everett TS (T1/T2) is a 230-44kV 50-83MVA Step Down transformer station supplied by the E8V/E9V circuits. This station presently has a 10-day LTR of 107MW (sum) and 115MW (win) and will exceed its normal supply capacity in 2030 and 2033 respectively.

As a result of the findings in the previous cycle RIP, Hydro One modified the CT ratio of the low voltage transformer breaker CTs to increase the station capacity. This was completed in 2024 and helped to defer

[1] https://www.ontario.ca/page/energy-generations

a capacity need identified in the previous cycle. Everett TS load forecast continues to grow and irrespective of the recent modifications, station capacity needs continue to exist within the study period.

It is recommended this need be assessed and reaffirmed in the next phase of this regional planning cycle.

7.2.3 Midhurst TS (T1/T2)

Midhurst TS (T1/T2) is a 230-44kV 75-125MVA Step Down transformer station supplied by the M6E/M7E circuits. This station presently has a 10-day LTR of 162MW (sum) and will exceed its normal supply capacity in 2030 based on the summer demand forecast.

It is recommended this need be assessed and reaffirmed in the next phase of this regional planning cycle.

7.2.4 Midhurst TS (T3/T4)

Midhurst TS (T3/T4) is a 230-44kV 75-125MVA Step Down transformer station supplied by the M6E/M7E circuits. This station presently has a 10-day LTR of 149MW (sum) and will exceed its normal supply capacity in 2029 based on the summer demand forecast.

It is recommended this need be assessed and reaffirmed in the next phase of this regional planning cycle.

7.3 Transmission Lines Capacity Needs

All line and equipment loads shall be within their continuous ratings with all elements in service and within their long-term emergency ratings with any one element out of service. Immediately following contingencies, lines may be loaded up to their short-term emergency ratings where control actions such as re-dispatch, switching, etc. are available to reduce the loading to the long-term emergency ratings. A Transmission Lines Capacity Assessment was performed over the study period 2025-2034 for the 230kV and 115kV Transmission line circuits in the South Georgian Bay - Muskoka Region by assessing thermal limits of the circuit and the voltage range as per ORTAC to cater this need. Based on the results, the following line capacity needs have been identified during the study period:

7.3.1 230kV - M6E/M7E

The M6E/M7E circuits are 230kV transmission lines forming a critical path between Essa TS and Minden TS. Two sections of this circuit (Essa x Midhurst) and (Coopers Fls JCT x Minden) both exceed their Long Term Emergency (LTE) supply capacity during the study period and will require mitigating solutions to allow for increased flow. These needs were also documented in the previous cycle of regional planning and the TWG recommended to continue to monitor loading. Flows on this path are heavily influenced by area load and generation both within and outside of the SGB-Muskoka region.

It is recommended this need to be further explored in the next phase of this regional planning cycle.

7.3.2 230 kV - E8V/E9V

E8V/E9V circuits are 230kV transmission lines forming a critical path between Essa TS and Orangeville TS. These circuits supply customer transformer stations, carry system flows, and are incorporated into the FETT (Flow East Toward Toronto) interface limits. Based on the coincident load forecast, the Essa TS x Alliston JCT line section will exceed its supply capacity during the study period and will require mitigating solutions to allow for increased flows. This finding incorporates a higher growth scenario with the prospect of large industrial connected loads to be connected on the circuits.

In conjunction with the identified capacity need, these circuits were recently announced in the *Energy For Generations*[2] report issued by the Ministry of Energy and Mines (June 2025) as a key investment to facilitate growth in the province and strengthen the north-south electricity corridor. Also based on asset condition assessment, this line section requires conductor refurbishment at the end of the study period (2035) to ensure supply reliability and safety is maintained.

This investment to upgrade these circuits is presently underway with an in-service date planned for 2029. This investment will address the supply capacity needs identified above, including asset replacement. No further regional coordination is required.

7.3.3 115kV Circuits

No Supply capacity needs on 115kV circuit were identified during the study period.

[2] https://www.ontario.ca/page/energy-generations

7.4 System Reliability, Operation and Restoration Needs

The transmission system must be planned to satisfy demand levels up to the extreme weather, median-economic forecast for an extended period with any one transmission element out of service.

Operational needs presented to the TWG consisted of two legacy concerns: Load restoration (M6E/M7E) and Long Term Emergency (LTE) overloading (M6E/M7E)

Load Restoration criteria continue to be respected in the region and were recently addressed by the installation of 230kV motorized in-line switches on the M6E/M7E circuits. Thermal overloading has also been reaffirmed in this Needs Assessment and will be further studied in future stages of regional planning.

Additional operational concerns on area interface limits on the CLAN (Claireville Area North) and FN (Flow North) limits were identified. The TWG acknowledges that increased flows in the overall area impact operational limits, however this will be further assessed in bulk area studies outside of regional planning.

Given the above needs have either already been identified or will be studied outside of this process, no other new significant system reliability, operating and restoring issues have been identified for this Region.

8. SENSITIVITY ANALYSIS

The objective of a sensitivity analysis is to capture uncertainty in the load forecast as well as variability of electric demand drivers to identify any emerging needs and/or advancement or deferment of recommended investments. The TWG determined that the key electric demand driver in the South Georgian Bay - Muskoka region to be considered in this sensitivity analysis is electric vehicle (EV) penetration and unforeseen electrification which would cause the load to increase at a faster rate than shown in the forecast; or the potential delay in some projects which could result in less demand than anticipated.

The TWG reviewed EV scenarios, and any unforeseen electrification needs to develop high demand growth forecasts by applying 50% additional growth to the growth rate on the extreme summer/winter corrected Normal Growth net load forecasts. The low growth scenario was obtained by reducing the growth rate by 50%.

Table 5: Impact of Sensitivity Analysis on Station/Line capacity Needs in the Region

		Summer Growth Scenario			Winter Growth Scenario		
Sr.no.	Need Identified	Low	Normal	High	Low	Normal	High
1	Alliston (T3/T4)	-	2032	2028	-	-	2033
2	Alliston (T2)	-	-	-	-	-	-
3	Barrie (T3/T4)	-	2031	2028	-	-	-
4	Beaverton (T3/T4)	-	-	-	-	-	-
5	Bracebridge (T1)	-	-	-	-	-	-
6	Everett (T1/T2)	-	2030	2027	-	2033	2029
7	Lindsay (T1/T2)	-	-	2034	-	-	2032
8	Meaford (T1/T2)	-	-	-	-	-	
9	Midhurst (T1/T2)	-	2030	2028	-	-	2032
10	Midhurst (T3/T4)	-	2029	2027	-	-	-
11	Minden (T1/T2)	-	-	-	-	-	-
12	Muskoka (T1/T2)	-	-	2030	-	-	2031
13	Orangeville (T1/T2)	-	-	2030	-	-	2034
14	Orangeville (T3/T4)	-	-	-	-	-	-
15	Orillia (T1/T2)	-	-	-	-	-	-
16	Parry Sound (T1/T2)	-	-	-	-	-	-
17	Stayner (T3/T4)	-	-	-	-	-	-
18	Wallace (T3/T4)	-	-	2029	-	-	2030
19	Waubashene (T5/T6)	2030	2028	2026	2034	2028	2028

The sensitivity analysis identified the additional capacity needs at the end of the study period. High growth scenario forecasts introduce additional supply capacity needs at Lindsay TS, Midhurst TS, Muskoka TS, and Wallace TS. These needs will be assessed again during the next phase of this Regional Planning cycle.

9. CONCLUSION AND RECOMMENDATION

The Technical Working Group's recommendations to address the needs identified are as follows:

Table 6: Needs that Require Further Regional Coordination

#	Need Location	Need Description
1	M6E/M7E (Supply Capacity)	Supply Capacity need identified on (Essa x Midhurst, Minden x Coopers Fls JCT). Further coordination is required to reaffirm need, solution and timing.
2	Alliston T3/T4 (Supply Capacity)	Alliston TS (T3/T4) is a 230-44kV 83MVA transformer station and will exceed its normal supply capacity within the study period. Further coordination is required to reaffirm need, solution and timing.
3	Everett T1/T2 (Supply Capacity)	Everett TS (T3/T4) is a 230-44kV 83MVA transformer station and will exceed its normal supply capacity within the study period. Further coordination is required to reaffirm need, solution and timing.
4	Midhurst T1/T2, T3/T4 (Supply Capacity)	Midhurst TS (T1/T2) and (T3/T4) are 230-44kV 125MVA transformer stations and will both exceed their normal supply capacity within the study period. Further coordination is required to reaffirm need, solution and timing.
5	Claireville Area North and Flow North	Operational issues identified, will be studied in Bulk System Plan

Table 7: Needs that Do Not Require Further Regional Coordination

#	Need Location	Need Description
6	E8V/E9V (Asset Renewal + Supply Capacity)	Essa TS x Orangeville TS line section will be upgraded as per Ministry of Energy's – Energy for Generations report. This upgrade planned for 2029 will resolve supply capacity need identified on section (Essa x Alliston JCT) and asset renewal needs. Further coordination is not required.

List of LDC(s) to be involved in further regional planning phases:

- Alectra Utilities Corporation (Alectra)
- Hydro One Distribution
- InnPower
- Orangeville Hydro
- Elexicon Energy
- Lakeland Power
- EPCOR Electricity Distribution Ontario Inc
- NT Power Distribution
- Wasaga Distribution Inc.

List of LDC(s) which are not required to be involved in further regional planning phases:

- n/a

10. REFERENCES

[1] Independent Electricity System Operator, Ontario Resource and Transmission Assessment Criteria (issue 5.0 August 22, 2007)

[2] Ontario Energy Board, Transmission System Code (issue July 14, 2000 rev. March 31, 2025)

[3] Ontario Energy Board, Distribution system Code (issue July 14, 2000 rev. August 14, 2025)

[4] Ontario Energy Board, Load Forecast Guideline for Ontario (issue October 13, 2022)

[5] Hydro One Networks Inc, South Georgian Bay-Muskoka Regional Infrastructure Plan (RIP) (issue December 22, 2022)

Appendix A: Extreme Summer/Winter Weather Adjusted Net Load Forecast

Table A.1:

South Georgian Bay - Muskoka Non-Coincident- Normal Growth Net Load Forecast (Sum) MW

Station	DESN ID	LTR (MVA)	LTR(MW)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Alliston TS	T2	83	75	40	38	39	51	61	60	59	59	58	58	57
Alliston TS	T3/T4	111	100	75	78	81	84	88	91	95	99	103	107	111
Barrie TS	T3/T4	179	170	87	110	120	131	138	146	162	177	189	200	210
Beaverton TS	T3/T4	203	193	72	59	60	61	63	64	68	70	71	73	75
Bracebridge TS	T1	83	75	35	38	39	39	39	40	40	41	41	42	42
Everett TS	T1/T2	119	107	82	85	90	95	100	106	113	120	127	134	142
Lindsay TS	T1/T2	169	161	76	68	71	74	77	80	89	93	97	101	106
Meaford TS	T1/T2	55	52	33	33	33	33	34	34	34	34	35	35	35
Midhurst TS	T1/T2	171	162	124	125	132	137	132	144	163	165	166	175	177
Midhurst TS	T3/T4	166	149	114	114	116	131	135	150	154	157	161	166	170
Minden TS	T1/T2	138	124	48	44	44	44	44	44	47	47	47	47	48
Muskoka TS	T1/T2	178	169	128	131	135	138	141	145	148	152	156	159	163
Orangeville TS	T1/T2	128	115	74	76	78	81	84	87	91	94	97	101	105
Orangeville TS	T3/T4	180	171	93	93	95	97	98	100	103	105	107	109	111
Orillia TS	T1/T2	162	154	102	87	88	90	91	93	109	111	112	114	116
Parry Sound TS	T1/T2	128	115	51	52	54	55	56	58	59	61	62	63	65
Stayner TS	T3/T4	191	181	128	126	126	126	126	127	128	128	129	129	130
Wallace TS	T3/T4	54	49	42	42	42	43	43	44	44	45	46	46	47
Waubaushene TS	T5/T6	99	94	97	89	92	94	96	98	105	108	110	113	116

Table A.2:

South Georgian Bay - Muskoka – Coincident – Normal Growth Net Load Forecast – (Sum) MW

Station	DESN ID	LTR (MVA)	LTR(MW)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Alliston TS	T2	83	75	22	38	39	51	61	60	59	59	58	58	57
Alliston TS	T3/T4	111	100	72	75	78	81	84	87	91	95	99	103	107
Barrie TS	T3/T4	179	170	65	67	70	73	77	80	84	88	92	96	101
Beaverton TS	T3/T4	203	193	70	57	58	59	61	62	66	67	69	71	73
Bracebridge TS	T1	83	75	29	29	29	29	30	30	30	31	31	31	32
Everett TS	T1/T2	119	107	77	80	85	89	94	100	106	112	119	126	134
Lindsay TS	T1/T2	169	161	66	57	60	63	66	69	77	80	84	87	91
Meaford TS	T1/T2	55	52	31	30	30	30	30	30	30	30	30	30	30
Midhurst TS	T1/T2	171	162	113	109	113	116	121	125	134	139	144	149	155
Midhurst TS	T3/T4	166	149	105	72	74	76	79	81	83	86	89	91	94
Minden TS	T1/T2	138	124	37	33	33	33	33	33	36	37	37	37	37
Muskoka TS	T1/T2	178	169	120	104	105	108	110	111	119	121	123	125	128
Orangeville TS	T1/T2	128	115	37	37	38	40	41	42	44	46	48	49	51
Orangeville TS	T3/T4	180	171	88	88	89	91	92	94	97	99	101	103	105
Orillia TS	T1/T2	162	154	95	79	81	82	84	85	101	103	104	106	108
Parry Sound TS	T1/T2	128	115	47	43	44	45	47	47	49	50	51	51	52
Stayner TS	T3/T4	191	181	125	123	123	123	123	123	125	125	125	126	127
Wallace TS	T3/T4	54	49	31	31	31	32	32	32	33	33	34	34	35
Waubaushene TS	T5/T6	99	94	96	88	90	92	94	97	104	106	109	112	114

Table A.3:

South Georgian Bay - Muskoka Region Non-Coincident–High Growth Net Load Forecast (Sum) MW

Station	DESN ID	LTR (MVA)	LTR(MW)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Alliston TS	T2	83	75	40	38	39	51	61	60	59	59	58	58	57
Alliston TS	T3/T4	111	100	75	81	87	94	102	110	118	128	138	149	161
Barrie TS	T3/T4	179	170	87	110	128	148	172	199	231	268	311	361	419
Beaverton TS	T3/T4	203	193	72	65	74	83	94	105	121	135	151	170	190
Bracebridge TS	T1	83	75	35	38	39	41	42	43	44	46	47	48	50
Everett TS	T1/T2	119	107	82	91	102	115	130	147	166	187	211	239	270
Lindsay TS	T1/T2	169	161	76	71	79	87	95	105	120	131	144	157	172
Meaford TS	T1/T2	55	52	33	33	34	35	35	36	37	37	38	39	40
Midhurst TS	T1/T2	171	162	124	134	145	156	169	182	197	212	229	248	268
Midhurst TS	T3/T4	166	149	114	125	138	151	167	183	202	222	244	268	295
Minden TS	T1/T2	138	124	48	44	45	45	45	46	50	50	51	51	52
Muskoka TS	T1/T2	178	169	128	135	141	148	155	162	170	178	187	196	205
Orangeville TS	T1/T2	128	115	74	79	85	92	99	107	115	125	134	145	157
Orangeville TS	T3/T4	180	171	93	96	101	105	110	116	122	128	135	141	148
Orillia TS	T1/T2	162	154	102	89	93	97	102	106	126	131	136	142	148
Parry Sound TS	T1/T2	128	115	51	54	57	59	62	65	69	72	76	80	83
Stayner TS	T3/T4	191	181	128	128	130	132	135	137	141	144	147	150	153
Wallace TS	T3/T4	54	49	42	43	44	46	47	49	51	52	54	56	58
Waubaushene TS	T5/T6	99	94	98	90	96	101	107	114	121	128	136	144	152

Table A.4:

South Georgian Bay – Muskoka Coincident High Growth Net Load Forecast (Sum) MW

Station	DESN ID	LTR (MVA)	LTR(MW)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Alliston TS	T2	83	75	22	38	39	51	61	60	59	59	58	58	57
Alliston TS	T3/T4	111	100	72	76	80	85	90	96	102	108	114	121	128
Barrie TS	T3/T4	179	170	65	69	75	81	87	94	101	109	118	128	138
Beaverton TS	T3/T4	203	193	70	58	61	64	67	70	76	79	83	87	91
Bracebridge TS	T1	83	75	29	29	30	30	31	31	32	33	33	34	35
Everett TS	T1/T2	119	107	77	82	90	97	106	115	126	137	149	162	177
Lindsay TS	T1/T2	169	161	66	59	63	67	72	77	87	92	98	105	112
Meaford TS	T1/T2	55	52	31	31	31	31	31	32	32	33	33	33	34
Midhurst TS	T1/T2	171	162	113	110	116	122	129	135	147	155	163	171	180
Midhurst TS	T3/T4	166	149	105	74	77	81	85	89	94	99	104	109	114
Minden TS	T1/T2	138	124	37	33	34	34	34	35	38	39	39	40	40
Muskoka TS	T1/T2	178	169	120	104	107	110	113	115	124	127	129	132	136
Orangeville TS	T1/T2	128	115	37	38	40	42	45	47	51	54	57	60	64
Orangeville TS	T3/T4	180	171	88	89	93	96	100	104	108	113	117	122	127
Orillia TS	T1/T2	162	154	95	81	84	86	89	92	110	113	117	121	125
Parry Sound TS	T1/T2	128	115	47	44	46	47	50	51	54	56	57	59	61
Stayner TS	T3/T4	191	181	125	125	127	129	131	134	137	140	143	146	149
Wallace TS	T3/T4	54	49	31	31	32	33	34	35	36	37	39	40	41
Waubaushene TS	T5/T6	99	94	96	90	94	97	102	106	115	120	125	131	136

Table A.5:

South Georgian Bay - Muskoka Non-Coincident- Normal Growth Net Load Forecast (Winter) MW

Station	DESN ID	LTR (MVA)	LTR(MW)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Alliston TS	T2	83	75	34	31	31	44	55	55	55	55	55	55	55
Alliston TS	T3/T4	128	115	59	61	64	66	69	71	74	77	80	84	87
Barrie TS	T3/T4	190	181	93	93	97	102	107	112	124	135	144	152	159
Beaverton TS	T3/T4	224	213	82	82	84	86	88	90	92	94	97	99	101
Bracebridge TS	T1	83	75	40	40	41	41	42	42	43	43	44	44	45
Everett TS	T1/T2	128	115	68	72	77	81	86	92	98	104	110	118	125
Lindsay TS	T1/T2	192	182	100	102	107	111	115	120	125	129	134	140	145
Meaford TS	T1/T2	61	58	42	44	44	43	44	44	47	47	46	46	46
Midhurst TS	T1/T2	193	183	126	125	131	136	130	141	153	153	153	160	161
Midhurst TS	T3/T4	191	172	94	90	92	93	95	97	99	100	102	104	106
Minden TS	T1/T2	146	131	57	53	53	53	53	54	58	58	58	58	59
Muskoka TS	T1/T2	209	199	157	147	150	154	157	159	164	167	170	173	176
Orangeville TS	T1/T2	145	131	60	59	62	66	69	73	77	81	84	88	92
Orangeville TS	T3/T4	198	188	104	102	104	108	110	113	118	121	123	126	129
Orillia TS	T1/T2	184	175	107	99	101	103	105	107	118	120	123	125	128
Parry Sound TS	T1/T2	135	122	64	62	64	65	68	68	71	72	73	74	75
Stayner TS	T3/T4	213	202	153	149	149	150	151	151	157	158	159	160	161
Wallace TS	T3/T4	60	54	44	45	45	46	47	48	49	49	50	51	52
Waubaushene TS	T5/T6	109	104	88	93	94	94	107	108	108	108	109	109	110

Table A.6:

South Georgian Bay - Muskoka – Coincident – Normal Growth Net Load Forecast – (Winter) MW

Station	DESN ID	LTR (MVA)	LTR(MW)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Alliston TS	T2	83	75	11	31	31	44	55	55	55	55	55	55	55
Alliston TS	T3/T4	128	115	51	53	55	57	59	61	64	66	69	72	75
Barrie TS	T3/T4	190	181	51	53	54	56	57	59	60	62	64	65	67
Beaverton TS	T3/T4	224	213	81	81	83	85	87	89	91	93	95	97	100
Bracebridge TS	T1	83	75	32	33	33	34	34	34	35	35	35	36	36
Everett TS	T1/T2	128	115	65	68	73	77	82	87	93	99	105	112	119
Lindsay TS	T1/T2	192	182	90	92	95	99	103	107	111	116	120	125	130
Meaford TS	T1/T2	61	58	38	35	35	35	35	35	38	37	37	37	37
Midhurst TS	T1/T2	193	183	114	118	121	125	129	132	135	139	143	147	152
Midhurst TS	T3/T4	191	172	94	96	98	99	101	103	105	106	108	110	113
Minden TS	T1/T2	146	131	56	52	52	53	53	53	57	57	58	58	58
Muskoka TS	T1/T2	209	199	136	126	128	132	135	137	141	144	146	149	152
Orangeville TS	T1/T2	145	131	34	32	34	37	39	41	44	46	48	50	52
Orangeville TS	T3/T4	198	188	99	96	99	102	104	107	112	115	117	120	123
Orillia TS	T1/T2	184	175	107	98	100	102	105	106	118	120	122	124	127
Parry Sound TS	T1/T2	135	122	58	56	57	58	61	62	63	64	65	67	68
Stayner TS	T3/T4	213	202	153	149	149	150	151	151	157	158	159	160	161
Wallace TS	T3/T4	60	54	38	38	39	40	40	41	42	42	43	44	45
Waubaushene TS	T5/T6	109	104	86	88	90	91	93	95	96	98	100	102	104

