From:	Brittany Morrison
To:	SON Archaeology; manager.energy@saugeenojibwaynation.ca; manager.ri@saugeenojibwaynation.ca; Janet Galant;
Subject:	Tara BESS Stage 2 Archaeology and Meeting Request
Sent:	2025-05-12 2:50:00 PM

Hello Janet, Kove, and team,

I hope you are all well.

I am writing to let you know that Neoen is commencing Stage 2 of its Archaeological Assessment for the proposed Tara Battery Energy Storage project and welcomes the Saugeen Ojibway Nation's (SON) participation and/or guidance.

Neoen has retained LHC Heritage to conduct the Stage 2 Archaeological Assessment (Stage 2 AA). A Stage 1 AA (not including a site inspection) was entered into the Provincial Register of Reports (without a technical review) on March 2nd, 2025 (P359-0144-2025). A copy of the report was shared with SON.

LHC will conduct a site inspection over the entirety of the Project Study Area on part of Lots 35 and 36, Concession Road 4 in the Municipality of Arran-Elderslie to confirm and/or amend archaeological potential and develop a fieldwork strategy. We hope to develop this strategy in consultation with you. The area to be inspected is approximately 67 hectares.

The Standards and Guidelines for Consultant Archaeologists (MCM 2011) require pedestrian (ploughed) survey for lands that have been previously cultivated except in areas where not practicable (e.g. scrub brush or too rocky). Shovel testing survey is required in areas where ploughing is not possible/practicable. The lots are a combination of cultivated fields, pasture, woodlot, treed meadow, a farmstead, the Sauble River, and a Hydro One transmission line corridor. Based on expected ground conditions and land cover, and targeting the total project disturbance footprint, pedestrian surveys and shovel testing will assess approximately 30 hectares.

The pedestrian (ploughed) survey follows transects, at 5 m interval, through lands that have been recently ploughed to a minimum of 80% surface visibility and allowed to weather (one heavy rainfall or several light rains). Shovel testing will be sieving soil excavated from a test pit approximately 30 cm diameter, to subsoil depth (~ 30 cm), every 5 m.

If this information does not seem correct, please let us know. It is very important to us that our process is informed by the Territory and Rightsholder, the Saugeen Ojibway Nation. We would be grateful for the opportunity to meet and discuss, and for your participation in the Stage 2 AA.

We hope to hear from you soon.

Miigewtch/Thank you!

Brittany Morrison
Communication, Engagement & Stakeholder Relations Manager

NEOEN
brittany.morrrison@neoen.com
M. +1 416-312-0057
Suite 319 – 150 King Street West, Toronto, ON M5H 1J9

From: Brittany Morrison <Brittany.Morrison@neoen.com>
Sent: October 7, 2024 9:57 AM
To: SON Archaeology <archaeology@saugeenojibwaynation.ca>; Karen Heisler <karen.heisler@indigenousengagement.ca>
Cc: manager.ri@saugeenojibwaynation.ca; bnickel.energy@saugeenojibwaynation.ca; manager.energy@saugeenojibwaynation.ca; Heather Swan <heather.swan@indigenousengagement.ca>; Mario De Aguero <mario.deaguero@neoen.com>
Subject: RE: Neoen - Grey Owl Battery Energy Storage System - Follow-up - Archaeology and Meeting Request

Good morning, Kove,

I hope you are well.

My name is Brittany Morrison – I am part of the Neoen team.

Yes, we are happy to arrange a meeting. Do you prefer to meet virtually or in-person? Can you please share a few time slots of availability?

Thank you,

Brittany Morrison

NEOEN
brittany.morrrison@neoen.com
M. +1 416-312-0057
Suite 315 – 150 King Street West, Toronto, ON M5H 1J9

From: SON Archaeology <archaeology@saugeenojibwaynation.ca>
Sent: October 7, 2024 9:50 AM
To: Karen Heisler <karen.heisler@indigenousengagement.ca>
Cc: manager.ri@saugeenojibwaynation.ca; bnickel.energy@saugeenojibwaynation.ca; manager.energy@saugeenojibwaynation.ca; Heather Swan <heather.swan@indigenousengagement.ca>; Mario De Aguero <mario.deaguero@neoen.com>; Brittany Morrison <Brittany.Morrison@neoen.com>
Subject: Re: Neoen - Grey Owl Battery Energy Storage System - Follow-up - Archaeology and Meeting Request

Good morning Karen,

Could we set up a meeting to discuss the project?

Miigwech,

Kove Sartor
SON Archaeology Department
Resource & Infrastructure Department

10129 Hwy 6
Georgian Bluffs, ON
N0H 2T0
saugeenojibwaynation.ca

On Fri, Sep 20, 2024 at 2:00 PM Karen Heisler <karen.heisler@indigenousengagement.ca> wrote:

> Hello,
>
> I hope you are doing well. ICE has been hired by Neoen to support the consultation process for their proposal Battery Energy Storage System (please see attached map and notification letter). I wanted to follow up to see if you are interested in setting up an introduction meeting with Neoen, to discuss the SON EO consultation process, the proposed project and the required regulatory approvals. They would be happy to meet with you in-person or virtually.
>
> I also wanted to reach out to start the process to schedule archaeology monitoring. Neoen has hired LHC Planning and Heritage along with local archaeologist Ruth Macdougal to conduct the assessment of the site. They would like to arrange a site visit to plan the stage 2 assessment with the SON Archaeology Monitors.
>
> Please let me know how you would like to proceed.
>
> Best regards,
> Karen
>
> **Karen Heisler**
> Indigenous Research & Engagement Specialist
> C: 226-568-4676
> E: karen.heisler@indigenousengagement.ca
> www.indigenousengagement.ca
>
> 
>
>
> **From:** Mario De Aguero <mario.deaguero@neoen.com>
> **Sent:** September 4, 2024 17:46

To: environmentoffice@saugeenojibwaynation.ca <environmentoffice@saugeenojibwaynation.ca>
Cc: Benoît Pinot de Villechenon <benoit.pinotdevillechenon@neoen.com>; Heather Swan <heather.swan@indigenousengagement.ca>; Karen Heisler <karen.heisler@indigenousengagement.ca>; Michael Fox <michael.fox@indigenousengagement.ca>; Alexandra Clarke <alexandra.clarke@indigenousengagement.ca>
Subject: Grey Owl Battery Energy Storage System (BESS) proposed by Neoen - Consultation

Good afternoon,

We are writing to provide some information about the Grey Owl Battery Energy Storage System (BESS), a project that Neoen is developing in Arran-Elderslie Municipality and to inquire about interest in having an introductory meeting to start discussions about the project and to learn more about you, your interests and how best to work together.

Attached you will find a letter with more information about the project and the company.

I have copied Indigenous and Community Engagement Inc. (ICE), who will be assisting us throughout the consultation process.

If you have any questions, please feel free to reach out. Additionally, let me know your availability to schedule a meeting at your convenience.

Best regards,

Mario de Agüero

Senior Project Manager

Ontario, Canada

NEOEN

M. +1 (647) 455-0877

Suite 315, 150 King Street West

Toronto, ON, M5H 1J9

From:	Brittany Morrison on behalf of Brittany Morrison
To:	Janet Galant
Cc:	Kove Sartor; Benoît Pinot de Villechenon; Char Leonard; Mario De Aguero;
Subject:	RE: Notice to Stop Archeology
Attachments:	Letter to Saugeen Ojibway Nation Chiefs - June 6 2025_signed.pdf;Letter to Saugeen Ojibway Nation Environment Office - June 12 2025.pdf;Tara BESS Project Update - Saugeen Ojibway Nation - June 6 2025.pdf;
Sent:	2025-06-12 11:42:00 AM

Hello Janet,

Your letter is received, thank you.

Neoen's response is attached.

It would be great if you and I could arrange a call to discuss. I am available at your convenience.

Thank you,

Brittany Morrison
Communication, Engagement & Stakeholder Relations Manager

NEOEN

brittany.morrrison@neoen.com
M. +1 416-312-0057
Suite 319 – 150 King Street West, Toronto, ON M5H 1J9

From: Janet Galant <manager@saugeenojibwaynation.ca>
Sent: June 6, 2025 10:39 AM
To: Brittany Morrison <Brittany.Morrison@neoen.com>
Cc: Kove Sartor <archaeology@saugeenojibwaynation.ca>; Char Leonard <manager.ri@saugeenojibwaynation.ca>
Subject: Notice to Stop Archeology

Hi Brittany,

Please find attached a formal letter from me regarding the archeological activities planned for your site.

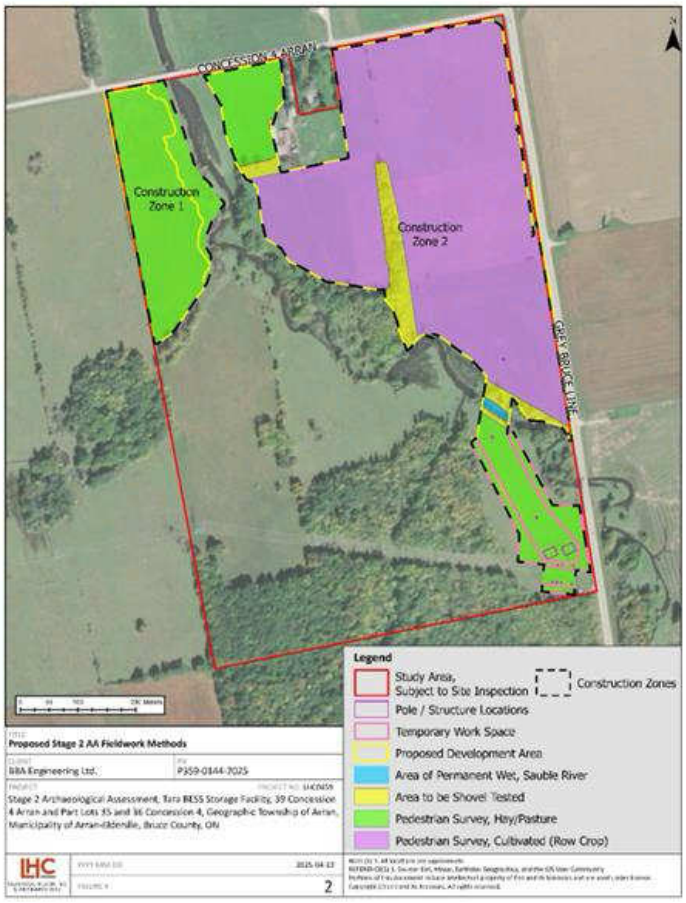
Thanks,
Janet Galant
Senior Manager
T: 519.373.6075
10129 Hwy 6
Georgian Bluffs, ON
N0H 2T0

saugeenojibwaynation.ca

From: Brittany Morrison on behalf of Brittany Morrison
To: Janet Galant
Cc: SON Archaeology; manager.energy@saugeenojibwaynation.ca; manager.ri@saugeenojibwaynation.ca;
Subject: Re: Tara BESS Stage 2 Archaeology and Meeting Request
Sent: 2025-05-12 7:27:05 PM

Hi Janet,

Absolutely. Here is a map of the study areas:



We would like to schedule for a date in late May. Please let us know if there is a date that works best for your team. I failed to mention in my previous e-mail, that Neoen will provide any capacity funding necessary for SON's participation.

Miigwetch/Thank you,

Brittany.

Get Outlook for iOS

From: Janet Galant <manager@saugeenojibwaynation.ca>
Sent: Tuesday, May 13, 2025 6:52:49 AM
To: Brittany Morrison <Brittany.Morrison@neoen.com>
Cc: SON Archaeology <archaeology@saugeenojibwaynation.ca>; manager.energy@saugeenojibwaynation.ca <manager.energy@saugeenojibwaynation.ca>; manager.ri@saugeenojibwaynation.ca <manager.ri@saugeenojibwaynation.ca>
Subject: Re: Tara BESS Stage 2 Archaeology and Meeting Request

Hi Brittany,

Can you share a map of the area that will have the archeology done and when you plan to start that?

Thanks,

Janet Galant
Senior Manager
T: 519.373.6075
10129 Hwy 6
Georgian Bluffs, ON
N0H 2T0

Environment Office
Saugeen Ojibway Nation

saugeenojibwaynation.ca

On Mon, May 12, 2025 at 2:50 PM Brittany Morrison <Brittany.Morrison@neoen.com> wrote:

> Hello Janet, Kove, and team,
>
> I hope you are all well.
>
> I am writing to let you know that Neoen is commencing Stage 2 of its Archaeological Assessment for the proposed Tara Battery Energy Storage project and welcomes the Saugeen Ojibway Nation's (SON) participation and/or guidance.
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> Neoen has retained LHC Heritage to conduct the Stage 2 Archaeological Assessment (Stage 2 AA). A Stage 1 AA (not including a site inspection) was entered into the Provincial Register of Reports (without a technical review) on March 2nd, 2025 (P359-0144-2025). A copy of the report was shared with SON.
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> LHC will conduct a site inspection over the entirety of the Project Study Area on part of Lots 35 and 36, Concession Road 4 in the Municipality of Arran-Elderslie to confirm and/or amend archaeological potential and develop a fieldwork strategy. We hope to develop this strategy in consultation with you. The area to be inspected is approximately 67 hectares.
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> If this information does not seem correct, please let us know. It is very important to us that our process is informed by the Territory and Rightsholder, the Saugeen Ojibway Nation. We would be grateful for the opportunity to meet and discuss, and for your participation in the Stage 2 AA.
>
> We hope to hear from you soon.
>
> Miigewtch/Thank you!

Brittany Morrison
Communication, Engagement & Stakeholder Relations Manager

NEOEN

brittany.morrrison@neoen.com

M. +1 416-312-0057

Suite 319 – 150 King Street West, Toronto, ON M5H 1J9

From: Brittany Morrison <Brittany.Morrison@neoen.com>
Sent: October 7, 2024 9:57 AM
To: SON Archaeology <archaeology@saugeenojibwaynation.ca>; Karen Heisler <karen.heisler@indigenousengagement.ca>
Cc: manager.ri@saugeenojibwaynation.ca; bnickel.energy@saugeenojibwaynation.ca; manager.energy@saugeenojibwaynation.ca; Heather Swan <heather.swan@indigenousengagement.ca>; Mario De Aguero <mario.deaguero@neoen.com>
Subject: RE: Neoen - Grey Owl Battery Energy Storage System - Follow-up - Archaeology and Meeting Request

Good morning, Kove,

I hope you are well.

My name is Brittany Morrison – I am part of the Neoen team.

Yes, we are happy to arrange a meeting. Do you prefer to meet virtually or in-person? Can you please share a few time slots of availability?

Thank you,

Brittany Morrison

NEOEN

brittany.morrrison@neoen.com

M. +1 416-312-0057

Suite 315 – 150 King Street West, Toronto, ON M5H 1J9

From: SON Archaeology <archaeology@saugeenojibwaynation.ca>
Sent: October 7, 2024 9:50 AM
To: Karen Heisler <karen.heisler@indigenousengagement.ca>
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Subject: Re: Neoen - Grey Owl Battery Energy Storage System - Follow-up - Archaeology and Meeting Request

Good morning Karen,

Could we set up a meeting to discuss the project?

Miigwech,

Kove Sartor
SON Archaeology Department
Resource & Infrastructure Department

10129 Hwy 6

Georgian Bluffs, ON

N0H 2T0

saugeenojibwaynation.ca

On Fri, Sep 20, 2024 at 2:00 PM Karen Heisler <karen.heisler@indigenousengagement.ca> wrote:

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> I hope you are doing well. ICE has been hired by Neoen to support the consultation process for their proposal Battery Energy Storage System (please see attached map and notification letter). I wanted to follow up to see if you are interested in setting up an introduction meeting with Neoen, to discuss the SON EO consultation process, the proposed project and the required regulatory approvals. They would be happy to meet with you in-person or virtually.
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> Please let me know how you would like to proceed.
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> Best regards,
>
> Karen

Karen Heisler
Indigenous Research & Engagement Specialist

C: 226-568-4675
E: karen.heisler@indigenousengagement.ca
www.indigenousengagement.ca

From: Mario De Aguero <mario.deaguero@neoen.com>
Sent: September 4, 2024 17:46
To: environmentoffice@saugeenojibwaynation.ca <environmentoffice@saugeenojibwaynation.ca>
Cc: Benoît Pinot de Villechenon <benoit.pinotdevillechenon@neoen.com>; Heather Swan <heather.swan@indigenousengagement.ca>; Karen Heisler <karen.heisler@indigenousengagement.ca>; Michael Fox <michael.fox@indigenousengagement.ca>; Alexandra Clarke <alexandra.clarke@indigenousengagement.ca>
Subject: Grey Owl Battery Energy Storage System (BESS) proposed by Neoen - Consultation

Good afternoon,

We are writing to provide some information about the Grey Owl Battery Energy Storage System (BESS), a project that Neoen is developing in Arran-Elderslie Municipality and to inquire about interest in having an introductory meeting to start discussions about the project and to learn more about you, your interests and how best to work together.

Attached you will find a letter with more information about the project and the company.

I have copied Indigenous and Community Engagement Inc. (ICE), who will be assisting us throughout the consultation process.

If you have any questions, please feel free to reach out. Additionally, let me know your availability to schedule a meeting at your convenience.

Best regards,

Mario de Agüero

Senior Project Manager

Ontario, Canada

M. +1 (647) 455-0877

Suite 315, 150 King Street West

Toronto, ON, M5H 1J9

The Joint Chiefs and Councils
of the Saugeen Ojibway Nation

May 15, 2025

Hon. Todd McCarthy
Minister of the Environment, Conservation and Parks
777 Bay Street, 5th Floor,
Toronto, ON M7A 2J3
Email: minister.mecp@ontario.ca

VIA EMAIL

Dear Hon. Todd McCarthy,

RE: Saugeen Ojibway Nation Concerns with Proposed Tara BESS Project

We are writing to raise serious concerns regarding the proposed Tara battery energy storage system ("**Tara BESS**"), formerly Grey Owl Storage, currently under development in our Territory. Tara BESS is a proposed 400-megawatt, 1600-megawatt hour battery energy storage system being developed by Neoen Ontario BESS 1 Inc., a Canadian subsidiary of French public company Neoen SA (**"Neoen"**). In May 2024, Tara BESS was awarded a 20-year contract by Ontario's Independent Electricity System Operator ("**IESO**") through IESO's Long Term 1 ("**LT1**") procurement.

Tara BESS is subject to the Ministry of Environment, Conservation and Parks' (**"MECP"**) Class Environmental Assessment for Minor Transmission Facilities (**"Class EA"**), in accordance with the Ontario *Environmental Assessment Act*. Notice of Commencement of the Class EA for Tara BESS was initiated on November 25, 2024. Notice of Completion is expected this quarter.

The Saugeen Ojibway Nation (**"SON"**) and Her Majesty the Queen in Right of Ontario as Represented by the Minister of Energy and Infrastructure (now His Majesty the King in Right of Ontario as Represented by the Minister of Energy and Mines) (**"Ontario"**) are parties to a pre-existing, binding agreement, dated January 14, 2010 (the **"Agreement"**). The Agreement establishes a clear process for energy-related project development in Anishnaabekiing—SON's traditional and treaty Territory—including a requirement for Ontario to provide early notice to SON of possible projects and early engagement between SON and energy developers wishing to carry out projects in our Territory. In addition, the Crown must provide notice in writing to energy developers proposing to carry out projects

in Anishnaabekiing advising them of the requirement for timely engagement with SON, which will include notice of other SON specific requirements for project development, as set out in the Agreement. Further, the parties anticipated that SON and energy developers would use the early notice to enter into protocol agreements or other arrangements which would effectively address SON concerns.

Most importantly, the Agreement defines an area of special cultural and environmental significance to SON—the area historically known in Treaty records of 1836 as the "Saugeen Peninsula" and now known as the Bruce Peninsula, along with a buffer zone (collectively defined in the Agreement as the **"Peninsula"**). The Agreement acknowledges that SON has expressed special concerns respecting possible energy developments in the Peninsula and recognizes that special provisions and assurances are required to address those concerns.

Through the Agreement, Ontario and SON agreed that before any energy projects proceeded in the Peninsula, a Natural and Cultural Values Study of the Peninsula would be conducted and form the basis for SON's future engagement with planners and energy developers and would help inform decisions regarding possible projects in the Peninsula. In addition, the Parties agreed to convene to create a SON specific consultation process for all energy development in the Peninsula, which shall consider the findings of the Natural and Cultural Values Study, special measures to mitigate adverse effects or impacts on SON rights, and project development principles which are respectful of SON rights and consistent with the purposes of the Agreement.

Tara BESS is located in the Peninsula. None of the clear, carefully negotiated, Crown commitments made in the Agreement were considered or respected regarding Tara BESS's development. Not only was the Agreement ignored: Tara BESS is the only battery storage project awarded a contract through the LT1 procurement which has zero Indigenous equity participation. All nine other battery storage projects awarded contracts have 50% or greater Indigenous equity ownership. And this despite SON having a long-standing Agreement with Ontario that is specifically designed to promote SON's participation "in the wealth generated from renewable energy sources."

SON expects that MECP will not approve Tara BESS's Class EA or any other environmental permitting requirements before this breach of contract and the honour of the Crown are addressed urgently. It should be understood that regulatory approvals in breach of Crown commitments to SON may be subject to legal challenge.

The special cultural and environmental significance of the Peninsula to SON has not changed. The Agreement promotes reconciliation and contains provisions designed to facilitate future energy projects in Anishnaabekiing in ways that are respectful of and

accommodate SON rights and provide opportunities for SON to participate in the wealth generated from renewable energy sources. MECP cannot authorize the development of Tara BESS in contravention of the Crown commitments and negotiated and binding terms set out in the Agreement. SON expects that MECP will take no further action on the assessment and authorization of Tara BESS until we have a chance to meet and discuss these issues.

Miigwech,

Ogimaa Conrad Ritchie
Saugeen First Nation

Ogimaa Gregory Nadjiwon
Chippewas of Nawash Unceded First Nation

cc: Mario de Agüero, Senior Project Manager, Neoen
Benoît Pinot de Villechenon, Province Director, Ontario, Neoen
Brittany Morrison, Communications & Engagement Manager, Neoen

From:	Emmanuel Pujol
To:	Chief@nawash.ca; onrad.ritchie@saugeen.org;
Cc:	manager@saugeenojibwaynation.ca; Benoît Pinot de Villechenon; Brittany Morrison;
Subject:	Neoen / Tara BESS
Attachments:	Letter to Saugeen Ojibway Nation Chiefs - June 6 2025_signed.pdf;Tara BESS Project Update - Saugeen Ojibway Nation - June 6 2025.pdf;
Sent:	2025-06-06 2:17:40 PM

Boozhoo Ogimaa Ritchie and Ogimaa Nadjiwon,

Attached, please find our response to your recent letter.

I look forward to the opportunity to meet.

Miigwetch,

-

Emmanuel Pujol
Neoen – CEO Americas
Suite 319, 150 King Street West
Toronto M5H 1J9
+1 416 320 4272

NEOEN

Friday June 6, 2025

Ogimaa Conrad Ritchie
Saugeen First Nation

Ogimaa Gregory Nadjiwon
Chippewas of Nawash Unceded First Nation

Re: Tara Battery Energy Storage System (Tara BESS) Project

Boozhoo/Hello Ogimaa Ritchie and Ogimaa Nadjiwon,

I hope this message finds you well. My name is Emmanuel Pujol, CEO of Neoen in the Americas, leading development of the Tara BESS project proposed within your traditional lands.

I greatly appreciate the concerns outlined in your May 15, 2025, letter to the Honourable Todd McCarthy, Minister of the Environment, Conservation, and Parks. It is clear that meaningful discussions between the Saugeen Ojibway Nation (SON) and the Province of Ontario are essential.

Since we were copied on your letter, I want to ensure you have key information about Neoen and the Tara BESS project. Neoen acquired Tara BESS from Shift Solar Inc. in November 2023, just weeks before submitting the project to the LT1 procurement. At the time, we were unaware of the 2010 Agreement between SON and the Province. We first learned about it upon receiving SON's letter to the Ministry of Energy and Electrification, now the Ministry of Energy and Mines (MOEM) on October 8, 2024, and we fully respect its significance.

With guidance from MOEM, our initial outreach to SON took place on September 4, 2024. Since then, we have consistently provided updates and extended invitations for participation in the project's studies. Understanding now the SON's agreement with the province, we are committed to ongoing outreach and dialogue with the Saugeen Ojibway Nation in the spirit and intent of the 2010 Agreement.

As the project's new owners, we are dedicated to transparent and meaningful consultation and engagement. While Neoen has followed all regulatory processes required by the Province of Ontario, the local Conservation Authority, Bruce County, and the Municipality of Arran-Elderslie, we recognize these processes may not fully align with SON's priorities and protocols.

Despite ongoing negotiations with the Province, I sincerely hope we can establish a direct and respectful dialogue—one built on trust, transparency, and a commitment to honoring SON's rights. Our goal is to integrate your values into the project while exploring meaningful opportunities for participation and benefit together.

I remain personally available to meet at your earliest convenience and welcome the opportunity to listen, learn, and move forward in a manner that reflects the spirit and intent of the 2010 Agreement.

Miigwetch/Thank you,

Emmanuel Pujol
CEO – Americas
Neoen

Enclosures (1):

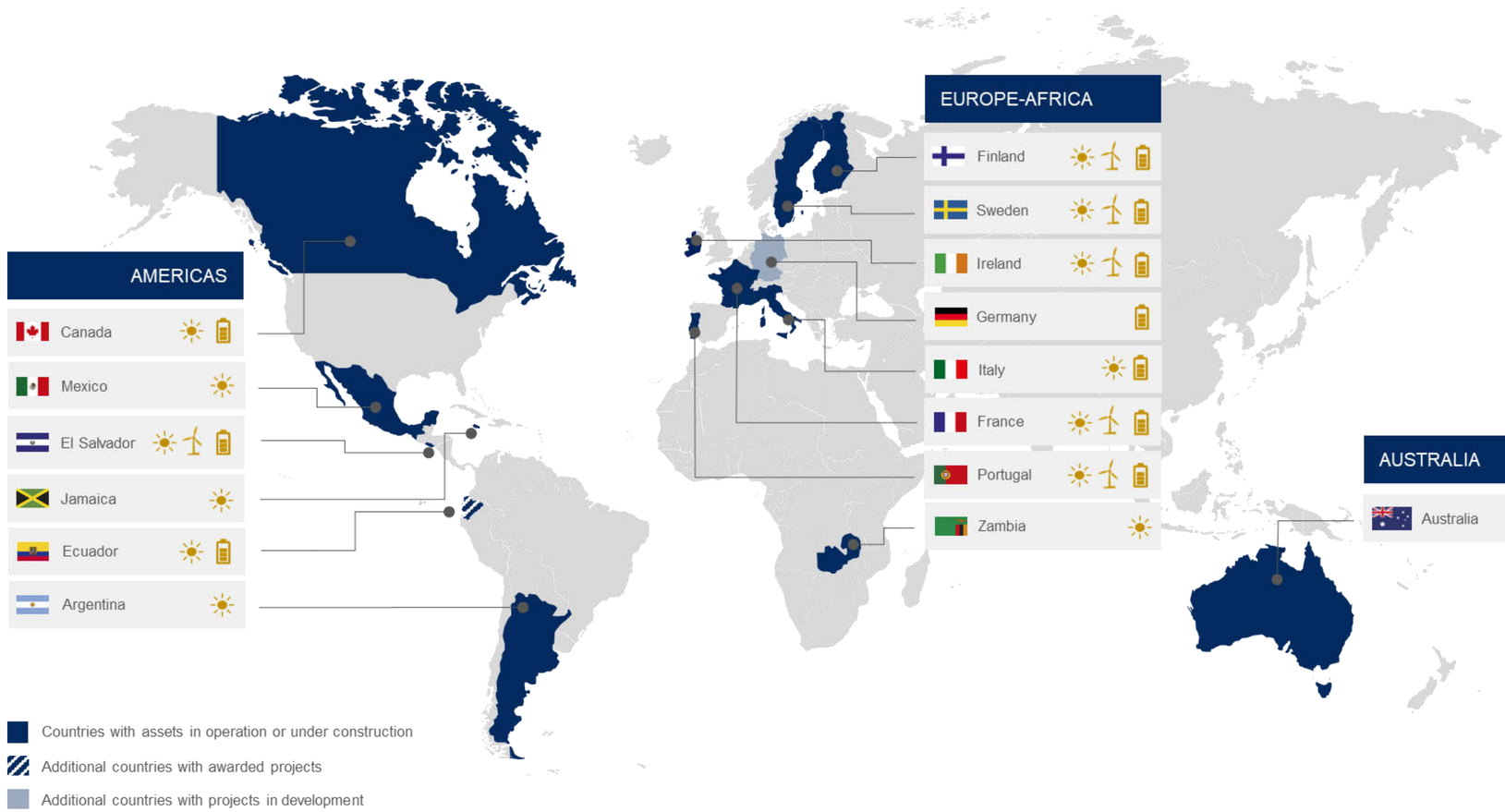
Tara BESS Project Overview

NEOEN

Neoen is a leading independent power producer of exclusively renewable energy, including solar and wind power, and battery energy storage.

We have a portfolio capacity of 8.9-gigawatts (GW) in operation or under construction across four continents. Our develop-to-own strategy means that we are around for the long-term.

Neoen has an active solar plant, Fox Coulee Solar Farm, in Starland County, Alberta, and several projects in development in Canada.



Project Background

- Tara BESS, formerly Grey Owl Storage, is a 400-megawatt (MW), 1600 MW-hours (MWh) battery energy storage system (BESS) proposed for development on 39 Concession Road 4 in Arran-Elderslie, approximately 5-kilometers (km) southeast of the Village of Tara.

- Neoen Ontario BESS 1 Inc. (Neoen) is leading development of Tara BESS.