Table A.7:

South Georgian Bay - Muskoka Region Non-Coincident – High Growth Net Load Forecast (Winter) MW

Station	DESN ID	LTR (MVA)	LTR(MW)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Alliston TS	T2	83	75	34	31	31	44	55	55	55	55	55	55	55
Alliston TS	T3/T4	128	115	59	64	69	74	80	87	94	102	110	119	129
Barrie TS	T3/T4	190	181	93	99	104	111	117	124	132	140	148	157	167
Beaverton TS	T3/T4	224	213	82	85	89	94	99	104	109	115	121	128	135
Bracebridge TS	T1	83	75	40	41	43	44	45	47	48	50	51	53	55
Everett TS	T1/T2	128	115	68	77	87	98	111	125	141	160	181	205	232
Lindsay TS	T1/T2	192	182	100	107	116	125	136	147	159	172	186	202	219
Meaford TS	T1/T2	61	58	42	43	44	45	46	46	47	48	49	50	51
Midhurst TS	T1/T2	193	183	126	135	133	141	150	158	168	178	189	201	214
Midhurst TS	T3/T4	191	172	94	100	106	112	119	126	133	141	150	159	168
Minden TS	T1/T2	146	131	57	53	54	54	55	56	60	61	62	63	63
Muskoka TS	T1/T2	209	199	157	151	158	166	174	181	191	199	208	217	227
Orangeville TS	T1/T2	145	131	60	62	68	76	83	90	100	109	119	130	142
Orangeville TS	T3/T4	198	188	104	105	110	117	123	130	139	147	154	162	171
Orillia TS	T1/T2	184	175	107	101	106	111	116	121	136	142	148	154	161
Parry Sound TS	T1/T2	135	122	64	64	67	70	75	78	82	85	89	93	97
Stayner TS	T3/T4	213	202	153	151	154	157	161	165	173	177	180	185	189
Wallace TS	T3/T4	60	54	44	46	48	50	52	54	56	58	61	64	66
Waubaushene TS	T5/T6	109	104	88	92	97	101	106	112	117	123	129	136	143

Table A.8:

South Georgian Bay – Muskoka Coincident High Growth Net Load Forecast (Winter) MW

Station	DESN ID	LTR (MVA)	LTR(MW)	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Alliston TS	T2	83	75	11	31	31	44	55	55	55	55	55	55	55
Alliston TS	T3/T4	128	115	51	54	57	60	64	68	72	77	81	86	92
Barrie TS	T3/T4	190	181	51	54	57	60	63	66	69	73	77	81	85
Beaverton TS	T3/T4	224	213	81	82	86	90	94	97	101	106	110	115	120
Bracebridge TS	T1	83	75	32	33	34	35	35	36	37	38	38	39	40
Everett TS	T1/T2	128	115	65	70	77	83	91	99	108	118	129	141	154
Lindsay TS	T1/T2	192	182	90	94	100	106	113	120	127	135	144	153	163
Meaford TS	T1/T2	61	58	38	35	36	36	37	37	40	41	41	42	42
Midhurst TS	T1/T2	193	183	114	120	127	134	141	147	155	163	171	180	190
Midhurst TS	T3/T4	191	172	94	98	102	107	111	115	120	125	130	136	142
Minden TS	T1/T2	146	131	56	53	54	56	57	58	64	65	66	68	70
Muskoka TS	T1/T2	209	199	136	129	135	143	150	156	165	172	179	188	196
Orangeville TS	T1/T2	145	131	34	33	35	39	41	44	48	51	54	58	61
Orangeville TS	T3/T4	198	188	99	98	102	108	113	117	125	130	136	142	148
Orillia TS	T1/T2	184	175	107	100	103	107	111	115	128	132	136	140	145
Parry Sound TS	T1/T2	135	122	58	56	58	59	62	63	66	67	69	70	72
Stayner TS	T3/T4	213	202	153	151	154	157	161	165	173	177	180	185	189
Wallace TS	T3/T4	60	54	38	39	40	41	43	44	45	47	48	50	52
Waubaushene TS	T5/T6	109	104	86	89	92	95	98	101	104	107	111	115	118

Appendix B: Lists of Step-Down Transformer Stations

No.	Transformer Station	Voltage (kV)	Supply Circuits
1	Alliston TS	230/44	E8V/E9V
2	Barrie TS	230/44	E28/E29
3	Beaverton TS	230/44	M80B/M81B
4	Bracebridge TS	230/44	M6E
5	Everett TS	230/44	E8V/E9V
6	Lindsay TS	230/44	M80B/M81B
7	Meaford TS	230/44	S2S
8	Midhurst TS	230/44	M6E/M7E
9	Minden TS	230/44	Minden TS
10	Muskoka TS	230/44	M6E/M7E
11	Orangeville TS	230/44/27.6	Orangeville TS
12	Orillia TS	230/44	M6E/M7E
13	Parry Sound TS	230/44	E26/E27
14	Stayner TS	230/115/44	E20S/E21S
15	Wallace TS	230/44	D2M/D4M
16	Waubaushene TS	230/44	E26/E27

Appendix C: Lists of Transmission Circuits

No.	Connecting Stations		Circuit ID	Voltage (kV)
1.	Essa TS	Stayner TS	E20/E21S	230
2.	Essa TS	Parry Sound TS	E26/E27	230
3.	Essa TS	Minden TS	M6E/M7E	230
4.	Minden TS	Des Joachims TS	D1M/D2M	230
5.	Minden TS	Des Joachims TS	D3M/D4M	230
6.	Minden TS	Brown Hill TS	M80B/M81B	230
7.	Essa TS	Barrie TS	E28/E29	230
8.	Stayner TS	Owen Sound TS	S2S	115

Appendix D: List of LDC's

No.	Name of LDC
1	Hydro One Distribution
2	Alectra Utilities
3	InnPower
4	Orangeville Hydro
5	Elexicon Energy
6	Lakeland Power
7	EPCOR Electricity Dist. Ontario Inc.
8	NT Power Distribution Ltd.
9	Wasaga Distribution Inc.

Appendix E: List of Municipalities in the South Georgian Bay - Muskoka Region

	Name of Municipality				
1	City of Barrie	19	Town of Kearney	37	Township of McKellar
2	City of Kawartha Lakes	20	Town of Midland	38	Township of McMurich
3	City of Orillia	21	Town of Midland	39	Township of Mulmur
4	County of Haliburton	22	Town of Mono	40	Township of Muskoka Lakes
5	Grey Highlands	23	Town of New Tecumseth	41	Township of Nipissing
6	Municipality of Callander	24	Town of Orangeville	42	Township of Perry
7	Municipality of Magnetawan	25	Town of Parry Sound	43	Township of Ryerson
8	Municipality of Meaford	26	Town of Penetanguishene	44	Township of Seguin
9	Municipality of Powassan	27	Town of Shelburne	45	Township of Severn
10	Municipality of Whitestone	28	Town of Wasaga Beach	46	Township of Southgate
11	Owen Sound	29	Township of Armour	47	Township of Springwater
12	South Gate	30	Township of Carling	48	Township of Strong
13	Town of Bracebridge	31	Township of Clearwater	49	Township of The Archipelago
14	Town of Collingwood	32	Township of Essa	50	Township of Tiny
15	Town of Gravenhurst	33	Township of Georgian Bay	51	Village of Burk Falls
16	Town of Huntsville	34	Township of Georgian Bluffs	52	Village of South River
17	Town of Innisfil	35	Township of Lake of Bays	53	Village of Sundridge
18	Town of Joly	36	Township of McDougall		

Appendix D: Acronyms

Acronym	Description
A	Ampere
BES	Bulk Electric System
BPS	Bulk Power System
CDM	Conservation and Demand Management
CEP	Community Energy Plan
CIA	Customer Impact Assessment
CGS	Customer Generating Station
CSS	Customer Switching Station
CTS	Customer Transformer Station
DESN	Dual Element Spot Network
DG	Distributed Generation
DS	Distribution Station
GS	Generating Station
HV	High Voltage
IESO	Independent Electricity System Operator
IRRP	Integrated Regional Resource Plan
kV	KiloVolt
LDC	Local Distribution Company
LP	Local Plan
LTE	Long Term Emergency
LTR	Limited Time Rating
LV	Low Voltage

Acronym	Description
MEP	Municipal Energy Plan
MTS	Municipal Transformer Station
MW	Megawatt
MVA	Mega Volt-Ampere
MVAR	Mega Volt-Ampere Reactive
NA	Needs Assessment
NERC	North American Electric Reliability Corporation
NGS	Nuclear Generating Station
NPCC	Northeast Power Coordinating Council Inc.
NUG	Non-Utility Generator
OEB	Ontario Energy Board
ORTAC	Ontario Resource and Transmission Assessment Criteria
PF	Power Factor
PPWG	Planning Process Working Group
RIP	Regional Infrastructure Plan
SA	Scoping Assessment
SIA	System Impact Assessment
RAS	Remedial Action Scheme
SS	Switching Station
TS	Transformer Station

APPENDIX D: 2026 ASSET CONDITION ASSESSMENT

ASSET CONDITION ASSESSMENT REPORT 2026

Distribution & Station Assets

Prepared by

InnPower Corporation

[Adam Casciato, Morteza Mirkeshmiri]

June 2026

Final Report

Disclaimer

This 2026 Asset Condition Assessment Report has been prepared by InnPower Corporation ("InnPower") for internal asset management and regulatory planning purposes. The report is required as one of the key inputs for InnPower's five-year Distribution System Plan, prepared in accordance with the filing requirements enacted by the Ontario Energy Board ("OEB").

Neither InnPower nor any person acting on its behalf makes any warranty, expressed or implied, or assumes any legal responsibility for the accuracy of any information or for the completeness or usefulness of any process disclosed or results presented, or accepts liability for the use, or damages resulting from the use, thereof. Any reference in this report to any specific process or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement or recommendation by InnPower.

Asset condition data used in this study is maintained by InnPower as part of its regular asset management practices. Results are based on condition data recorded as of February 2026.

Generative Artificial Intelligence (AI) was used to produce content within this filing. InnPower confirms that such content has been verified for accuracy by InnPower, without the assistance of generative AI.

Executive Summary

Context of the Study

InnPower Corporation ("InnPower") is an electricity distributor operating in the regions of Innisfil and South Barrie, Ontario. This Asset Condition Assessment ("ACA") study has been prepared by InnPower to support the preparation of its five-year Distribution System Plan ("DSP"), in accordance with the filing requirements enacted by the Ontario Energy Board ("OEB"). The study's primary objective is to objectively determine the condition of InnPower's assets as a key step in the capital expenditure process for renewal investments. Supplementary objectives include preparing the ACA results to be used for InnPower's upcoming rate filing, and to continuously improve InnPower's Asset Management ("AM") framework. Asset health data is managed through InnPower's Senpilot asset management platform.

Scope of the Study

This ACA covers InnPower's distribution and station asset classes. The asset classes included in scope are listed in the table below.

Table 0-1: Asset Classes in Scope

Distribution Asset Classes	Station Asset Classes
Pole Mount Transformers	Power Transformers
Pad Mount Transformers	Power Transformer Tap Changers
Pad Mount Switchgear	Station Switches
Overhead Line Reclosers	Station Reclosers
Overhead Loadbreak Switches	Service Transformers
Overhead Disconnect Switches	Lightning Arresters
Wood Poles	Power Fuses
Capacitors	Ground Grids
Regulators	Facilities
Underground Cables (Age Assessment Only)	
Overhead Conductors (Age Assessment Only)	

Methodology and Findings

InnPower employed an additive Health Index ("HI") methodology for this assessment, consistent with industry best practices and the approach previously used in InnPower's 2021 ACA. The HI is a percentage value between 0% and 100% representing the remaining useful life of an asset,

calculated as a weighted sum of individual condition parameter scores. The HI is mapped to a five-point condition scale as presented in the table below.

Table 0-2: Health Index Range and Corresponding Implications for Asset Condition

HI Score (%)	Condition	Description	Implications
[85–100]	Very Good	Some evidence of aging or minor deterioration of a limited number of components	Normal Maintenance
[70–85)	Good	Significant deterioration of some components	Normal Maintenance
[50–70)	Fair	Widespread significant deterioration or serious deterioration of specific components	Increase diagnostic testing; possible remedial work or replacement depending on criticality
[30–50)	Poor	Widespread serious deterioration	Start planning process to replace or rehabilitate, considering risk and consequences of failure
[0–30)	Very Poor	Extensive serious deterioration	Asset has reached end-of-life; immediately assess risk and replace or refurbish

Table 0-3 presents a summary of the HI results for each asset class assessed. The health score distributions are sourced from InnPower's Senpilot asset management platform as of February 2026. Note that the HI ranges in this ACA align with the five-point condition scale above; Senpilot health scores (0–100) map directly to this scale.

Table 0-3: Asset Condition Assessment Overall Results

		Health Index Score (0–100)							
Asset Class	**Population**	**≥85 (Very Good)**	**70–84 (Good)**	**50–69 (Fair)**	**30–49 (Poor)**	**<30 (Very Poor)**	**No HI**	**Avg HI**	**Data Quality**
Distribution Assets									
Pole Mount Transformers	2,195	1,056	885	175	79	0	0	84%	A/B/C
Pad Mount Transformers	2,161	1,754	387	15	4	1	0	88%	A/B/C
Pad Mount Switchgear	121	59	54	7	1	0	0	84%	A/B
Overhead Loadbreak Switches	51	32	0	19	0	0	0	83%	A/B
Overhead Disconnect Switches	493	492	1	0	0	0	0	100%	A
Overhead Line Reclosers	31	3	5	1	22	0	0	55%	A/B
Capacitors	9	9	0	0	0	0	0	89%	A
Regulators	3	3	0	0	0	0	0	100%	A
Wood Poles	11,008	2,538	3,463	3,058	1,817	132	0	70%	A/B/C

Underground Cables (Age)	~199 km	n/a	n/a	n/a	n/a	n/a	n/a	Age only	—
Overhead Conductors (Age)	~682 km	n/a	n/a	n/a	n/a	n/a	n/a	Age only	—
Station Assets									
Power Transformers	14	7	6	1	0	0	0	84%	90%
Power Transformer Tap Changers	14	6	6	2	0	0	0	82%	100%
Station Switches	21	13	6	0	0	2	0	84%	84%
Station Reclosers	31	25	6	0	0	0	0	90%	100%
Service Transformers	13	10	3	0	0	0	0	91%	100%
Lightning Arresters	26	21	1	1	1	0	2	95%	97%
Power Fuses	9	6	2	1	0	0	0	90%	85%
Ground Grids	10	7	0	0	0	3	0	70%	100%
Facilities	10	5	3	1	1	0	0	80%	96%

The consolidated results of the ACA for distribution assets are summarized in Figure 0-1 and Figure 0-2. The HI is not calculated for any distribution asset with a Data Availability Indicator ("DAI") below C (i.e., where more than 2 of the condition parameters are missing).

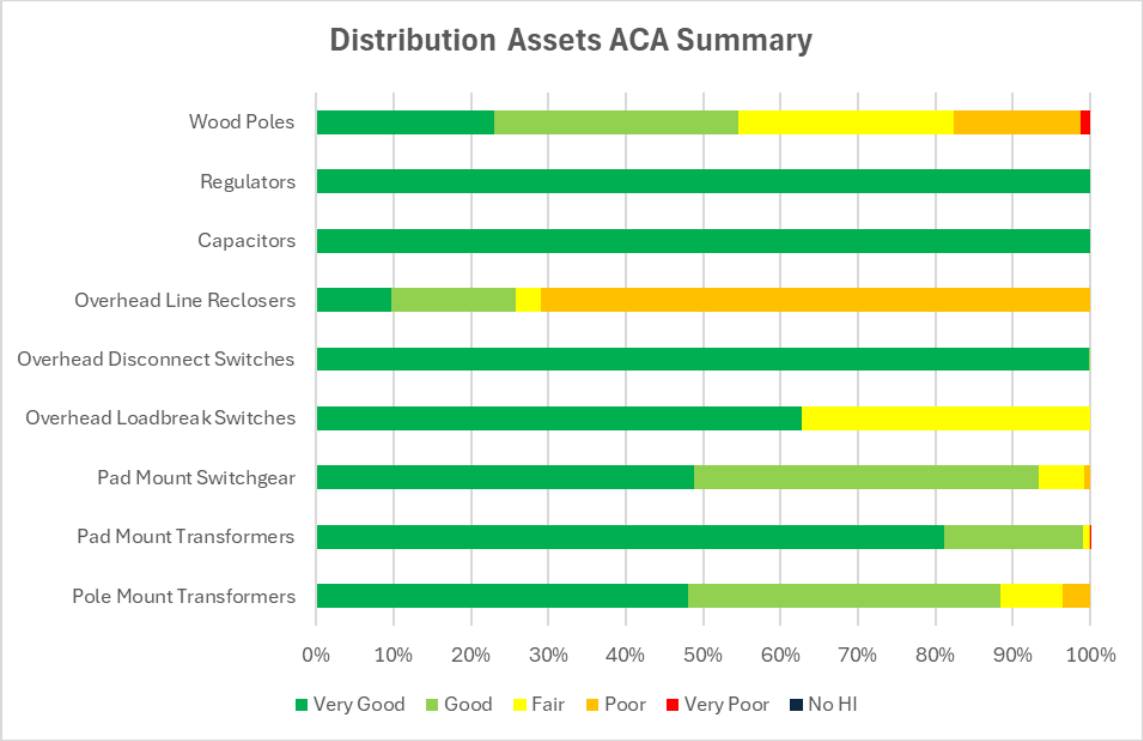

Figure 0-1: Distribution Assets – Health Index Results

As Figure 0-1 indicates, the majority of distribution assets are in Good or Very Good condition. Notable areas of concern include: (1) Overhead Line Reclosers, where 22 of 31 units (71%) are in Poor condition — the most acute risk in the distribution fleet; (2) Overhead Loadbreak Switches, where 19 of 51 units (37%) are in Fair condition; and (3) Wood Poles, which present the largest aggregate risk by volume: 2,538 poles (23%) are in Very Good condition and 3,463 (31%) in Good condition, while 3,058 (28%) are in Fair condition, 1,817 (17%) in Poor condition, and 132 (1%) in Very Poor condition — the ~1,949 poles in Poor and Very Poor condition warrant prioritized inspection and intervention planning. Pad Mount Transformers, Overhead Disconnect Switches, Regulators, and Capacitors are in strong health with the large majority of units in the Very Good category.

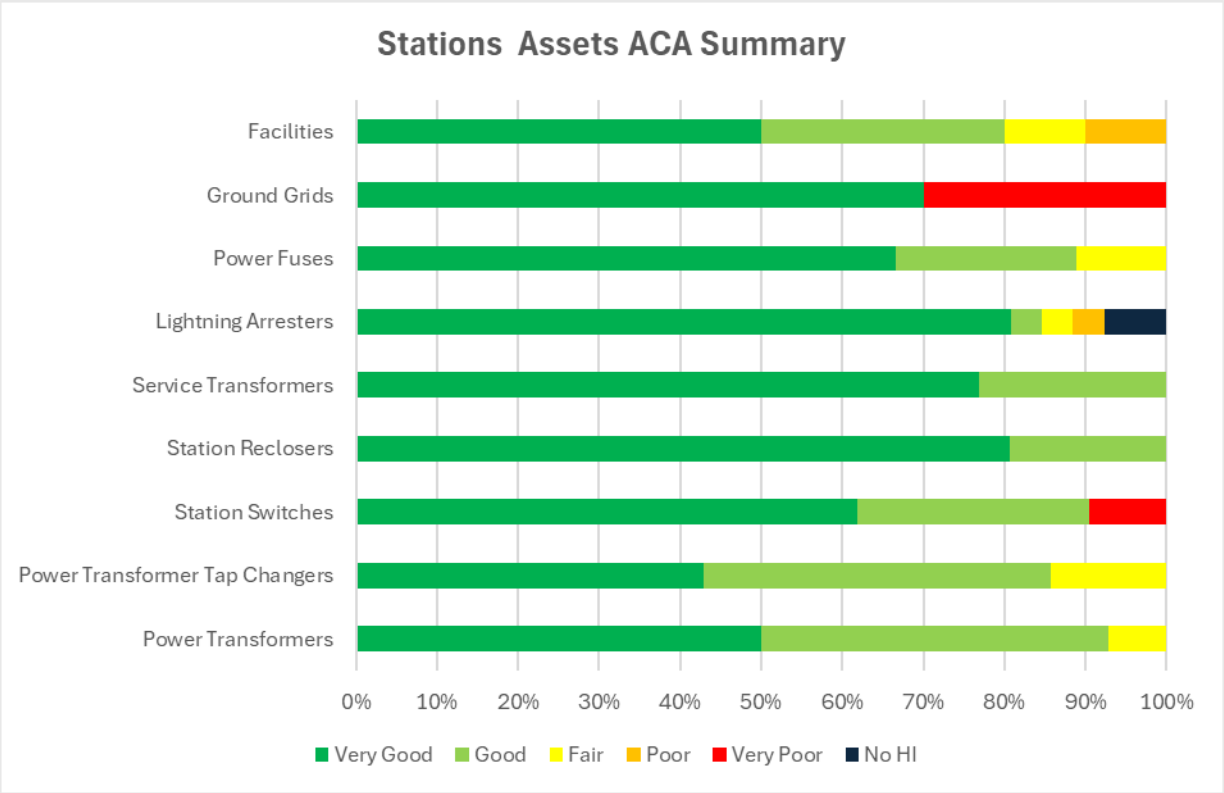

Figure 0-2: Station Assets – Health Index Results

Figure 0-2 summarizes the ACA results for InnPower's station assets are in Very Good condition. Overall Ground Grids (30%) and Station Switches (10%) have the highest percentage of assets in Very Poor condition. Furthermore, Lightning Arrestors (8%) are the only Station Asset class to have assets with No HI score.