- Tara BESS was awarded a 20-year energy storage contract by Ontario's Independent Electricity System Operator (IESO) in May 2024, in the IESO's LT1 procurement, under which Neoen will receive payment in exchange for providing 400 MW of capacity at a rate established at the time of procurement.

- The contract does not permit an increase in BESS capacity or expansion of the project to include another renewable technology, such as solar.

- Tara BESS will be decommissioned within 18 months of the contract end date, unless the contract is extended by the IESO.

Meeting Ontario's Energy Needs

- Tara BESS will play a critical role in meeting Ontario's projected energy needs by providing 400 MW of capacity and 1,600 MWh to the grid (equivalent to the daily energy consumption of approximately 64,000 households in Ontario*).

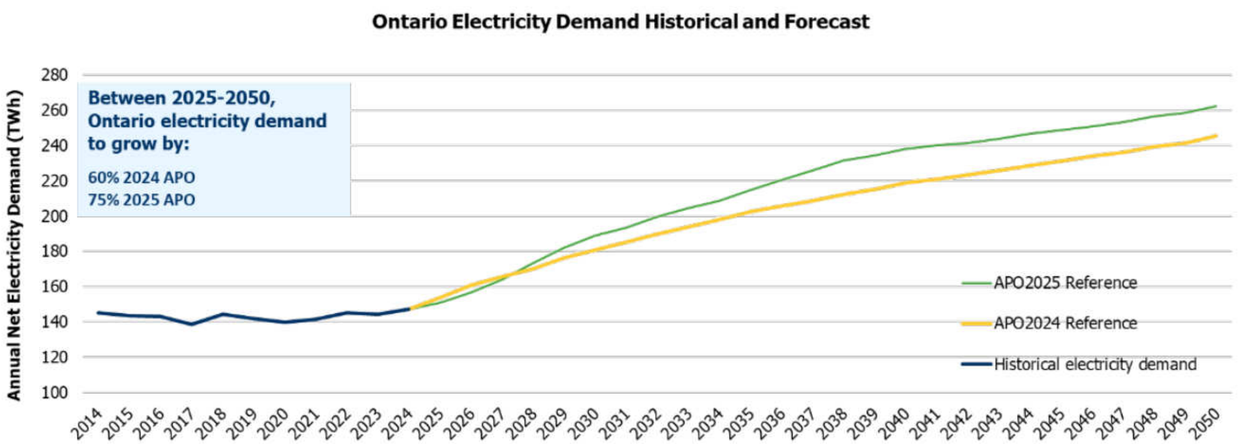
- IESO forecasts a 75% increase in Ontario's energy demand by 2050, which means an additional 111-terawatt-hours (TWh) of energy is needed by 2050 to meet projected demand (1 TWh = 1 million MWh).**

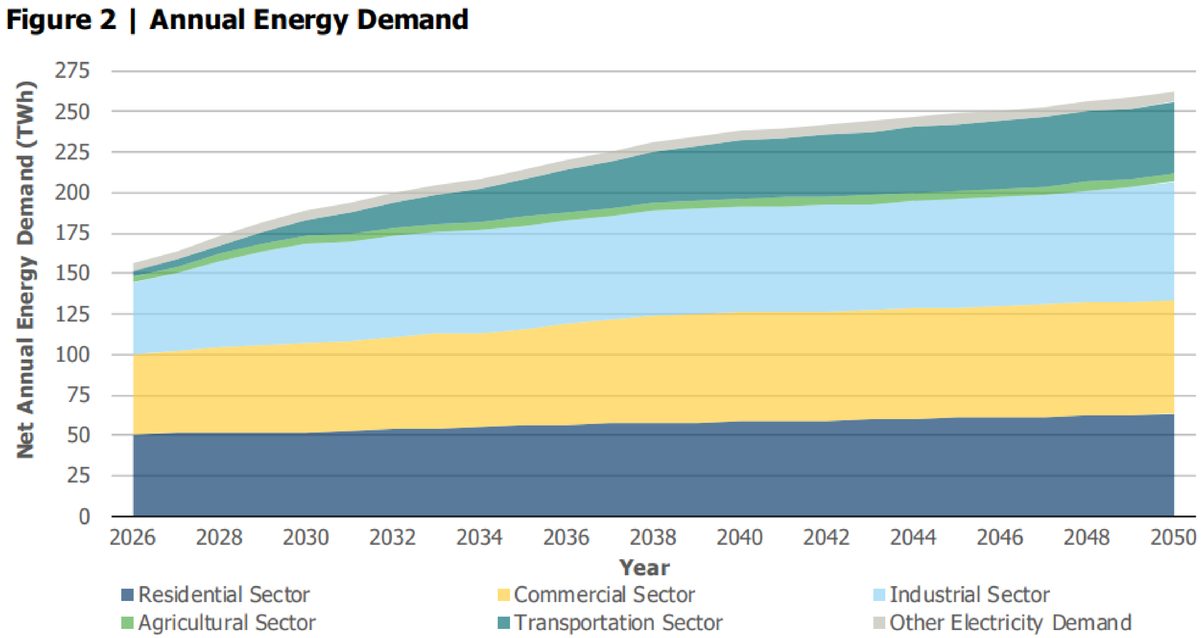
- Tara BESS is one of 10 energy storage contracts awarded in the LT1 procurement, collectively totaling 1,784 MW.

*Based on a 25 kWh/day household electricity consumption.

**Ontario's Affordable Energy Future – Minister's Message.

IESO'S ANNUAL PLANNING OUTLOOK (APRIL 2025)

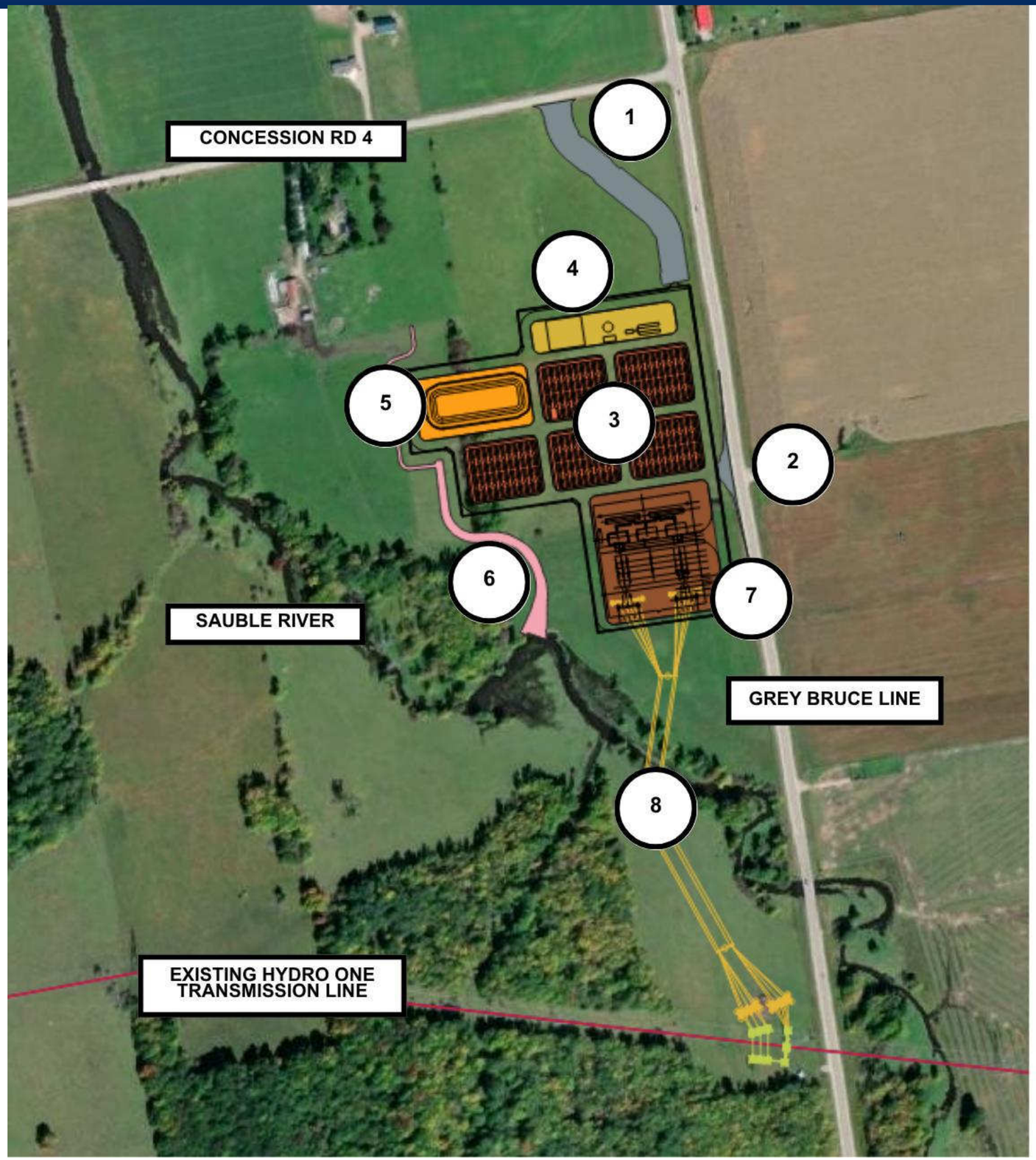




Project Benefits

- Tara BESS will add 400 MW of capacity to Ontario’s power grid.
- Tara BESS will be capable of providing ancillary services such as frequency and voltage support, and virtual inertia.
- BESS maximize the usefulness of energy produced along a transmission line by storing energy during low demand periods and discharging energy when demand rises.
- BESS can help restore power sooner than traditional generating sources in the case of an outage.
- Tara BESS will generate 200+ jobs at peak construction.

Tara BESS Proposed Layout



TARA BESS PROPOSED LAYOUT

1. Primary Entrance
2. Secondary Entrance
3. 420 Battery Containers*
4. Operations & Maintenance Buildings**
5. Retention Pond
6. Drainage (Vegetated Swale)
7. 230 kV Substation
8. Transmission Line and Structures

Total Footprint: ~22 acres.

Note: 200+ trees and shrubs are proposed along the north and east perimeters of the project lands.

*Containers are organized into five clusters with 7-7.5 m acoustic barrier walls along the west and north sides

**The cistern, water tank, and sewer tank will be subsurface.

Tara BESS Conceptual Rendering – Grey Bruce Line View

Renderings are for illustrative purposes only and may vary from final conditions.

Tara BESS Conceptual Rendering – Aerial View

Renderings are for illustrative purposes only and may vary from final conditions.

About the Transmission Facility (230 kV Substation)

- 230-kilovolt (kV) substation comprised of:
  - 3 - 220-mega volt ampere, high-voltage transformers (two operational and one back-up) with each with 7 m acoustic barrier walls along the east, north, and west sides.
  - 2 - control buildings
  - Circuit breakers
  - Disconnect switches
  - Lightning protection
  - Busbars
  - Site lighting and fencing
- Steel transmission structures will carry approximately 500 m of overhead transmission line from the substation to Hydro One’s existing high-voltage line at the south end of the site.

Substation Conceptual Rendering

Renderings are for illustrative purposes only and may vary from final conditions.

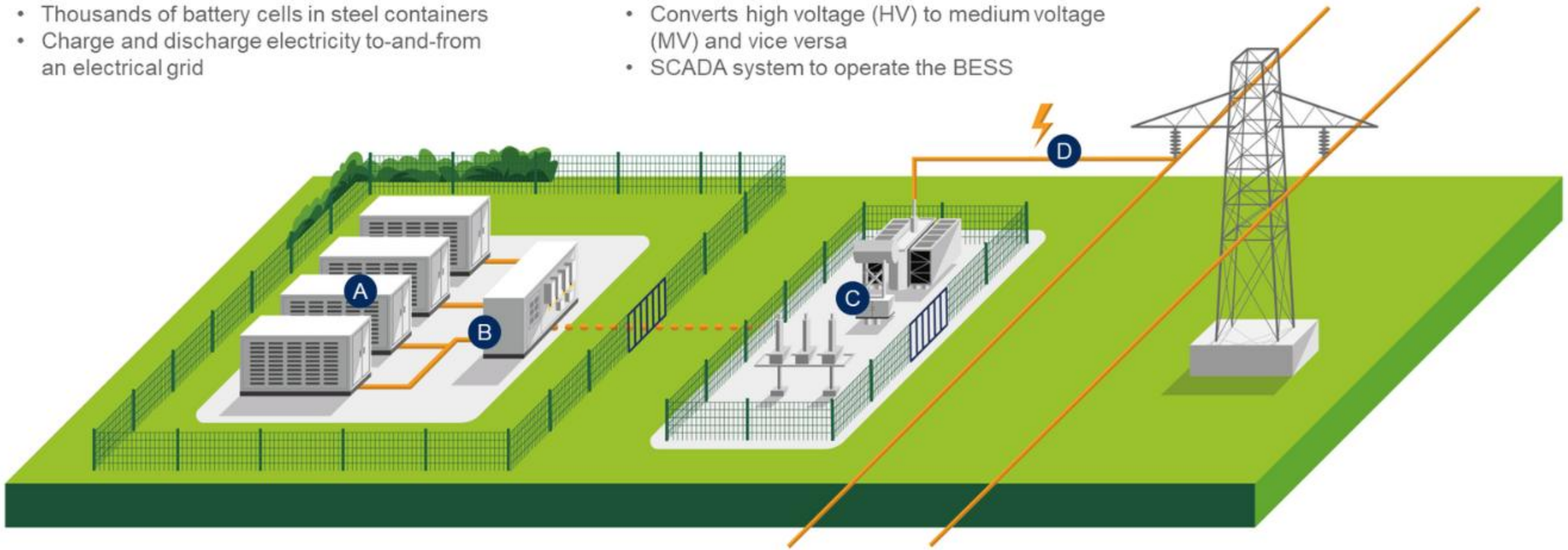
How a Standalone BESS Works

A - Battery Containers

- Thousands of battery cells in steel containers
- Charge and discharge electricity to-and-from an electrical grid

C - Transformer Station

- Converts high voltage (HV) to medium voltage (MV) and vice versa
- SCADA system to operate the BESS



B - Inverter

- Converts direct current (DC) to alternating current (AC) and vice versa

D - Transmission Lines

- Transmission lines move electricity to-and-from the BESS
- Steel structures hold the lines overhead
- Electricity travels to-and-from the grid

Why Here?

- Conditions necessary to host a BESS facility include:
  - Landowner willingness.
  - Suitable terrain (a relatively flat site).
  - Proximity to demand.
  - Proximity to transmission lines (with capacity to host a BESS).
  - Construction feasibility/site accessibility.

Maintaining the Floodplain

- Tara BESS is proposed within a designated floodplain.

- Neoen must ensure there is no loss to floodplain capacity and that there is no impact to surrounding properties and roadways.

- A "**cut-and-fill**" design is proposed, whereby soil is removed (cut) from areas around the BESS location, including from the adjacent Lot 35, immediately west of the proposed site, and used to raise (fill) the area where the BESS facility will be located.

- The cut areas will provide floodplain capacity in place of lost flood capacity in the fill areas.

- The design has been modeled against the worst possible flood event expected in 100 years to ensure the design can sufficiently protect the floodplain and surrounding areas.

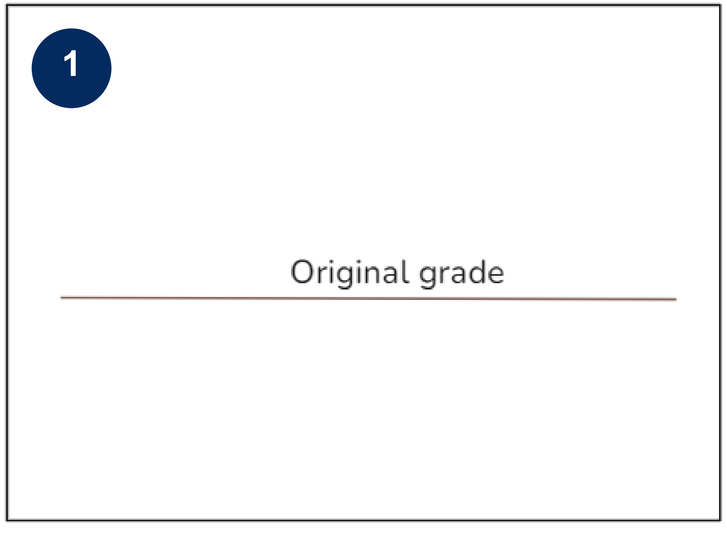
- Neoen's proposal is **under review by the Grey Sauble Conservation Authority**.

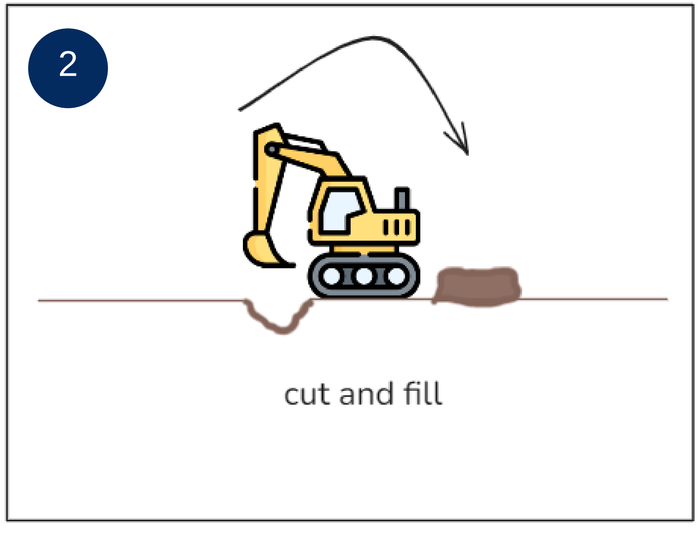
Cut-and-fill Locations

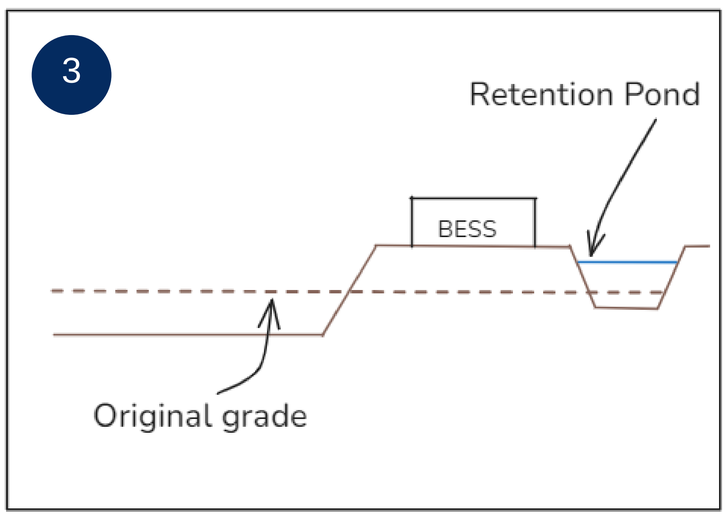
Maintaining the Floodplain: What to Know

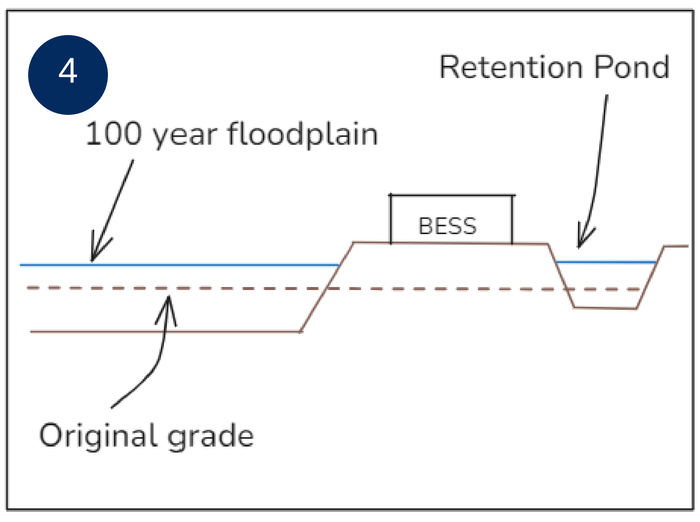
- There will be **no change** to floodplain capacity.
- The **areas that flood will change** (cut areas will take on floodwater, filled areas will not).
- There will be **no change or impact to flood activity on surrounding properties or roadways** other than the project lands and Lot 35.
- The proposed design is sufficient to manage floodwater volumes generated by the worst possible flood event expected in 100 years - **the BESS infrastructure will not flood**.
- The design is under technical review by the Grey Sauble Conservation Authority.

Maintaining the Floodplain: Cut-and-fill Process





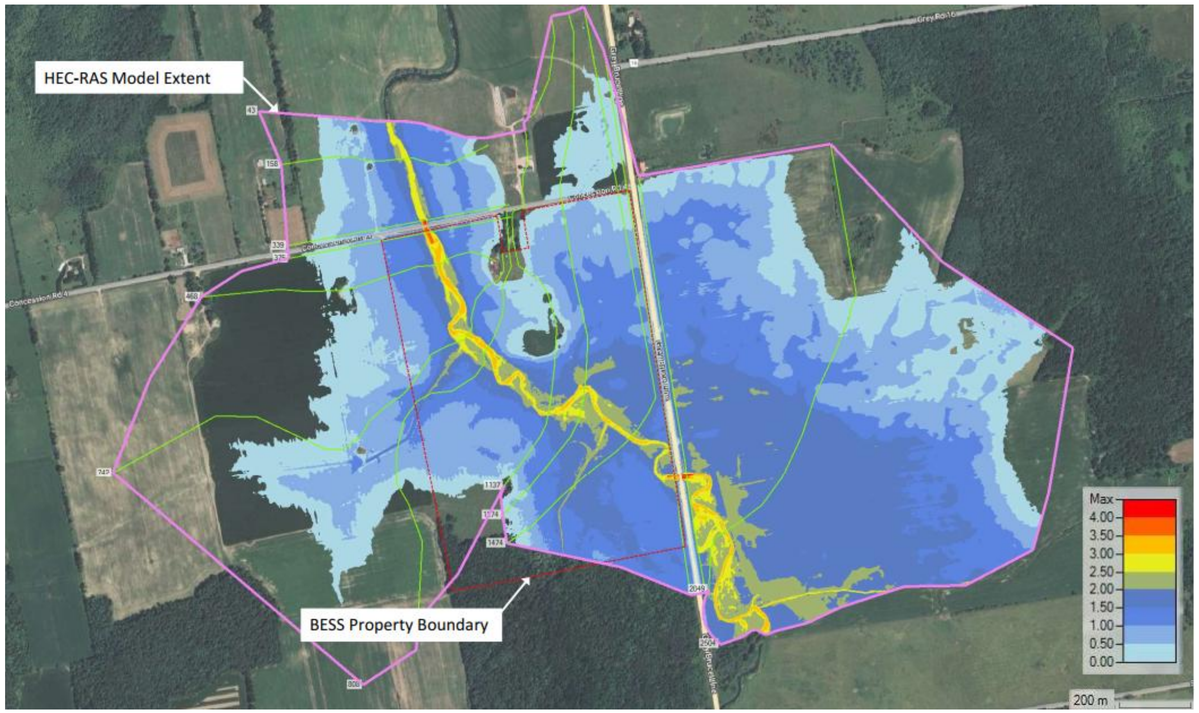




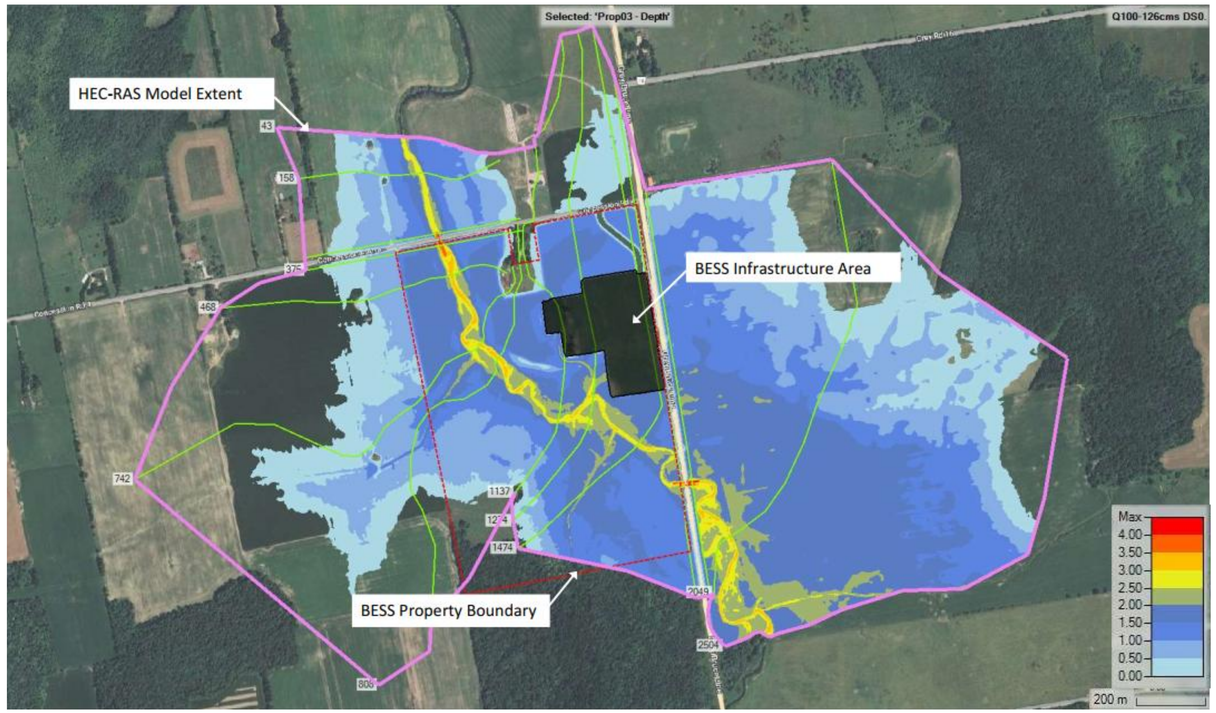
1. **Original Grade:** existing ground elevation before construction begins.
2. **Cut and Fill:** excavation and grading is carried out to create floodplain compensation areas and a raised pad for the BESS facility using excavated fill.
3. **Raised Pad with BESS:** the BESS and retention pond are constructed on the raised pad.
4. **Floodplain Compliance:** final grading works to ensure the facility is above the 100-year floodplain line.

Maintaining the Floodplain: Before and After

Existing Condition - 100-year Regulatory Flood Extents and Depths



Proposed Condition (with cut-and-fill) - 100-year Regulatory Flood Extents and Depths



There will be **no flood impact to surrounding properties or roadways**, excluding the project lands and Lot 35.

Protecting the Sauble River

- A **surface run-off management system** and **retention pond** (collectively, "**stormwater management system**") are proposed to maintain the quantity and quality of water passing through the BESS facility and to prevent soil erosion.

- The surface run-off management system is comprised of vegetated ditches, subsurface storm sewers and drains leading to a retention pond.

- **The retention pond is impermeable** and complete with an oil separator, discharge orifices, and a control valve **designed to prevent any oil or sediment from entering the Sauble River**.

- The stormwater management system has been modeled against the worst possible storm event expected in 100 years to ensure the design will sufficiently manage flows and protect the Sauble River.

- Neoen's proposal is **under review by the Grey Sauble Conservation Authority and requires Environmental Compliance Approval (ECA) by the Ministry of Environment, Conservation and Parks**.