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1. Introduction

InnPower Corporation ("InnPower") is an electricity distributor operating in the regions of Innisfil and South Barrie, Ontario. InnPower has prepared this comprehensive ACA study for the assets comprising its electrical distribution system. The ACA is required as one of the key inputs for the preparation of InnPower's five-year Distribution System Plan ("DSP"), prepared in accordance with the filing requirements enacted by the Ontario Energy Board ("OEB"). The study's primary objective is to objectively determine the condition of InnPower's assets as a key step in the capital expenditure process for renewal investments. Supplementary objectives include preparing the ACA results to support InnPower's rate filing and to continuously improve InnPower's AM framework.

A unique ACA methodology is applied to each asset class deployed within InnPower's system. The adoption of the ACA methodology requires identifying end-of-life criteria for the various components associated with each asset type, followed by periodic asset inspections and recording of asset condition to identify the assets most at risk of reaching end-of-life criteria over the planning horizon. Each criterion represents a factor that is influential, to a specific degree, in determining an asset's (or its component's) condition relative to its potential failure. These components and tests are weighted based on their importance in determining end-of-life. The asset classes covered in this report are listed in Table 0-1 above.

The report is organized as follows:

- Section 2 provides context for the ACA within the broader Asset Management planning framework and an overview of applicable international standards;
- Section 3 summarizes the HI calculation methodology, condition parameters, and Data Availability Index;
- Section 4 provides the HI formulation and assessment results for each distribution asset class;
- Section 5 presents InnPower's conclusions; and
- Section 6 summarizes recommendations for data collection improvements and continuous improvements of the ACA framework.

2. Context of the ACA within AM Planning

The ACA is a key step in developing an asset replacement strategy. By evaluating the current set of available data related to the condition of in-service assets comprising InnPower's asset portfolio, condition scores for each asset are determined. The ACA involves the collection, consolidation, and utilization of results within an organizational AM framework for the purposes of objectively quantifying and managing the risks of its asset portfolio. The level of degradation of an asset, its configuration within the system, and its corresponding likelihood of failure feed directly into the risk evaluation process, which identifies asset candidates for intervention (i.e., replacement or refurbishment).

2.1. International Standards for AM

The industry standard for AM planning is outlined in the ISO 5500X series of standards, encompassing ISO 55000, ISO 55001, and ISO 55002. Each organization finds itself at one of three stages along the AM journey: the Exploratory stage, where entities establish an AM system; the Advancement stage, where entities look to realize more value from their asset base; and the Continuous Improvement stage, where organizations assess and progressively enhance an AM system already in place.

An asset is any item or entity that has value to the organization. The ACA is the procedure to turn known condition information into actionable insights based on the level of deterioration. The AM system operates around the asset portfolio and represents a set of interacting elements that establish policy, objectives, and processes to achieve those objectives. ISO 55002 states explicitly that all asset portfolio improvements should be assessed via a risk-based approach prior to implementation.

2.2. ACA within the AM Process

A well-executed AM strategy hinges on an organization's ability to classify its assets through comprehensive data and data collection procedures. This includes the collection and storage of technical specifications, historical asset performance, projected asset behaviour and degradation, and the configuration of assets within the system. With more asset data on hand, better and more informed decisions can be made to realize greater benefits and reduce risk across the asset portfolio.

AM is fundamentally grounded in a risk-based evaluation of continued value. The ACA quantifies the condition of each asset under study and is an appropriate indicator of its failure probability. Making asset replacement decisions directly based on ACA results constitutes a condition-based intervention strategy. The criticality of the asset determines its failure impact, and a risk-based asset intervention strategy should consider both probability and impact in decision-making.

2.3. Continuous Improvement in the AM Process

AM should be regarded as a fluid process. Continually improved asset data and data collection procedures, updated Strategic Asset Management Plans ("SAMPs"), and further integration into all aspects of InnPower's activities should be the goal of its AM framework. The ACA results

should be updated periodically as new condition data becomes available, ensuring that InnPower's investment decision-making is always grounded in the most current state of its asset portfolio.

3. Asset Condition Assessment Methodology

3.1. InnPower's Assessment Process

InnPower's execution path in completing the ACA follows a four-phase process:

1. Initial information gathering — including review of available condition data sources across all asset classes within scope, and confirmation of key assumptions regarding the condition assessment methodology.
2. Database construction — consolidation of InnPower's asset inspection records, GIS data, and any relevant maintenance databases into a single condition-related information set for each asset class.
3. HI and Data Availability Index calculation — upon confirming the integrity of the condition dataset, InnPower calculated the Health Indices and Data Availability Index for all applicable asset classes. Additional data sources were requested to improve accuracy where applicable.
4. Results Reporting — the final phase of the project scope was the creation of this ACA report.

3.2. Data Sources

To assess the demographics and establish the unit population of InnPower's system assets, asset demographic data was sourced from InnPower's Geographic Information System ("GIS") and asset registries, containing information on asset vintage, model, and year of commissioning. These served as the primary asset libraries containing nameplate information such as age and unique identifiers.

To assess condition, InnPower drew on available asset inspection and maintenance data for each asset class. Most data came from equipment inspection forms completed by InnPower's staff or contractors, or the results of specific tests such as infrared scanning. Historical loading data was also used for transformer asset classes. All asset data is managed through InnPower's Senpilot asset management platform, which serves as the authoritative source for HI calculations in this report.

3.3. Asset Condition Assessment Methodology

InnPower employs an additive HI model for this assessment, consistent with the methodology used in the 2021 ACA and aligned with most distribution utilities in Ontario. In this model, asset degradation factors and scores are used to independently calculate a score for each individual asset, with the HI representing a weighted average of all individual scores from 0 to 100.

3.4. Overview of Selected Methodology

3.4.1. Condition Parameters

To calculate the HI for an asset, formulations are developed based on condition parameters that can be expected to contribute to the degradation and eventual failure of that asset. A weight is

assigned to each condition parameter to indicate the amount of influence that condition has on the overall health of the asset. Condition parameters are specific and uniquely graded to each asset class. The scale used to determine an asset's score for a condition parameter is called the "condition indicator." Each condition parameter is ranked from A to E, with each rank corresponding to a numerical grade:

Table 3-1: Condition Parameter Grading Scheme

Grade	Description
A — 4	Best Condition
B — 3	Normal Wear
C — 2	Requires Remediation
D — 1	Rapidly Deteriorating
E — 0	Beyond Repair

3.4.2. Use of Age as a Condition Parameter

Age is used as a condition parameter for several asset classes in this ACA. In recognition of the limitations of age-based condition scoring (which implies a linear degradation path), InnPower limits the instances where it relies solely on age. In cases where limited condition parameters are available, age serves as a useful proxy for degradation. For complex equipment with internal mechanical components that degrade with continuous operation — and whose state cannot be assessed without destructive testing — age represents an important component of health calculation regardless of the number of other factors available. Underground Cables and Overhead Conductors are assessed solely on the basis of age due to limited condition data availability.

3.4.3. Final Health Index Formulation

The final HI, which is a function of the condition scores and weightings, is calculated based on the following formula:

$$HI = \left(\frac{\sum_{i=1} Weight_i * Numerical\ Grade_i}{Total\ Score} \right) x\ 100\% \qquad (1)$$

Where i corresponds to the condition parameter number, and the HI is a percentage representing the remaining life of the asset. Assets for which condition data is missing for a given parameter are assigned the "missing data score" defined for that parameter in the HI formulation table. This approach ensures that all assets receive a calculable HI while appropriately reflecting data gaps.

3.5. Data Availability Index

To put the HI calculation into the context of available data, InnPower supplements its HI findings with a Data Availability Index ("DAI"): a measure of the availability of condition parameter data for a specific asset, weighted by each condition parameter's contribution to the HI score.

For distribution assets, DAI was expressed using InnPower's Senpilot platform. Data quality is expressed as a letter grade from "A" to "F," where each missing dimension from the health formula subtracts one grade level. An "A" grade indicates full data availability across all condition parameters; a score of "2 of 3 parameters present" indicates one parameter is missing; and so on. Assets with full or near-full data availability are considered to have sufficient data for a reliable HI calculation. Note that the Senpilot data quality grading (A–F) uses the same letters as the health condition grades in Section 4 but refers to a completely separate scoring system — data quality grades measure completeness of condition data, not asset health.

For station assets, DAI is calculated by comparing the sum of the weights of the Degradation Factors available to the total weight of the Degradation Factors used to construct the HI for an asset class. The formula is given by:

$$DAI = \left(\frac{\sum_{i=1} Weight_i * \alpha_i}{\sum_{i=1} Weight_i} \right) x\ 100\% \tag{2}$$

where i corresponds to the Degradation Factor number and α is the availability of coefficient (α =1 when datum is available α =0 when datum is unavailable).

An asset with data available for all parameters will have a DAI value of 100%, independent of the asset's HI score. Assets with a high DAI will correlate to HI scores that describe the asset condition with a high degree of confidence. A DAI threshold was used to determine whether a valid HI can be calculated. Depending on the station asset class the DAI threshold was set between 60% to 70%, if the DAI of an asset was below this threshold there was insufficient information to calculation a valid HI.

4. Health Index Formulations and Results

This section presents the developed HI formulation for each distribution asset class, the calculated HI scores, and the data available to perform the study.

4.1. Distribution Assets

4.1.1. Underground Cables

At the time of this assessment, underground cable condition data remains limited. A complete condition assessment has not been completed for this asset class as only age data is available. InnPower currently has approximately 199 km of underground cable in its system. The estimated Typical Useful Life ("TUL") for this asset class is 40 years. The age distribution is presented in Figure 4-1 below, incorporating 25.5 km of new underground cable construction added to the 0–10 year age band (22.82 km single phase, 2.69 km three phase).

Based on the estimated 2026 age distribution, approximately 25.3 km (13% of the population) of underground cable has exceeded the 40-year TUL and may carry short-term failure risk. These assets should be investigated and appropriate asset intervention actions taken as required. In addition, approximately 30.6 km (15% of the population) is in the 31–40 year age band and will approach the TUL threshold over the next ten years. The majority of the underground cable population (72%) remains well within the TUL threshold, supported in part by the addition of 25.5 km of new cable since the 2021 assessment.

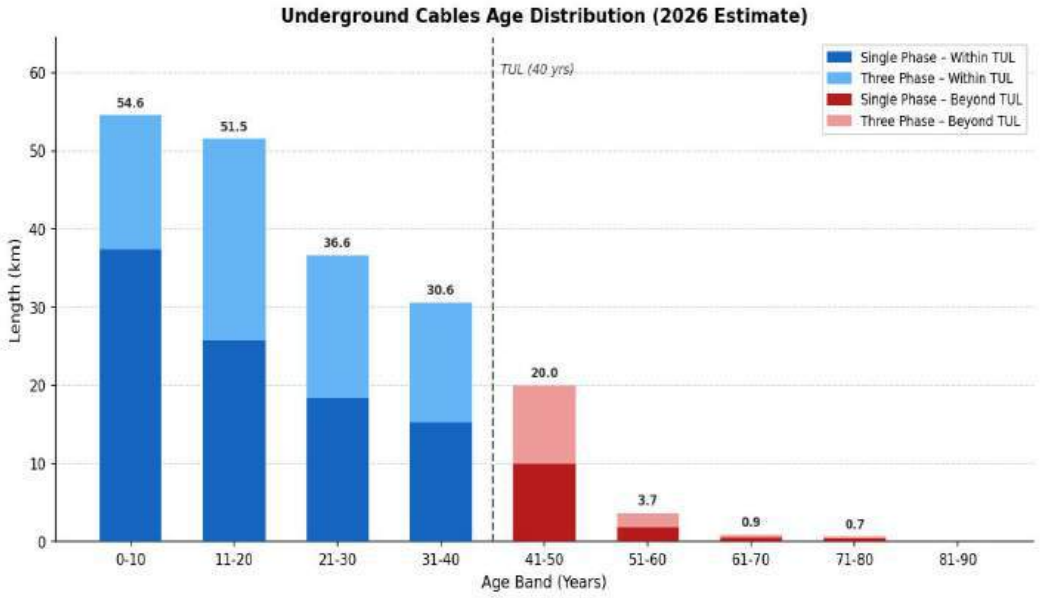

Figure 4-1: Underground Cables Age Distribution (2026 Estimate)

Table 4-1: ***Underground Cables Age Distribution (2026 Estimate, km)***

Age Group (yr)	0–10	11–20	21–30	31–40	41–50	51–60	61–70	71–80	81–90
Single Phase (km)	37.9	26.7	19.0	15.9	10.4	1.9	0.5	0.4	0.0
Three Phase (km)	16.7	24.8	17.6	14.7	9.6	1.8	0.4	0.3	0.0
Total (km)	54.6	51.5	36.6	30.6	20.0	3.7	0.9	0.7	0.0

Note: Single phase / three phase splits — new construction (22.82 km SP, 2.69 km TP) is added to the 0–10 year band.

4.1.2. Overhead Conductors

Similar to underground cables, overhead conductor condition data was not available for this assessment. InnPower currently has approximately 682 km of overhead conductor in its system. The estimated TUL for this asset class is 60 years. Figure 4-2 presents the age distribution, incorporating 21.9 km of new overhead conductor construction added to the 0–10 year age band (3.05 km single phase, 18.83 km three phase).

Based on the 2026 estimate, approximately 232.2 km (34% of the population) of overhead conductor has exceeded the 60-year TUL threshold and may carry short-term failure risk. This represents a notable increase from the 29% (193.1 km) reported in the 2021 assessment, reflecting the aging of the population over the five-year interval. An additional 77.9 km (11% of the population) will approach the TUL threshold within the next ten years. InnPower should prioritize investigation and intervention for the most aged segments of this asset class.

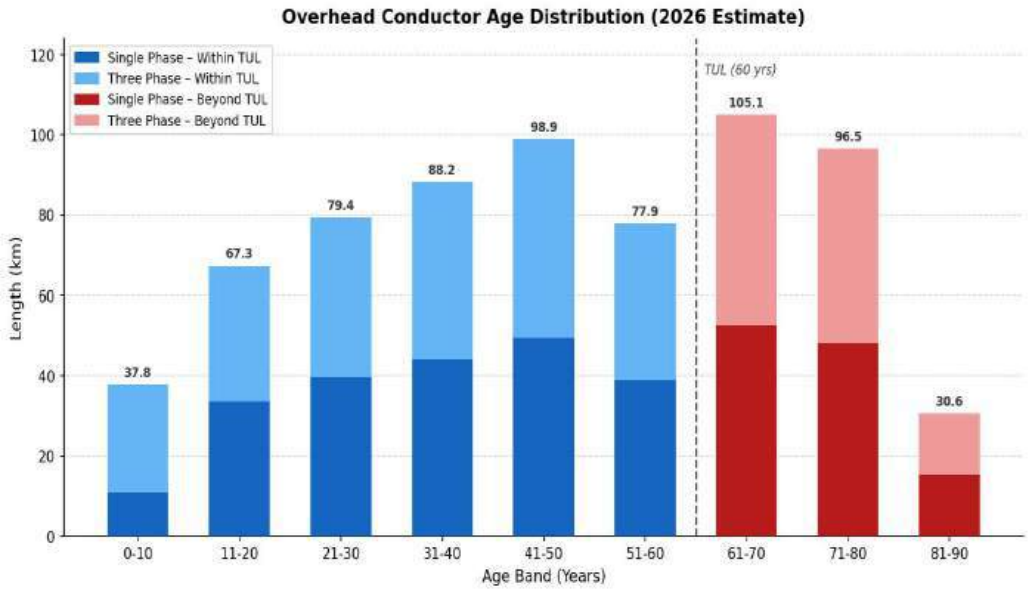

Figure 4-2: Overhead Conductors Age Distribution (2026 Estimate)

Table 4-2: Overhead Conductor Age Distribution (2026 Estimate, km)

Age Group (yr)	0–10	11–20	21–30	31–40	41–50	51–60	61–70	71–80	81–90
Single Phase (km)	11.4	34.9	41.2	45.8	51.3	40.4	54.5	50.0	15.8
Three Phase (km)	26.4	32.4	38.2	42.4	47.6	37.5	50.6	46.5	14.8
Total (km)	37.8	67.3	79.4	88.2	98.9	77.9	105.1	96.5	30.6

Note: Single phase / three phase splits — new construction (3.05 km SP, 18.83 km TP) is added to the 0–10 year band.

4.1.3. Distribution Pole Mount Transformers

InnPower owns 2,195 Distribution Pole Mount Transformers within its service territory. These assets are installed on service poles above ground and step down power from the medium voltage distribution system to the voltage for customer use. The estimated TUL for this asset class is 40 years. The HI formulation for this asset class is presented in Table 4-3 below.

Table 4-3: Distribution Pole Mount Transformer HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Age	1	A, B, C, D, E	4, 3, 2, 1, 0	4
Average Annual Peak Load (%)	1	A, B, C, D, E	4, 3, 2, 1, 0	4
Infrared Inspection	1	A, B, C, D, E	4, 3, 2, 1, 0	4
Total Score	**3**			**12**

Note: Average Annual Peak Load (%) is now incorporated with a weight of 1, reflecting the availability of loading data across the fleet.

Figure 4-3 presents the age distribution for this asset class. Of the 2,195 units, 2,109 have recorded installation year data. The remaining 86 units are shown as N/A, reflecting missing vintage records. Of units with age data, 946 (45%) have exceeded the 40-year TUL, including 517 in the 41–50 year band, 321 in the 51–60 band, and a further 108 units aged over 60 years. These aged units warrant prioritized review. A significant portion of the fleet (901 units) falls within the 21–40 year range and will approach or exceed the TUL within the next 10–20 years.

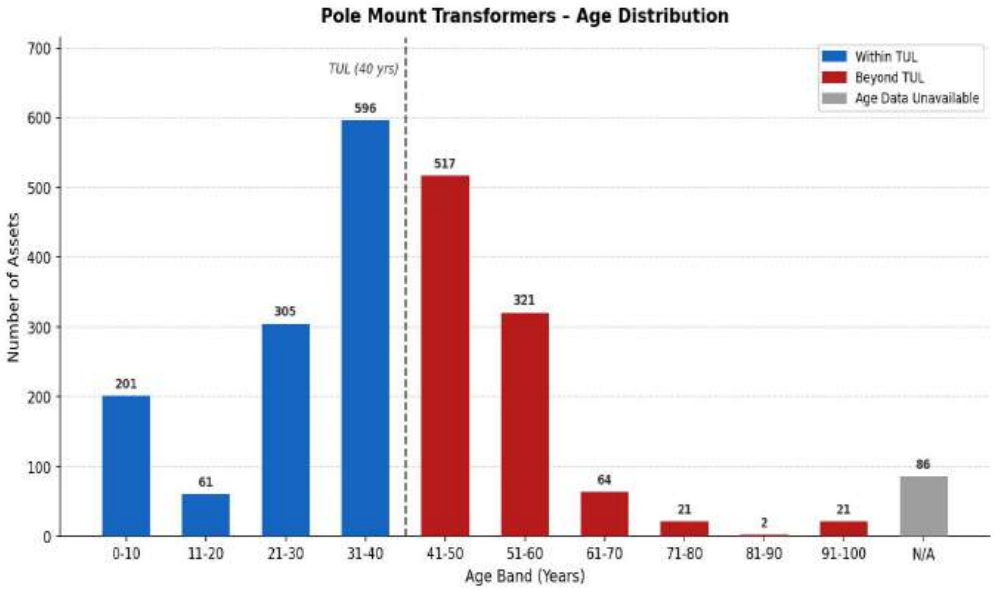

Figure 4-3: Distribution Pole Mount Transformers – Age Distribution

The estimated TUL for pole mount transformers is 40 years. Of the 2,195 units assessed, 1,056 (48%) are in Very Good condition and 885 (40%) are in Good condition, with a combined Good-or-better rate of 88%. A further 175 units (8%) are in Fair condition and 79 units (4%) are in Poor condition, warranting monitoring and targeted inspection. Of the 2,195 pole mount transformers in the fleet, 297 assets (13.5%) are missing at least one data point required for full quality scoring, with the remaining 1,898 (86.5%) achieving a grade of A. The most commonly missing field is average annual peak load percentage, affecting 223 assets and driving their grade to B. A subset of 74 assets are missing age (install or manufacture date) — some of which may also be missing load data — pulling their grade further to C. No assets fall below a C grade, indicating no critical data gaps across the fleet.