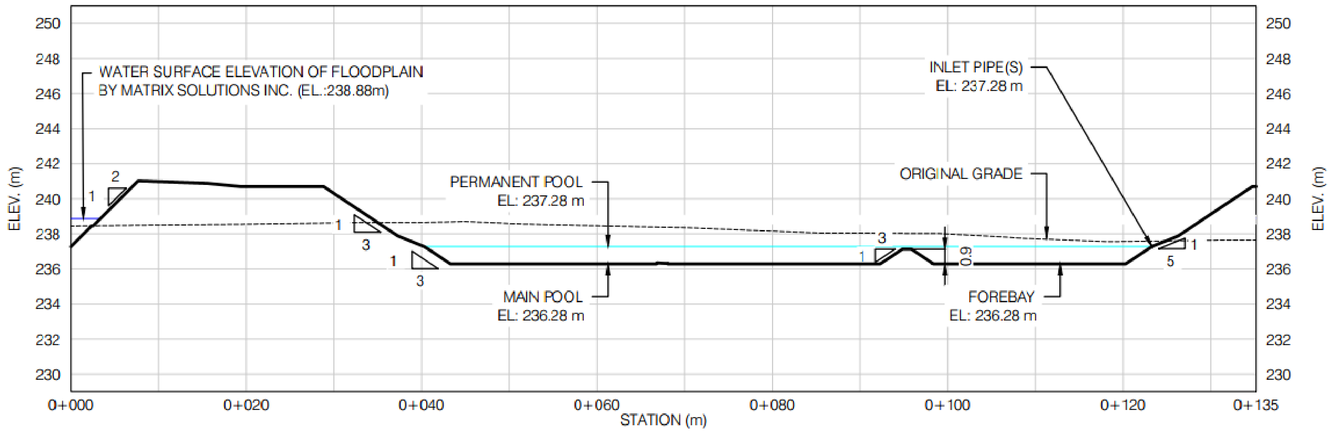
Public comments received on the stormwater management system will be included in Neoen's ECA application.
Public comments on the stormwater management system can be directed to:
info@tarabattery.ca
www.tarabattery.ca (via feedback form)
319-150 King Street West, Toronto, ON M5H 1J9

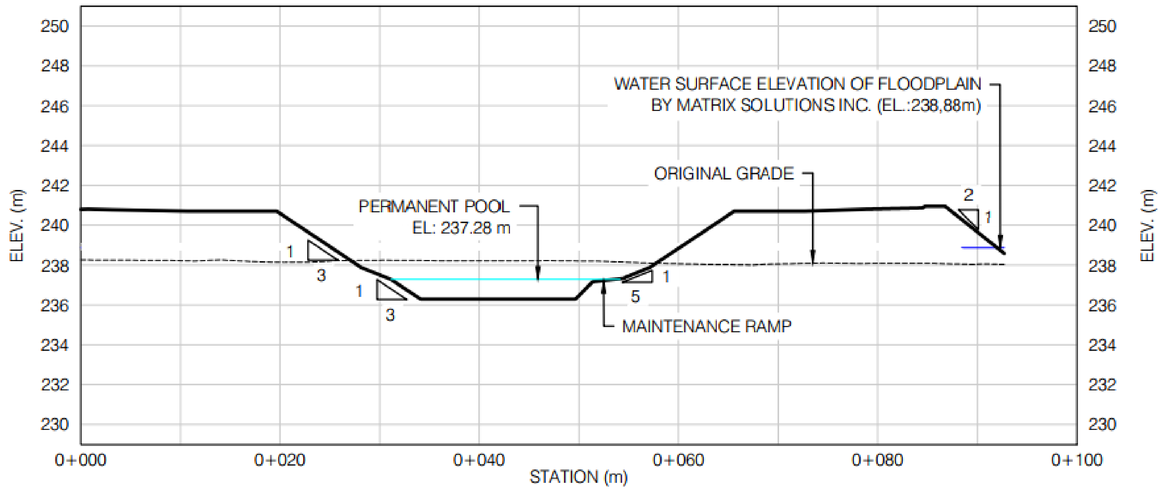
Protecting the Sauble River: Retention Pond

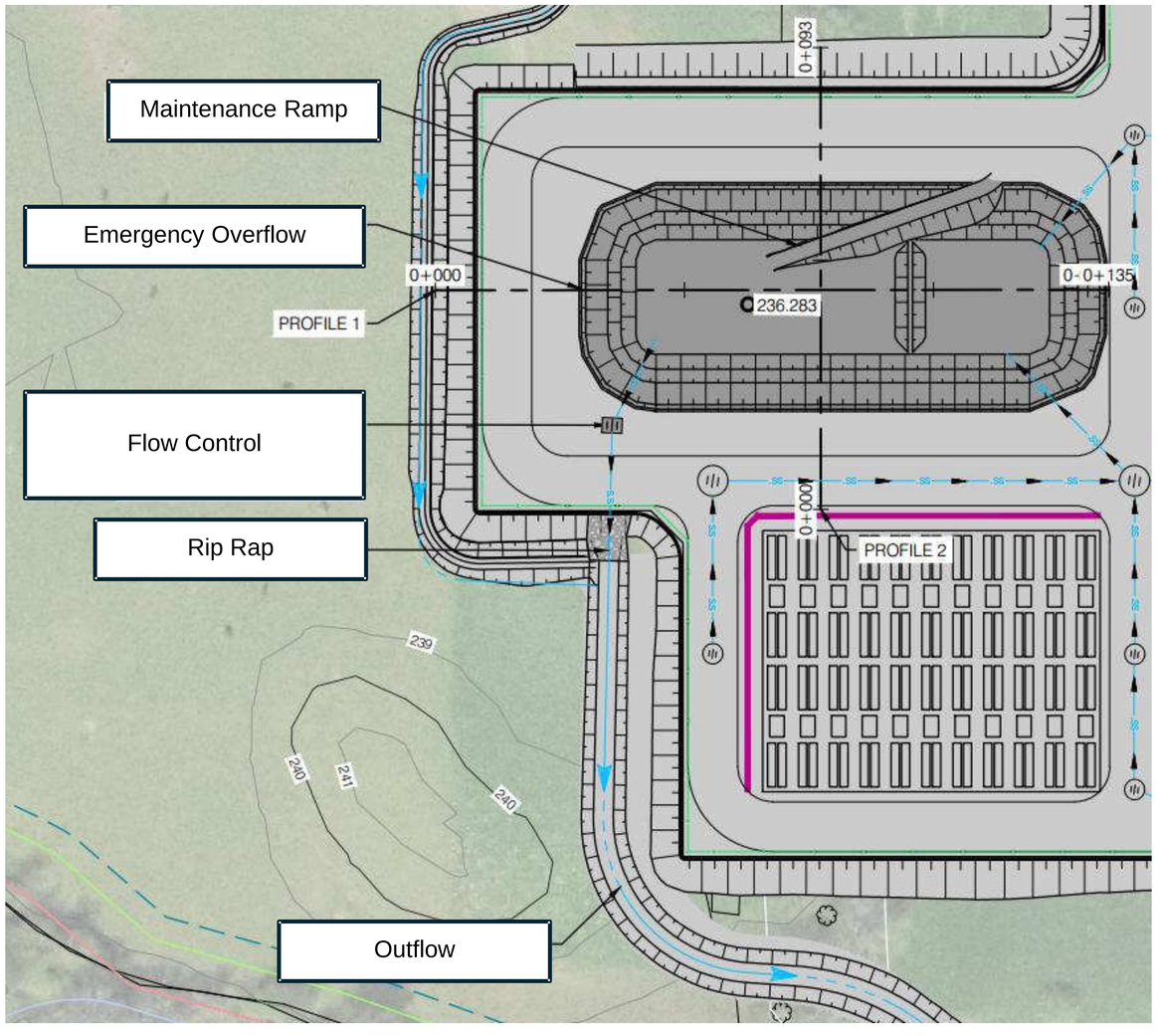
- **What is a retention pond?**
  - A retention pond (also known as a wet pond) is a shallow water basin that collects and cleans rainwater from passing through the site before it is released into the external environment.

- **How does a retention pond work?**
  - Rainwater flows into the site from the swales and surface run-off system.
  - Sediment is separated from the water in the forebay.
  - Water moves from the forebay to the main pond where finer particles and oil are separated.
  - The cleaned rainwater is slowly discharged from the retention pond to the outflow pipes and into the Sauble River.
  - An overflow protection area provides capacity in case of an extreme rainwater event.

Protecting the Sauble River: Retention Pond Layout







Protecting the Sauble River: What to Know

- The stormwater management system is **designed for rainwater** entering the site.
- **Tara BESS operations will not introduce water to the stormwater management system** other than the initial filling of the retention pond.
- The retention pond will be located on the filled area, above the 100-year flood line – **it will not take on floodwater**.
- **Regular water testing will occur** in accordance with applicable regulations.
- Outflow can be stopped by closing the control valve.
- An emergency contamination procedure is outlined in Neoen’s safety plan.
- The proposed design is sufficient to manage rainwater volumes generated by the worst possible storm event expected in 100 years.
- The design is under technical assessment by the Grey Sauble Conservation Authority and will be assessed by the Ministry of Environment, Conservation and Parks as part of the Environmental Compliance Approval process.

Environmental Assessment

- Tara BESS is subject to the Ministry of Environment, Conservation and Parks' (MECP) Class Environmental Assessment for Minor Transmission Facilities (Class EA) process.

- Notice of Commencement of the Class EA was issued November 25, 2024.

- Feedback received between Notice of Commencement and Notice of Completion will be entered into a public consultation record that will form part of Neoen's Class EA submission to MECP.

- **Notice of Completion is expected in June 2025**.

- Once Notice of Completion is issued, Neoen will accept public comments for a period of 30 days, as required under the EA process:

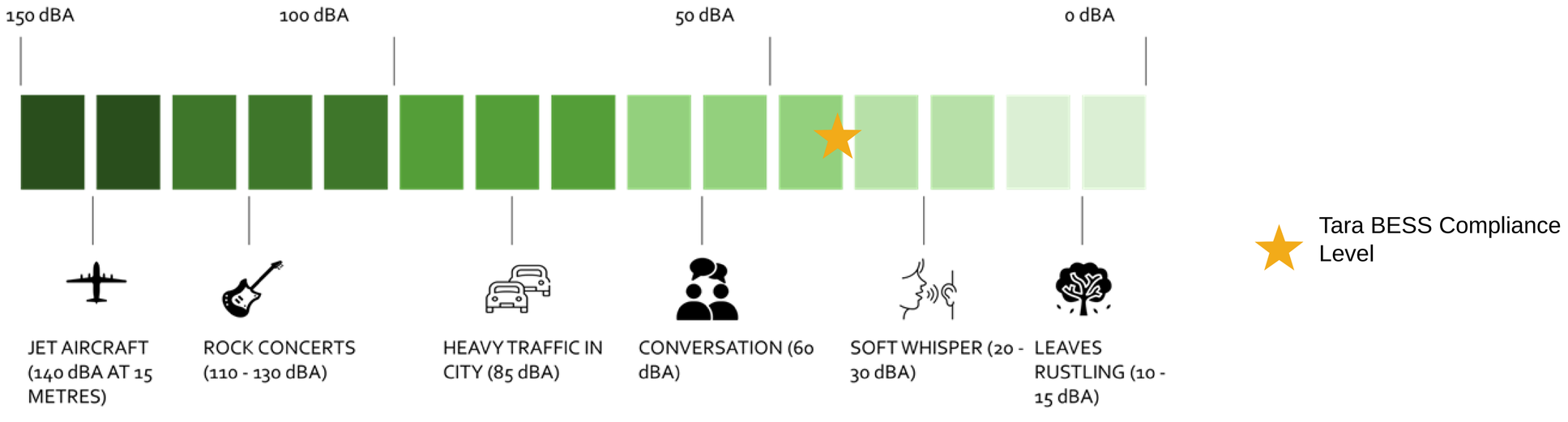
Public comments will be accepted in writing to:
info@tarabattery.ca
www.tarabattery.ca (via feedback form)
319-150 King Street West, Toronto, ON M5H 1J9

Required Studies:

- Aquatic Habitat Assessment
- Ecological Land Classification and Vegetation Surveys
- Breeding Bird Surveys
- Breeding Amphibian Surveys
- Bat Habitat Assessment (Maternity Roost Surveys)
- Noise Impact Assessment
- Agricultural Impact Assessment

Noise Impact Assessment

- Fans inside of the battery containers and transformers generate noise.
- Neoen conducted a Noise Impact Assessment (NIA) to determine the impact of noise generated by Tara BESS to surrounding dwellings.
- Monitoring was conducted to establish baseline ambient levels and to inform noise mitigation measures to measure impacts.
- 7-7.5 meters high acoustic barrier walls are proposed around the west and north sides of each cluster of batteries and around the east, west, and north sides of the high voltage substation transformers.
- Additional mitigation measures may be introduced if future development occurs on a nearby property.
- **At the nearest dwelling, noise generated from Tara BESS must not exceed 40 decibels**– a noise level equivalent to voices in a library.



BESS Safety

- Tara BESS is designed to mitigate the risk of fire, chemical, external environmental, and operational hazards that can arise with BESS facilities.

- Hazard events are rare and are mitigated through rigorous engineering, protective measures, thorough operations and maintenance, and stringent safety protocols.

- Neoen has prepared a preliminary **Comprehensive Safety Plan (CSP)** which outlines how Tara BESS and the Neoen team will prevent, mitigate, and respond to hazard events.

- The CSP was submitted as part of Neoen's planning applications, and Neoen will continue to develop the CSP in coordination with- and to the satisfaction of the local first responders.

BESS Safety: Thermal Runaway

- Thermal runaway is an exothermic reaction whereby damaged battery cells release energy in the form of abnormal heat, which can propagate and result in smoke, fire, or combustion.

- Tara BESS is designed with **passive and active protection measures** to mitigate the risk of spill events, including:

    - **Battery Management System** - a 24/7 remote monitoring, diagnostic, troubleshooting and alert system that tracks performance, voltage, current, and state of charge, reacts to fault conditions, and enables the thermal management system to prevent overheating.

    - **Thermal Management System** - an autonomous liquid cooling system that circulates coolant throughout the battery modules to maintain an optimal battery operating temperature.

    - **Overpressure Vents and Ignitors** - vents and ignitors are installed throughout the battery bays. Ignitors ignite flammable gases in a thermal runaway event before they can accumulate. Overpressure vents work autonomously to allow gases, products of combustion, and flames to safely exhaust through the roof of the container during a thermal event, preventing explosion.

- Neoen completed an Air Dispersion Model (ADM) to identify the types of toxic gases that could be emitted and the associated dispersion radius in the event of a fire, and to inform an evacuation plan.

BESS Safety: Spill Events

- Tara BESS is designed with **passive and active protection measures** to mitigate the risk of a spill event, including:
    - Battery container gutter system and containment basin.
    - Transformer spill trays with oil separators.
    - Retention pond.
- Neoen’s incident response procedure for spills events is outlined in its CSP.
- The effectiveness of the proposed design in protecting water quality will be assessed by the Ministry of Environment, Conservation and Parks as part of the Environmental Compliance Approval process.

Project Timeline

WE ARE HERE

1

Field Studies & Assessments
Spring 2024 – Spring 2025
Neoen undertakes studies and assessments to inform project design and to support consultation and permitting.

2

Consultation

September 2024 – Present
Neoen consults Rightsholders, stakeholders, and community on the project and incorporates feedback.

3

Permit Submissions

Spring 2025 – Summer 2025
Neoen submits permit and approval applications to applicable regulatory bodies.

4

Review and Approval

Post-submission
Regulatory bodies review Neoen's applications and may approve or reject the applications

5

Construction

Target Spring 2026
Construction of Tara BESS begins

6

Operations

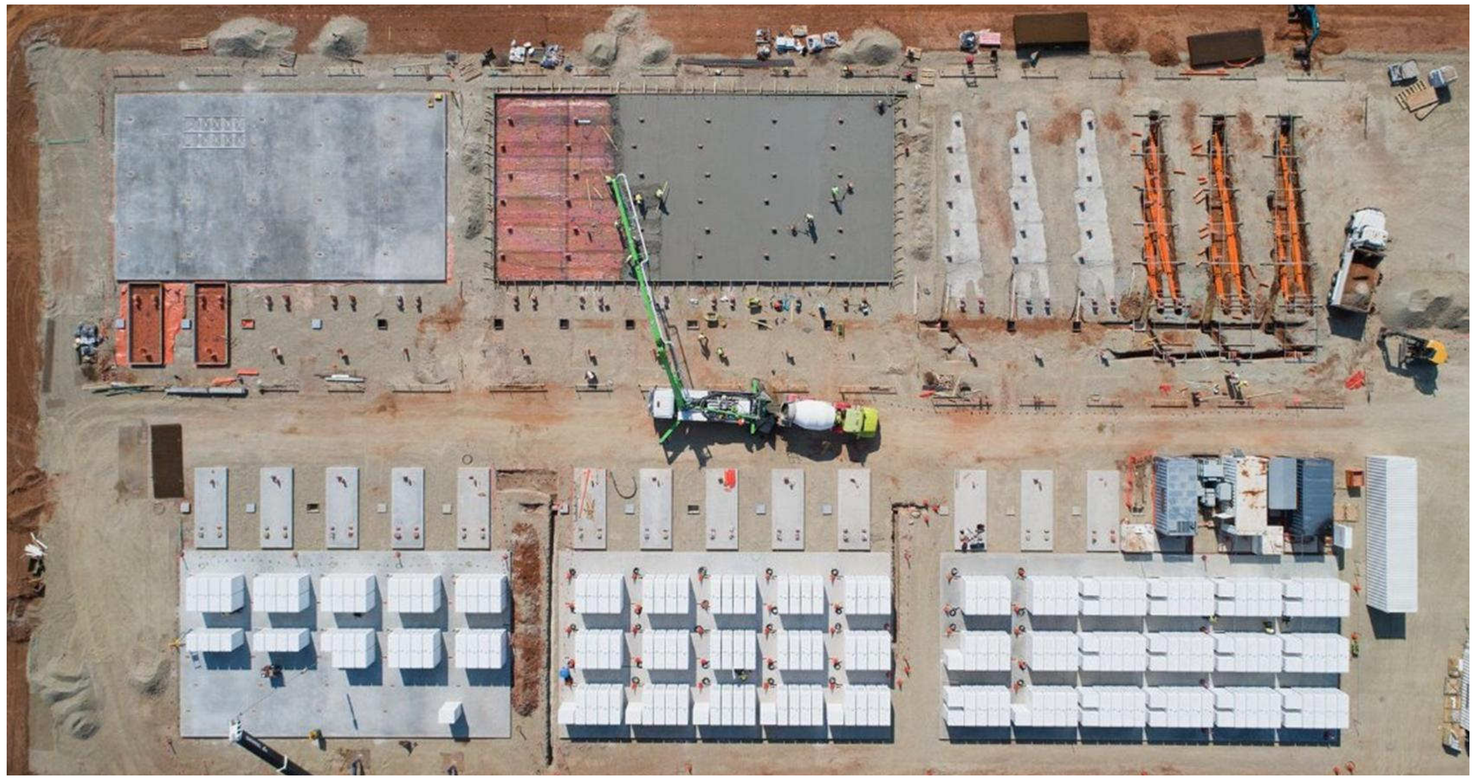
Target Late 2027
Commercial operations of Tara BESS begin.

SUBJECT TO PROJECT APPROVAL

Required Permits & Approvals:

- Grey Sauble Conservation Authority Approval – under review
- Official Plan Amendment and Re-zoning – under review
- Class EA for Transmission Facilities – submission expected June 2025
- Environmental Compliance Approval (stormwater)
- Environmental Activity Sector Registration (noise)
- Archaeology Clearance
- Approved Soil and Excess Materials Management Plan
- Ontario Endangered Species Act Sec.17 Permit (if applicable)
- Arran-Elderslie BESS Policy (Site Plan)

BESS Construction



BESS construction typically takes 1.5 years to complete, and includes the following activities:

- Temporary fence installation
- Equipment mobilization
- Temporary storage areas
- Material deliveries (by truck)
- Clearing, cut, fill and grading
- Shallow excavation and pouring of concrete slabs or pile installation
- Hoisting of pre-assembled battery containers and transformers
- Erection of steel structures and transmission lines
- Electrical connection work
- Acoustic barrier wall installation
- Landscaping

BESS Operations

Once operational, a BESS typically completes one charge and discharge cycle per day.

A crew of approximately 2-10 workers, contracted by Neoen, will operate Tara BESS. Neoen can elect to operate each day or not.

Permanent fencing will enclose the BESS facility. Site lighting and security cameras will be installed.

Did you know that Neoen is a pioneer in battery energy storage? Neoen delivered the world's first utility scale battery, Hornsdale Power Reserve, located in South Australia.

NEOEN

Tara BESS Project Update
Arran-Elderslie Council

May 26, 2025

Project Background

- Tara BESS, formerly Grey Owl Storage, is a 400-megawatt (MW), 1600 MW hours (MWh) battery energy storage system proposed for development on 39 Concession Road 4, in the Municipality of Arran-Elderslie.
- The project was awarded a 20-year energy storage contract by Ontario's Independent Electricity System Operator (IESO) in May 2024, through the IESO's competitive long-term 1 (LT1) RFP procurement.
- Tara BESS is one of 10 energy storage projects awarded a contract in LT1, collectively totaling 1,784 MW, to help meet Ontario's growing energy needs.
- The contract is for a standalone battery only and does not include a provision to expand the BESS or add another renewable technology, such as solar.
- Neon acquired the project from Shift Solar Inc., in late 2024, and is now exclusively leading development of the project.
- At the end of the contract, Neoen must decommission Tara BESS within 18-months of the last day of operations.

Project Development Timeline

WE ARE HERE

1

Field Studies & Assessments

Spring 2024 – Spring 2025

Neoen undertakes studies and assessments to inform project design and to support consultation and permitting.

2

Consultation

September 2024 – Present

Neoen consults Rightsholders, stakeholders, and community on the project and incorporates feedback.

3

Permit Submissions

Spring 2025 – Summer 2025

Neoen submits permit and approval applications to applicable regulatory bodies.

4

Review and Approval

Post-submission

Regulatory bodies review Neoen's applications and may approve or reject the applications

5

Construction

Target Spring 2026

Construction of Tara BESS begins

6

Operations

Target Late 2027

Commercial operations of Tara BESS begin.

SUBJECT TO PROJECT APPROVAL

Public Consultation

- Post-award consultation for Tara BESS began in September 2024, and has included:
  - Canvassing and landowner meetings
  - Open houses
    - January 21, 2025
    - June 5, 2025
  - Rightsholder consultation
  - Council delegations
  - Multi-stakeholder working group
  - Project website and feedback form
  - Project mail-outs
  - Site visits
- Neoen accepts feedback via:
  - Phone: (416) 312-0057
  - Email: info@tarabattery.ca
  - Web: www.tarabattery.ca
  - Mail: 319-150 King Street West, Toronto, ON M5H 1J9
  - In-person

What we've heard and how we've responded

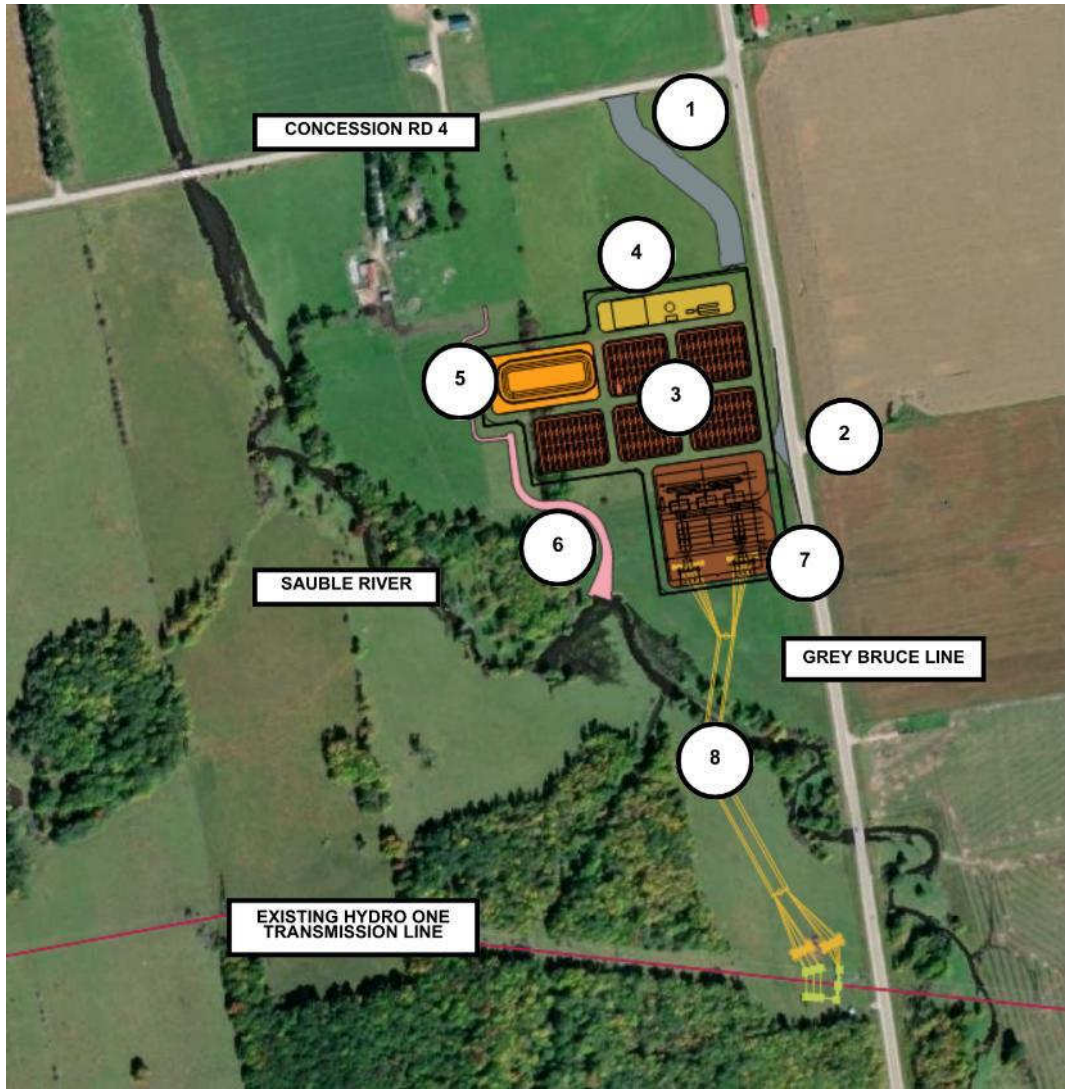
1. Concerns about loss of agricultural land.
2. Concerns about developing on a floodplain/EP lands.
3. Concerns about proximity to Sauble River.
4. Concerns about visual impact.
5. Concerns about risk of fire.

Proposed Project Location and Layout

1. **Primary Entrance** off Concession Rd 4
2. **Secondary Entrance** off Grey Bruce Line
3. **5 Clusters of Battery Containers** with acoustic barrier walls (420 containers total)
4. **Operations & Maintenance Buildings**
5. **Stormwater Management Pond**
6. **Vegetated Swale** (drainage)
7. **230-kilovolt (kV) Substation** with 3 high-voltage transformers (2 active, 1 back-up) and switching equipment
8. **~500 meters of 230 kV Transmission Line and Structures**

Total project footprint: ~22 acres.

216 trees and shrubs are proposed for the north and east perimeters of the site. The facility will be enclosed by fencing.



Grey Sauble Conservation Authority Approval

- Tara BESS is proposed for lands with a designated floodplain and is subject to approval by Grey Sauble Conservation Authority.
- A cut-and-fill method, combined with a surface run-off management system and retention pond, is proposed to mitigate impact to the floodplain:
  - The **cut-and-fill method** will raise the facility so that water can flow freely around it, while stormwater ditches leading to the Sauble River will off-set the BESS footprint.
  - A **surface run-off management system** comprised of site grading, vegetated ditches, subsurface storm sewers and drainage directed to the retention pond.
  - A **retention pond** (also referred to as wet pond) complete with separator, discharge orifices, and a control valve that allows water to flow into the Sauble River and limits flows to less than pre-BESS development flow rates.
- The proposed design protects water quality, quantity, and provides erosion control.
- No impact to floodplain or stormwater when modeled against 100-year return events.

Class Environmental Assessment

- Tara BESS is subject to the Ministry of Environment, Conservation and Parks' (MECP) **Class Environmental Assessment for Minor Transmission Facilities** (Class EA) process, in accordance with the Ontario Environmental Assessment Act.
- Notice of Commencement of the Class EA process for Tara BESS was initiated on November 25, 2024.
- Feedback received between Notice of Commencement and Notice of Completion will be entered into a public consultation record that will form part of Neoen's Class EA submission.
- Notice of Completion expected to be issued in **spring 2025**, followed by a 30-day public comment period.

Required studies:

- Aquatic Habitat Assessment
- Ecological Land Classification and Vegetation Surveys
- Breeding Bird Surveys
- Breeding Amphibian Surveys
- Bat Habitat Assessment (Maternity Roost Surveys)
- Noise Impact Assessment
- Agricultural Impact Assessment

Status of Permit and Approval Requirements

- Grey Sauble Conservation Authority Approval – **application deemed complete April 25, 2025**
- Official Plan Amendment and Re-zoning (Bruce County/Arran Elderslie) – **application deemed complete May 8, 2025**
- Class EA for Transmission Facilities – **underway**
- Environmental Compliance Approval for Stormwater
- Environmental Activity Sector Registration (noise)
- Archaeology Clearance
- Approved Soil and Excess Materials Management Plan
- Ontario Endangered Species Act Sec.17 Permit (if applicable)
- Arran-Elderslie BESS Policy (Site Plan) Application

Local Project Benefits

- Tara BESS will deliver an estimated **$134,000 in municipal tax revenues annually**.
- **100K Community Benefits Fund** to support local initiatives, commencing at operations and refreshed annually through the final year of operations.
- **50K in benefit sharing for residential neighbours** annually, commencing at construction.
- Rightsholder benefits.
- 200+ jobs at peak construction, plus supplier opportunities.
- Art installation.

May 2, 2025

From: Steve Hills
To: NEOEN

This letter is to inform NEOEN about what is going on with regards to the Tara BESS (formally grey owl) project proposal in Arran Elderslie, Ontario, Canada.

Look at the pictures that I have sent. I realize that they may not be professional. I took these pictures of the fields that are being studied. I've tried to show you the same locations during the flood and then after the water finally receded. They were taken this spring 2025.

I have lived here all my life and see this every spring. This year the water did not rise as high as I have seen it in the past, even though we had quite a large snow depth. Each year is a little different, but the Sauble River does flood these fields every year.

So. Why did I send these pictures to NEOEN?

When Shift Solar held an information/fact finding meeting in Tara November 22,2023, the three gentlemen were letting the community know that they were going to apply for a contract to supply backup power to Ontario Hydro by building a battery energy storage system. They also said that Shift Solar would be with this project from start to finish. The chosen location was the corner field south of the fourth, east of the county line. Where? "You've got to be kidding!" I said to myself.

These three guys had all the standard answers about how a BESS system works, how it was safe, why it was needed etc. They obviously have not researched the warnings from the many lifelong locals advising them that they should definitely look for a different location. The Sauble River floods these fields every spring. It just does!

The planning process has been ongoing since then with the goal to have this development the second largest battery in Canada and the largest in NEOEN'S portfolio.

When the public asks about the wisdom of building in such a wet field, they are told about plans of hauling in large amounts of material to build a base for the 420 containers and service roads etc. They then said that they may need to put the containers and transformers up on concrete pilings. They would dig in drainage ditches, dig in a containment pond to collect water runoff (take another look at the flood pictures) and make sure that this project goes ahead.

When it was suggested that a different location would take far less work and far less money, they replied by telling us that this was not a concern to them and we need not worry about how much it will cost because they have NEOEN as financial support.

This is what I think has happened with this project. In their excitement to have Shift Solar become the second largest battery in Canada, common sense to see the obvious was overlooked.

Those three Shift Solar guys wanted to get a contract with the Independent Electricity System Operator. They needed a location fast, before they missed the deadline for applications. When they had the opportunity to lease this field, they jumped on it. It appeared to be a perfect location, on paper and by looking at maps.