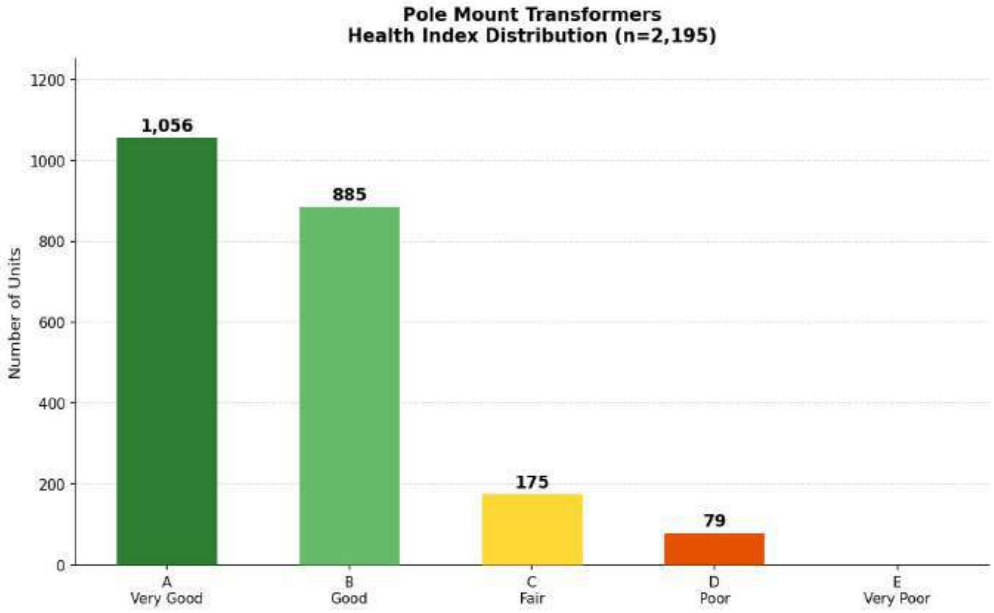

Figure 4-4: Distribution Pole Mount Transformers – Health Score Distribution

4.1.4. Distribution Pad Mount Transformers

InnPower manages a fleet of 2,161 pad mount transformers — a significant increase from the 1,478 units recorded in the 2021 assessment, reflecting network growth over the five-year period. These assets are located at ground level in the underground distribution system and step down power from the medium voltage distribution system to the final utilization voltage for customers. The estimated TUL for this asset class is 40 years. The HI formulation for this asset class has been updated to include additional condition parameters compared to the 2021 assessment, as presented in Table 4-4.

Table 4-4: Distribution Pad Mount Transformer HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Age	5	A, B, C, D, E	4, 3, 2, 1, 0	20
Corrosion / Rust	10	A, B, C, D, E	4, 3, 2, 1, 0	40
Oil Leakage	10	A, B, C, D, E	4, 3, 2, 1, 0	40
Average Annual Peak Load (%)	5	A, B, C, D, E	4, 3, 2, 1, 0	20
Base Condition	4	A, B, C, D, E	4, 3, 2, 1, 0	16
Total Score	**34**			**136**

Figure 4-5 presents the age distribution for this asset class. Of the 2,161 units, 1,958 have recorded installation year data; the remaining 203 units (9%) are shown as N/A, reflecting a gap in vintage records that InnPower should continue to close. Of units with age data, 161 (8%) have

exceeded the 40-year TUL — 77 in the 41–50 year band and 84 in the 51–60 band. The majority of units with age data (1,797 units, 92%) are within the TUL, with a notable cluster of 335 units in the 31–40 year band that will approach the TUL threshold within the next decade.

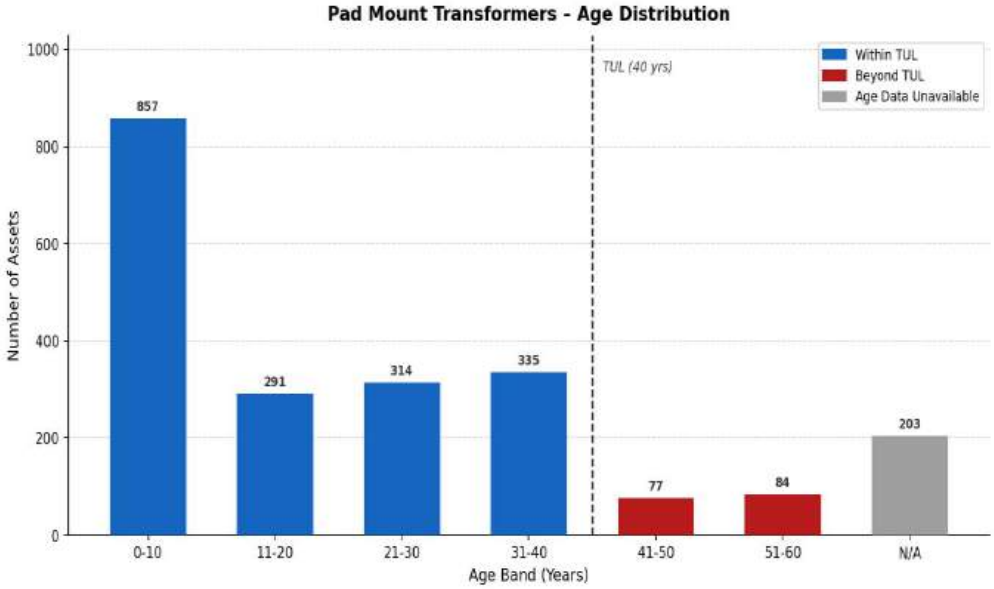

Figure 4-5: Distribution Pad Mount Transformers – Age Distribution

The estimated TUL for pad mount transformers is 40 years. Of the 2,161 units assessed, 1,754 (81%) are in Very Good condition and 387 (18%) are in Good condition, with a combined Good-or-better rate of 99%. Only 20 units fall below Good: 15 in Fair, 4 in Poor, and 1 in Very Poor. These 5 Poor and Very Poor units should be individually reviewed as they carry elevated failure risk. Overall this is a notably healthy asset class. Of the 2,161 pad mount transformers in the fleet, 705 assets (32.6%) are missing at least one data point required for full quality scoring, with the remaining 1,456 (67.4%) achieving a grade of A. The most commonly missing field is average annual peak load percentage, affecting 675 assets and driving their grade to B (506 units). A further 199 assets are also missing age (install or manufacture date) — some of which may also be missing load data — pulling their grade further to C. No assets fall below a C grade, indicating no critical data gaps across the fleet.

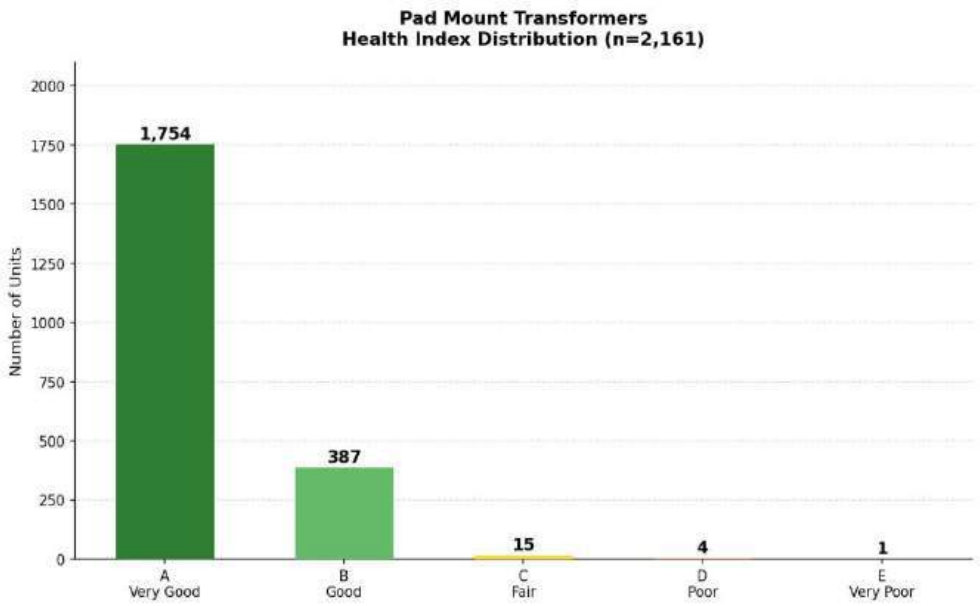

Figure 4-6: Distribution Pad Mount Transformers – Health Score Distribution

4.1.5. Distribution Pad Mount Switchgear

InnPower maintains a fleet of 121 pad mount switchgear units — an increase from the 67 units recorded in the 2021 assessment, again reflecting network growth. These assets provide the required level of operating flexibility, used for controlling, regulating, and isolating the electrical circuit in the distribution system. The HI formulation for this asset class is presented in Table 4-5.

Table 4-5: Distribution Pad Mount Switchgear HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Age	5	A, B, C, D, E	4, 3, 2, 1, 0	20
Corrosion / Rust	10	A, B, C, D, E	4, 3, 2, 1, 0	40
Base Condition	4	A, B, C, D, E	4, 3, 2, 1, 0	16
Total Score	**19**			**76**

The estimated TUL for pad mount switchgear is 30 years. Of the current 121-unit fleet, 71 units have a confirmed installation year on record and 50 units (41%) have no installation year and are shown as N/A in Figure 4-7.

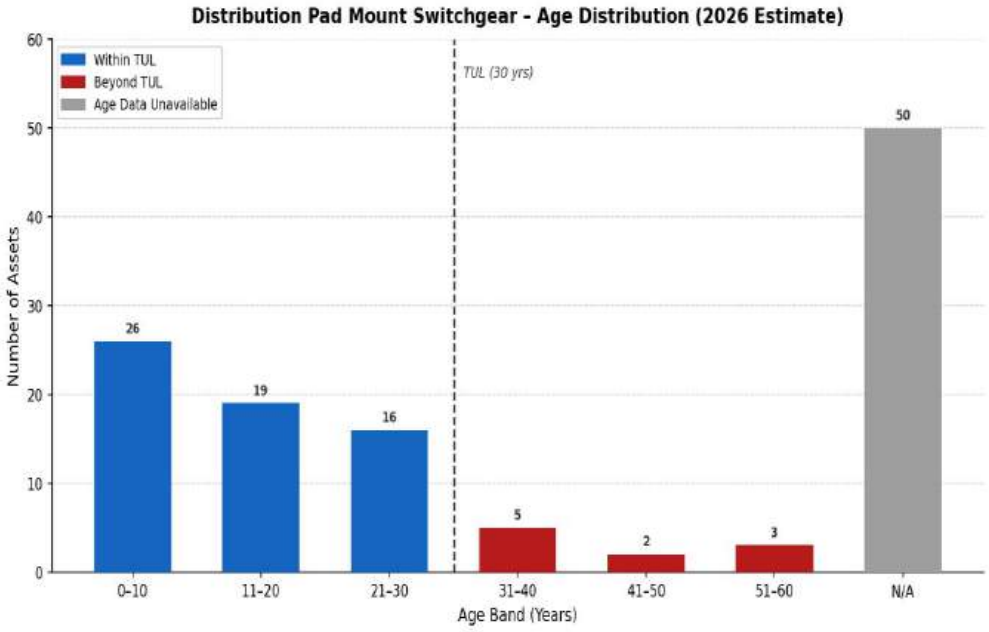

Figure 4-7: Distribution Pad Mount Switchgear – Age Distribution (2026 Estimate)

As shown in Figure 4-7, the majority of the 71 known-age units are within the 30-year TUL. The 0–10 band contains the largest cohort (26 units), followed by 19 units in the 11–20 band and 16 units in the 21–30 band approaching the TUL threshold. Of the known-age units, 10 (5 in the 31–40 band, 2 in the 41–50 band, and 3 in the 51–60 band) have exceeded the 30-year TUL and warrant prioritized review. Of the 121 units, 59 (49%) are in Very Good condition and 54 (45%) are in Good condition, with a combined Good-or-better rate of 94%. A further 7 units (6%) are in Fair condition and 1 unit (1%) is in Poor condition — with no units in Very Poor. The 1 Poor-condition unit should be individually investigated and prioritized for remediation or replacement. The 7 Fair-condition units should be monitored. Of the 121 units, 71 (59%) have complete condition data (grade A), while 50 (41%) are missing one condition parameter (grade B). No units fall below a B grade.

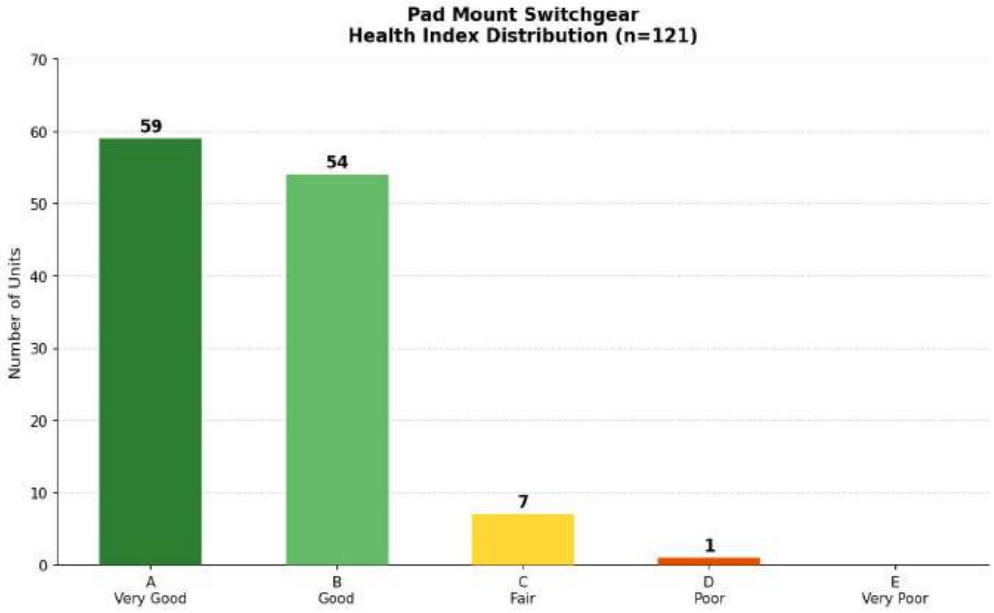

Figure 4-8: Distribution Pad Mount Switchgear – Health Score Distribution

4.1.6. Overhead Loadbreak Switches

InnPower manages a fleet of 51 overhead loadbreak switches in its distribution system. Loadbreak switches are manually operated devices that can interrupt load current while energized, allowing operators to safely isolate sections of the network for maintenance, fault isolation, or load transfer without de-energizing the circuit. The estimated TUL for this asset class is 40 years. The age distribution is presented in Figure 4-9. The HI formulation applied to this group is presented in Table 4-6.

Table 4-6: Overhead Loadbreak Switches HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Age	6	A, B, C, D, E	4, 3, 2, 1, 0	24
Visual Inspection	6	A, B, C, D, E	4, 3, 2, 1, 0	24
Infrared Inspection	2	A, B, C, D, E	4, 3, 2, 1, 0	8
Total Score	**14**			**56**

Of the 51 units, 32 have a confirmed installation year on record; the remaining 19 (37%) have no installation year and are shown as N/A in Figure 4-9. All 32 known-age units fall within the 40-year TUL. The largest cohort is in the 11–20 year band (23 units), followed by 6 units in the

0–10 band and 3 units in the 21–30 band. No units have yet exceeded the TUL, though the 3 units in the 21–30 band are approaching the threshold and should be monitored as they advance toward end-of-life.

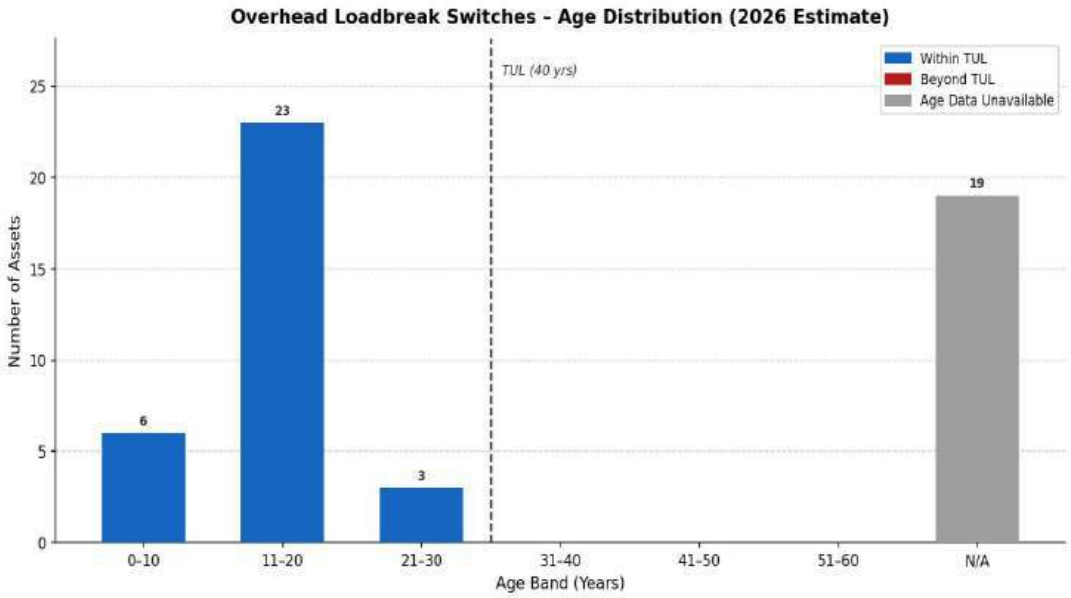

Figure 4-9: Overhead Loadbreak Switches – Age Distribution

Of the 51 units assessed, 32 (63%) are in Very Good condition and 19 (37%) are in Fair condition, with no units in Good, Poor, or Very Poor. The majority of the fleet is in strong health, while the 19 Fair-condition units represent a mid-life cohort that warrants ongoing monitoring and graduated intervention planning as units continue to age toward TUL. No units present immediate failure risk. Of the 51 units, 32 (63%) have complete condition data (grade A), while 19 (37%) are missing one condition parameter (grade B). No units fall below a B grade.

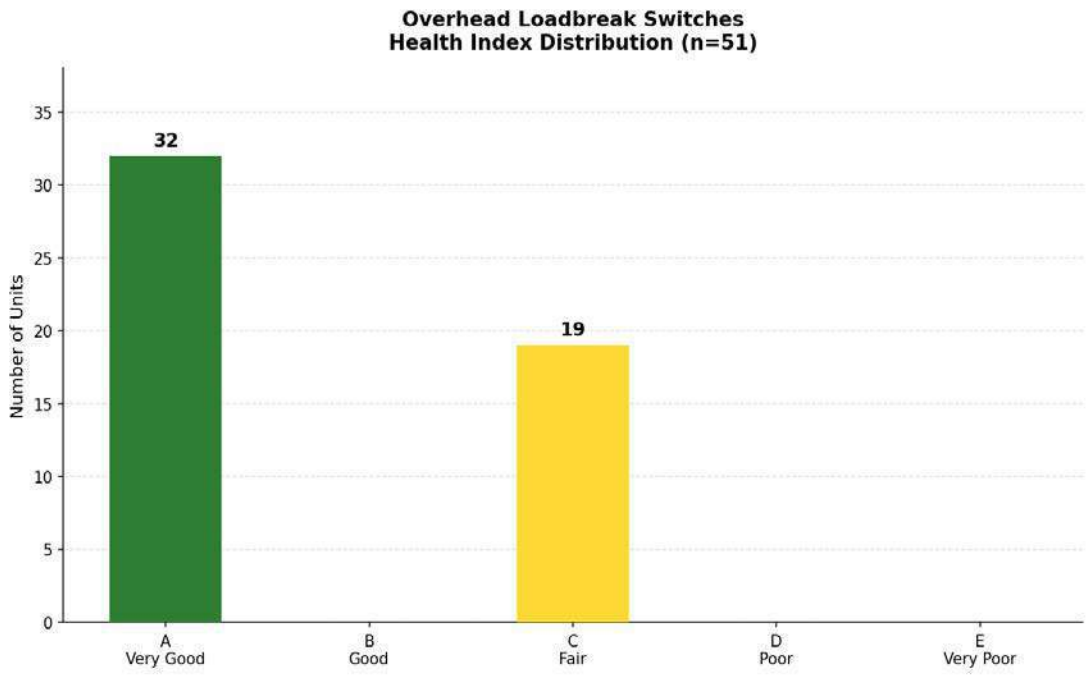

Figure 4-10: Overhead Loadbreak Switches – Health Score Distribution

4.1.7. Overhead Disconnect Switches

InnPower manages a fleet of 493 overhead disconnect switches. These are smaller passive isolation devices used to de-energize sections of the network for maintenance and fault isolation. Unlike protection and switching assets, disconnect switches do not require a dedicated age curve analysis: they are continuously evaluated through InnPower's regular field inspection program and assessed on a report-by-exception basis. Units flagged through inspection as degraded or at end of life are identified and prioritized for replacement at that time. No age distribution is presented for this asset class. The HI formulation applied to this group is presented in Table 4-7.

Table 4-7: Overhead Disconnect Switches HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Visual Inspection	1	A, B, C, D, E	4, 3, 2, 1, 0	4
Infrared Inspection	1	A, B, C, D, E	4, 3, 2, 1, 0	4
Total Score	**2**			**8**

Of the 493 units assessed, 492 (>99%) are in Very Good condition and 1 unit is in Good condition, with no units in Fair, Poor, or Very Poor. This represents an exceptionally healthy fleet — the best condition profile of any overhead switching asset class in InnPower's distribution system. No units present immediate failure risk. All 493 units achieved an "A" data quality grade, reflecting complete inspection records across the fleet.

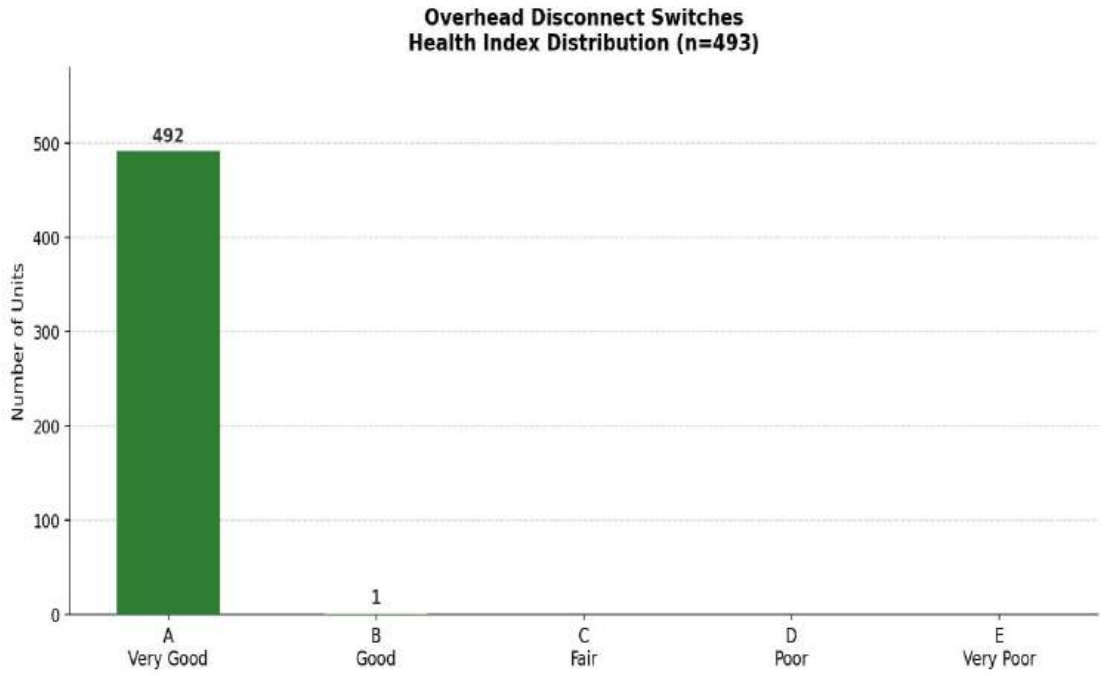

Figure 4-11: Overhead Disconnect Switches – Health Score Distribution

4.1.8. Overhead Line Reclosers

InnPower operates a fleet of 31 overhead line reclosers in its distribution system (up from 27 in the 2021 assessment). Overhead line reclosers are automatic switching devices deployed on overhead power lines to detect and interrupt fault currents, automatically re-energizing the line after temporary faults and isolating persistent ones. They are essential for grid reliability and minimizing outage durations. Reclosers are subject to degradation through ageing, environmental conditions, and deterioration of supporting equipment such as relays and communication devices. The HI formulation is presented in Table 4-8.

Table 4-8: Overhead Line Reclosers HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Age	6	A, B, C, D, E	4, 3, 2, 1, 0	24
Visual Inspection	3	A, B, C, D, E	4, 3, 2, 1, 0	12
Infrared Inspection	2	A, B, C, D, E	4, 3, 2, 1, 0	8
Total Score	**11**			**44**

The estimated TUL for overhead line reclosers is 40 years. As shown in Figure 4-12, the majority of the fleet (15 units, 49%) falls in the 21–30 year age band. Three new units are recorded in the 0–10 and 11–20 bands, reflecting recent replacements or additions to the fleet. More concerningly, 11 units (36%) have exceeded the 40-year TUL: 1 unit in the 41–50 band and 10 units in the 51–60 band. This age profile is consistent with the health index results and confirms that the majority of the aged cohort has reached or surpassed end-of-life.

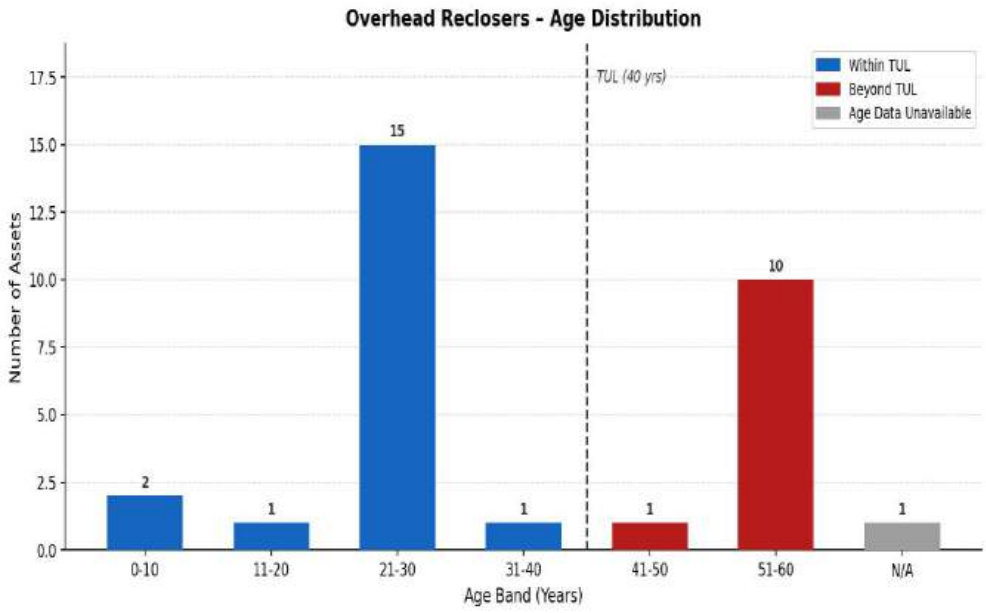

Figure 4-12: Overhead Line Reclosers – Age Distribution

It should be noted that the Health Index calculations for overhead line reclosers draw from a different age dataset than Figure 4-12. The 2021 age analysis dataset, which was used for Figure 4-12, provides higher coverage — 14 units lack a recorded age in the HI dataset compared to 1 unit in Figure 4-12 — however, that dataset could not be fully matched to current GIS records due to differences in asset identifier approaches between the two datasets. The overall age distributions are similar across both datasets; the primary difference is that Figure 4-

12 is more complete. InnPower should reconcile the two datasets to ensure consistent age data is applied to both the age distribution analysis and health index calculations in the next assessment cycle.

Of the 31 units in InnPower's fleet, 22 (71%) are in Poor condition, 5 (16%) are in Good condition, 3 (10%) are in Very Good condition, and 1 (3%) is in Fair condition — with no units in Very Poor. The concentration of units in Poor condition remains the primary concern for this asset class, indicating that the majority of the recloser fleet has reached or is approaching end-of-life. The 3 Very Good and 5 Good units correspond to more recently installed assets. This asset class represents the most acute short-term risk in InnPower's distribution fleet. Of the 31 units, 17 (55%) have complete condition data (grade A), while 14 (45%) are missing one condition parameter (grade B). No units fall below a B grade. InnPower should investigate all 22 Poor condition units and implement appropriate asset intervention strategies — replacement or refurbishment — based on individual unit criticality.

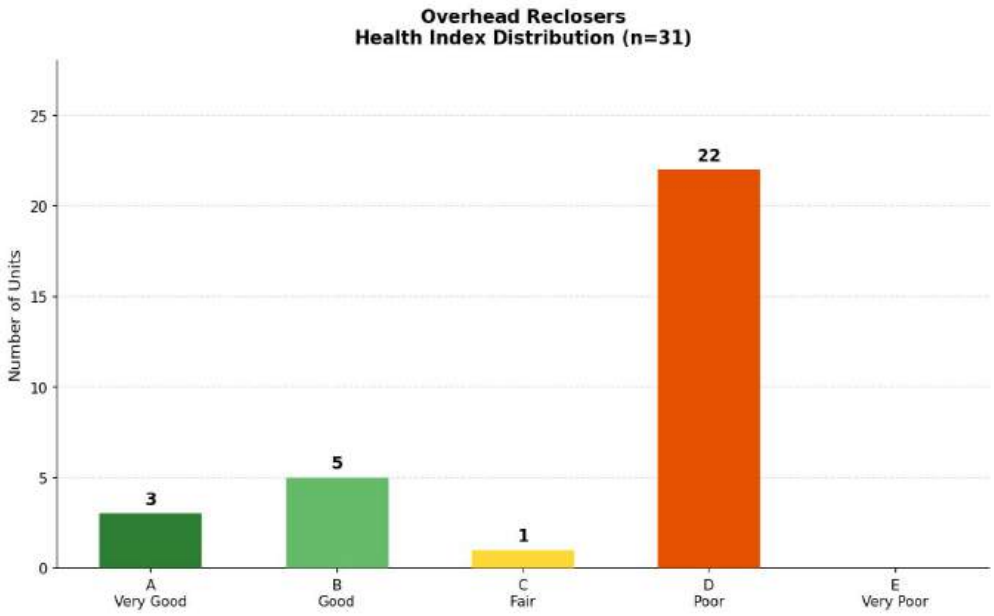

Figure 4-13: Overhead Line Reclosers – Health Score Distribution

4.1.9. Capacitors

InnPower currently operates nine capacitors in its distribution system. Capacitors are devices that store energy and control the flow of electricity; they are used in power grids to minimize reactive loss and improve the efficiency of the electrical distribution system. Common degradation mechanisms include age-based wear and environmental factors such as high temperatures and moisture. The HI formulation for this asset class has been updated from the 2021 assessment to include a visual inspection component, as presented in Table 4-9.

Table 4-9: Capacitors HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Age	4	A, B, C, D, E	4, 3, 2, 1, 0	16
Visual Inspection	2	A, B, C, D, E	4, 3, 2, 1, 0	8
Infrared Inspection	2	A, B, C, D, E	4, 3, 2, 1, 0	8
Total Score	**8**			**32**

The estimated TUL for capacitors is 30 years. InnPower's nine capacitors have known installation years: six were installed in 2001 (now approximately 25 years old) and three were installed in 2008 (now approximately 18 years old). As shown in Figure 4-14, all nine units are currently within the 30-year TUL. However, the six 2001-vintage units will reach the TUL threshold within the next five years and should be closely monitored for signs of deterioration. The three 2008 units have approximately 12 years of remaining life before reaching the TUL.

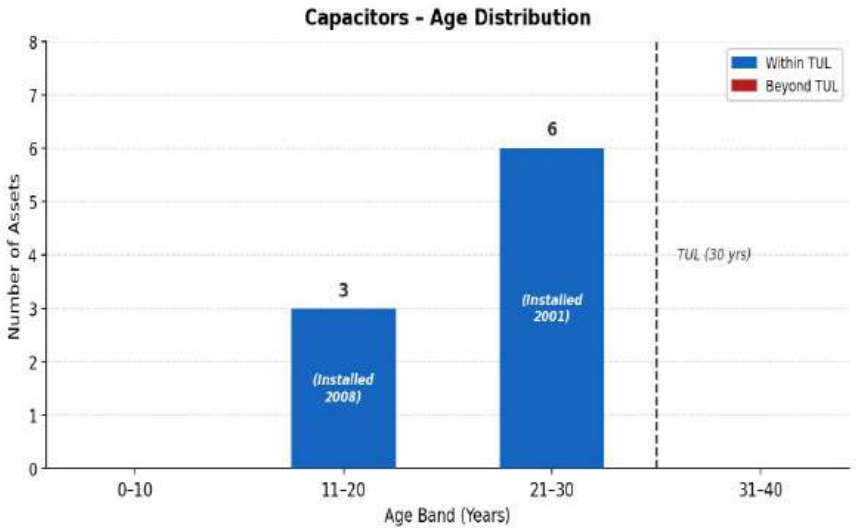

Figure 4-14: Capacitors – Age Distribution

All nine units in InnPower's capacitor fleet are in Very Good condition, with no units in the Good, Fair, Poor, or Very Poor categories. This represents a strong fleet health result. The six 2001-vintage units are approaching the 30-year TUL within the next five years and should be monitored closely for signs of deterioration. The three 2008-vintage units have approximately 12 years of remaining life before reaching the TUL. No immediate intervention is required, but continued monitoring is recommended as the 2001-vintage cohort approaches its technical

useful life. All nine units achieved a grade A data quality rating, indicating complete condition data across the fleet.

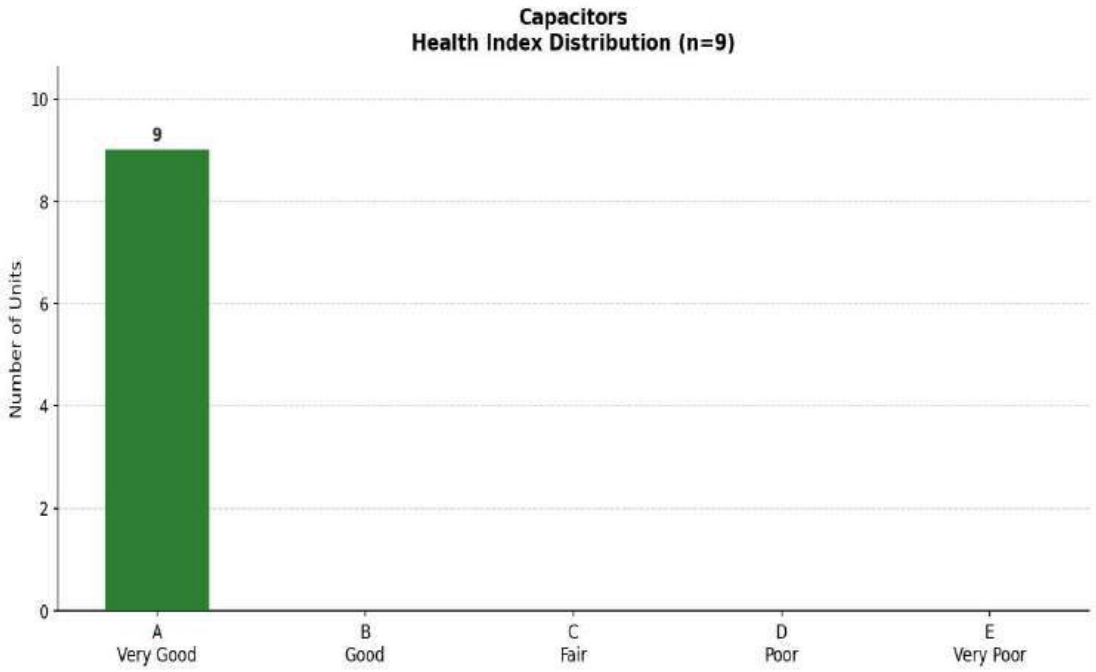

Figure 4-15: Capacitors – Health Score Distribution

4.1.10. Regulators

Regulators are a new asset class incorporated in this 2026 ACA that was not included in the 2021 assessment. InnPower currently operates three regulators in its distribution system. Regulators are critical electrical utility components designed to maintain a stable voltage level across the distribution network, ensuring consistent power delivery to customers. Their failure can result in voltage fluctuations, equipment damage, and costly service interruptions. The estimated TUL for this asset class is 40 years. The HI formulation for this asset class is presented in Table 4-10.

Table 4-10: Regulators HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Age	6	A, B, C, D, E	4, 3, 2, 1, 0	24
Visual Inspection	6	A, B, C, D, E	4, 3, 2, 1, 0	24
Infrared Inspection	2	A, B, C, D, E	4, 3, 2, 1, 0	8
Total Score	**14**			**56**

All three regulators were installed approximately 2 years ago and are well within the 40-year TUL, as shown in Figure 4-16. This asset class currently presents no age-related risk.

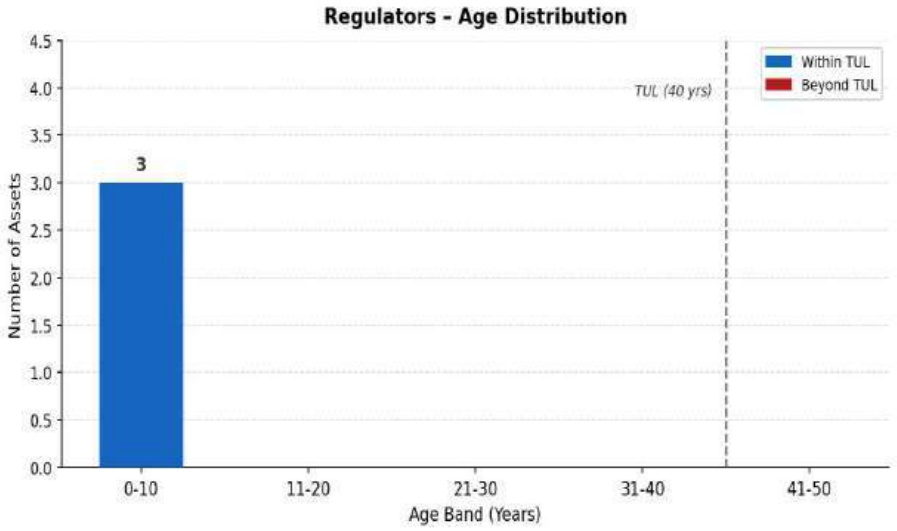

Figure 4-16: Regulators – Age Distribution

All three regulators in InnPower's system achieved a perfect health score of 100, placing them firmly in the Very Good condition category. All three units have complete condition data across all parameters. At approximately 2 years of age, these units are well within their 40-year TUL and represent a low-risk asset group at this time. InnPower should continue monitoring this asset class as the population may grow and units age over the planning horizon.

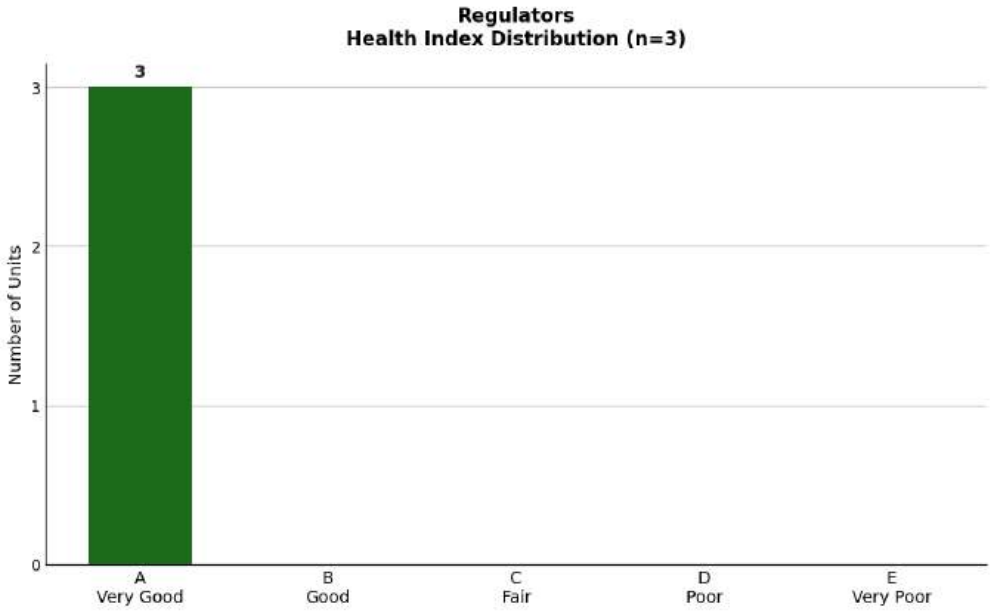

Figure 4-17: Regulators – Health Score Distribution

4.1.11. Wood Poles

InnPower manages a critical infrastructure comprising 11,008 wood poles, which are fundamental components for the reliable delivery of electricity. These poles support overhead power lines, transformers, and other electrical equipment, forming the backbone of the utility's distribution network. Maintaining the health and integrity of this asset group is paramount for ensuring public and worker safety, minimizing service interruptions, and optimizing operational costs. Wood poles are subject to a wide range of degradation mechanisms including biological decay, ground-line rot, insect infestation, physical damage (woodpecker damage, fire, lightning), and structural weakness. The HI formulation for this asset class incorporates 11 condition dimensions and is presented in Table 4-11.

Table 4-11: Wood Poles HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Age	10	A, B, C, D, E	4, 3, 2, 1, 0	40
Remaining Pole Strength	20	A, B, C, D, E	4, 3, 2, 1, 0	80
Top Decay	2	A, B, C, D, E	4, 3, 2, 1, 0	8
Ground Line Rot	2	A, B, C, D, E	4, 3, 2, 1, 0	8
Leaning Pole	1	A, B, C, D, E	4, 3, 2, 1, 0	4
Bent Pole	1	A, B, C, D, E	4, 3, 2, 1, 0	4
Insect Infestation	2	A, B, C, D, E	4, 3, 2, 1, 0	8
Feathering	1	A, B, C, D, E	4, 3, 2, 1, 0	4
Woodpecker Damage	1	A, B, C, D, E	4, 3, 2, 1, 0	4
Cracks	1	A, B, C, D, E	4, 3, 2, 1, 0	4
Fire / Lightning Damage	1	A, B, C, D, E	4, 3, 2, 1, 0	4
Total Score	**42**			**168**

The estimated TUL for wood poles is 45 years. Installation year records are available for 7,907 of the 11,008 poles in the current fleet, including 568 net new poles with confirmed installation years in the 0–10 year band. Of the current fleet, 3,101 poles (28%) have no installation year on record and are shown as N/A in Figure 4-18. InnPower is encouraged to resolve these data gaps to enable a complete age risk assessment across the full fleet.