Did they even go look at the location? If they did, their first observation would be that these low fields are on the banks of a river. They should have then asked the landowner if these fields have ever flooded, and if so, how often and how much? If they were given an honest answer, they would have declined the offer of this location right then and there no matter how tempting it was, and as such, not even started the rushed procedure of applying to the IESO. This is definitely not a field to be used for a battery energy storage system.

I am asking you, someone in NEOEN, to find out why this Tara BESS project is still being pursued. In my opinion, I think for NEOEN this has the potential to become a financial, as well as a public relations/media concern.

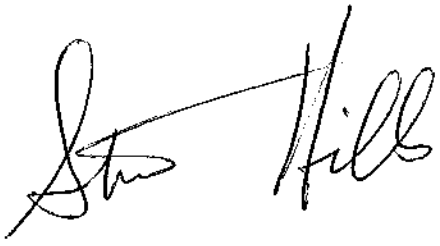
Maybe those Shift Solar guys and their team will listen to you. They sure don't listen to the common-sense knowledge of the locals.

I would appreciate it if you would send me a letter soon, to let me know that you are looking into what is going on here in Arran Elderslie.

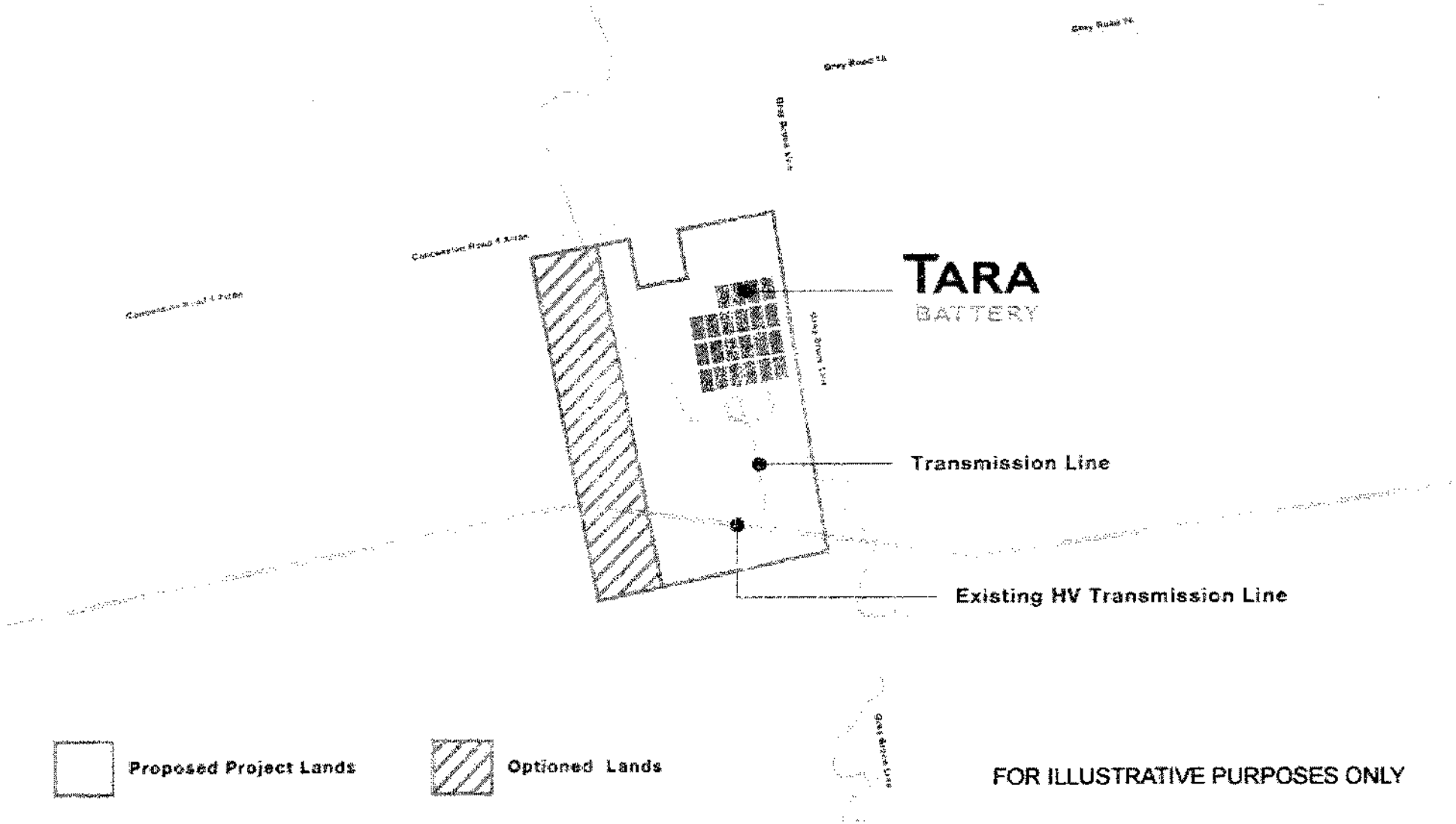
Please stop this Tara BESS project that is being financed by NEOEN now, before more digging and construction gets started.

Look at the pictures. . . . . .

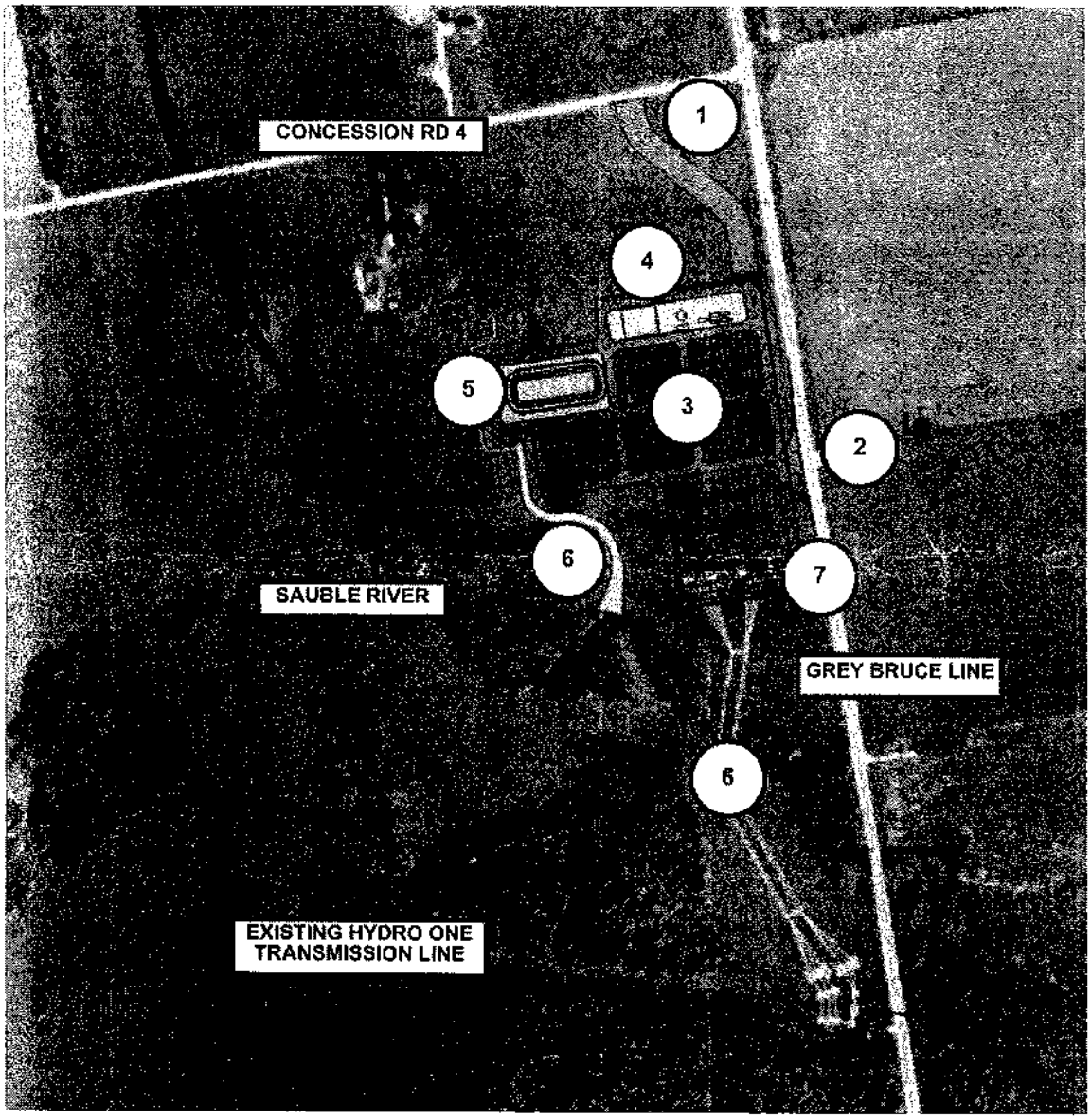
Thanks.



Steve Hills
86 Mill Road
RR2 Tara, Ontario
Canada
NOH 2NO


TARA
BATTERY
Transmission Line
Existing HV Transmission Line
Proposed Project Lands
Optioned Lands
FOR ILLUSTRATIVE PURPOSES ONLY

Photos are labeled by refering to numbers. on legend



Legend

1. Primary Entrance
2. Secondary Entrance
3. Battery Containers with Acoustic Barrier Walls.
4. Operations & Maintenance Buildings
5. Stormwater Management Pond
6. Drainage
7. 230 kV Substation
8. 230 kV Transmission Line and Structures

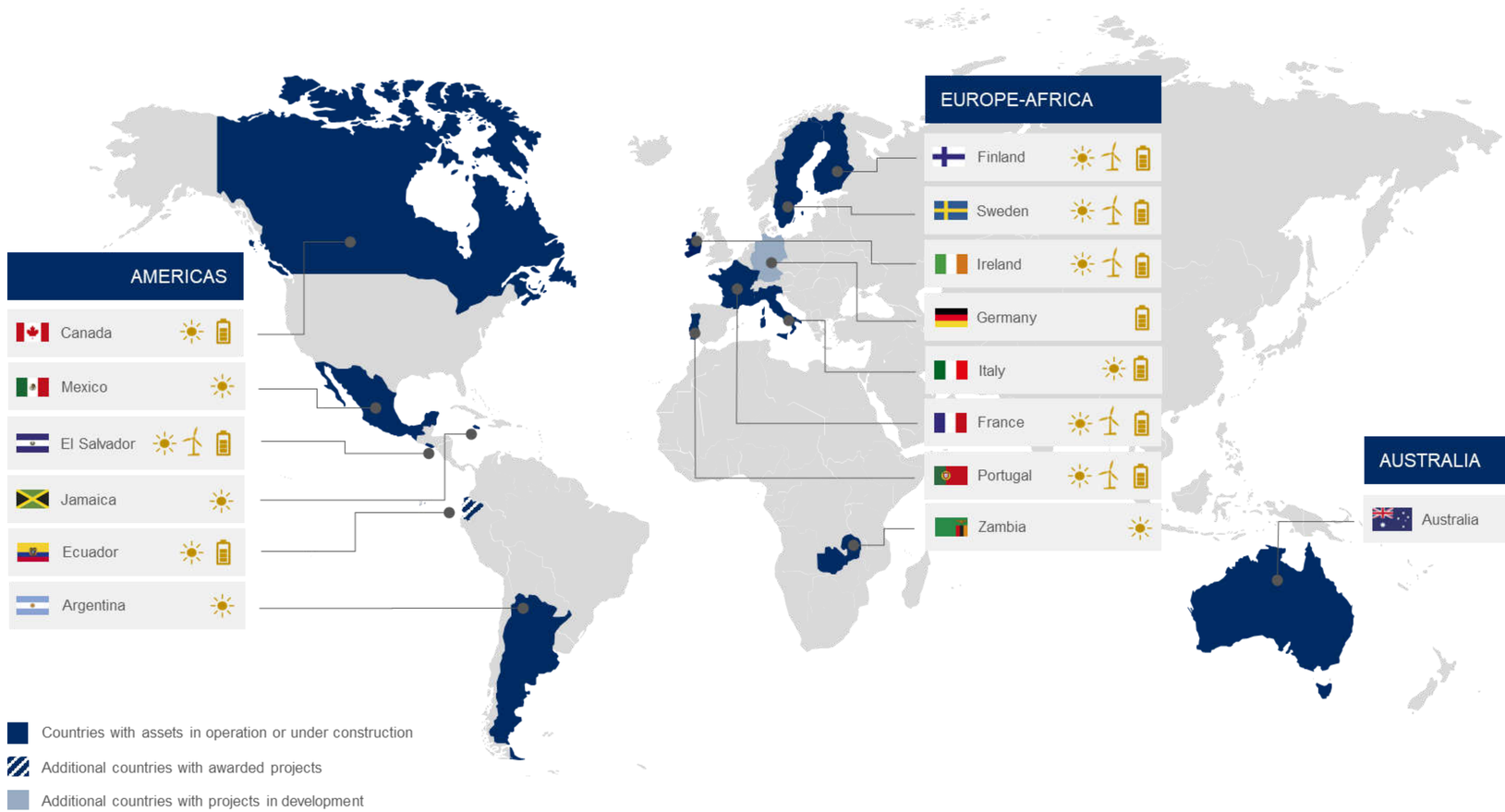
Note: the 8-metre acoustic barrier wall previously shown along the north side of the facility is no longer proposed.

NEOEN

Neoen is a leading independent power producer of exclusively renewable energy, including solar and wind power, and battery energy storage.

We have a portfolio capacity of 8.9-gigawatts (GW) in operation or under construction across four continents. Our develop-to-own strategy means that we are around for the long-term.

Neoen has an active solar plant, Fox Coulee Solar Farm, in Starland County, Alberta, and several projects in development in Canada.



Project Background

- Tara BESS, formerly Grey Owl Storage, is a 400-megawatt (MW), 1600 MW-hours (MWh) battery energy storage system (BESS) proposed for development on 39 Concession Road 4 in Arran-Elderslie, approximately 5-kilometers (km) southeast of the Village of Tara.

- Neoen Ontario BESS 1 Inc. (Neoen) is leading development of Tara BESS.

- Tara BESS was awarded a 20-year energy storage contract by Ontario's Independent Electricity System Operator (IESO) in May 2024, in the IESO's LT1 procurement, under which Neoen will receive payment in exchange for providing 400 MW of capacity at a rate established at the time of procurement.

- The contract does not permit an increase in BESS capacity or expansion of the project to include another renewable technology, such as solar.

- Tara BESS will be decommissioned within 18 months of the contract end date, unless the contract is extended by the IESO.

Meeting Ontario's Energy Needs

- Tara BESS will play a critical role in meeting Ontario's projected energy needs by providing 400 MW of capacity and 1,600 MWh to the grid (equivalent to the daily energy consumption of approximately 64,000 households in Ontario*).

- IESO forecasts a 75% increase in Ontario's energy demand by 2050, which means an additional 111-terawatt-hours (TWh) of energy is needed by 2050 to meet projected demand (1 TWh = 1 million MWh).**

- Tara BESS is one of 10 energy storage contracts awarded in the LT1 procurement, collectively totaling 1,784 MW.

*Based on a 25 kWh/day household electricity consumption.
**Ontario's Affordable Energy Future – Minister's Message.

IESO'S ANNUAL PLANNING OUTLOOK (APRIL 2025)

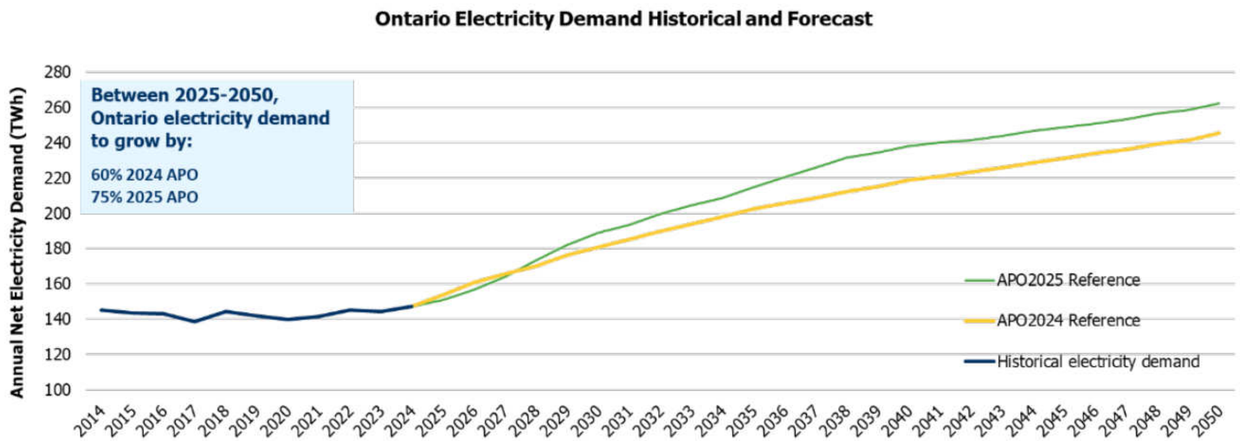
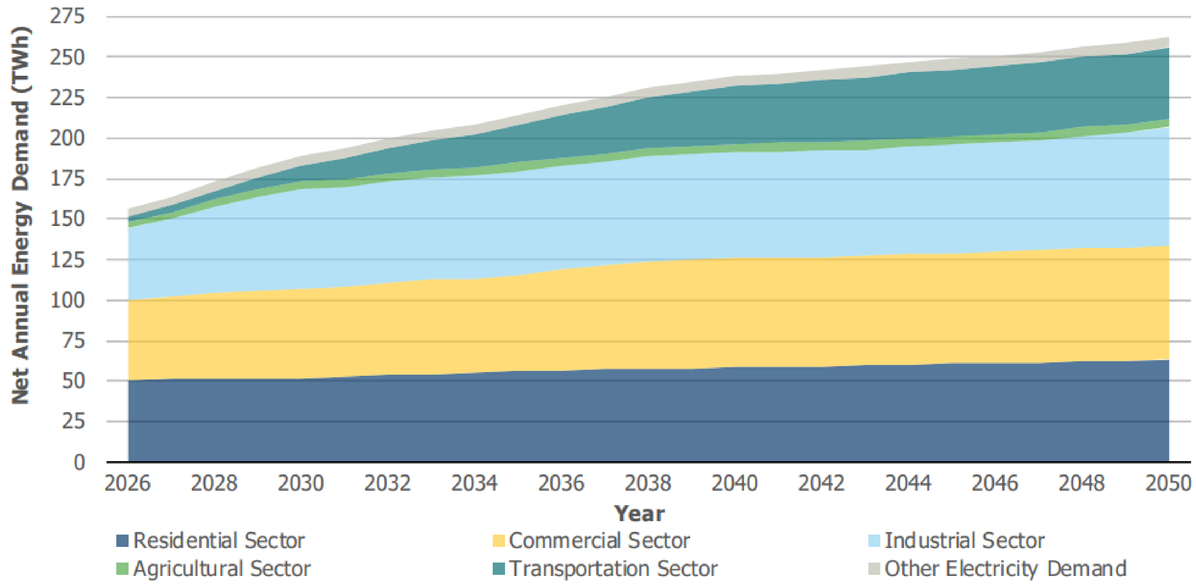


Figure 2 | Annual Energy Demand



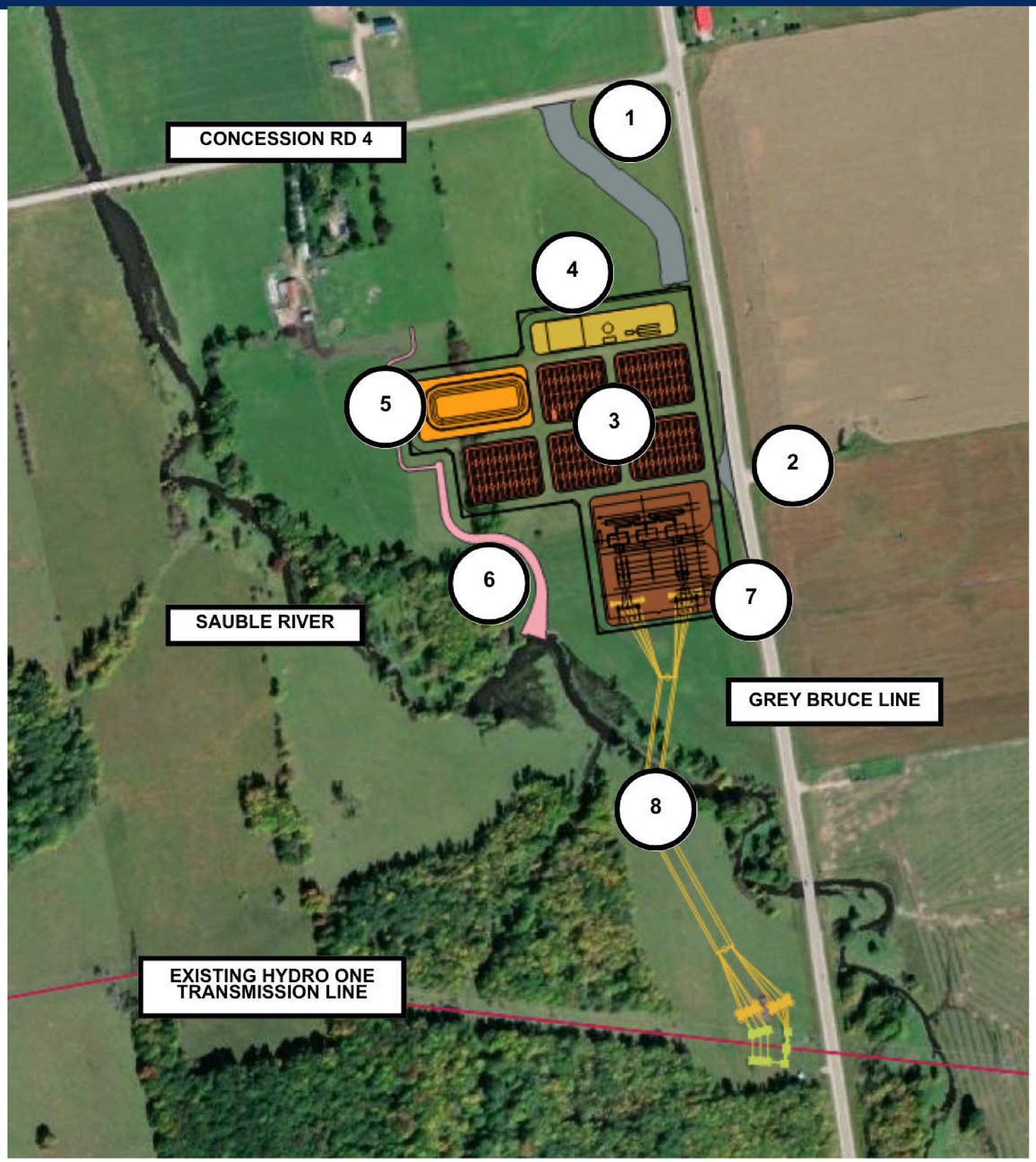
Project Benefits

- Tara BESS will add 400 MW of capacity to Ontario's power grid.
- Tara BESS will be capable of providing ancillary services such as frequency and voltage support, and virtual inertia.
- BESS maximize the usefulness of energy produced along a transmission line by storing energy during low demand periods and discharging energy when demand rises.
- BESS can help restore power sooner than traditional generating sources in the case of an outage.
- Tara BESS will generate 200+ jobs at peak construction.

Community Benefits

- Tara BESS will generate **an estimated $130,000 in annual municipal tax revenues**, plus:
  - Neoen will enter into a Community Benefits Agreement with the Municipality of Arran-Elderslie as part of its BESS Policy (subject to project approval).
  - Under the Planning Act, a host municipality may apply a 4 percent Community Benefits Charge.
- **$100,000 annual Community Benefits Fund** to support local initiatives, commencing at operations and continuing each year of operations.
  - Proposals from the community will be accepted and reviewed by a Local Advisory Committee.
- **$50,000 in annual benefit-sharing with residential neighbours** in the immediate project vicinity, commencing at construction and continuing each year of operations.
- Rightsholder benefit-sharing.
- Employment and supplier opportunities.
- Local art installation.

Tara BESS Proposed Layout



TARA BESS PROPOSED LAYOUT

1. Primary Entrance
2. Secondary Entrance
3. 420 Battery Containers*
4. Operations & Maintenance Buildings**
5. Retention Pond
6. Drainage (Vegetated Swale)
7. 230 kV Substation
8. Transmission Line and Structures

Total Footprint: ~22 acres.

Note: 200+ trees and shrubs are proposed along the north and east perimeters of the project lands.

*Containers are organized into five clusters with 7-7.5 m acoustic barrier walls along the west and north sides

**The cistern, water tank, and sewer tank will be subsurface.

Tara BESS Conceptual Rendering – Grey Bruce Line View

Renderings are for illustrative purposes only and may vary from final conditions.

Tara BESS Conceptual Rendering – Aerial View

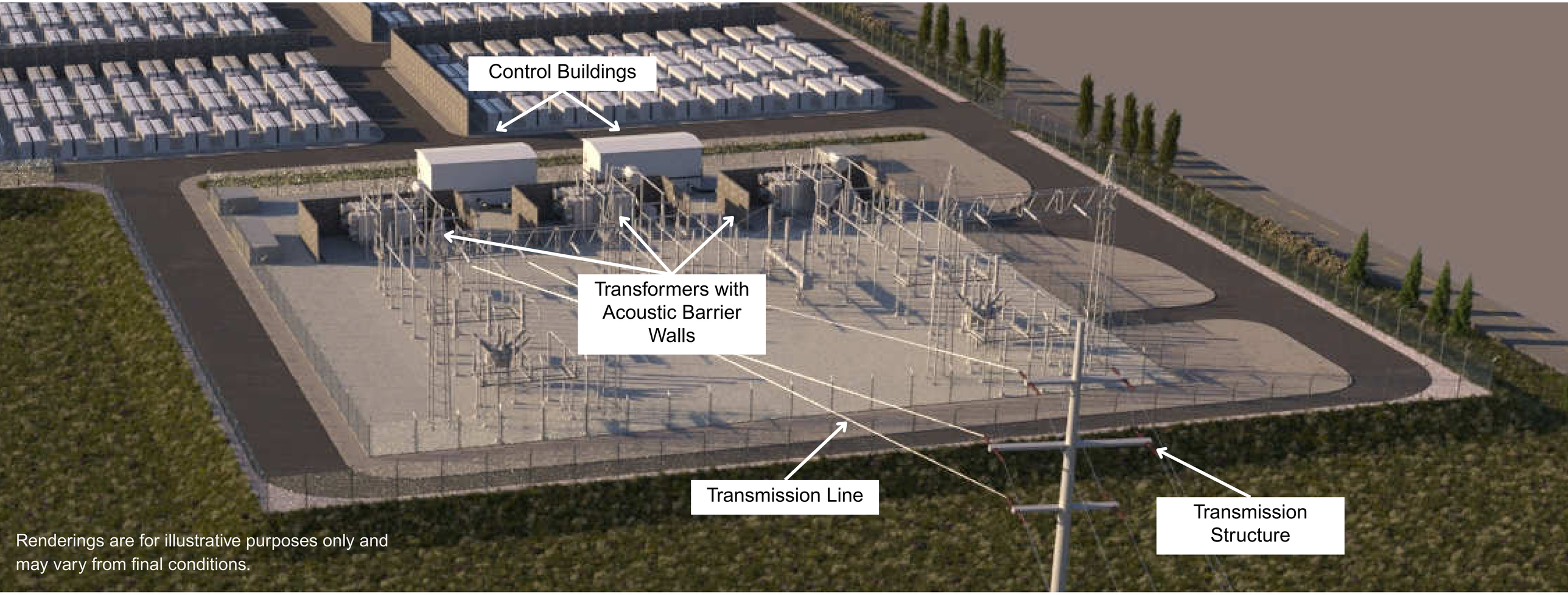
Renderings are for illustrative purposes only and may vary from final conditions.

About the Transmission Facility (230 kV Substation)

- 230-kilovolt (kV) substation comprised of:
  - 3 - 220-mega volt ampere, high-voltage transformers (two operational and one back-up) with each with 7 m acoustic barrier walls along the east, north, and west sides.
  - 2 - control buildings
  - Circuit breakers
  - Disconnect switches
  - Lightning protection
  - Busbars
  - Site lighting and fencing
- Steel transmission structures will carry approximately 500 m of overhead transmission line from the substation to Hydro One's existing high-voltage line at the south end of the site.

TARA BATTERY

Substation Conceptual Rendering



Renderings are for illustrative purposes only and may vary from final conditions.