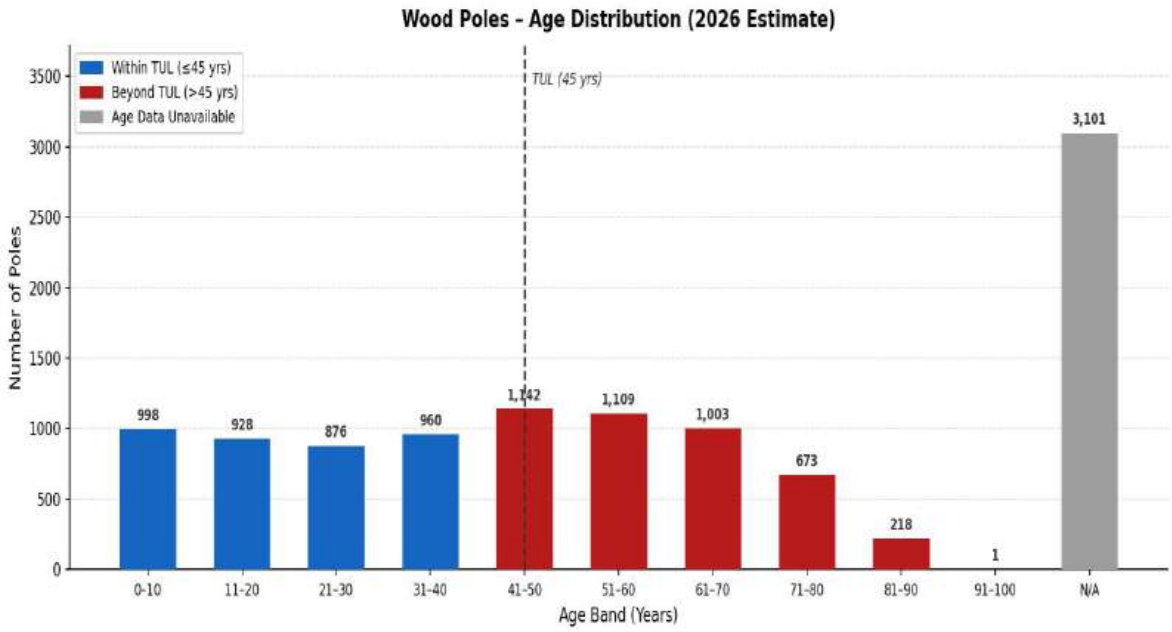

Figure 4-18: Wood Poles – Age Distribution

As shown in Figure 4-18, of the 9,206 poles with known installation years, 4,291 (47%) are beyond the 45-year TUL and 4,915 (53%) remain within TUL. The heaviest concentrations in the beyond-TUL cohort are in the 51–60 band (1,109 poles), the 61–70 band (1,003 poles), and the 41–50 band (1,142 poles, at or recently exceeding TUL). The 71–80 band contains 673 poles and the 81–90 band contains 218 poles, representing a significant cohort well beyond TUL.

It should be noted that the Health Index calculations for wood poles draw from a different age dataset than Figure 4-18. The HI dataset provides broader age coverage — 1,449 poles lack a recorded age compared to 3,101 in Figure 4-18 — however, it contains data inconsistencies that produce an anomalous spike in the 11–20 year band inconsistent with InnPower's known installation history, which require further investigation. Figure 4-18 is derived from the more refined age distribution analysis completed as part of the 2021 assessment; this dataset could not be applied to the HI calculations in the current cycle due to unresolved differences in asset identifier approaches between the two datasets. InnPower should reconcile the two datasets and investigate the 11–20 year anomaly ahead of the next assessment cycle.

Of the 11,008 poles assessed, 2,538 (23%) are in Very Good condition and 3,463 (31%) are in Good condition — together comprising 55% of the fleet in good to excellent health. A further 3,058 poles (28%) are in Fair condition, representing a mid-life population that warrants monitoring. Approximately 1,949 poles (18%) — 1,817 in Poor condition and 132 in Very Poor — carry significant short-term failure risk and require prioritized inspection and intervention planning. Data quality is strong across the fleet: 8,437 poles (77%) have complete data ("A" grade), 1,307 (12%) are missing one parameter ("B" grade), and 1,264 (11%) are missing two parameters ("C" grade). No poles received a "D" or "F" data quality grade.

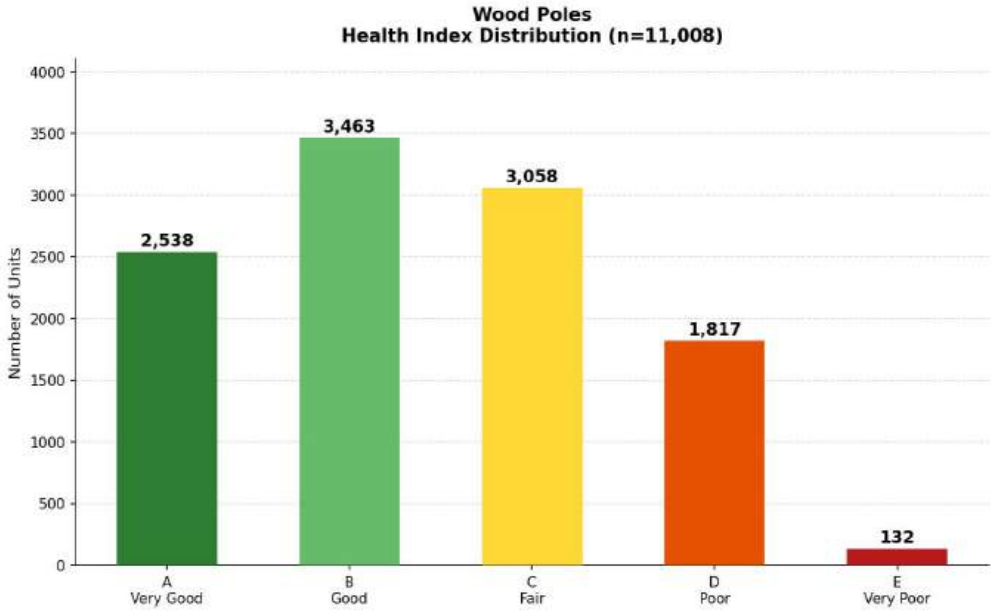

Figure 4-19: Wood Poles – Health Score Distribution

4.2. Station Assets

This section presents the condition assessment for InnPower's station (substation) asset classes.

4.2.1. Station Power Transformers

Power transformers are key station assets that are used to step down the voltage from the transmission to sub-transmission systems, or from the sub-transmission system to distribution levels. Computing the HI for a power transformer requires a combination of various end-of-life criteria for its components. The estimated TUL for this asset class is 45 years. The HI formulation is presented in the table below.

Table 4-12: Station Power Transformers HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Age	6	A,B,C,D,E	4,3,2,1,0	24
Visual Inspection	10	A,B,C,D,E	4,3,2,1,0	40
IR Scanning	6	A,B,C,D,E	4,3,2,1,0	24
DGA	10	A,B,C,D,E	4,3,2,1,0	40
Oil Quality	8	A,B,C,D,E	4,3,2,1,0	32
Insulation Power Factor	10	A,B,C,D,E	4,3,2,1,0	40
Winding Resistance	5	A,B,C,D,E	4,3,2,1,0	20
Turns Ratio	5	A,B,C,D,E	4,3,2,1,0	20
Total Score	**60**			**240**

The estimated TUL for Station Power Transformers is 45 years. Age demographics for Power Transformers is presented in the figure below. Service Age was available for all assets, and 5 transformers are past TUL.

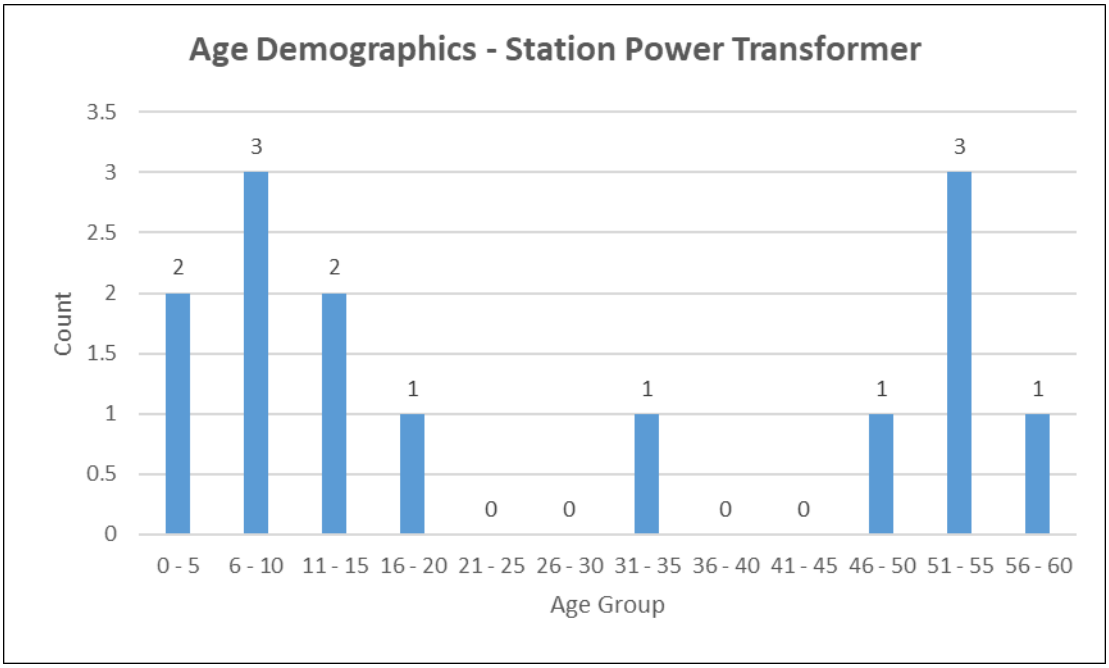

Figure 4-20: Power Transformers – Age Distribution

The figure below presents the HI results for Power Transformers. Valid HI results were calculated for all assets of which, 50% are in Very Good, 43% of assets are in Good condition, 7% are in Fair condition.

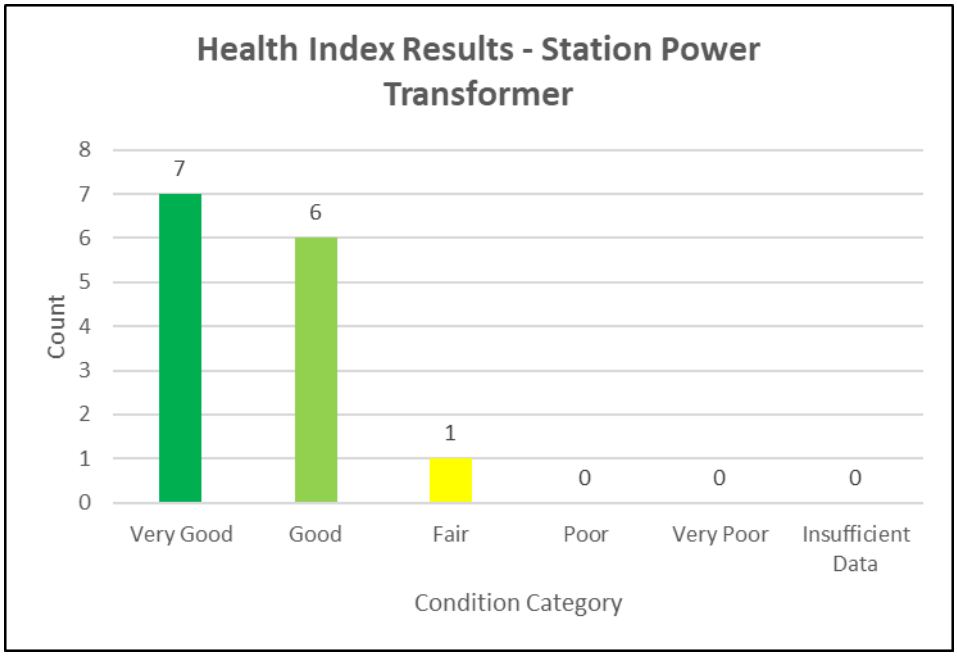

Figure 4-21: Station Power Transformers – Health Score Distribution

4.2.2. Station Power Transformer Tap Changers

A power transformer tap changer is a device that supports the function of power transformers by allowing operators to change the output voltage by adjusting the turns ratio. The estimated TUL for this asset class is 30 years. The HI formulation is presented in the table below.

Table 4-13: Power Transformers Tap Changers HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Age	2	A,B,C,D,E	4,3,2,1,0	8
Visual Inspection	3	A,B,C,D,E	4,3,2,1,0	12
DGA	3	A,B,C,D,E	4,3,2,1,0	12
Oil Quality	2	A,B,C,D,E	4,3,2,1,0	8
IR Scanning	1	A,B,C,D,E	4,3,2,1,0	4
Total Score	**11**			**44**

The estimated TUL for Station Power Transformer Tap Changers is 30 years. Age demographics for Tap Changers are shown in the figure below. Age data was available for all assets, and 6 tap changers are past TUL.

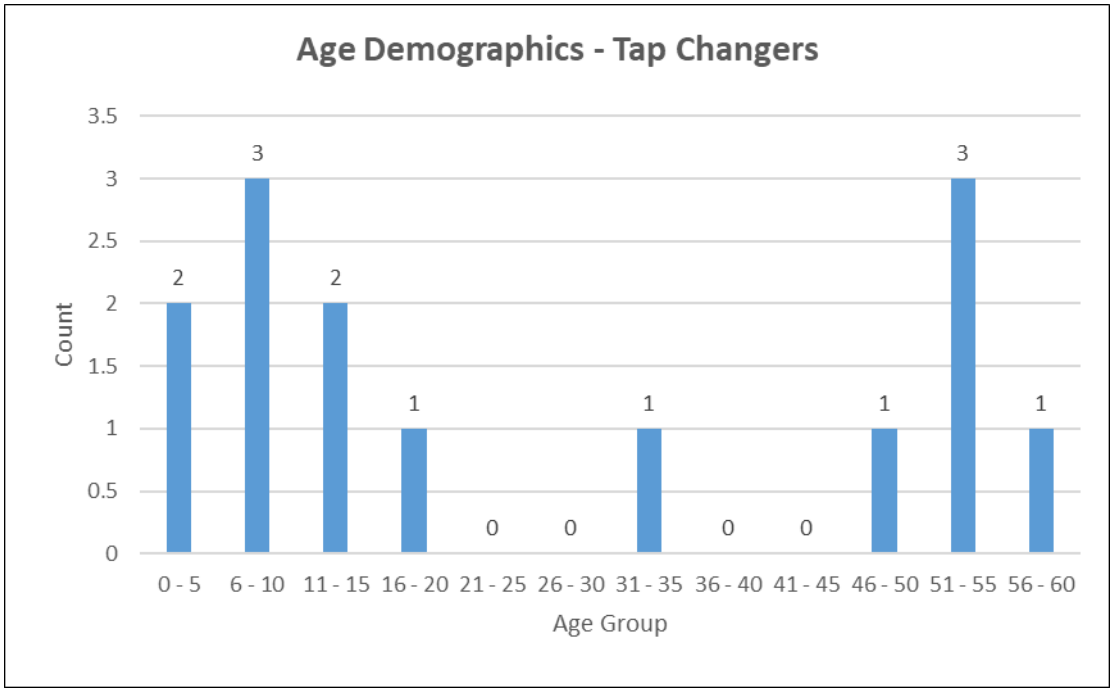

Figure 4-22: Station Power Transformers – Age Distribution

The figure below presents the HI results for Tap Changers. Valid HI results were calculated for all assets; 43% of assets are in Very Good condition, 43% of assets are in Good condition, 14% of assets are in Fair condition.

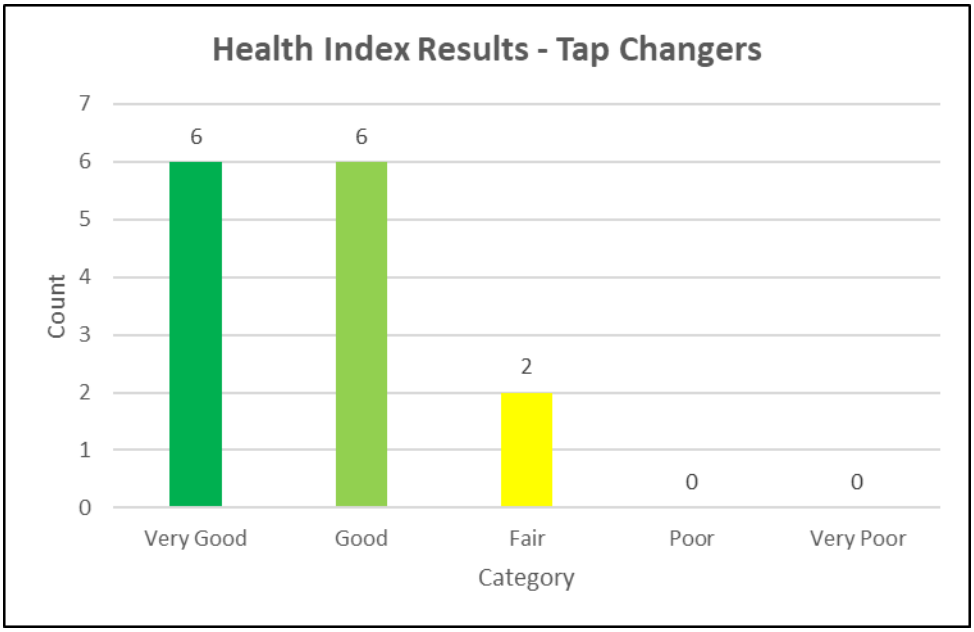

Figure 4-23: Station Power Transformer Tap Changer – Health Score Distribution

4.2.3. Station Switches

A Station Switch is an electrical device that is used to connect or disconnect load from portions of the distribution system such as specific feeders. This asset class consists of three sub-classes: Station Switches (HV/LV load break switches and bus tie switches not within a switchgear), Switchgear Switches (switches located within a switchgear), and 44kV Transrupters (protective devices designed for operation on the primary high-voltage side of a station transformer).

Table 4-14: Station Switches HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Visual Inspection	5	A,B,C,D,E	4,3,2,1,0	20
IR Scanning	2	A,B,C,D,E	4,3,2,1,0	8
Contact Resistance	2	A,B,C,D,E	4,3,2,1,0	8
Insulation Resistance	2	A,B,C,D,E	4,3,2,1,0	8
Total Score	**11**			**44**

Age demographics are not shown for this asset class since service age was not considered in the HI formulation.

HI results for Station Switches are presented in the figure below. Valid HI results were calculated for all station switches, of which 67% of assets are in Very Good condition, 29% of assets are in Good condition, and 10% of assets are in Poor condition.

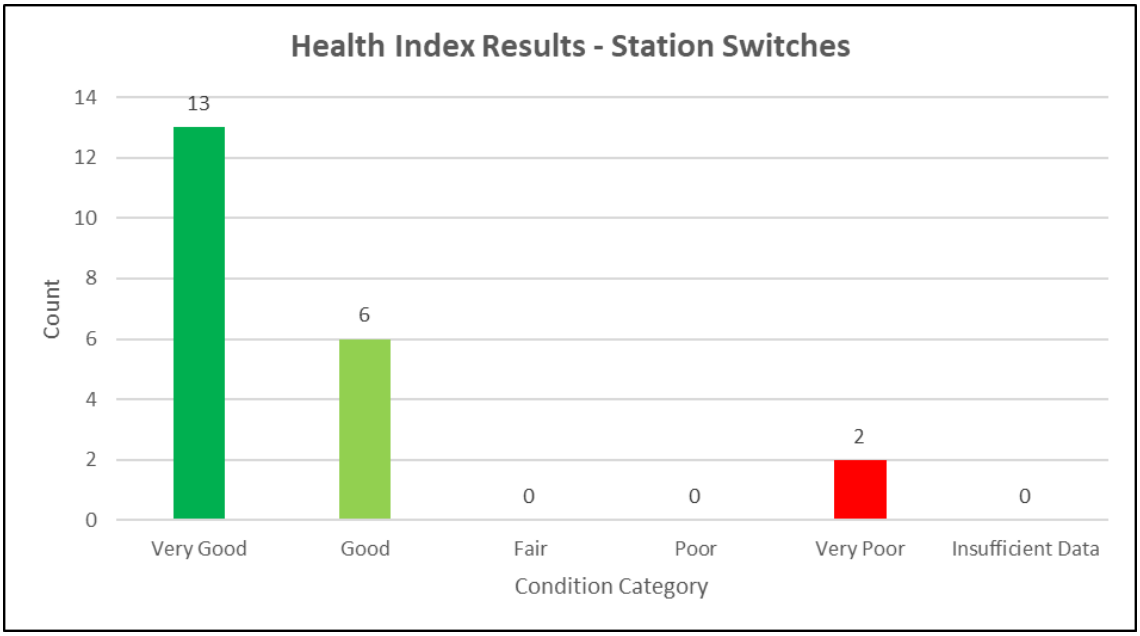

Figure 4-24: Station Switches – Health Score Distribution

4.2.4. Station Reclosers

Station reclosers are used to detect and interrupt momentary faults – these assets have automatic service restoration capabilities that enable efficient operations. The estimated TUL for this asset class is 45 years. The HI formulation is presented in the table below.

Table 4-15: Station Reclosers HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Age	3	A,B,C,D,E	4,3,2,1,0	12
IR Scanning	2	A,B,C,D,E	4,3,2,1,0	8
Visual Inspection	3	A,B,C,D,E	4,3,2,1,0	12
Operation Count	2	A,B,C,D,E	4,3,2,1,0	8
Total Score	**10**			**40**

The estimated TUL for Station Reclosers is 45 years. Age demographics for Station Reclosers are presented in the figure below. Service age for all assets are below TUL.