TARA BATTERY

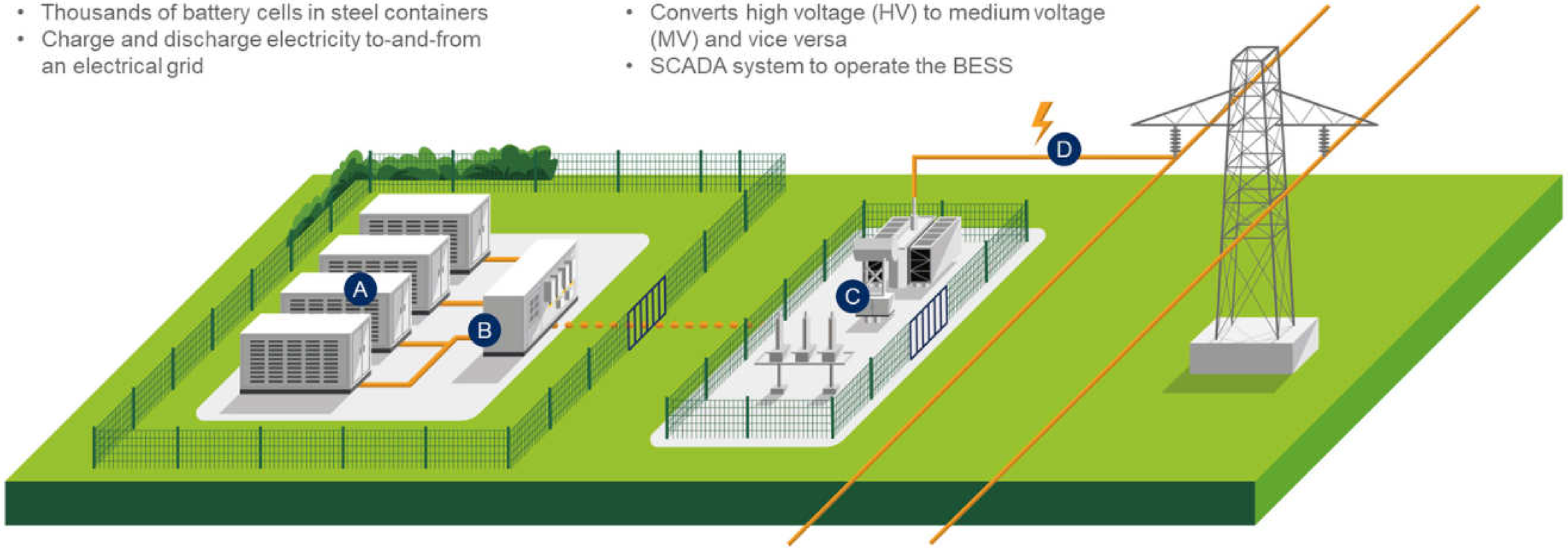
How a Standalone BESS Works

A - Battery Containers

- Thousands of battery cells in steel containers
- Charge and discharge electricity to-and-from an electrical grid

C - Transformer Station

- Converts high voltage (HV) to medium voltage (MV) and vice versa
- SCADA system to operate the BESS



B - Inverter

- Converts direct current (DC) to alternating current (AC) and vice versa

D - Transmission Lines

- Transmission lines move electricity to-and-from the BESS
- Steel structures hold the lines overhead
- Electricity travels to-and-from the grid

Why Here?

- Conditions necessary to host a BESS facility include:
  - Landowner willingness.
  - Suitable terrain (a relatively flat site).
  - Proximity to demand.
  - Proximity to transmission lines (with capacity to host a BESS).
  - Construction feasibility/site accessibility.

Maintaining the Floodplain

- Tara BESS is proposed within a designated floodplain.

- Neoen must ensure there is no loss to floodplain capacity and that there is no impact to surrounding properties and roadways.

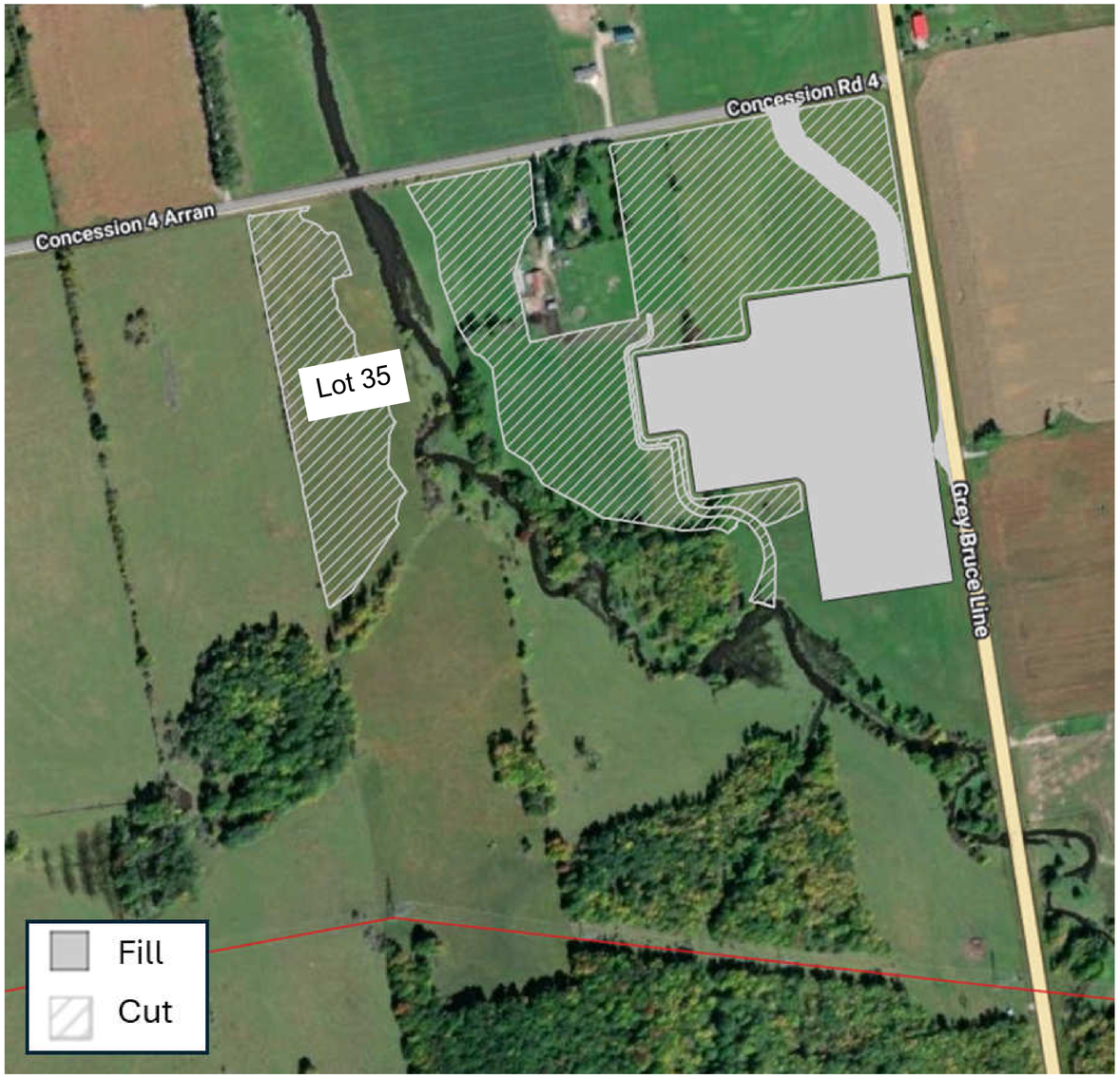
- A "**cut-and-fill**" design is proposed, whereby soil is removed (cut) from areas around the BESS location, including from the adjacent Lot 35, immediately west of the proposed site, and used to raise (fill) the area where the BESS facility will be located.

- The cut areas will provide floodplain capacity in place of lost flood capacity in the fill areas.

- The design has been modeled against the worst possible flood event expected in 100 years to ensure the design can sufficiently protect the floodplain and surrounding areas.

- Neoen's proposal is **under review by the Grey Sauble Conservation Authority**.

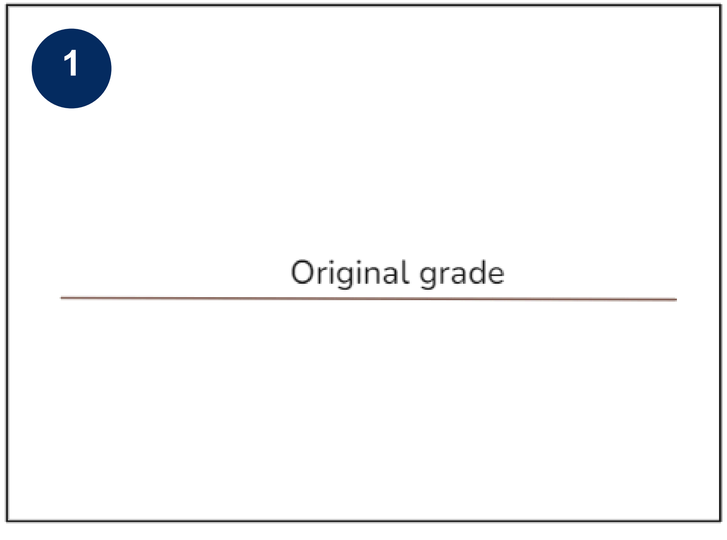
Cut-and-fill Locations

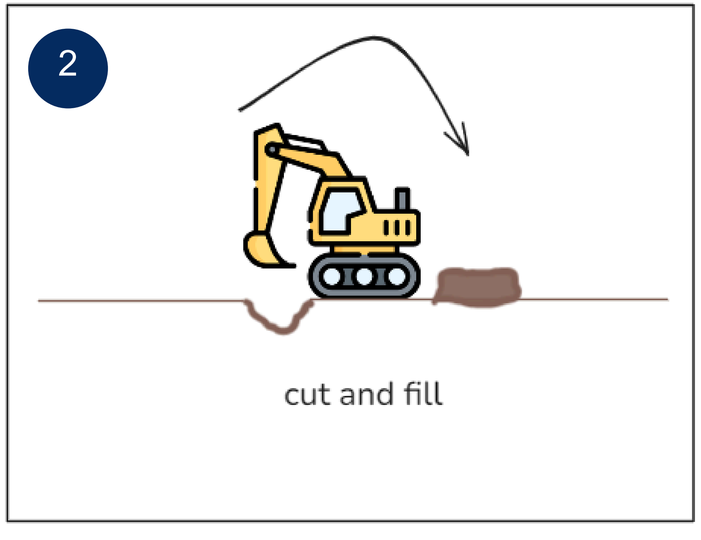


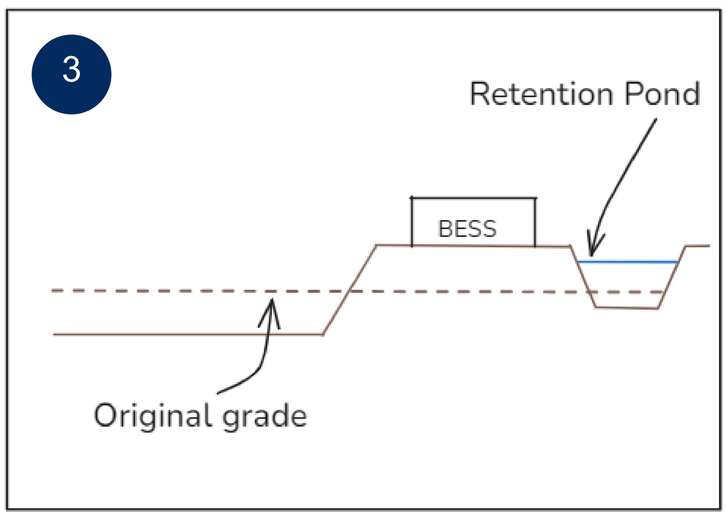
Maintaining the Floodplain: What to Know

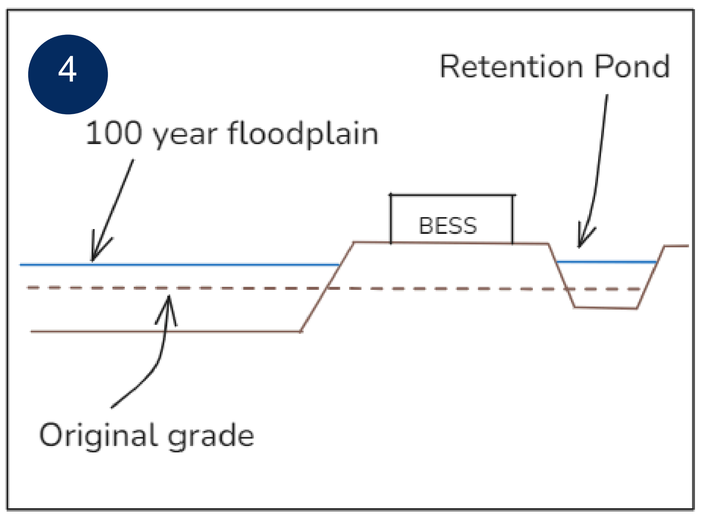
- There will be **no change** to floodplain capacity.
- The **areas that flood will change** (cut areas will take on floodwater, filled areas will not).
- There will be **no change or impact to flood activity on surrounding properties or roadways** other than the project lands and Lot 35.
- The proposed design is sufficient to manage floodwater volumes generated by the worst possible flood event expected in 100 years - **the BESS infrastructure will not flood**.
- The design is under technical review by the Grey Sauble Conservation Authority.

Maintaining the Floodplain: Cut-and-fill Process





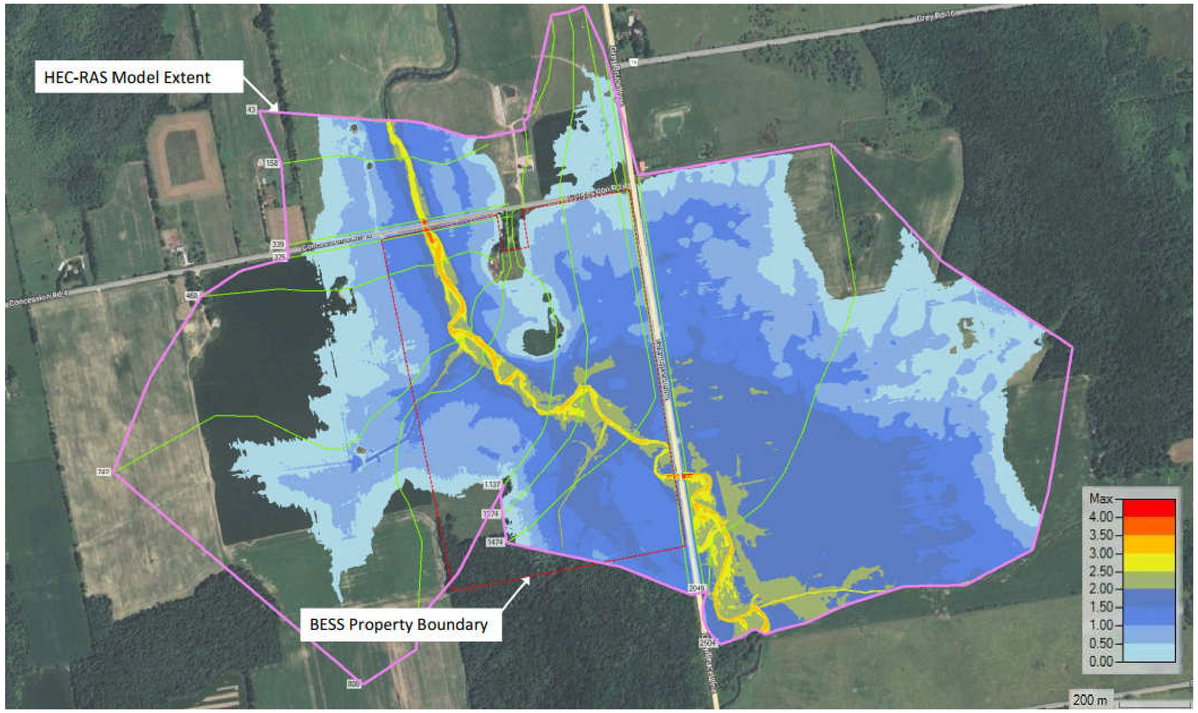




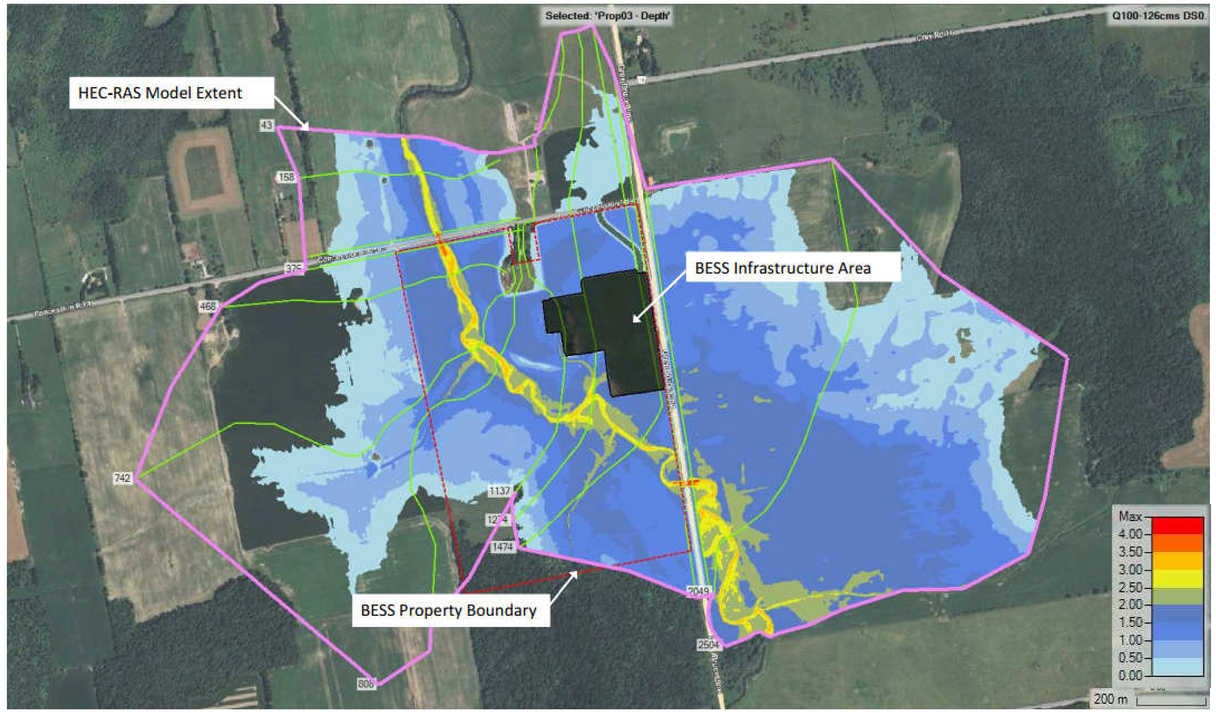
1. **Original Grade:** existing ground elevation before construction begins.
2. **Cut and Fill:** excavation and grading is carried out to create floodplain compensation areas and a raised pad for the BESS facility using excavated fill.
3. **Raised Pad with BESS:** the BESS and retention pond are constructed on the raised pad.
4. **Floodplain Compliance:** final grading works to ensure the facility is above the 100-year floodplain line.

Maintaining the Floodplain: Before and After

Existing Condition - 100-year Regulatory Flood Extents and Depths



Proposed Condition (with cut-and-fill) - 100-year Regulatory Flood Extents and Depths



There will be **no flood impact to surrounding properties or roadways**, excluding the project lands and Lot 35.

Protecting the Sauble River

- A **surface run-off management system** and **retention pond** (collectively, "**stormwater management system**") are proposed to maintain the quantity and quality of water passing through the BESS facility and to prevent soil erosion.

- The surface run-off management system is comprised of vegetated ditches, subsurface storm sewers and drains leading to a retention pond.

- **The retention pond is impermeable** and complete with an oil separator, discharge orifices, and a control valve **designed to prevent any oil or sediment from entering the Sauble River**.

- The stormwater management system has been modeled against the worst possible storm event expected in 100 years to ensure the design will sufficiently manage flows and protect the Sauble River.

- Neoen's proposal is **under review by the Grey Sauble Conservation Authority and requires Environmental Compliance Approval (ECA) by the Ministry of Environment, Conservation and Parks**.

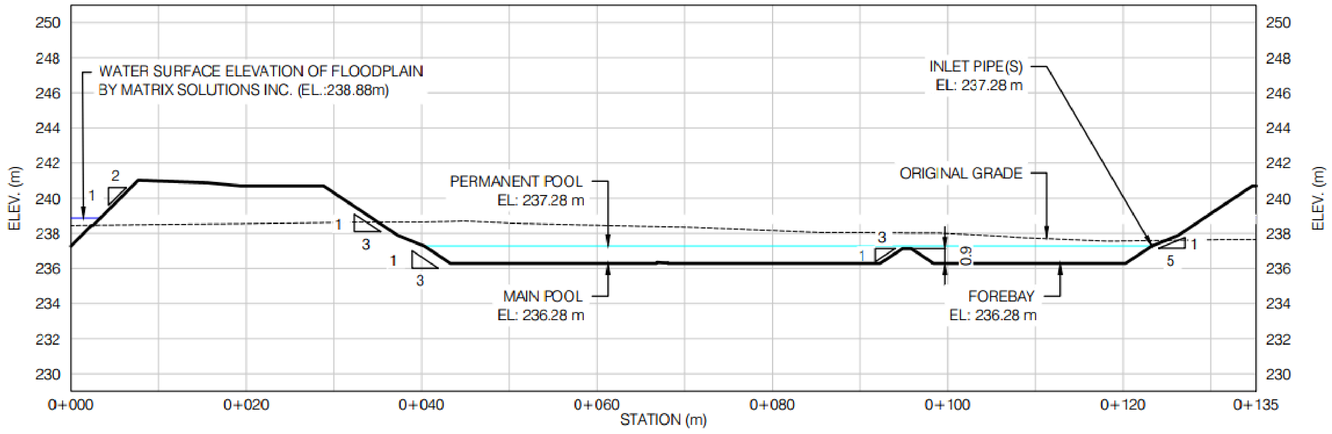
Public comments received on the stormwater management system will be included in Neoen's ECA application.
Public comments on the stormwater management system can be directed to:
info@tarabattery.ca
www.tarabattery.ca (via feedback form)
319-150 King Street West, Toronto, ON M5H 1J9

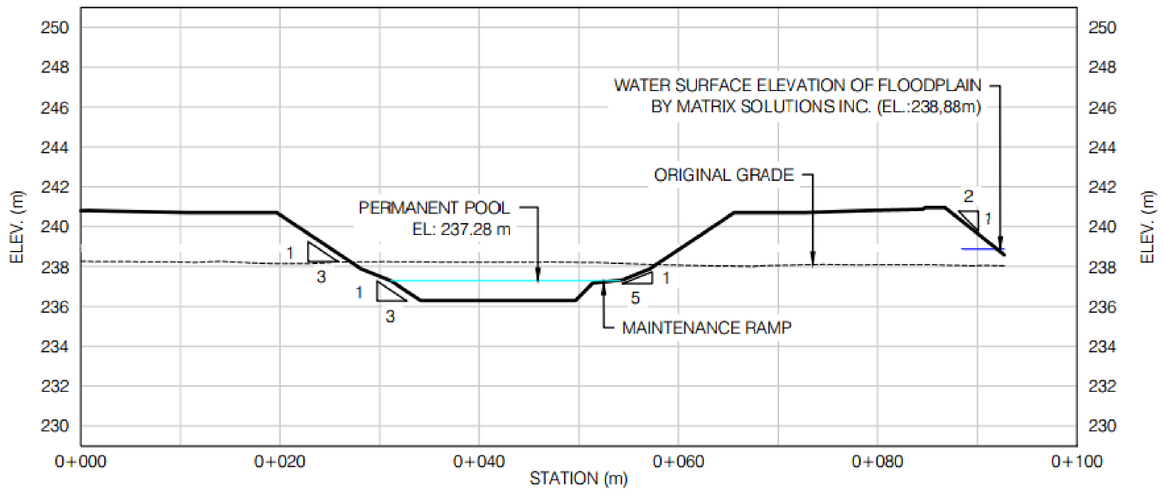
Protecting the Sauble River: Retention Pond

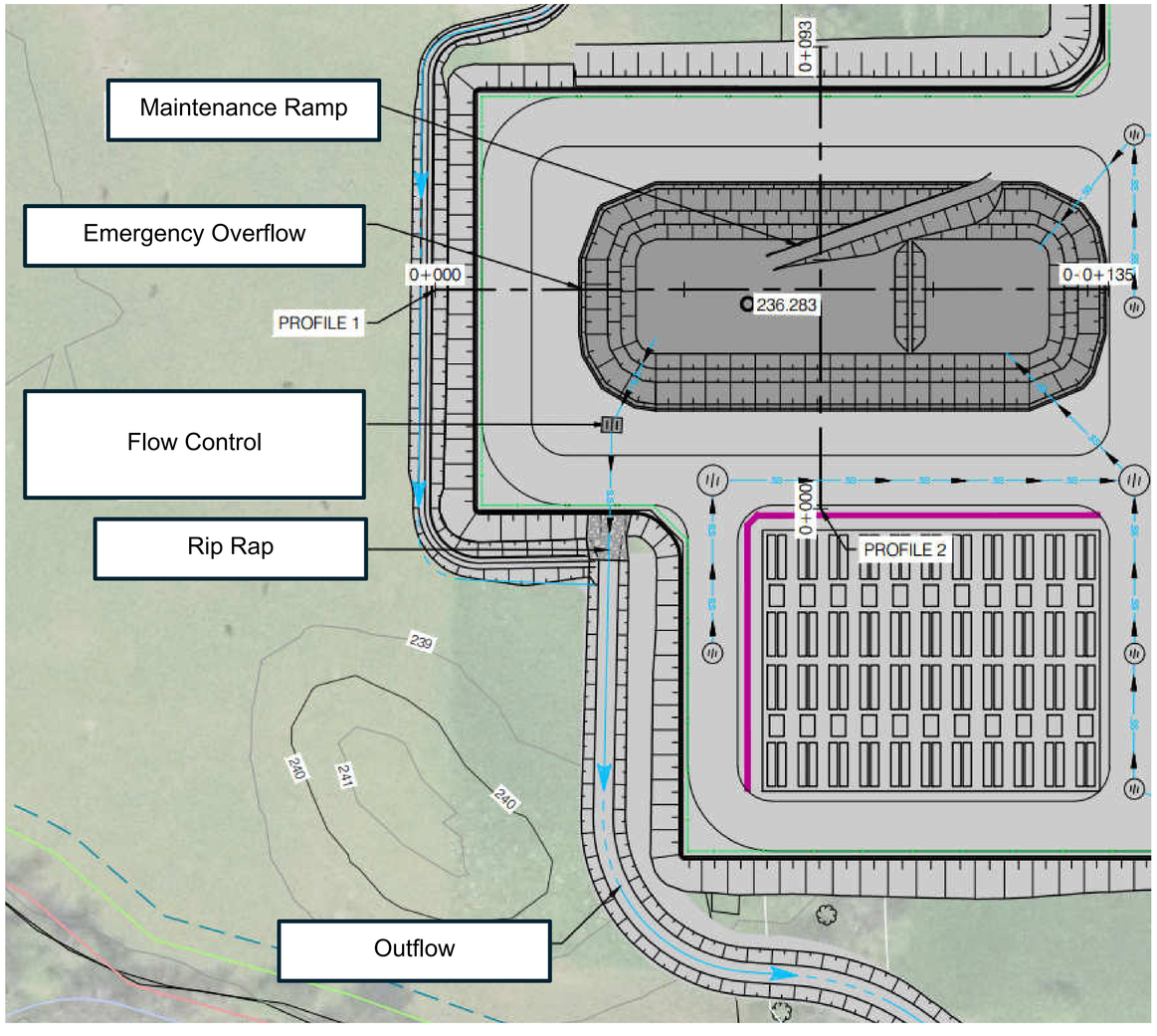
- **What is a retention pond?**
  - A retention pond (also known as a wet pond) is a shallow water basin that collects and cleans rainwater from passing through the site before it is released into the external environment.

- **How does a retention pond work?**
  - Rainwater flows into the site from the swales and surface run-off system.
  - Sediment is separated from the water in the forebay.
  - Water moves from the forebay to the main pond where finer particles and oil are separated.
  - The cleaned rainwater is slowly discharged from the retention pond to the outflow pipes and into the Sauble River.
  - An overflow protection area provides capacity in case of an extreme rainwater event.

Protecting the Sauble River: Retention Pond Layout







Protecting the Sauble River: What to Know

- The stormwater management system is **designed for rainwater** entering the site.
- **Tara BESS operations will not introduce water to the stormwater management system** other than the initial filling of the retention pond.
- The retention pond will be located on the filled area, above the 100-year flood line – **it will not take on floodwater**.
- **Regular water testing will occur** in accordance with applicable regulations.
- Outflow can be stopped by closing the control valve.
- An emergency contamination procedure is outlined in Neoen’s safety plan.
- The proposed design is sufficient to manage rainwater volumes generated by the worst possible storm event expected in 100 years.
- The design is under technical assessment by the Grey Sauble Conservation Authority and will be assessed by the Ministry of Environment, Conservation and Parks as part of the Environmental Compliance Approval process.

Environmental Assessment

- Tara BESS is subject to the Ministry of Environment, Conservation and Parks' (MECP) Class Environmental Assessment for Minor Transmission Facilities (Class EA) process.

- Notice of Commencement of the Class EA was issued November 25, 2024.

- Feedback received between Notice of Commencement and Notice of Completion will be entered into a public consultation record that will form part of Neoen's Class EA submission to MECP.

- **Notice of Completion is expected in June 2025**.

- Once Notice of Completion is issued, Neoen will accept public comments for a period of 30 days, as required under the EA process:

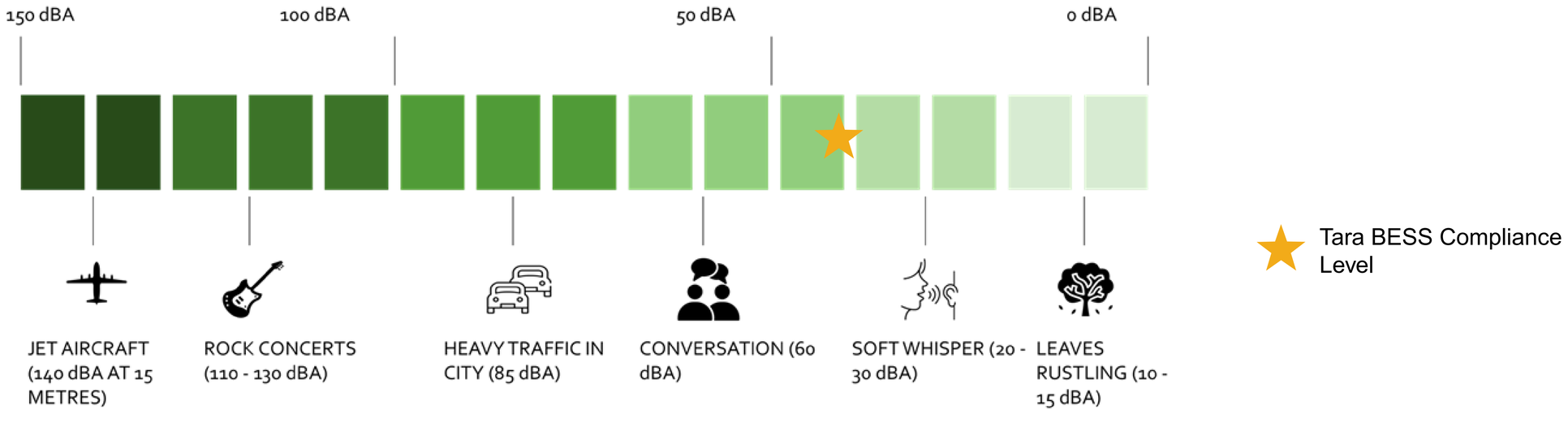
Public comments will be accepted in writing to:
info@tarabattery.ca
www.tarabattery.ca (via feedback form)
319-150 King Street West, Toronto, ON M5H 1J9

Required Studies:

- Aquatic Habitat Assessment
- Ecological Land Classification and Vegetation Surveys
- Breeding Bird Surveys
- Breeding Amphibian Surveys
- Bat Habitat Assessment (Maternity Roost Surveys)
- Noise Impact Assessment
- Agricultural Impact Assessment

Noise Impact Assessment

- Fans inside of the battery containers and transformers generate noise.
- Neoen conducted a Noise Impact Assessment (NIA) to determine the impact of noise generated by Tara BESS to surrounding dwellings.
- Monitoring was conducted to establish baseline ambient levels and to inform noise mitigation measures to measure impacts.
- 7-7.5 meters high acoustic barrier walls are proposed around the west and north sides of each cluster of batteries and around the east, west, and north sides of the high voltage substation transformers.
- Additional mitigation measures may be introduced if future development occurs on a nearby property.
- **At the nearest dwelling, noise generated from Tara BESS must not exceed 40 decibels**– a noise level equivalent to voices in a library.



BESS Safety

- Tara BESS is designed to mitigate the risk of fire, chemical, external environmental, and operational hazards that can arise with BESS facilities.

- Hazard events are rare and are mitigated through rigorous engineering, protective measures, thorough operations and maintenance, and stringent safety protocols.

- Neoen has prepared a preliminary **Comprehensive Safety Plan (CSP)** which outlines how Tara BESS and the Neoen team will prevent, mitigate, and respond to hazard events.

- The CSP was submitted as part of Neoen's planning applications, and Neoen will continue to develop the CSP in coordination with- and to the satisfaction of the County and Municipality.

- **A copy of the CSP is available for viewing and feedback** at the registration desk.

BESS Safety: Thermal Runaway

- Thermal runaway is an exothermic reaction whereby damaged battery cells release energy in the form of abnormal heat, which can propagate and result in smoke, fire, or combustion.

- Tara BESS is designed with **passive and active protection measures** to mitigate the risk of spill events, including:

  - **Battery Management System** - a 24/7 remote monitoring, diagnostic, troubleshooting and alert system that tracks performance, voltage, current, and state of charge, reacts to fault conditions, and enables the thermal management system to prevent overheating.

  - **Thermal Management System** - an autonomous liquid cooling system that circulates coolant throughout the battery modules to maintain an optimal battery operating temperature.

  - **Overpressure Vents and Ignitors** - vents and ignitors are installed throughout the battery bays. Ignitors ignite flammable gases in a thermal runaway event before they can accumulate. Overpressure vents work autonomously to allow gases, products of combustion, and flames to safely exhaust through the roof of the container during a thermal event, preventing explosion.

- Neoen completed an Air Dispersion Model (ADM) to identify the types of toxic gases that could be emitted and the associated dispersion radius in the event of a fire, and to inform an evacuation plan.

- A copy of the ADM is available for viewing at the registration desk.

BESS Safety: Spill Events

- Tara BESS is designed with **passive and active protection measures** to mitigate the risk of a spill event, including:
  - Battery container gutter system and containment basin.
  - Transformer spill trays with oil separators.
  - Retention pond.
- Neoen's incident response procedure for spills events is outlined in its CSP.
- A copy of the CSP is available at the registration desk for viewing.
- The effectiveness of the proposed design in protecting water quality will be assessed by the Ministry of Environment, Conservation and Parks as part of the Environmental Compliance Approval process.

Project Timeline

WE ARE HERE

1

Field Studies & Assessments
Spring 2024 – Spring 2025
Neoen undertakes studies and assessments to inform project design and to support consultation and permitting.

2

Consultation

September 2024 – Present
Neoen consults Rightsholders, stakeholders, and community on the project and incorporates feedback.

3

Permit Submissions

Spring 2025 – Summer 2025
Neoen submits permit and approval applications to applicable regulatory bodies.

4

Review and Approval

Post-submission
Regulatory bodies review Neoen's applications and may approve or reject the applications

5

Construction

Target Spring 2026
Construction of Tara BESS begins

6

Operations

Target Late 2027
Commercial operations of Tara BESS begin.

SUBJECT TO PROJECT APPROVAL

Required Permits & Approvals:

- Grey Sauble Conservation Authority Approval – under review
- Official Plan Amendment and Re-zoning – under review
- Class EA for Transmission Facilities – submission expected June 2025
- Environmental Compliance Approval (stormwater)
- Environmental Activity Sector Registration (noise)
- Archaeology Clearance
- Approved Soil and Excess Materials Management Plan
- Ontario Endangered Species Act Sec.17 Permit (if applicable)
- Arran-Elderslie BESS Policy (Site Plan)

BESS Construction

BESS construction typically takes 1.5 years to complete, and includes the following activities:

- Temporary fence installation
- Equipment mobilization
- Temporary storage areas
- Material deliveries (by truck)
- Clearing, cut, fill and grading
- Shallow excavation and pouring of concrete slabs or pile installation
- Hoisting of pre-assembled battery containers and transformers
- Erection of steel structures and transmission lines
- Electrical connection work
- Acoustic barrier wall installation
- Landscaping

BESS Operations

Once operational, a BESS typically completes one charge and discharge cycle per day.

A crew of approximately 2-10 workers, contracted by Neoen, will operate Tara BESS. Neoen can elect to operate each day or not.

Permanent fencing will enclose the BESS facility. Site lighting and security cameras will be installed.

Did you know that Neoen is a pioneer in battery energy storage? Neoen delivered the world's first utility scale battery, Hornsdale Power Reserve, located in South Australia.

We want to hear from you!

- The consultation period for Tara BESS began in fall 2024 and will continue through spring 2025.

- Neoen is consulting Rightsholders, stakeholders, landowners, occupants and residents in the immediate vicinity of the project, and the broader community.

- Feedback gathered during the consultation period will form part of a public consultation record that will support Neoen's development applications, inform the project design, mitigation measures, and community benefits.

We want to hear from you!

- Phone: (416) 312-0057
- Email: info@tarabattery.ca
- Web: www.tarabattery.ca (via feedback form)
- Mail: 319-150 King Street West, Toronto, ON M5H 1J9
- Request a 1-on-1 meeting

TARA
BATTERY

TARA BESS OPEN HOUSE
THURSDAY JUNE 5, 2025
12:00 - 2:00 PM & 6:00 - 8:00 PM

Development Application
39 Concession 4 Arran
Bruce County Official Plan Amendment C-2025-003 You're invited to a Public Meeting
August 7, 2025 at 9:30 am

45.0°N 81.3°W
BRUCE county

A change is proposed in your neighbourhood:

The Tara Battery Energy Storage System (Tara BESS) is a 400-megawatt (MW), 1,600-megawatt hours (MWh) utility-scale battery energy storage project proposed in the Municipality of Arran-Elderslie. The project site is within a regulated floodplain that is proposed to be altered to accommodate the use. The property is currently zoned 'Environmental Protection' (EP) and 'General Agriculture' (A1) in the municipal zoning by-law. The facility is proposed within the EP zone with a small encroachment into the A1 zone. The amendment proposes to re-zone the project area within the EP zone to an A1 zone with a site-specific permission allowing the establishment of a battery energy storage facility. The adjusted floodplain area is proposed to be rezoned EP. The related Zoning By-Law Amendment file is Z-2025-011.

Accessing the Public Meeting:

Join the meeting in-person at the County of Bruce Administration Centre, Council Chambers, 30 Park St, Walkerton, ON N0G 2V0, by phone, or virtually. Please call or email ahead to participate by phone or virtually. The agenda, public video livestream, and post meeting video recording can be viewed at www.brucecounty.on.ca/government/agendas-and-minutes.

For more information about this matter, including information about appeal rights:
· visit https://brucecounty.on.ca/living/land-use
· visit, write or call (Monday to Friday 8:30 am to 4:30 pm)
Bruce County Planning Department
268 Berford Street, PO Box 129
Wiarton, ON N0H 2T0
bcplwi@brucecounty.on.ca 226-909-5515

Development Application
39 Concession 4 Arran
Zoning By-Law Amendment File No. Z-2025-011
You're invited to a Public Meeting
July 14, 2025 at 9:00 am

45.0°N 81.3°W
BRUCE county

A change is proposed in your neighbourhood:
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Accessing the Public Meeting:
The public meeting will be held in person, in the municipal Council Chambers located at 1925 Bruce Road 10, Chesley, ON, N0H 1L0. Seating may be limited – you may be required to wait outside until called upon to speak. As an alternative, you may submit written comments to the Bruce County Planning Department which will be considered at the meeting. Please contact Clerk Christine Fraser-McDonald at cfraser@arran-elderslie.ca or 519-363-3039, ext. 101 if you have any questions regarding how to participate in the meeting.

For more information about this matter, including information about appeal rights:
·visit https://www.brucecounty.on.ca/active-planning-applications
·visit, write or call (Monday to Friday 8:30 am to 4:30 pm)
Bruce County Planning Department
268 Berford Street, PO Box 129
Wiarton, ON N0H 2T0
bcplwi@brucecounty.on.ca 226-909-5515

Brian

TARA BESS FEEDBACK FORM

TARA BATTERY

Date: June 5/25

Name: _____ **Phone:** _____

Address: _____ **E-mail:** _____

Please share your feedback on the proposed location of Tara BESS:

Not Decided - Still looking @ Info.

Please share your feedback on how Neoen intends to maintain the floodplain:

Makes me Nervous

Please share your feedback on how Neoen intends to protect water quality (stormwater management system):

Not Sure Yet.

Please share your feedback on the local project benefits. Do you have any suggestions?

Do you have any other feedback? Noise, safety, envrionmental?

SOME CONCERNS

Session #1

TARA BESS FEEDBACK FORM

TARA BATTERY

Date: _____

Name: _____ **Phone:** _____

Address: _____ **E-mail:** _____

Please share your feedback on the proposed location of Tara BESS:

With your cut-fill, if severe flooding occured and there is contaminated (of) H2O from lithium batteries, what kinds of corrective actions would there be?

Please share your feedback on how Neoen intends to maintain the floodplain:

Information on display boards were informative however, there is things lingering concerns about environmental impact. Would you have any particular projects to compare to/ with as evidence of success?

Please share your feedback on how Neoen intends to protect water quality (stormwater management system):

Sounds lovely in "Theory". Please share your particular projects that somewhat the same with this geological sites.

Please share your feedback on the local project benefits. Do you have any suggestions?

Please share what "CONTAMINANTS" could come out of this project or would go in the pond.

Do you have any other feedback? Noise, safety, envrionmental?

What/how loud would be the noise from this facility when built and in action

Rhoon

Hazardous material (batteries) health

Fires, lack of capacity to put out. Flooding. Resources to put out Fires

TARA BESS FEEDBACK FORM

TARA BATTERY

Date: June 5, 2025

Name: _____ **Phone:** _____

Address: _____ **E-mail:** _____

Please share your feedback on the proposed location of Tara BESS:

1) Location is in an area that is routinely Flooded. Recent rain events in Tara has resulted in significant Flooding that has flooded homes + required the Fire department to pump out basements.

2) Concern that the BESS Facility will Flood + that proposed Flood mitigation measures are insufficient. Recent Flood events (due to rain) have ~~ben~~ been above the high water mark.

* Last local Flood was 45 Feet. Hamilton Road was under water.

Please share your feedback on how Neoen intends to maintain the floodplain:

_____

_____

_____

Please share your feedback on how Neoen intends to protect water quality (stormwater management system):

_____

_____

_____

Please share your feedback on the local project benefits. Do you have any suggestions?

Do you have any other feedback? Noise, safety, envrionmental?

1) Concern regarding Fires. (on Fire) Letting the batteries burn out is not the prefered option. Burning batteries raises concerns about harmful gasses + materials being released into the environment that could adversely affect humans + wildlife.
2) Concern that local fire response teams do not have the required capacity or tools to effectively put out potential battery fires.
3) Fire department should get specialized equipment + training to be able to respond to any fires, or emergencies on site.
4) Would like the project to explore solid state batteries, as these are safer.
5) Would prefer that lithium-ion batteries are not used as they are a hazardous material.
6) Does the project have protections for fallen/blown branches + other airborn hazards.
7) Preference for this type of Facility (BESS) to be located next to Bruce Nuclear as they have the equipment, capacity + technical expertise on-site @ Bruce Nuclear. Also due to proximity there would be less energy loss.

(3) Feedback Forms Session #2 Total: (10) guests

TARA BESS OPEN HOUSE SIGN-IN SHEET			THURSDAY JUNE 5 2025 AFTERNOON/EVENING	
	NAME	ADDRESS	EMAIL	PHONE
1	ALAN COWAN	110-CON 12 EAST ALLEN	ACOWAN@GBTEL.CA	5792700022
2	John Cookman	—	JG.Cookmane gmail.com	519 372 6706
3	Simon DeBoer	RR3 Tara 10 concession E	simon deboer@gbtel	519-934-3409
4	Jen Shaw	147 Mill Rd. Tara, ON		
5	Marion Acc	256 Yonge St. S ON		519-934-1998
6	MATT. BRAILEY	" "		" "
7	Andrew Grosvenor	627 Con 12		519 378 8028
8	Kim MacDonald	159 Conc 6 Tara	kmac@gbtel.ca	226-668-3437
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Evening - Session #2

TARA BESS FEEDBACK FORM

TARA BATTERY

Date: June 5, 2025

Name: Carol McMillan **Phone:** 519-934-2143

Address: 37 Concession Tara Dr **E-mail:** carolmcmillan37@gmail.com

Please share your feedback on the proposed location of Tara BESS:

This location is not at all suitable as it is on a flood plain, environmentally protected with the Sauble River in the midst of the proposed development. Currently agricultural land which is suitable.

Please share your feedback on how Neoen intends to maintain the floodplain:

I have no trust in Neoen's plans to protect this land and the land around the site or to protect the Sauble river from the possibility of a disaster. The Sauble River runs through several communities prior reaching Lake Huron.

Please share your feedback on how Neoen intends to protect water quality (stormwater management system):

No faith that this can or will be done. My well and 2 Septic systems are too close.

Please share your feedback on the local project benefits. Do you have any suggestions?

Project benefits appear little more than a small bribe to the community.

Do you have any other feedback? Noise, safety, envrionmental?

I have substantial concerns about all of the above.

Session #2

TARA BESS FEEDBACK FORM

TARA BATTERY

Date: _____

Name: ALAN COWAN **Phone:** 519 270 0022

Address: 110-CON 12 EAST **E-mail:** ACOWAN@GBTEL.CA

Please share your feedback on the proposed location of Tara BESS:

GOOD PROJECT

Please share your feedback on how Neoen intends to maintain the floodplain:

ADEQUATE

Please share your feedback on how Neoen intends to protect water quality (stormwater management system):

ACCEPTABLE

Please share your feedback on the local project benefits. Do you have any suggestions?

Do you have any other feedback? Noise, safety, envrionmental?

Session #2

TARA BESS FEEDBACK FORM

TARA BATTERY

Date: June 5 2025

Name: Andrew Groeneveld **Phone:** 519 378 8078

Address: Con 12 Allendale **E-mail:** agroeneveld@gmail.com

Please share your feedback on the proposed location of Tara BESS:

The location of this proposed BESS project is ~~a~~ terrible. Why would anyone use a floodplain. I also feel that there would be more suitable locations closer to where the Hydro is needed. Why not use an old gravel pit near Caledon or Bolton

Please share your feedback on how Neoen intends to maintain the floodplain:

I can appreciate the time that was spent designing this but not building in this location would be better and more environmentally friendly

Please share your feedback on how Neoen intends to protect water quality (stormwater management system):

Stormwater management system that ~~looks to be put in place~~ would be implemented looks like it was well planned

Total Afternoon Attendees (13) → (3) Feedback Sheets

TARA BESS OPEN HOUSE SIGN-IN SHEET			THURSDAY JUNE 5 2025 AFTERNOON/EVENING	
	NAME	ADDRESS	EMAIL	PHONE
1	Jely Amoda	—	amodaga@hotmail.com	519-371-3052
2	John Cookman	—	JGCookman@gmail.com	519 372 6706
3	CAROL McMILLAN	37 CONC 4 TARA	carolmcmillan37@gmail.com	519-270-3865
4	JUDI ALMOND	021007 GREY RD 16 TARA	judifran@gmail.com	519-934-1905
5	WALTER FENTON	RR#1 DOBBINTON L0 3 3 0AR		519-934-2918
6	DAVE GUNSON	607 CON 4 TARA ON	davebullhauler@hotmail.com	
7	—	—	—	519 378 8801
8	JEFF HORNING	999 BRUCE RD 17	hornings_jeff@gmail.com	519-377-2783
9	JACK GROENHUIJZEN	627-LOT 12 ARRAN		519-374-1048
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From:	Janet Galant
To:	Brittany Morrison
Cc:	Kove Sartor; Char Leonard;
Subject:	Notice to Stop Archeology
Attachments:	2025 05 14 - SON Letter to MECP RE Tara BESS(1398-3550-1589.6)_Signed.pdf;20250606_SONEO Letter to Neoen Battery Storage.pdf;
Sent:	2025-06-06 10:40:17 AM

Hi Brittany,

Please find attached a formal letter from me regarding the archeological activities planned for your site.

Thanks,
Janet Galant
Senior Manager
T: 519.373.6075
10129 Hwy 6
Georgian Bluffs, ON
N0H 2T0
Environment Office
Saugeen Ojibway Nation
saugeenojibwaynation.ca

10129 Hwy 6
Georgian Bluffs, ON
N0H2T0
(519) 534-5507
saugeenojibwaynation.ca

Environment Office
Saugeen Ojibway Nation.

SENT VIA EMAIL

June 6, 2025

Brittany Morrison
Communication, Engagement & Stakeholder Relations Manager
Neoen
Suite 319 – 150 King Street West
Toronto, ON M5H 1J9

Dear Brittany,

RE: Tara BESS Stage 2 Archaeology

I write to follow up on our correspondence last month regarding Neoen's plans to commence Stage 2 of its archaeological assessment for the proposed Tara battery energy storage system ("Tara BESS").

On May 15, 2025, the Saugeen Ojibway Nation ("SON") Chiefs addressed a letter to the Minister of Environment, Conservation ("Minister") and Parks regarding Tara Bess. In that letter, the Chiefs expressed SON's concerns with the development of Tara BESS and Ontario's failure to uphold Crown commitments made to SON. They also set out SON's expectation that Ontario would take no further action on the assessment and authorization of Tara BESS until SON's concerns have been addressed. Although you were copied on the May 15, 2025, letter to the Minister, I have enclosed a copy here again for your reference.

In light of the issues and position communicated by our Chiefs, I am writing on behalf of SON leadership to request that, if Neoen has not already done so, you suspend any planned archaeological work for the time being.

Please do not hesitate to contact me if you have any questions.

Miigwetch,

Janet Galant
Senior Manager

From:	Brittany Morrison on behalf of Brittany Morrison
To:	Janet Galant
Cc:	Kove Sartor; Benoît Pinot de Villechenon; Char Leonard; Mario De Aguero;
Subject:	RE: Notice to Stop Archeology
Attachments:	Letter to Saugeen Ojibway Nation Chiefs - June 6 2025_signed.pdf;Letter to Saugeen Ojibway Nation Environment Office - June 12 2025.pdf;Tara BESS Project Update - Saugeen Ojibway Nation - June 6 2025.pdf;
Sent:	2025-06-12 11:42:00 AM

Hello Janet,

Your letter is received, thank you.

Neoen's response is attached.

It would be great if you and I could arrange a call to discuss. I am available at your convenience.

Thank you,

Brittany Morrison
Communication, Engagement & Stakeholder Relations Manager

NEOEN

brittany.morrrison@neoen.com
M. +1 416-312-0057
Suite 319 – 150 King Street West, Toronto, ON M5H 1J9

From: Janet Galant <manager@saugeenojibwaynation.ca>
Sent: June 6, 2025 10:39 AM
To: Brittany Morrison <Brittany.Morrison@neoen.com>
Cc: Kove Sartor <archaeology@saugeenojibwaynation.ca>; Char Leonard <manager.ri@saugeenojibwaynation.ca>
Subject: Notice to Stop Archeology

Hi Brittany,

Please find attached a formal letter from me regarding the archeological activities planned for your site.

Thanks,
Janet Galant
Senior Manager
T: 519.373.6075
10129 Hwy 6
Georgian Bluffs, ON
N0H 2T0

saugeenojibwaynation.ca

NEOEN

Tara Battery Energy Storage System (Tara BESS) – Project Overview
Métis Nation Of Ontario
All Councils Meeting

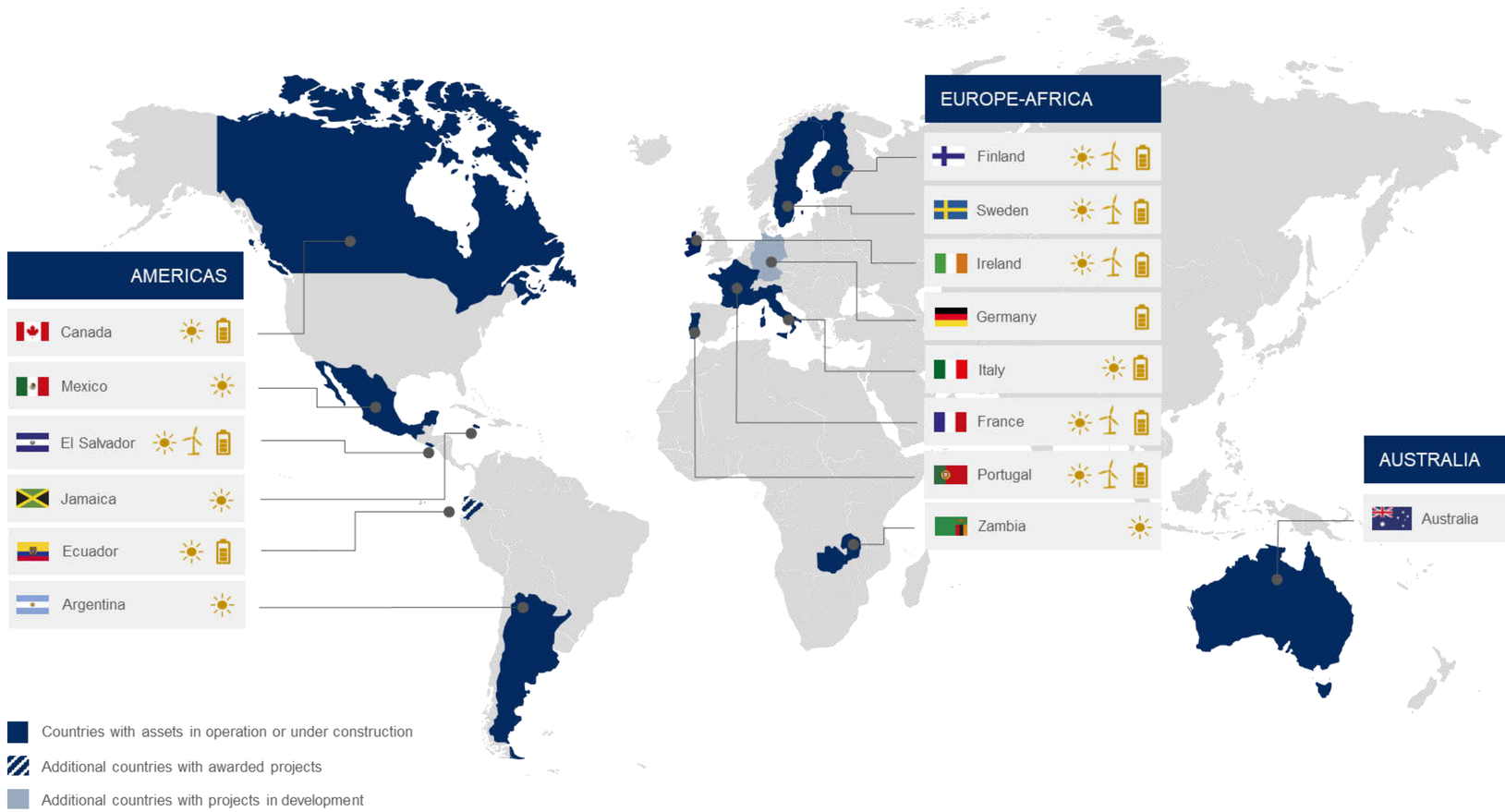
June 7, 2025

NEOEN

Neoen is a leading independent power producer of exclusively renewable energy, including solar and wind power, and battery energy storage.

We have a portfolio capacity of 8.9-gigawatts (GW) in operation or under construction across four continents. Our develop-to-own strategy means that we are around for the long-term.

Neoen has an active solar plant, Fox Coulee Solar Farm, in Starland County, Alberta, and several projects in development in Canada.



Project Background

- Tara BESS, formerly Grey Owl Storage, is a 400-megawatt (MW), 1600 MW-hours (MWh) battery energy storage system (BESS) proposed for development on 39 Concession Road 4 in Arran-Elderslie, approximately 5-kilometers (km) southeast of the Village of Tara.

- Neoen Ontario BESS 1 Inc. (Neoen) is leading development of Tara BESS.

- Tara BESS was awarded a 20-year energy storage contract by Ontario's Independent Electricity System Operator (IESO) in May 2024, in the IESO's LT1 procurement, under which Neoen will receive payment in exchange for providing 400 MW of capacity at a rate established at the time of procurement.

- The contract does not permit an increase in BESS capacity or expansion of the project to include another renewable technology, such as solar.

- Tara BESS will be decommissioned within 18 months of the contract end date, unless the contract is extended by the IESO.

Meeting Ontario's Energy Needs

- Tara BESS will play a critical role in meeting Ontario's projected energy needs by providing 400 MW of capacity and 1,600 MWh to the grid (equivalent to the daily energy consumption of approximately 64,000 households in Ontario*).

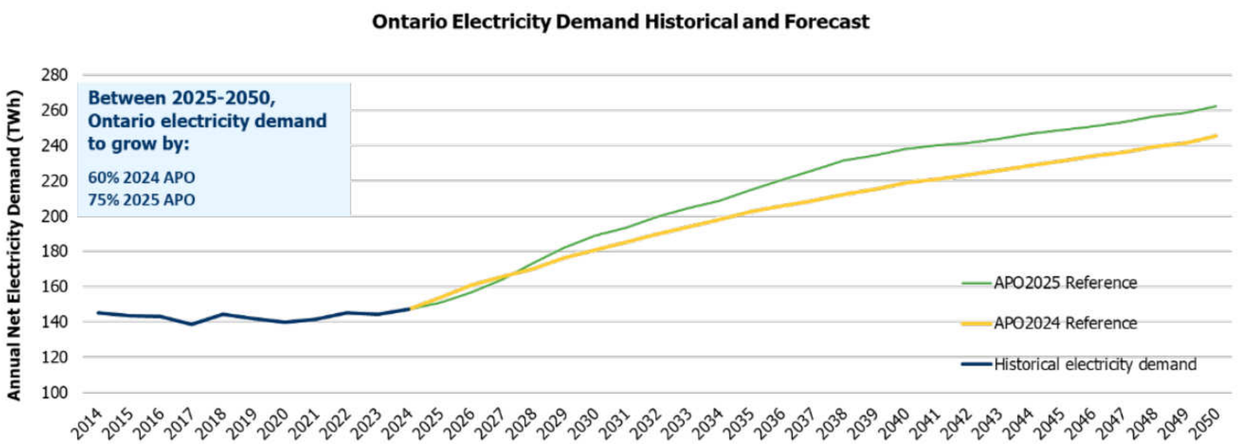
- IESO forecasts a 75% increase in Ontario's energy demand by 2050, which means an additional 111-terawatt-hours (TWh) of energy is needed by 2050 to meet projected demand (1 TWh = 1 million MWh).**

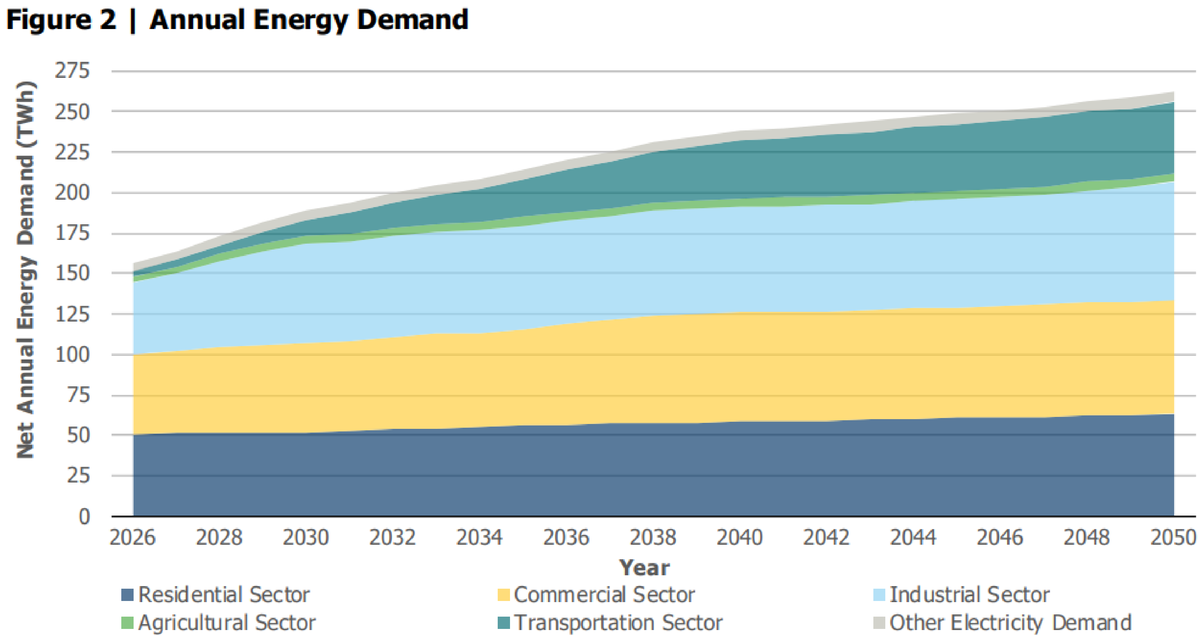
- Tara BESS is one of 10 energy storage contracts awarded in the LT1 procurement, collectively totaling 1,784 MW.