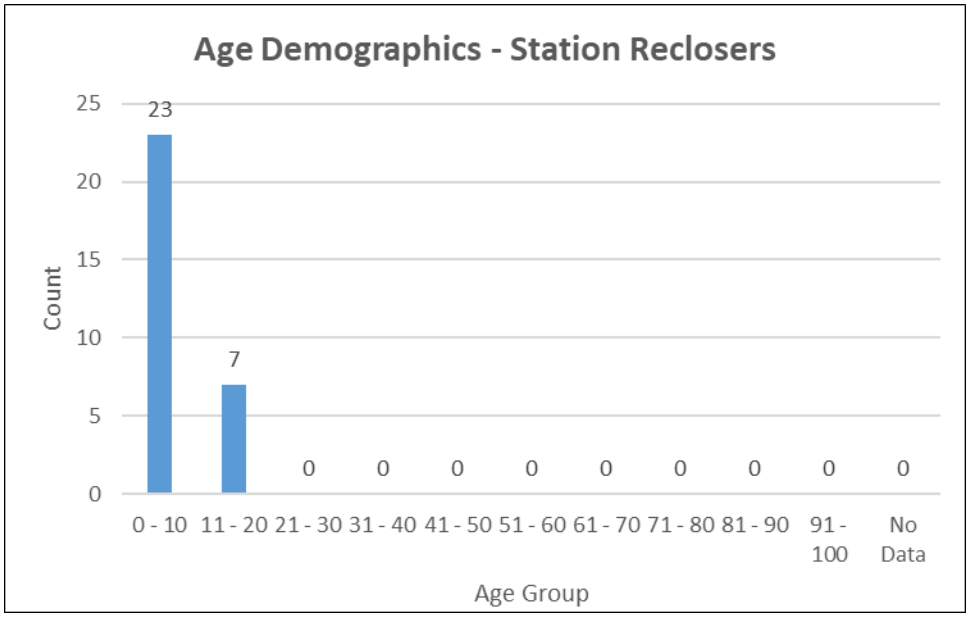

Figure 4-25: Station Reclosers – Age Distribution

The figure below presents the HI results for Station Reclosers. Valid results were calculated for all assets, where 83% of assets are in Very Good condition and 17% of assets are in Good condition.

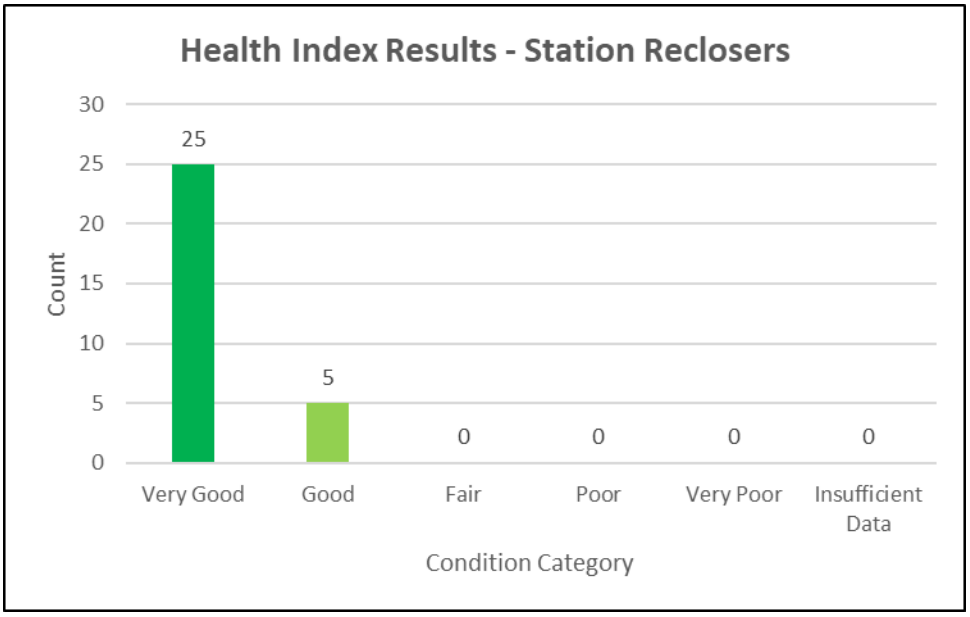

Figure 4-26: Station Reclosers – Health Score Distribution

4.2.5. Station Service Transformers

Station service transformers are a class of power transformer that tap directly into the incoming high voltage line and step-down power for use at the substation site. The estimated TUL for this asset class is 45 years. The HI formulation is presented in the table below.

Table 4-16: Station Service Transformers HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Age	3	4,3,2,1,0	A,B,C,D,E	12
Visual Inspection	5	4,3,2,1,0	A,B,C,D,E	20
IR Scanning	2	4,3,2,1,0	A,B,C,D,E	8
Total Score				**40**

The estimated TUL for Station Service Transformers is 45 years. Age demographics for Service Transformers are presented in the figure below. Service age is available for all assets, and 3 transformers are past TUL.

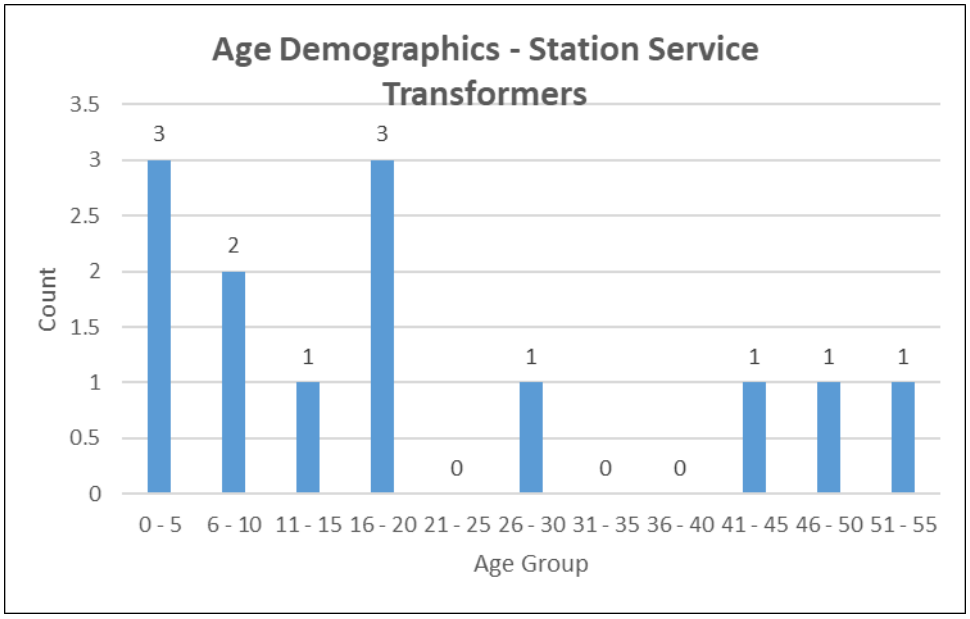

Figure 4-27: Station Service Transformers – Age Distribution

The figure below presents HI results for Station Service Transformers. Valid HI results were calculated for all assets. 77% of assets are in Very Good condition and 23% of assets are in Good condition.

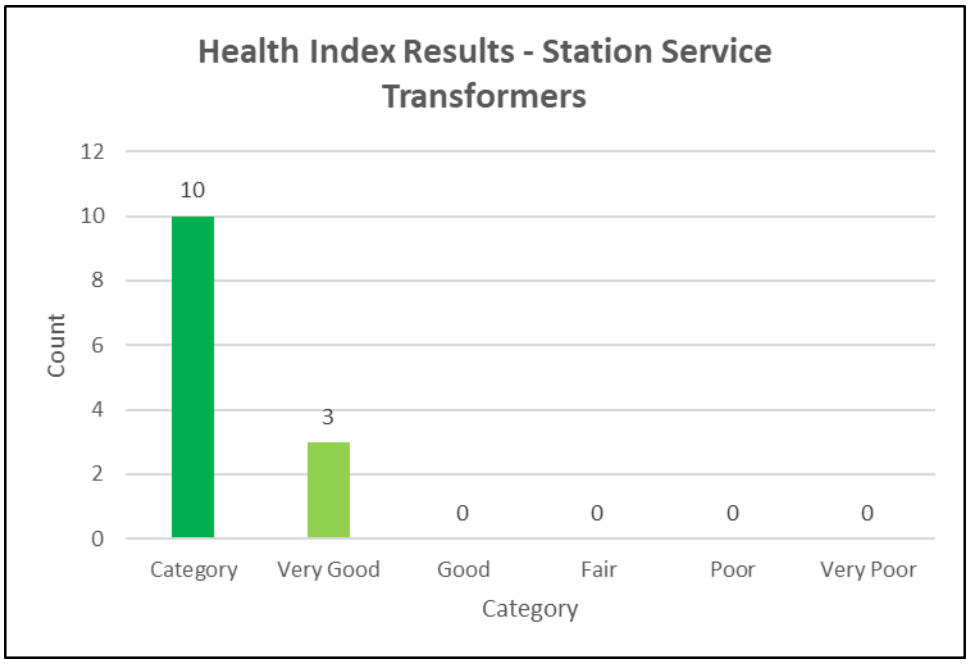

Figure 4-28: Station Service Transformers – Health Score Distribution

4.2.6. Station Lightning Arresters

Lightning Arresters are protective devices that shield other assets from lightning strikes by diverting surges to a ground terminal. Over time, lightning arresters are expected to see a decline in condition due to degradation factors including but not limited to ageing, moisture ingress, and overvoltage scenarios.

Table 4-17: Station Lightning Arresters HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Visual Inspection	3	4,3,2,1,0	A,B,C,D,E	12
Testing	3	4,3,2,1,0	A,B,C,D,E	12
IR Scanning	2	4,3,2,1,0	A,B,C,D,E	8
Total Score	**8**			**32**

Age demographics are not shown for this asset class since service age was not considered in the HI formulation.

HI results for Lightning Arresters are presented in the figure below. Valid HI results were calculated for 92% of assets, of which 81% are in Very Good condition, 4% are in Good condition, 4% are in Fair condition, and 4% are in Poor condition.

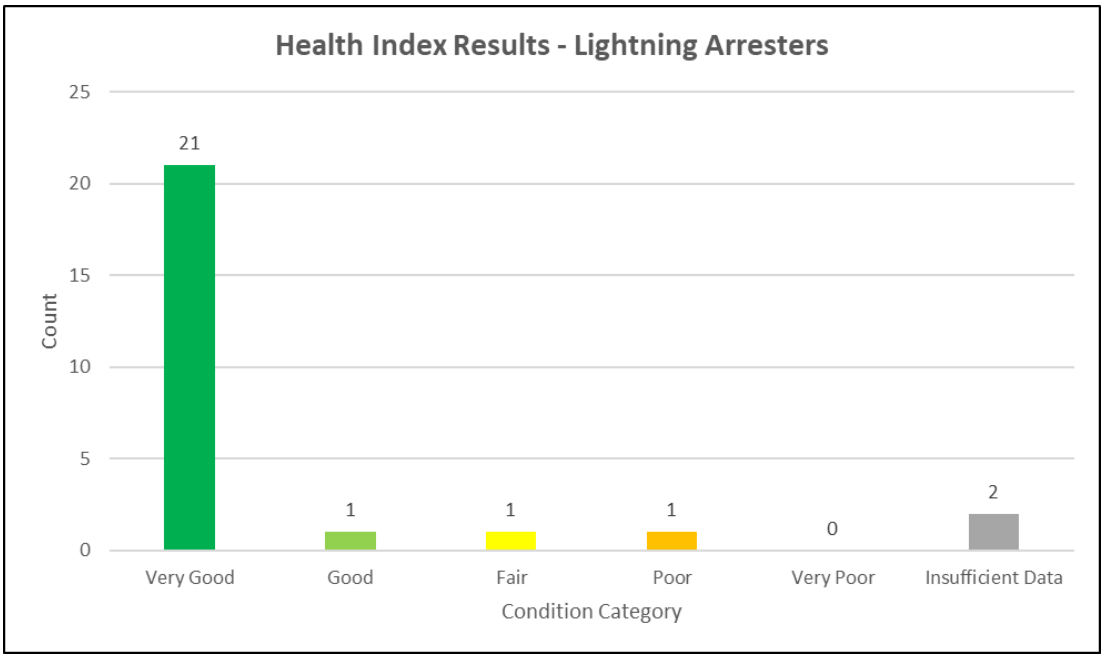

Figure 4-29: Station Lightning Arresters – Health Score Distribution

4.2.7. Station Power Fuses

Power fuses provide over-current protection during overload conditions or short circuits. HI formulation is presented in the table below.

Table 4-18: Station Power Fuses HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Visual Inspection	2	4,3,2,1,0	A,B,C,D,E	8
IR Scanning	1	4,3,2,1,0	A,B,C,D,E	4
Contact Resistance	3	4,3,2,1,0	A,B,C,D,E	12
Insulation Resistance	3	4,3,2,1,0	A,B,C,D,E	12
Total Score	**9**			**36**

Age demographics are not shown for this asset class since service age was not considered in the HI formulation.

HI Results for Power Fuses are presented in the figure below. Valid HI results were calculated for all assets. 67% of assets are in Very Good condition, 22% of assets are in Good condition, and 11% of assets are in Fair condition.

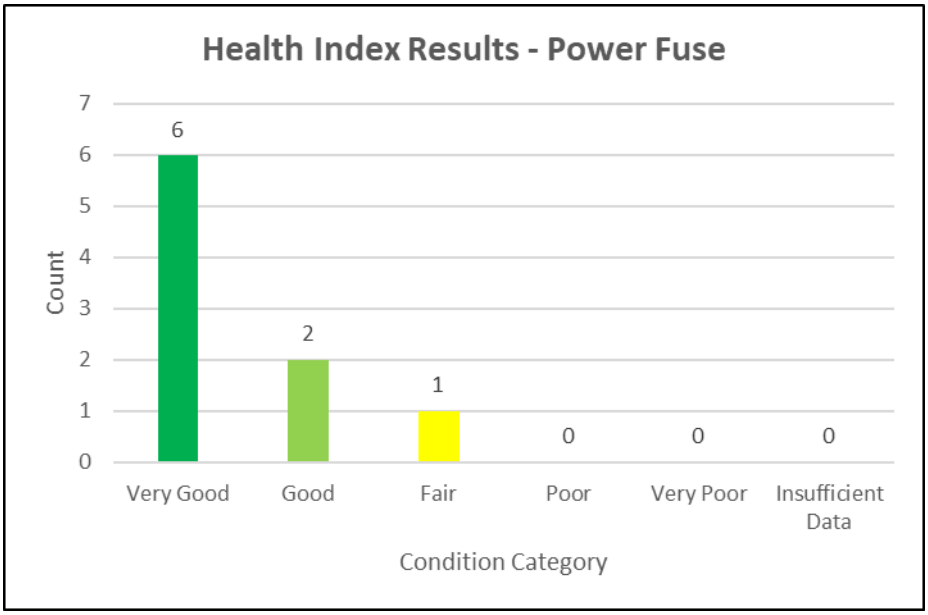

Figure 4-30: Station Power Fuses – Health Score Distribution

4.2.8. Station Ground Grids

The purpose of a substation ground grid is to provide a low resistance ground electrode for system neutral, for equipment case grounding, and to maintain safe potential gradients within the station yards during abnormal operating conditions such as line-to-ground faults. The Health Index for station ground grids is calculated by considering visual inspection and ground resistance testing results.

Table 4-19: Station Ground Grids HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Station Grounding	**10**	4,3,2,1,0	A,B,C,D,E	**40**
Total Score	**10**			**40**

Age demographics are not shown for this asset class since service age was not considered in the HI formulation.

HI results for Station Ground Grids are presented in the figure below. Valid HI results were calculated for all assets. 70% of assets are in Very Good condition and 30% of assets are in Very Poor condition.

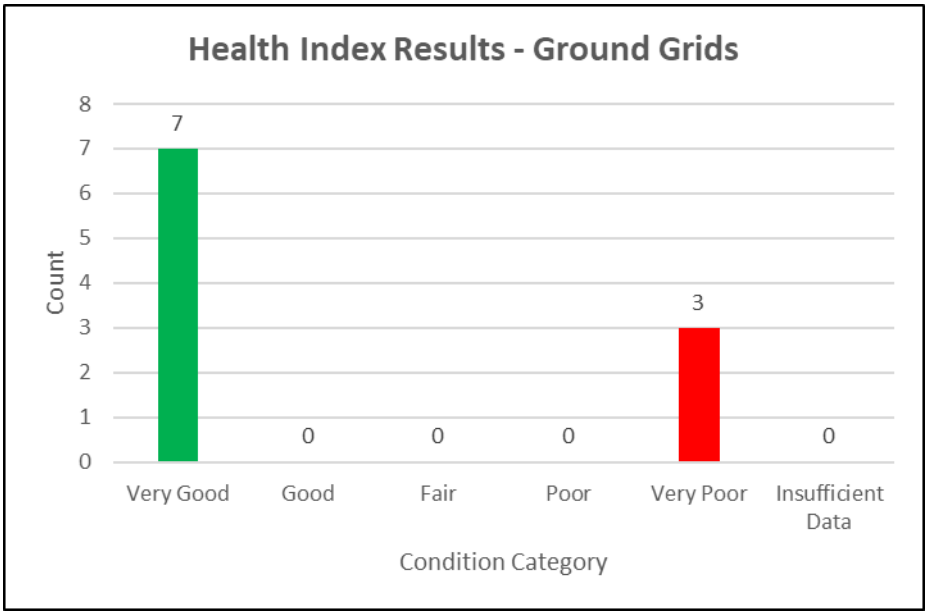

Figure 4-31: Station Ground Grids – Health Score Distribution

4.2.9. Station Facilities

The Station Facilities asset class refers to several non-distribution assets located at InnPower's station sites such as the substation yard, fence, and structures. The integrity of station structure, fence, and yard contribute to the safety of the station and the performance of the assets therein.

Table 4-20: Station Facilities HI Formulation

Condition Parameter	Weight	Ranking	Numerical Grade	Max Score
Yard Visual Inspection	2	4,3,2,1,0	A,B,C,D,E	8
Fence Visual Inspection	4	4,3,2,1,0	A,B,C,D,E	16
Structure Visual Inspection	5	4,3,2,1,0	A,B,C,D,E	20
Health & Safety	2	4,3,2,1,0	A,B,C,D,E	8

Electrical Panel	1	4,3,2,1,0	A,B,C,D,E	4
Lighting	1	4,3,2,1,0	A,B,C,D,E	4
HVAC	1	4,3,2,1,0	A,B,C,D,E	4
Total Score	**16**			**64**

Age demographics are not shown for this asset class since service age was not considered in the HI formulation.

HI results for Station Facilities are presented in the figure below. Valid HI results were calculated for all assets. 50% of assets are in Very Good condition, 30% of assets are in Good condition, 10% of assets are in Fair condition, and 10% of assets are in Poor condition.

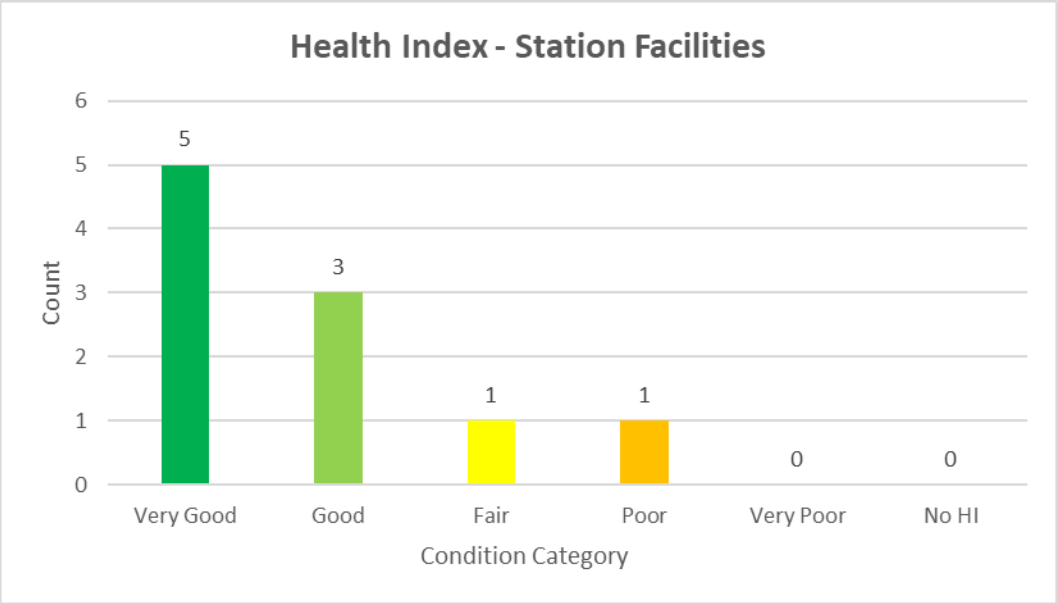

Figure 4-32: Facilities – Health Score Distribution

5. Conclusions

The overall condition demographics for InnPower's distribution and station assets — based on data available as of February 2026 — present a mixed but generally manageable picture. The following key observations summarize the assessment results for each asset class:

- Regulators (3 units): All 3 units are in Very Good condition (HI = 100%). This newly-tracked asset class presents no short-term intervention needs.