*Based on a 25 kWh/day household electricity consumption.

**Ontario's Affordable Energy Future – Minister's Message.

IESO'S ANNUAL PLANNING OUTLOOK (APRIL 2025)





Project Benefits

- Tara BESS will add 400 MW of capacity to Ontario’s power grid and will be capable of providing ancillary services such as frequency and voltage support, and virtual inertia.

- Tara BESS will maximize the usefulness of energy produced along the transmission line by storing energy during low demand periods and discharging energy when demand rises.

- BESS can help restore power sooner than traditional generating sources in the case of an outage.

- Tara BESS will generate 200+ jobs at peak construction.

Community Benefits

- Neoen is **committed to benefit-sharing with Rightsholders**, including providing employment, skills training and supplier opportunities.

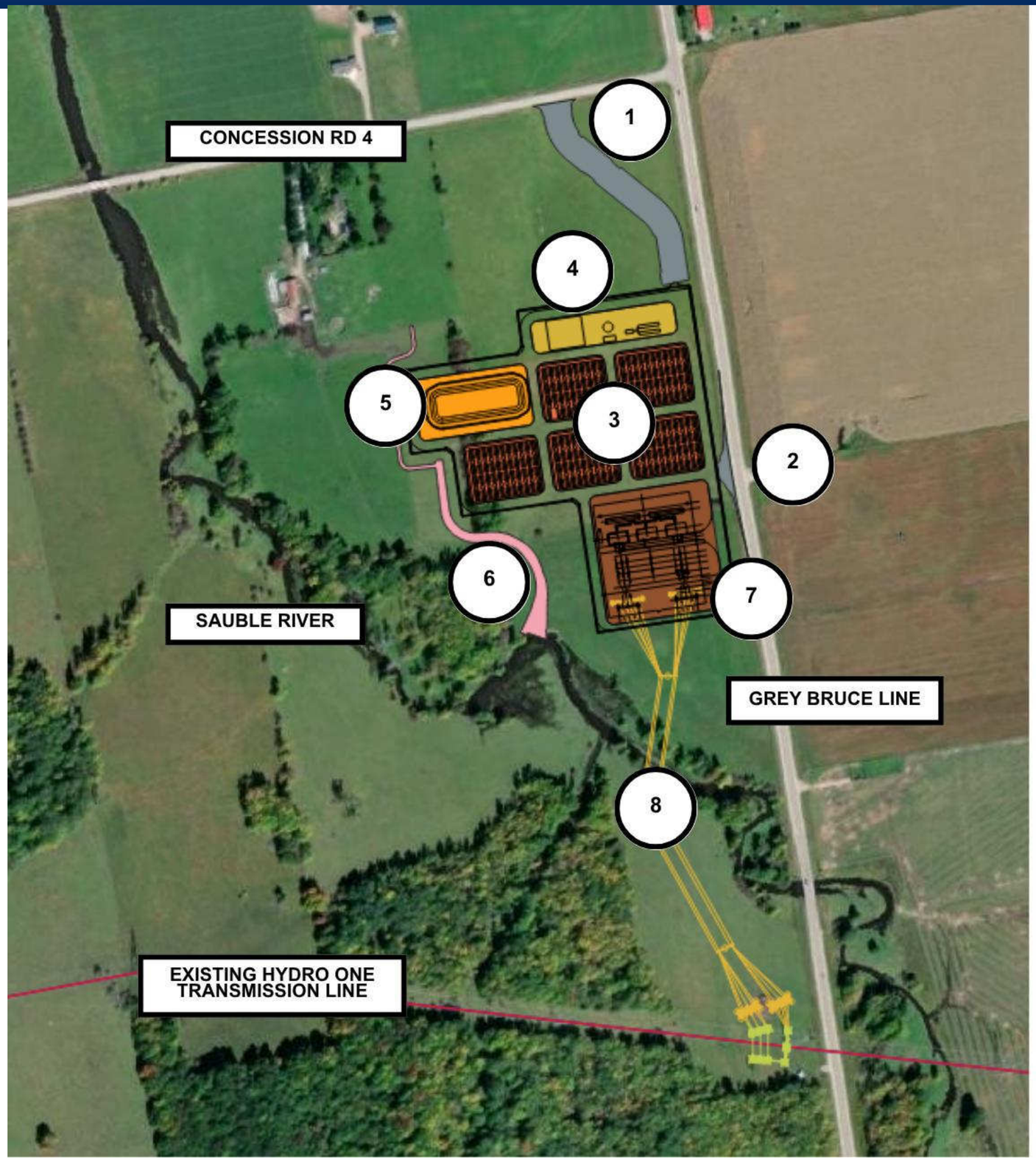
- In addition, Neoen will provide:

  - **$100,000 annual Community Benefits Fund** to support local initiatives, commencing at operations and continuing each year of operations.

  - A local art installation.

  - Benefits for residents in the immediate vicinity of the project.

Tara BESS Proposed Layout



TARA BESS PROPOSED LAYOUT

1. Primary Entrance
2. Secondary Entrance
3. 420 Battery Containers*
4. Operations & Maintenance Buildings**
5. Retention Pond
6. Drainage (Vegetated Swale)
7. 230 kV Substation
8. Transmission Line and Structures

Total Footprint: ~22 acres.

Note: 200+ trees and shrubs are proposed along the north and east perimeters of the project lands.

*Containers are organized into five clusters with 7-7.5 m acoustic barrier walls along the west and north sides

**The cistern, water tank, and sewer tank will be subsurface.

Tara BESS Conceptual Rendering – Grey Bruce Line View

Renderings are for illustrative purposes only and may vary from final conditions.

Tara BESS Conceptual Rendering – Aerial View

Renderings are for illustrative purposes only and may vary from final conditions.

About the Transmission Facility (230 kV Substation)

- 230-kilovolt (kV) substation comprised of:
  - 3 - 220-mega volt ampere, high-voltage transformers (two operational and one back-up) with each with 7 m acoustic barrier walls along the east, north, and west sides.
  - 2 - control buildings
  - Circuit breakers
  - Disconnect switches
  - Lightning protection
  - Busbars
  - Site lighting and fencing
- Steel transmission structures will carry approximately 500 m of overhead transmission line from the substation to Hydro One’s existing high-voltage line at the south end of the site.

Substation Conceptual Rendering

Renderings are for illustrative purposes only and may vary from final conditions.

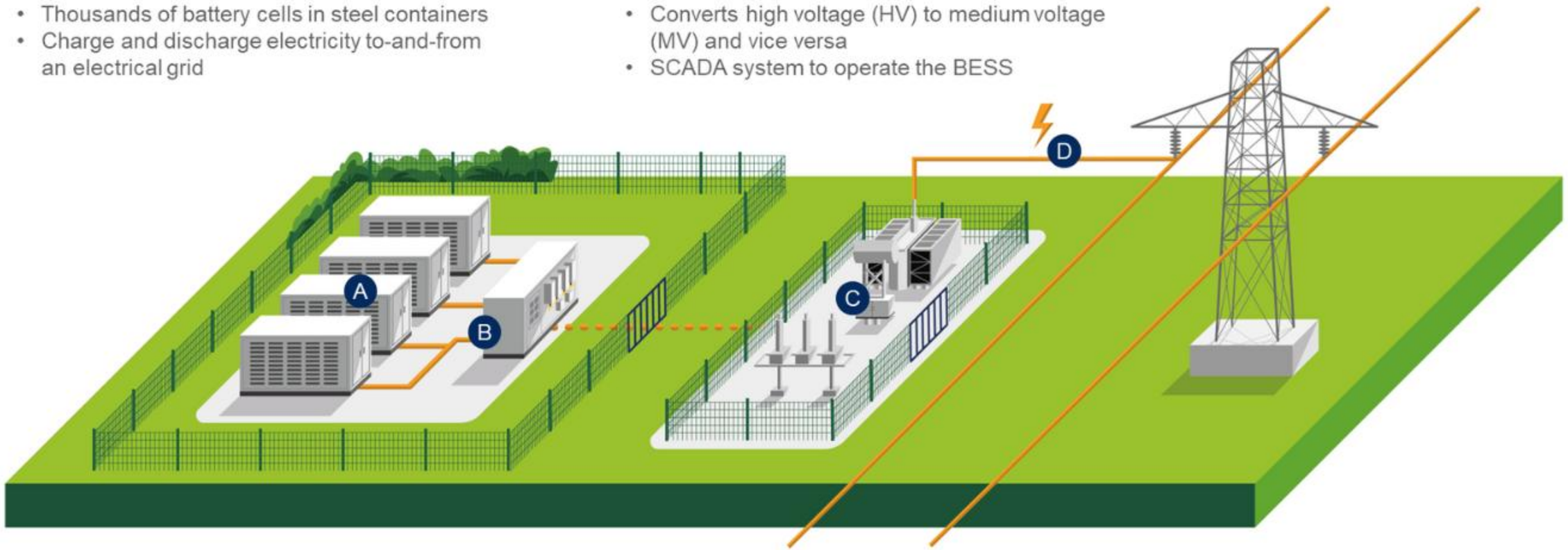
How a Standalone BESS Works

A - Battery Containers

- Thousands of battery cells in steel containers
- Charge and discharge electricity to-and-from an electrical grid

C - Transformer Station

- Converts high voltage (HV) to medium voltage (MV) and vice versa
- SCADA system to operate the BESS



B - Inverter

- Converts direct current (DC) to alternating current (AC) and vice versa

D - Transmission Lines

- Transmission lines move electricity to-and-from the BESS
- Steel structures hold the lines overhead
- Electricity travels to-and-from the grid

Why Here?

- Conditions necessary to host a BESS facility include:
  - Landowner willingness.
  - Suitable terrain (a relatively flat site).
  - Proximity to demand.
  - Proximity to transmission lines (with capacity to host a BESS).
  - Construction feasibility/site accessibility.

Maintaining the Floodplain

- Tara BESS is proposed within a designated floodplain.

- Neoen must ensure there is no loss to floodplain capacity and that there is no impact to surrounding properties and roadways.

- A "**cut-and-fill**" design is proposed, whereby soil is removed (cut) from areas around the BESS location, including from the adjacent Lot 35, immediately west of the proposed site, and used to raise (fill) the area where the BESS facility will be located.

- The cut areas will provide floodplain capacity in place of lost flood capacity in the fill areas.

- The design has been modeled against the worst possible flood event expected in 100 years to ensure the design can sufficiently protect the floodplain and surrounding areas.

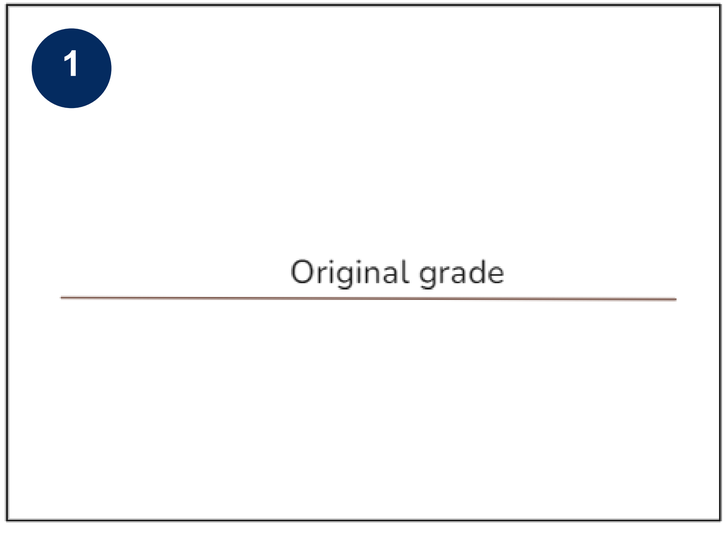
- Neoen's proposal is **under review by the Grey Sauble Conservation Authority**.

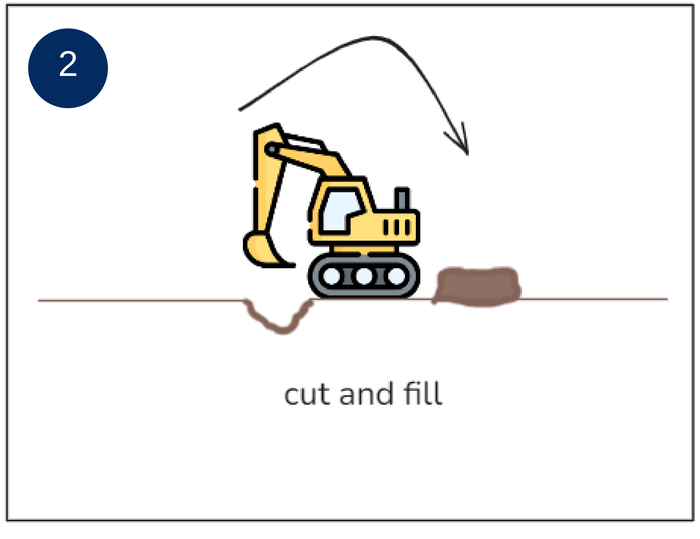
Cut-and-fill Locations

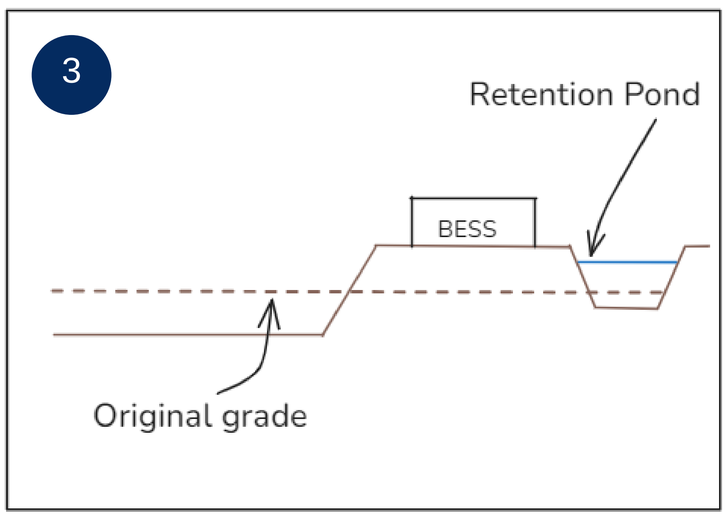
Maintaining the Floodplain: What to Know

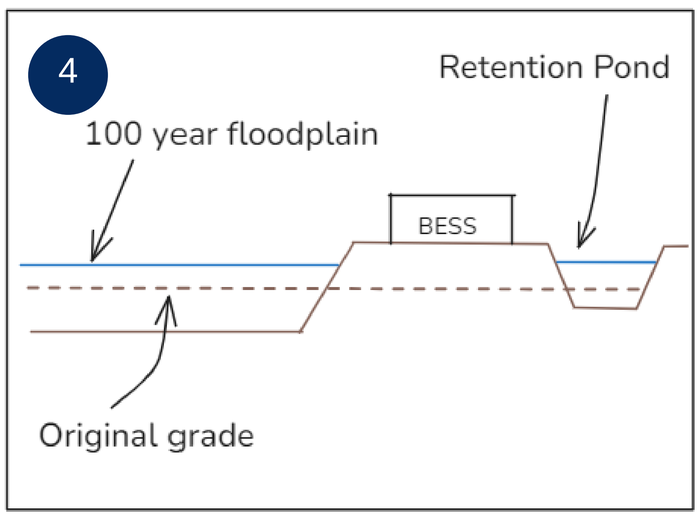
- There will be **no change to floodplain capacity**.
- The **areas that flood will change** (cut areas will take on floodwater, filled areas will not).
- There will be **no change or impact to flood activity on surrounding properties or roadways** other than the project lands and Lot 35.
- The proposed design is sufficient to manage floodwater volumes generated by the worst possible flood event expected in 100 years - **the BESS infrastructure will not flood**.
- The design is under technical review by the Grey Sauble Conservation Authority.

Maintaining the Floodplain: Cut-and-fill Process





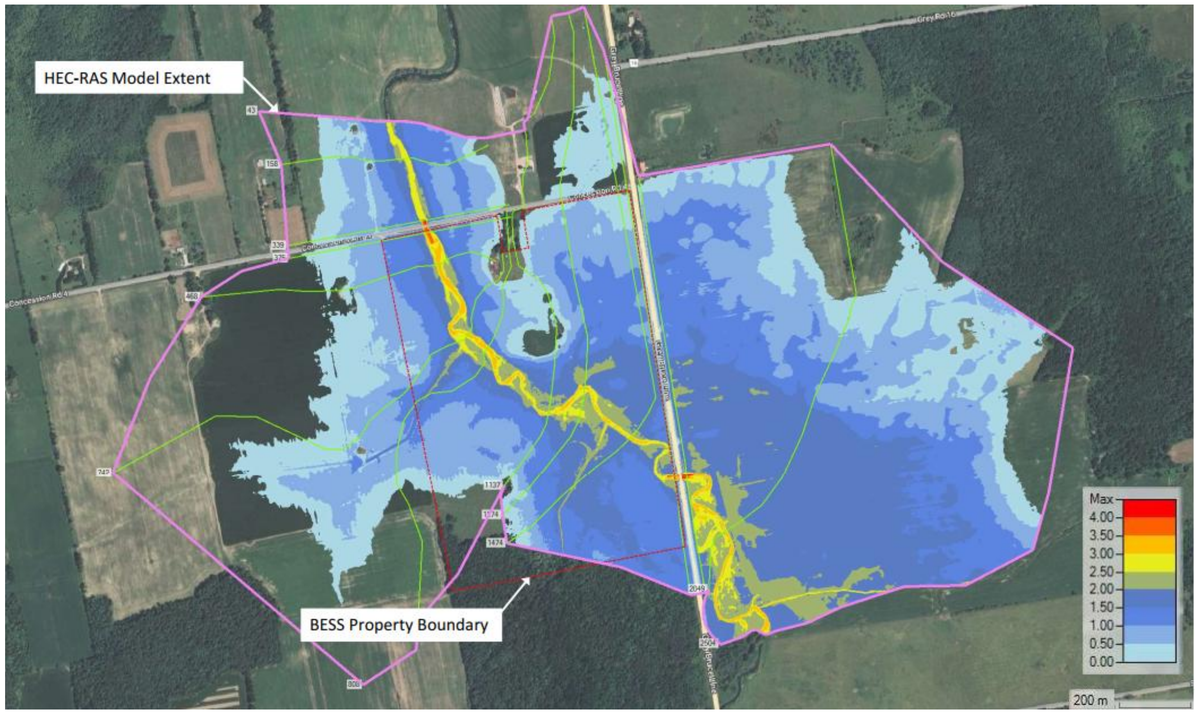




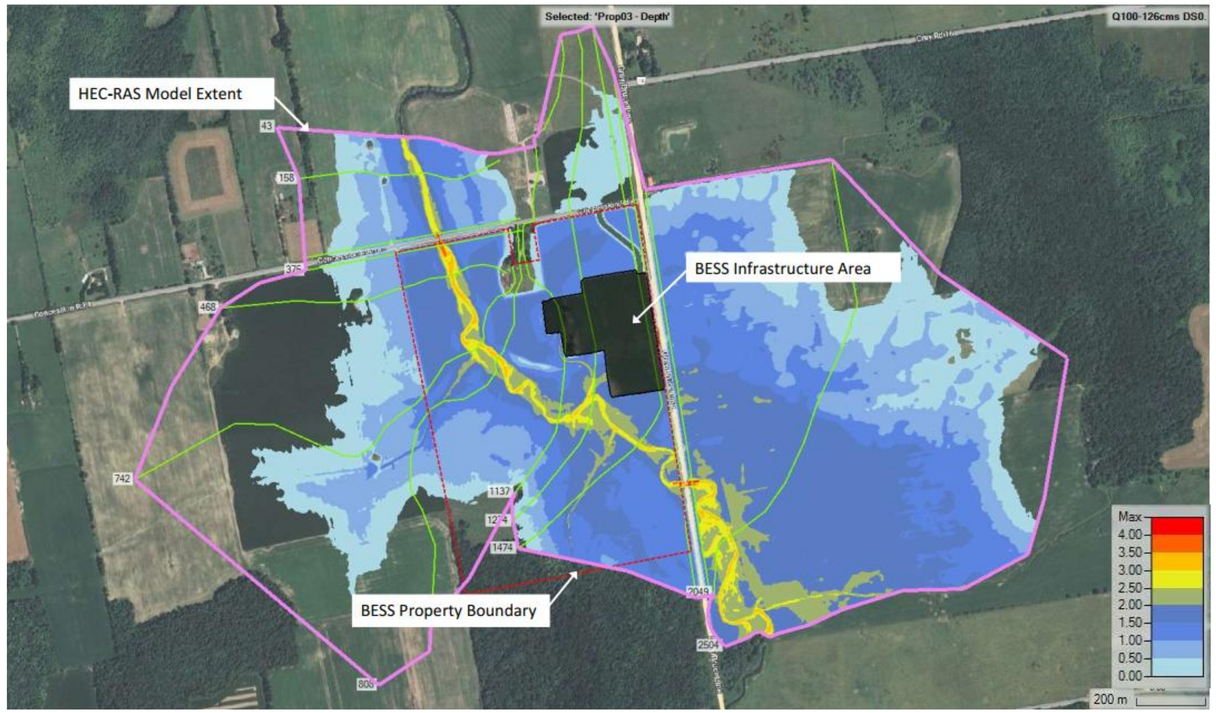
1. **Original Grade:** existing ground elevation before construction begins.
2. **Cut and Fill:** excavation and grading is carried out to create floodplain compensation areas and a raised pad for the BESS facility using excavated fill.
3. **Raised Pad with BESS:** the BESS and retention pond are constructed on the raised pad.
4. **Floodplain Compliance:** final grading works to ensure the facility is above the 100-year floodplain line.

Maintaining the Floodplain: Before and After

Existing Condition - 100-year Regulatory Flood Extents and Depths



Proposed Condition (with cut-and-fill) - 100-year Regulatory Flood Extents and Depths



There will be **no flood impact to surrounding properties or roadways**, excluding the project lands and Lot 35.

Protecting the Sauble River

- A **surface run-off management system** and **retention pond** (collectively, "**stormwater management system**") are proposed to maintain the quantity and quality of water passing through the BESS facility and to prevent soil erosion.

- The surface run-off management system is comprised of vegetated ditches, subsurface storm sewers and drains leading to a retention pond.

- **The retention pond is impermeable** and complete with an oil separator, discharge orifices, and a control valve **designed to prevent any oil or sediment from entering the Sauble River**.

- The stormwater management system has been modeled against the worst possible storm event expected in 100 years to ensure the design will sufficiently manage flows and protect the Sauble River.

- Neoen's proposal is **under review by the Grey Sauble Conservation Authority and requires Environmental Compliance Approval (ECA) by the Ministry of Environment, Conservation and Parks**.

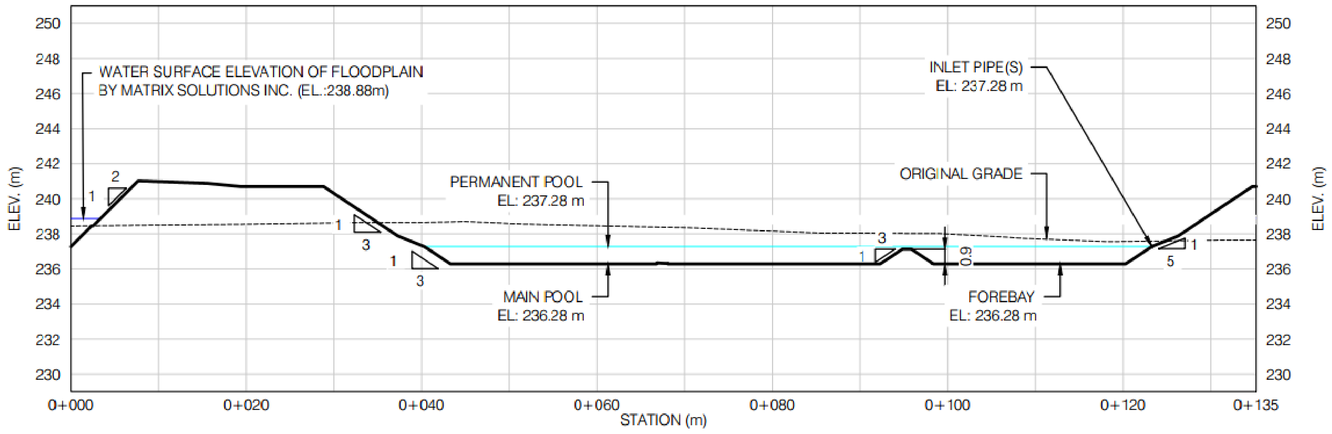
Public comments received on the stormwater management system will be included in Neoen's ECA application.
Public comments on the stormwater management system can be directed to:
info@tarabattery.ca
www.tarabattery.ca (via feedback form)
319-150 King Street West, Toronto, ON M5H 1J9

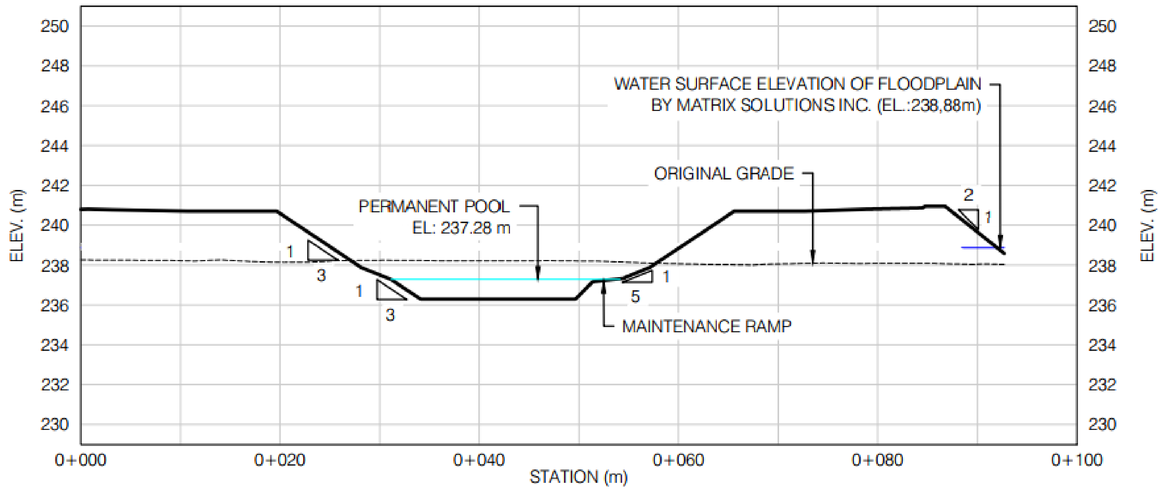
Protecting the Sauble River: Retention Pond

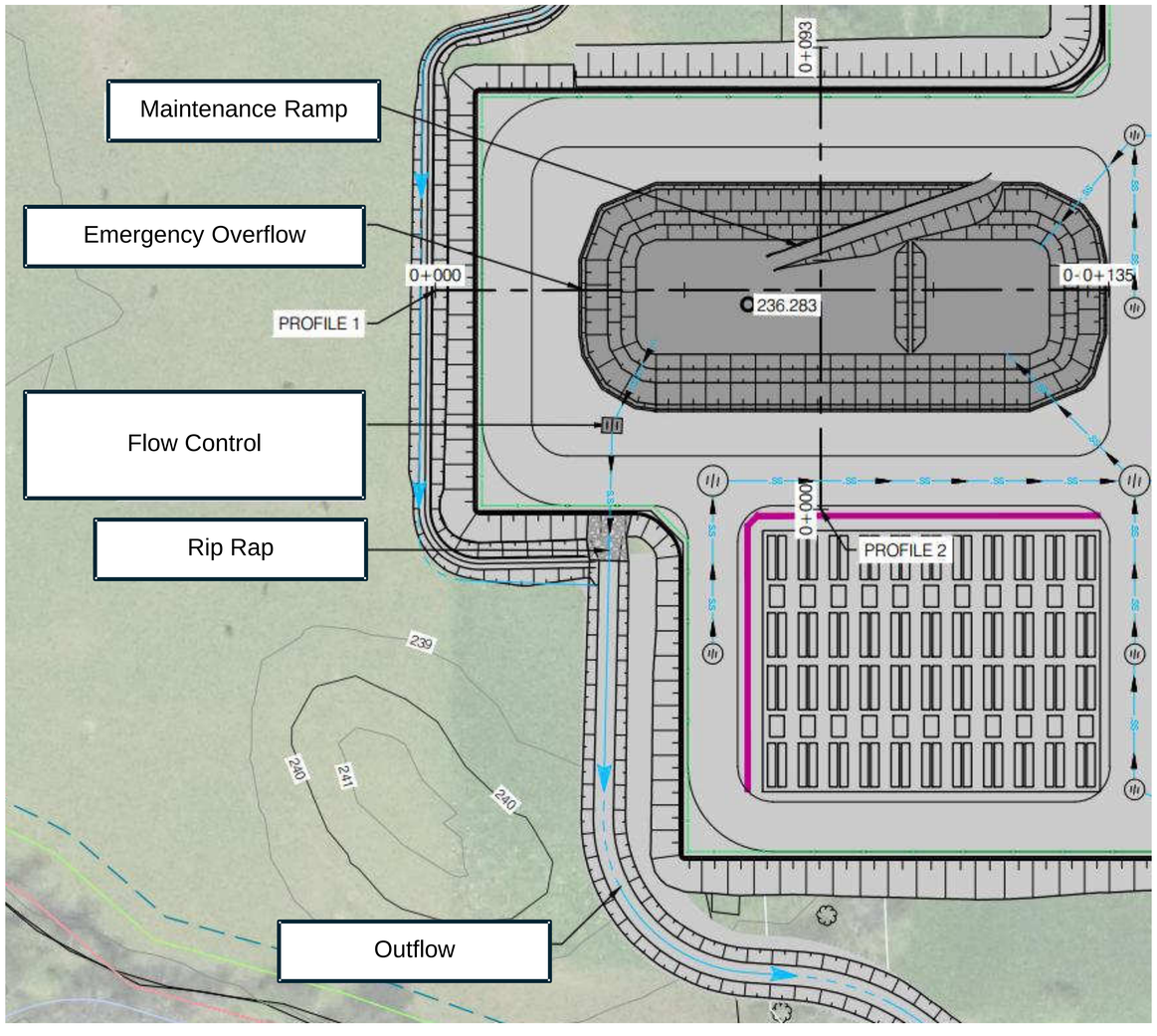
- **What is a retention pond?**
  - A retention pond (also known as a wet pond) is a shallow water basin that collects and cleans rainwater from passing through the site before it is released into the external environment.