- Pad Mount Transformers (2,161 units): 1,754 units (81%) are in Very Good condition and 387 (18%) are in Good condition, with only 20 units across Fair, Poor, and Very Poor combined. This is a notably healthy and well-managed asset class. The population has grown significantly since 2021 (from 1,478 units), reflecting network expansion.

- Pole Mount Transformers (2,195 units): 1,056 units (48%) are in Very Good condition and 885 (40%) are in Good condition. A further 175 units (8%) are in Fair condition and 79 units (4%) are in Poor condition, warranting monitoring and targeted inspection.

- Pad Mount Switchgear (121 units): 59 units (49%) are in Very Good condition and 54 (45%) are in Good condition, with a combined Good-or-better rate of 94%. A further 7 units are in Fair condition and 1 is in Poor condition — no units in Very Poor. The 1 Poor-condition unit should be individually investigated.

- Overhead Loadbreak Switches (51 units): 32 units (63%) are in Very Good condition and 19 units (37%) are in Fair condition, with no units in Good, Poor, or Very Poor. The majority of the fleet is in strong health; the 19 Fair-condition units warrant ongoing monitoring and graduated intervention planning as they continue to age toward TUL.

- Overhead Disconnect Switches (493 units): 492 units (>99%) are in Very Good condition and 1 unit is in Good condition, with no units in Fair, Poor, or Very Poor. This is one of the healthiest asset classes in the distribution fleet and presents no short-term intervention needs.

- Overhead Line Reclosers (31 units): The most acute short-term risk in the distribution fleet. 22 units (71%) are in Poor condition, 5 (16%) are in Good condition, 3 (10%) are in Very Good condition, and 1 (3%) is in Fair condition — with no units in Very Poor. The majority of the recloser fleet has reached or is approaching end-of-life. Immediate investigation and intervention planning is required.

- Capacitors (9 units): All 9 units are in Very Good condition, representing strong fleet health. The six 2001-vintage units are approaching the 30-year TUL within the next five

years and should be monitored closely for signs of emerging deterioration. No immediate intervention is required.

- Wood Poles (11,008 units): The wood pole fleet presents a mixed but improved profile. 2,538 poles (23%) are in Very Good condition and 3,463 (31%) in Good condition, comprising 55% of the fleet in healthy condition. A further 3,058 poles (28%) are in Fair condition. Approximately 1,949 poles (18%) — 1,817 Poor and 132 Very Poor — require prioritized inspection and intervention. Data quality is strong: 77% of poles have complete data (grade A).

- Underground Cables (~199 km, age assessment only): Approximately 13% of the cable population has exceeded the 40-year TUL. These assets should be prioritized for investigation.

- Overhead Conductors (~682 km, age assessment only): Approximately 34% of the conductor population has exceeded the 60-year TUL — a significant increase from 29% in 2021. InnPower should prioritize investigation and condition assessment for the oldest segments.

- Station Power Transformers (14 units): All assets are between Very Good to Fair condition. Continue to monitor and perform regular maintenance.

- Station Power Transformer Tap Changers (14 units): All assets are between Very Good to Fair condition. Continue to monitor and perform regular maintenance.

- Station Switches (21 units): 2 assets in Very Poor Condition – require prioritized inspection and intervention. All other assets are between Very Good to Fair condition. Continue to monitor and perform regular maintenance.

- Station Reclosers (30 units): All assets are between Very Good to Good condition. Continue to monitor and perform regular maintenance.

- Station Service Transformers (12 units): All assets are between Very Good to Good condition. Continue to monitor and perform regular maintenance.

- Station Lightning Arresters (26 units): 1 asset in Poor Condition – require prioritized inspection and intervention. 23 assets between Very Good to Fair condition. Continue to monitor and perform regular maintenance. HI results were not calculated for 2 assets due to low testing data availability. Update testing data for future ACAs.

- Station Power Fuses (9 units): All assets are between Very Good to Fair condition. Continue to monitor and perform regular maintenance.

- Station Ground Grids (10 units): 3 assets in Very Poor condition – require prioritized inspection and intervention. All other assets are in Very Good condition. Continue to monitor and perform regular maintenance.

- Station Facilities (10 units): 1 asset in Poor Condition – require prioritized inspection and intervention. All other assets are between Very Good to Fair condition. Continue to monitor and perform regular maintenance.

Assets in Poor or Very Poor condition carry significant short-term failure risk. InnPower should apply appropriate asset intervention strategies — such as refurbishment or replacement — to mitigate this risk, with priority given to assets in the Poor or Very Poor category that also serve critical functions in the distribution system. Assets in the Fair condition category may require intervention over the medium term depending on asset criticality and the pace of degradation.

6. Recommendations

A complete ACA framework for InnPower represents an integral component of its broader AM framework, enabling it to proactively manage its distribution assets and ensure that the right actions are taken for the right assets at the right time. This section outlines InnPower's recommendations under three categories: asset intervention strategies; HI and data improvements; and continuous improvement actions.

6.1. Asset Intervention Strategies

Asset intervention options include replacement, refurbishment, or enhanced maintenance. Assets in Poor or Very Poor condition should be prioritized for intervention in the short-term. Fair-condition assets may also need to be addressed in the short-term depending on criticality and risk. The following prioritization is recommended:

- Short-term (1–3 years): Investigate and plan intervention for all Overhead Line Recloser units in Poor condition (22 units, 71% of fleet); review the 1 Pad Mount Switchgear unit in Poor condition; and assess the oldest Overhead Conductor and Underground Cable segments exceeding TUL. Begin targeted inspection of Wood Poles in Poor and Very Poor condition (~1,949 units). Monitor the six 2001-vintage Capacitor units approaching TUL within five years.
- Medium-term (3–7 years): Monitor the 19 Overhead Loadbreak Switch units in Fair condition and schedule graduated replacement programs; monitor Pole Mount Transformer units in Fair or Poor condition; review aging Overhead Conductor segments in the 51–60 year band; continue Wood Pole inspections and implement intervention for highest-risk poles.
- Long-term (7+ years): Maintain monitoring of Pad Mount Transformers in Fair condition; develop a Regulator maintenance and monitoring program as the population grows; sustain Wood Pole data quality and inspection cycle.

Where feasible, asset intervention should be bundled; for example, into overhead rebuild projects and underground rebuild projects. This approach maximizes the value of mobilization and minimizes disruption to the distribution system.

6.2. Health Index and Data Improvements

Table 6-1: Data Collection and HI Improvement Recommendations

Asset Class	Recommendation	Priority
Wood Poles	Continue annual inspection program and prioritize intervention for the ~1,949 poles in Poor or Very Poor condition; resolve remaining data gaps (C-grade poles) over next assessment cycle.	High
Overhead Conductors / Underground Cables	Complete GIS data refresh and update km totals; begin structured condition assessment program.	High

Overhead Loadbreak Switches	Obtain age data (vintage records) to enable age distribution analysis; continue visual inspection and IR scanning programs as units age toward TUL.	Medium
Overhead Disconnect Switches	Continue visual inspection and IR scanning programs; maintain report-by-exception approach to flag degraded units for prioritized replacement.	Low
Overhead Reclosers	Establish complete asset registry records including serial numbers and manufacture dates; implement urgent intervention program for the 22 Poor-condition units.	High
Pole Mount Transformers	Consider adding visual inspection data to the HI formulation to improve condition assessment completeness.	Low
Pad Mount Transformers	Confirm loading data integration as loading history becomes available; incorporate in Average Loading dimension.	Medium
Capacitors	Continue regular visual inspection and IR scanning programs; confirm TUL against current condition findings.	High
Station Assets (All)	Compile and load station asset condition data in Senpilot for inclusion in next ACA revision.	High

6.3. Data Collection Improvements

Data availability is critical to produce prudent, accurate, and justified asset management decisions. Companies understand that it is critical to execute continuous improvement procedures through an AM data lifecycle, such that data gaps and inaccuracies can be addressed and mitigated. In the case of this ACA, the quality of the HI is dependent on the available data.

InnPower should continue to work on mitigating existing data gaps, such that more condition parameters can be assigned actual grades, expanding the sample size of valid HI scores and capturing all possible degradation of the evaluated assets. InnPower's testing, inspection, and maintenance programs are well-positioned to continue capturing this information using processes and technologies in place within the organization.

Additionally, InnPower should evaluate options for standardizing condition parameter recording to a five-level grading scheme (Very Good to Very Poor) where a three-tier scheme is currently in use. This would provide more defined segregation between assets requiring immediate attention and those that can remain in service without short-term intervention.

7. Risk and Criticality-Informed Project Prioritization

Effective asset management requires more than understanding asset condition in isolation — it demands a structured approach to prioritizing interventions based on both the physical state of an asset and the consequences of its failure. InnPower applies a risk and criticality-informed prioritization methodology, enabled through its Senpilot asset management platform, to ensure that capital investment is directed toward the assets that present the greatest overall risk to service reliability and public safety. The methodology described in this section currently applies to distribution assets; expansion to encompass station assets is planned as a near-term next step in InnPower's asset management program.

Once the risk profile of each asset has been established, it is placed into a prioritization and selection process that determines which assets require action and the extent of the action necessary to reduce risk to an acceptable level. Assets with unacceptably high risk scores are monitored closely, and plans are developed to alternatively maintain, refurbish, or replace them. Risk is factored directly into the selection and prioritization of capital expenditures, ensuring that the assets posing the greatest threat to system reliability and customer service are addressed first.

7.1. Framework Overview: Health, Criticality, and Risk

InnPower's prioritization approach is built around three interrelated concepts — Health, Criticality, and Risk — as defined and implemented within the Senpilot platform:

Health is calculated using available asset data such as age and last inspection results. An asset approaching end of life or exhibiting significant deterioration will have a lower health score, reflecting an elevated likelihood of failure. Criticality captures the consequence of failure — specifically, the importance of an asset to the network if it were to suddenly fail or go offline. Assets near hospitals, water facilities, or communications infrastructure, or those serving a large number of customers, carry higher criticality scores. Risk is the holistic score derived from combining health and criticality: low health combined with high criticality produces a high risk score. It is noteworthy that some assets carry an inherently higher risk than others. For example, a distribution transformer upstream of a hospital carries a higher nominal risk than a pole mount transformer serving a rural residential street, even if both are in similar physical condition. Assets with low health indices and higher consequence risk are given priority for replacement or refurbishment, while assets with low health indices but lower consequence risk are assigned a lower priority.

7.2. Criticality Assessment — Factors and Weighting

Criticality scores are calculated using a weighted combination of factors drawn from GIS data, Senpilot's global benchmark database, and external APIs. The following table shows the criticality factors, data sources, and relative weights as configured for InnPower's distribution asset assessment:

Criticality Factor	Description
Proximity	Proximity to local infrastructure: hospitals, water, communications
Number of endpoints	Total number of endpoints through asset
Cost to replace	Estimated cost of asset based on global benchmark data
Customer count	Total number of customers served by asset

Table 7-1: Criticality Factors and Weights – InnPower Distribution Assets (Senpilot)

The four active criticality factors and their rationale are:

- Proximity (Weight: 2) — Spatial proximity to critical local infrastructure, including hospitals, water treatment facilities, and communications hubs, as determined through an external geospatial API. Assets in close proximity to such facilities carry a higher consequence of failure and therefore a higher criticality contribution.
- Number of Endpoints (Weight: 1) — The total number of network endpoints downstream of the asset, sourced from GIS. Assets that serve as upstream nodes for a larger number of endpoints carry greater systemic impact in the event of failure.
- Cost to Replace (Weight: 2) — Estimated replacement cost based on global benchmark data provided by Senpilot. Higher-cost assets are weighted more heavily, reflecting both the financial consequence of failure and the strategic importance of the asset to the network.
- Customer Count (Weight: 1) — Total number of customers directly or indirectly served by the asset, sourced from GIS. Assets serving a larger customer base carry a higher societal consequence of failure.

Capacity and original cost (Cost) are currently assigned a weight of zero and do not contribute to the criticality score in this assessment cycle. These factors may be assigned non-zero weights in future assessment cycles as data quality and GIS completeness improve.

7.3. Fleet-Wide Risk and Criticality Assessment Results

Using the combined health and criticality scores, Senpilot generates a fleet-wide risk profile for each distribution asset class. The heatmaps below present InnPower's distribution asset population by risk score band, enabling direct comparison of risk concentration across asset groups. Darker cells indicate a higher density of assets in that risk band.

Asset Group	0 - 9	10 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	80 - 89	90 - 100
Capacitors (9)	1	7	1	0	0	0	0	0	0	0
Overhead disconnect switches (493)	320	172	0	1	0	0	0	0	0	0
Overhead loadbreak (51)	19	13	0	8	11	0	0	0	0	0
Overhead reclosers (31)	0	2	2	4	1	22	0	0	0	0
Pad mount switchgear (121)	29	27	54	10	0	1	0	0	0	0
Pad mount transformers (2,161)	566	1,118	418	51	4	2	2	0	0	0
Pole mount transformers (2,195)	466	893	624	79	57	37	39	0	0	0
Regulators (3)	3	0	0	0	0	0	0	0	0	0
Wood poles (11,008)	1,446	1,886	2,594	2,215	1,188	1,552	127	0	0	0

Density Low High

Figure 7-2: Distribution Asset Risk Score Distribution by Asset Group (Senpilot)

Key observations from the risk heatmap:

- Overhead Line Reclosers present the most concentrated high-risk profile in the distribution fleet. The heatmap shows 22 of 31 units (71%) concentrated in the 50–59 risk band, with the remaining units distributed across the lower bands (2 in 10–19; 2 in 20–29; 4 in 30–39; 1 in 40–49). This is directly attributable to their predominantly Poor health condition (22 units, 71% of the fleet, in Poor condition, as reported in Section 4.1.8). With both a high likelihood of failure and meaningful network consequences, overhead line reclosers represent the highest-priority intervention group.
- Capacitors show a low risk profile, with all 9 units concentrated in the 0–29 risk bands (1 unit in 0–9; 7 in 10–19; 1 in 20–29). Despite their Very Good health scores, the relatively low criticality of capacitors within InnPower's network results in a low overall risk rating. The 2001-vintage units

approaching their Technical Useful Life should continue to be monitored closely even within the low-risk band.

- Overhead Loadbreak Switches present a bimodal risk profile reflecting the split between their Very Good and Fair condition cohorts. The Very Good condition units contribute to concentrations in the lowest bands (19 units in 0–9; 13 in 10–19), while the 19 Fair-condition units drive concentrations in the 30–39 (8 units) and 40–49 (11 units) bands. The 11 units in the 40–49 band represent the most elevated risk within this class and warrant systematic monitoring and a graduated intervention plan.
- Pole Mount Transformers show a broad risk distribution, with the majority of the 2,195-unit fleet concentrated in the 10–29 range (893 units in 10–19; 624 in 20–29). Risk tapers progressively through the 30–59 bands (79 in 30–39; 57 in 40–49; 37 in 50–59), but 39 units (1.8% of the fleet) score in the 60–69 band — a meaningful tail risk that warrants targeted investigation given the fleet's scale.
- Wood Poles exhibit the greatest aggregate risk exposure by volume: 1,552 units fall in the 50–59 band and 127 units in the 60–69 band — 1,679 units (15% of the fleet) in elevated or high-risk territory. Combined with the fleet's large size of 11,008 units, this represents the most significant cumulative risk in InnPower's distribution portfolio and supports continued targeted inspection and proactive replacement programs.
- Overhead Disconnect Switches and Regulators concentrate in the lowest risk bands. All three regulators fall in the 0–9 band, reflecting their very recent installation and perfect health scores. Disconnect switches (320 units in 0–9; 172 in 10–19; 1 in 30–39) reflect their strong health profile — 492 of 493 units are in Very Good condition — combined with moderate network criticality. Pad Mount Transformers and Pad Mount Switchgear also present predominantly low-to-moderate risk profiles: Pad Mount Transformers concentrate in the 0–29 bands (566 in 0–9; 1,118 in 10–19; 418 in 20–29), with a small tail extending to the 60–69 band (2 units); Pad Mount Switchgear similarly concentrates in the 0–29 range (29 in 0–9; 27 in 10–19; 54 in 20–29; 10 in 30–39) with a single unit in the 50–59 band representing the lone Poor-condition unit that warrants individual assessment.

Asset Group ↑	0 - 9	10 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	80 - 89	90 - 100
Capacitors (9)	0	3	1	1	3	1	0	0	0	0
Overhead disconnect switches (493)	0	153	46	58	63	172	1	0	0	0
Overhead lines (single phase) (16,865)	0	5,075	3,921	3,597	1,833	2,439	0	0	0	0
Overhead lines (three phase) (5,387)	0	2,097	1,123	640	529	998	0	0	0	0
Overhead loadbreak (51)	0	20	5	6	5	15	0	0	0	0
Overhead reclosers (31)	0	0	0	11	1	5	10	4	0	0
Pad mount switchgear (121)	0	31	38	19	4	29	0	0	0	0
Pad mount transformers (2,161)	0	1,125	78	375	499	84	0	0	0	0
Pole mount transformers (2,195)	0	766	150	504	701	74	0	0	0	0
Regulators (3)	0	0	3	0	0	0	0	0	0	0
Underground lines (single phase) (34,015)	0	16,077	6,278	4,117	2,486	5,057	0	0	0	0
Underground lines (three phase) (2,454)	0	475	836	229	223	691	0	0	0	0
Wood poles (11,008)	1,305	3,348	2,468	1,642	2,049	196	0	0	0	0

Density Low High

Figure 7-3: Distribution Asset Criticality Score Distribution by Asset Group (Senpilot)

- Overhead Line Reclosers have the highest criticality scores of any asset class, with 14 of 31 units (45%) in the 60–79 band (10 units in 60–69; 4 in 70–79) — the highest range observed across the entire distribution portfolio. This reflects their upstream network position and large

downstream customer exposure. Combined with 22 units (71%) in Poor health condition, overhead line reclosers are the top-priority group on both health and criticality dimensions.

- Overhead Disconnect Switches show a bimodal criticality distribution: 153 units score in the 10–19 band while 172 units score in the 50–59 band, with intermediate concentrations of 46 units in 20–29, 58 in 30–39, and 63 in 40–49. A single unit reaches the 60–69 band. This distribution reflects the differences in network location and downstream exposure across this large and geographically varied fleet.
- Wood Poles have notably low criticality scores relative to their fleet size, with the vast majority of the fleet concentrated in the 0–49 range (1,305 in 0–9; 3,348 in 10–19; 2,468 in 20–29; 1,642 in 30–39; 2,049 in 40–49), and 196 units in the 50–59 band. While the pole fleet carries aggregate risk through volume and aging condition, individual assets serve fewer critical endpoints on average.
- Underground Lines (single phase) dominate the 10–19 criticality band by volume, with 16,077 units in that range, consistent with their role as distribution feeders in lower-density service areas.
- Regulators all fall in the 20–29 criticality band despite their near-perfect health scores, reflecting their moderate network role rather than their condition.

No asset group exceeds a criticality score of 79, indicating that InnPower's distribution portfolio does not contain assets with extreme criticality concentration — risk elevation across the fleet is driven primarily by health condition rather than network position. The distribution of criticality scores informs the relative weighting applied when building multi-year capital programs, ensuring that assets serving the greatest number of customers are prioritized when health conditions are comparable.

7.4. Prioritization Approach

InnPower's risk-informed prioritization approach integrates the risk scores described above with practical considerations to produce actionable project prioritization. The top-priority projects in each asset category are identified through this process, enabling InnPower to build a defensible, risk-ranked capital investment plan.

Assets are grouped into priority tiers based on their risk scores and condition ratings:

- Immediate priority (risk score 60+): Assets in this band present an unacceptably high risk of failure with significant consequences. These assets require immediate investigation and near-term intervention plans, including replacement or refurbishment as appropriate. Overhead Line Reclosers in Poor condition are the primary example in the current assessment.
- Elevated priority (risk score 40–59): Assets in this band exhibit meaningful combined risk from moderate-to-poor health and moderate criticality. Systematic monitoring and graduated intervention planning is required, with capital allocated in the medium-term planning horizon.
- Monitoring priority (risk score below 40): Assets in this band do not present immediate risk concerns. Standard inspection and maintenance programs apply, with condition trending monitored to detect movement toward higher risk bands over the planning cycle.

This risk-based approach ensures that assets with low health indices and high criticality are given priority over assets with similar health conditions but lower consequence risk. It also ensures that high-criticality assets in moderate condition are actively monitored, even where immediate intervention is not warranted, so that degradation is caught before it escalates to a high-risk state.

7.5. Next Steps: Expanding the Prioritization Framework

The current risk and criticality methodology provides a strong foundation for prioritization; however, InnPower recognizes that a comprehensive prioritization framework should also incorporate probabilistic estimates of failure likelihood. A key next step in maturing InnPower's asset management program is to develop failure likelihood estimates in accordance with the Vulnerability, Asset health, Severity, and Hazard (VASH) framework, consistent with guidance from regulatory and industry bodies including the Ontario Energy Board.

The VASH framework provides a structured approach to estimating the probability of asset failure as a function of age, condition, and environmental factors, enabling risk to be expressed in the form: Risk = Probability of Failure × Consequence of Failure. Integration of VASH-based failure likelihood estimates with InnPower's existing criticality methodology will allow for more precise risk scoring, enabling InnPower to prioritize investments with greater confidence and to demonstrate the rigor of its asset management approach to the OEB in future filings.

Additionally, as noted above, the risk and criticality methodology will be expanded to include station assets in the next assessment cycle, providing a fully integrated, fleet-wide view of risk across both distribution and station infrastructure.