- **How does a retention pond work?**
  - Rainwater flows into the site from the swales and surface run-off system.
  - Sediment is separated from the water in the forebay.
  - Water moves from the forebay to the main pond where finer particles and oil are separated.
  - The cleaned rainwater is slowly discharged from the retention pond to the outflow pipes and into the Sauble River.
  - An overflow protection area provides capacity in case of an extreme rainwater event.

Protecting the Sauble River: Retention Pond Layout







Protecting the Sauble River: What to Know

- The stormwater management system is **designed for rainwater** entering the site.
- **Tara BESS operations will not introduce water to the stormwater management system** other than the initial filling of the retention pond.
- The retention pond will be located on the filled area, above the 100-year flood line – **it will not take on floodwater**.
- **Regular water testing will occur** in accordance with applicable regulations.
- Outflow can be stopped by closing the control valve.
- An emergency contamination procedure is outlined in Neoen’s safety plan.
- The proposed design is sufficient to manage rainwater volumes generated by the worst possible storm event expected in 100 years.
- The design is under technical assessment by the Grey Sauble Conservation Authority and will be assessed by the Ministry of Environment, Conservation and Parks as part of the Environmental Compliance Approval process.

Environmental Assessment

- Tara BESS is subject to the Ministry of Environment, Conservation and Parks' (MECP) Class Environmental Assessment for Minor Transmission Facilities (Class EA) process.

- Notice of Commencement of the Class EA was issued November 25, 2024.

- Feedback received between Notice of Commencement and Notice of Completion will be entered into a public consultation record that will form part of Neoen's Class EA submission to MECP.

- **Notice of Completion is expected in June 2025**.

- Once Notice of Completion is issued, Neoen will accept public comments for a period of 30 days, as required under the EA process:

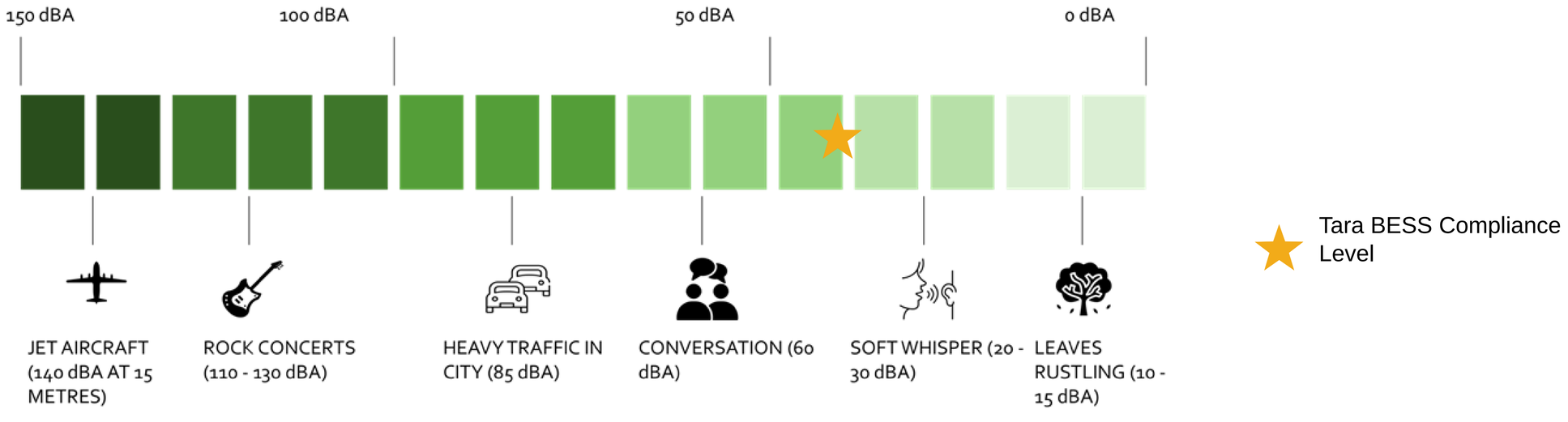
Public comments will be accepted in writing to:
info@tarabattery.ca
www.tarabattery.ca (via feedback form)
319-150 King Street West, Toronto, ON M5H 1J9

Required Studies:

- Aquatic Habitat Assessment
- Ecological Land Classification and Vegetation Surveys
- Breeding Bird Surveys
- Breeding Amphibian Surveys
- Bat Habitat Assessment (Maternity Roost Surveys)
- Noise Impact Assessment
- Agricultural Impact Assessment

Noise Impact Assessment

- Fans inside of the battery containers and transformers generate noise.
- Neoen conducted a Noise Impact Assessment (NIA) to determine the impact of noise generated by Tara BESS to surrounding dwellings.
- Monitoring was conducted to establish baseline ambient levels and to inform noise mitigation measures to measure impacts.
- 7-7.5 meters high acoustic barrier walls are proposed around the west and north sides of each cluster of batteries and around the east, west, and north sides of the high voltage substation transformers.
- Additional mitigation measures may be introduced if future development occurs on a nearby property.
- **At the nearest dwelling, noise generated from Tara BESS must not exceed 40 decibels**– a noise level equivalent to voices in a library.



BESS Safety

- Tara BESS is designed to mitigate the risk of fire, chemical, external environmental, and operational hazards that can arise with BESS facilities.

- Hazard events are rare and are mitigated through rigorous engineering, protective measures, thorough operations and maintenance, and stringent safety protocols.

- Neoen has prepared a preliminary **Comprehensive Safety Plan (CSP)** which outlines how Tara BESS and the Neoen team will prevent, mitigate, and respond to hazard events.

BESS Safety: Thermal Runaway

- Thermal runaway is an exothermic reaction whereby damaged battery cells release energy in the form of abnormal heat, which can propagate and result in smoke, fire, or combustion.

- Tara BESS is designed with **passive and active protection measures** to mitigate the risk of spill events, including:

    - **Battery Management System** - a 24/7 remote monitoring, diagnostic, troubleshooting and alert system that tracks performance, voltage, current, and state of charge, reacts to fault conditions, and enables the thermal management system to prevent overheating.

    - **Thermal Management System** - an autonomous liquid cooling system that circulates coolant throughout the battery modules to maintain an optimal battery operating temperature.

    - **Overpressure Vents and Ignitors** - vents and ignitors are installed throughout the battery bays. Ignitors ignite flammable gases in a thermal runaway event before they can accumulate. Overpressure vents work autonomously to allow gases, products of combustion, and flames to safely exhaust through the roof of the container during a thermal event, preventing explosion.

- Neoen completed an Air Dispersion Model (ADM) to identify the types of toxic gases that could be emitted and the associated dispersion radius in the event of a fire, and to inform an evacuation plan.

BESS Safety: Spill Events

- Tara BESS is designed with **passive and active protection measures** to mitigate the risk of a spill event, including:
    - Battery container gutter system and containment basin.
    - Transformer spill trays with oil separators.
    - Retention pond.
- Neoen’s incident response procedure for spills events is outlined in its CSP.
- The effectiveness of the proposed design in protecting water quality will be assessed by the Ministry of Environment, Conservation and Parks as part of the Environmental Compliance Approval process.

Project Timeline

WE ARE HERE

1

Field Studies & Assessments
Spring 2024 – Spring 2025
Neoen undertakes studies and assessments to inform project design and to support consultation and permitting.

2

Consultation

September 2024 – Present
Neoen consults Rightsholders, stakeholders, and community on the project and incorporates feedback.

3

Permit Submissions

Spring 2025 – Summer 2025
Neoen submits permit and approval applications to applicable regulatory bodies.

4

Review and Approval

Post-submission
Regulatory bodies review Neoen's applications and may approve or reject the applications

5

Construction

Target Spring 2026
Construction of Tara BESS begins

6

Operations

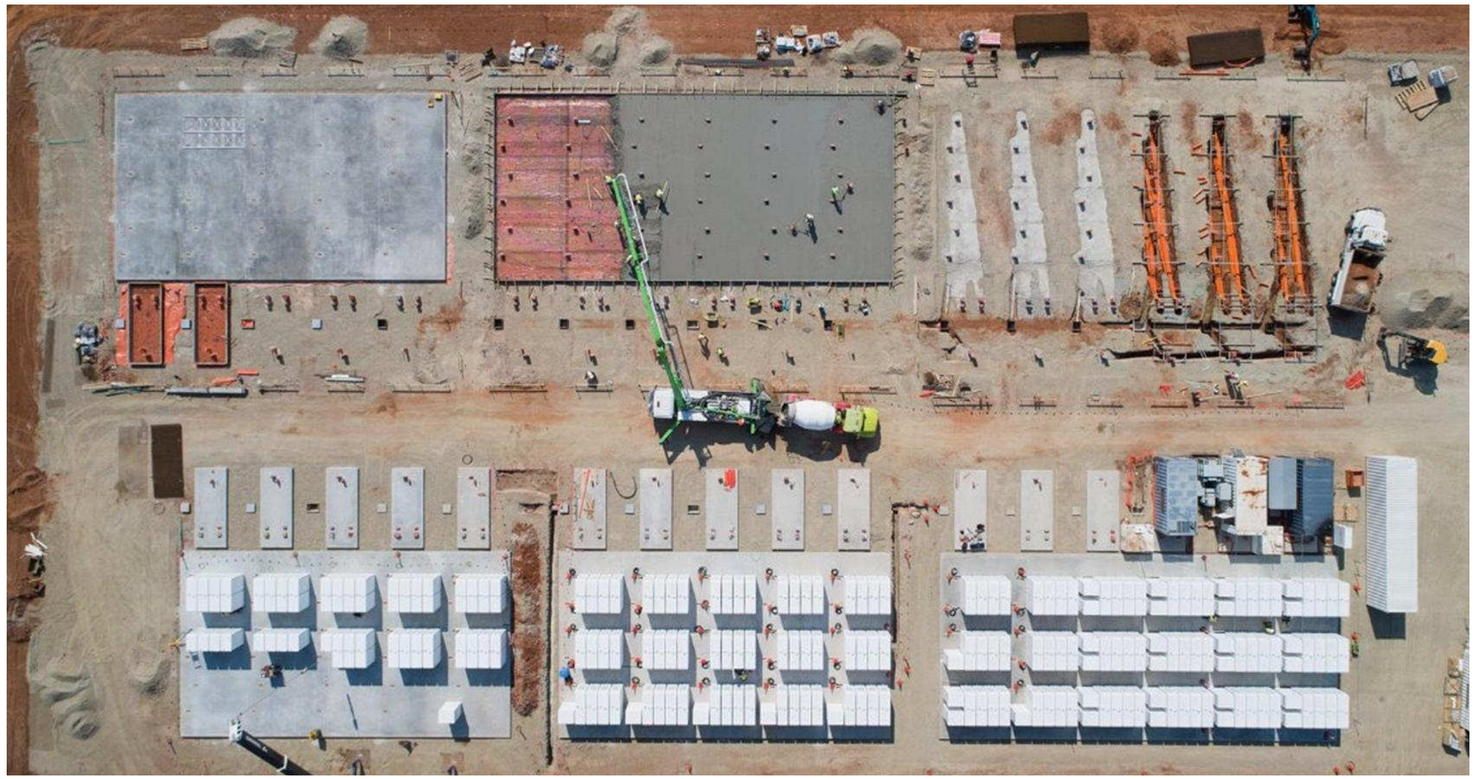
Target Late 2027
Commercial operations of Tara BESS begin.

SUBJECT TO PROJECT APPROVAL

Required Permits & Approvals:

- Grey Sauble Conservation Authority Approval – under review
- Official Plan Amendment and Re-zoning – under review
- Class EA for Transmission Facilities – submission expected June 2025
- Environmental Compliance Approval (stormwater)
- Environmental Activity Sector Registration (noise)
- Archaeology Clearance
- Approved Soil and Excess Materials Management Plan
- Ontario Endangered Species Act Sec.17 Permit (if applicable)
- Arran-Elderslie BESS Policy (Site Plan)

BESS Construction



BESS construction typically takes 1.5 years to complete, and includes the following activities:

- Temporary fence installation
- Equipment mobilization
- Temporary storage areas
- Material deliveries (by truck)
- Clearing, cut, fill and grading
- Shallow excavation and pouring of concrete slabs or pile installation
- Hoisting of pre-assembled battery containers and transformers
- Erection of steel structures and transmission lines
- Electrical connection work
- Acoustic barrier wall installation
- Landscaping

BESS Operations

Once operational, a BESS typically completes one charge and discharge cycle per day.

A crew of approximately 2-10 workers, contracted by Neoen, will operate Tara BESS. Neoen can elect to operate each day or not.

Permanent fencing will enclose the BESS facility. Site lighting and security cameras will be installed.

Did you know that Neoen is a pioneer in battery energy storage? Neoen delivered the world's first utility scale battery, Hornsdale Power Reserve, located in South Australia.

Thank you! Merçi! Marsi!

NEOEN

Neoen Ontario BESS 1 Inc.

Tara BESS Project

Lot 39, Concession 4, Arran Township, Ontario

Technical Report

Noise Impact Assessment

BBA Document No.-Rev.: 7757017-000000-4E-ERA-0003-R03

June 12, 2025

FINAL

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REVISION HISTORY

Revision	Document Status – Revision Description	Date
R00	Final	2025-03-04
R01	Final	2025-03-21
R02	Final – Update to Appendices G and H	2025-04-02
R03	Final - Update to Appendices and addition of L and M	2025-06-12

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APPENDICES

1. Introduction

Neoen Ontario BESS 1 Inc. (Neoen), an Independent Power Producer, proposes to build and operate a new 400 MW Battery Energy Storage System (BESS) project, the Tara BESS Project (the Project), which will provide electricity storage services to the Ontario grid. The Project will occupy approximately 24.91 hectares and have an approximately 490 m 230 kV overhead transmission line connecting to the provincial grid. The Project is in the Municipality of Arran-Elderslie, Ontario on private land currently used for agriculture.

2. Project description

The proposed location of the Project is within lands herein referred to as the Development Land, which is an irregular shaped area to the southwest of the intersection of Concession 4 Arran and the Grey-Bruce Line. The Development Land totalling approximately 67.60 hectares includes four assessment parcels (410349000307100, 410349000307200, 410349000104201, and a portion of 410349000305200) at municipal address 39 Concession 4 Arran, in the Municipality of Arran-Elderslie. It is a rural farmstead with a mixture of cultivated fields, pastureland, and woodlot, bisected by the Sauble River. There is a Hydro One transmission line (B27S/B28S) traversing the southern boundary of the Development Land. The BESS facility will connect to this 230 kV line, which extends from Bruce Power Centre to Owen Sound. This is a key transmission line that has a high voltage carrying capacity and connects to other lines across Ontario. As a result, this transmission line is ideally suited for a BESS project. It is the intent that Neoen will occupy approximately 24.91 hectares of the east portion of the Development Land to accommodate the facility. The BESS will have two accesses: one off Concession 4 Road and a second, which will enter from the Grey Bruce Line on the east side of the Development Land, north of Sauble River. The balance of the Development Land will remain in agricultural use. The footprint of the BESS avoids wetlands and woodlands.

The proposed Project includes installation and operation of a 400 MW BESS facility, a substation (with two transformers in-service and a third transformer for redundancy), and an overhead 230 kV transmission line on private land in the Municipality of Arran-Elderslie. A gravel access road will be constructed off Concession 4 Arran to allow access to the BESS facility. Site grading will occur across the BESS facility site, stormwater system, and gravel access roads from both Concession Road and Grey Bruce Line. No ground disturbance, aside from structure foundations, is planned for the overhead transmission line. A system of roadside and pad ditches, along with a stormwater pond at the northwestern section of the BESS/substation area, will be installed to manage on-site runoff. A floodplain compensation area (14.19 hectares) will be constructed to maintain flood storage volume and floodplain function in the Development Land.

The transmission line will consist of double-circuit steel-monopole structures as well as associated switching structures and gantries on Hydro One's ROW. The transmission line crosses the Sauble River; however, no in-stream works are planned, and no riparian habitat is expected to be disturbed as the transmission line will span wetlands and riparian habitats, while transmission structures will be sited away from the wetlands and riparian habitat.

The area surrounding the proposed Project is at the intersection of Concession Road 4 and Grey Bruce Line, generally being agricultural lands interspersed with remnant woodland and rural residences. The Sauble River is approximately 30 m to the southwest at its closest point to the BESS/substation area, with the proposed Project being situated within the 100-year floodplain and the ground being approximately 240 metres above sea level (masl) across the BESS site, dropping to approximately 237 masl at the river. There are nine dwellings within 1.5 km of the proposed Project. There is no recreational use of the land or waters in the area, and it is unknown if any hunting, gathering, or fishing occurs in the area.

3. Objective

The objective of this Noise Impact Assessment is to evaluate potential noise from the Project on receptors to ensure sound levels at the receptors are below the established guidelines.

Noise Impact Assessment for a BESS in Ontario should refer to the noise pollution control guidelines (NPC) established by the Ontario Ministry of Environment, Conservation and Parks (MECP). These guidelines, specifically the ***Environmental Noise Guideline - Stationary and Transportation Sources - Approval and Planning (NPC-3001)*** (hereafter referred to as NPC-300), outline the sound limits, and the assessment processes required for stationary sources like BESS facilities.

The assessments consider all surrounding noise-sensitive residents and factors such as background sound levels and predicted sound levels at sensitive receptors in the area.

Background sound levels are typically caused by road traffic. Sound from existing adjacent stationary sources may be included in determining the background one-hour equivalent sound level (Leq), if such stationary sources of sound have the appropriate approvals and are not under consideration for noise abatement by the municipality or the MECP.

[1] https://www.ontario.ca/page/environmental-noise-guideline-stationary-and-transportation-sources-approval-and-planning

3.1. Scope of the study

The study area includes nine receptors within a 1.5 km radius around the centre of the Project's footprint. The Site Plan identifying all significant noise sources is in Appendix A and the zoning map in Appendix B.

3.2. Receptors

In accordance with NPC-300, Project noise impacts are evaluated at Points of Reception (PORs) located on noise-sensitive land uses. The following noise sensitive land uses are considered as per the NPC-300 guideline:

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

Nine representative POR are considered for this assessment. For the existing dwellings, both plane of windows and outdoor PORs are considered. Per NPC-300, the PORs located at the exterior plane of windows at the highest floor of the receptor were considered. Per NPC-300, the receptor heights are defined as 1.5 m for the first floor, and an additional 3 m for each subsequent floor. For the Outdoor Point of Reception (OPOR), the receptor was modelled at a height of 1.5 m above ground level, within 30 m of the façade of the dwelling and within the property line of the receptor, in the direction of the Project. The PORs considered in this assessment are listed in Table 2 and are shown in relation to the Project layout in Figure 1. All POR within 1 km of the Project fence line have been assessed.

Figure 1: Points of reception for the study area

As long as the Project's sound level limits are met at all identified PORs, it is anticipated that these limits will also be met at all noise-sensitive receptors located farther from the Project.

Table 1: Points of reception summary

Receptor number	Address	UTM		Receptor height (m)
POR1/OPOR1	37 Concession 4 Arran, Arran-Elderslie	491289.93;4921712.00	491309.51;4921693.86	1.5/1.5
POR2/OPOR2	16970 Grey Bruce Line, Tara	491638.99;4921907.22	491290.77;4921821.61	1.5/1.5
POR3/OPOR3	32 Concession 4 Arran, Arran-Elderslie	491327.53;4921890.05	491331.65;4921861.89	1.5/1.5
POR4/OPOR4	32 Concession 4 Arran, Arran-Elderslie	491285.61;4921847.73	491632.76;4921886.89	1.5/1.5
POR5/OPOR5	17001 Grey Bruce Line, Tara	491629.25;4922253.89	491581.4; 4922217.05	4.5/1.5
POR6/OPOR6	74 Concession 4 Arran, Arran-Elderslie	490855.27;4921937.86	490882.13;4921933.83	4.5/1.5
POR7/OPOR7	104 Concession 4 Arran, Arran-Elderslie	490621.48;4921813.20	490643.34;4921789.83	4.5/1.5
POR8/OPOR8	126 Concession 4 Arran, Arran-Elderslie	490416.82;4921676.59	490459.2; 4921640.27	4.5/1.5
POR9/OPOR9	162 Concession 4 Arran, Arran-Elderslie	490078.22;4921608.09	490115.71;4921580.08	1.5/1.5

Based on a review of the surrounding area zoning and lots, three vacant lots close to the Project were identified. As required by the regulation, noise impact was assessed on the following lots: R10, R11 and R12 (Figure 1, Table 2).

Table 2: Points of reception at vacant lots

Receptor number	UTM	Receptor height (m)
R10	491720.40;4921426.34	4.5
R11	491475.28;4922505.11	4.5
R12	491667.11;4921832.97	4.5

4. Guidelines assessment process

To calculate the sound levels at the receptors, the international standard ISO 9613-2:2024, "Acoustics – Attenuation of sound during propagation outdoors" was used following the NPC-300 environmental noise guidelines.

The NPC-300 guideline sets sound level limits to both outdoor and window-plane receptors. Sound levels are determined as Leq at receptors. The applicable sound level limit is defined as the higher of either the background sound level or the MECP sound level limit.

Background sound levels are established as the lowest hourly sound levels recorded over a monitoring period of at least 48 hours.

According to MECP guidelines, the Project lies in a Class 3 Area, which is defined as a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic, such as:

- A small community;
- Agricultural area;
- A rural recreational area such as a cottage or a resort area;
- A wilderness area.

Therefore, sound limits for Class 3 Area receptors are applied in this assessment (Table 3, Table 4). For reference, the NPC-300 guideline stipulates:

> *The sound level limit at a point of reception, expressed in terms of the Leq is the higher of the applicable exclusion limit value given in Table 2 or Table 3, or the background sound level for that point of reception.*
>
> *The outdoor sound level limits for stationary sources apply only to daytime and evening (07:00 - 23:00). Sound level limits apply during the nighttime period (23:00 - 07:00) for the plane of the window of a noise-sensitive space. In general, the outdoor points of reception will be protected during nighttime due to meeting the sound level limits at the adjacent plane of window of noise-sensitive spaces.*
>
> *Note that for Class 1, 2, and 3 areas, the plane of window limits apply to a window that is assumed to be open. For Class 4 areas, the plane of window limits applies to a window which is assumed to be closed. This distinction does not affect the prediction of plane of window sound levels.*

Table 3: Exclusion limit values of one-hour equivalent sound level (L_{eq}, dBA) for outdoor points of reception

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 - 19:00	50	50	45	55
19:00 - 23:00	50	45	40	55

Outdoor receptors are not assessed for the nighttime period in the guide.

Table 4: Exclusion limit values of one-hour equivalent sound level (L_{eq}, dBA) plane of window for noise-sensitive spaces

Time of day	Class 1 area	Class 2 area	Class 3 area	Class 4 area
07:00 - 19:00	50	50	45	55
19:00 - 23:00	50	45	40	55
23:00-07:00	45	45	40	55

5. On site sound measurement

The background sound level is defined as the lowest hourly sound level established by on site sound measurement over a 48-hour period.

Sound recordings at the site were made by BBA from August 13 to August 15, 2024. As shown on Figure 1, measurement point P1 corresponds to the sound measurement location taken at the closest residence to the future Project. Measurement point P2 was located at the intersection of the main road (Figure 1).

5.1. Measurement equipment

The measurement equipment used for the sound recordings are as follows:

- Class I integrating sound level meters certified by an independent laboratory: Larson-Davis 831 and Larson-Davis LXT;
- Class I calibrator certified by an independent laboratory;
- Audio recorder.

The equipment was installed 1.5 m above the ground and calibrated before and after the measurements. For each recording, a deviation of less than 0.5 dB was observed, confirming the measurements are reliable.

5.2. Weather conditions

The sound recordings were taken during adequate weather conditions to most accurately represent background sound levels. Weather conditions during measurement were as follows:

- Relative humidity below 90%;
- Outdoor temperature between -10 and 50°C (required tolerance for measurement equipment);
- Winds below 20 km/h;
- No precipitation and dry road conditions.

During measurements, temperature, humidity, and wind conditions were conducive to good sound propagation, and there was no precipitation. The temperature and humidity were within the instrument's operational limits. Details of the weather conditions during the measurement period are presented in Appendix C.

5.3. Coordinates of the long-term measurement point

The measurement points P1 and P2 were chosen because they are at the same distance from the road as residences R1 and R2 to measure the influence of road noise on these residences. Their coordinates are presented in Table 5.

Table 5: Geographic coordinates and measurement periods for measurement points

Measurement point	Equivalent address	Localization UTM		Measurement period
P1	37 Concession 4 Arran	491587.36	4921808.3	August 13 until August 15, 2024
P2	16970 Grey Bruce Line	491202.16	4921739.1	August 14 until August 16, 2024

The recordings enabled the assessment of existing ambient sound levels, specifically the background sound levels at locations P1 and P2. As shown in Table 6, higher sound levels were measured at P2, which is influenced by its proximity to Grey Bruce Line, a road with higher traffic volume, as well as its intersection with Concession 4 Road.

For all monitoring locations, the existing background sound level (Leq) was determined through continuous measurements conducted over a minimum duration of 48 hours. Monitoring was scheduled during periods when background noise levels were expected to be at their lowest. The lowest hourly Leq recorded during this period—within a tolerance of ±1 dB—was selected to represent the background sound level, as presented under "Measured Background Noise" in Table 6. The measurement and graphs are provided in Appendix D and Appendix E.

Table 6: Measured sound levels at measurement points (dBA)

Measurement point	Time of day	Measured background noise (dBA)	Default criterion (dBA)	Criteria (dBA)
P1	Day 07:00-19:00	45	45	**45**
	Evening 19:00 -23:00	38	40	**40**
	Night 2:00-07:00	28	40	**40**
P2	Day 07:00-19:00	62	45	**62**
	Evening 19:00 -23:00	57	40	**57**
	Night 23:00-7:00	48	40	**48**

6. Noise sources

Three different significant noise sources stemming from the Project have been identified and are presented in Table 7 below.

Table 7: Noise source summary

Name	Description	Dimension (m)	Quantity	Sound characteristic	Source type	Source location	Sound Power Level (dBA)		Noise control
Medium Voltage Transformers	4.8 MVA transformers, Details of similar equipment in Appendix F	H=2.55 L= 2.8 W=2.85	106	Steady sound and tonal	Vertical surface source	Outside	87.9*		Barrier
BESS units Tesla	Model: Tesla Megapack 2XL Appendix G	Point height =3.27	420	Steady sound	Point source	Outside	Day : 86.1	Night : 79.1	Barrier
High-Voltage Transformers	245 kV transformer Details of similar equipment in Appendix F 132/176/220 MVA	H=4.418 L=9.700 W=7.3	2	Steady sound and tonal	Vertical surface source	Outside	108.3*		Barrier

Note: * Including 5dB tonal penalty

For the noise assessment, it is assumed that only the BESS is anticipated to operate at 50% maximum fan load capacity during daytime and at 30% maximum during the evening and nighttime, while the other equipment is assumed to be operating at full fan load. This assumption is based on the understanding that the selected BESS for the Project is designed to function optimally under extreme temperatures, which differ from conditions in Ontario. See Appendix H from Tesla temperature analyses.

BESS units were modelled as point sources and transformers were modelled as vertical surface sources. Truck traffic to and from the Project is expected to be occasional for maintenance and thus not included as part of this assessment. No other significant noise sources are expected at the Project.

Validity conditions

The sound power-level data and assumption of different noise sources considered in the Project to model sound emissions are detailed in the following subsections. If any of the equipment changes from the specifics given in this report, resulting in higher sound levels, a new noise impact assessment would have to be done to confirm the new hypotheses.

6.1. Medium voltage transformer

A total of 106 transformers (4.8 MVA), with only one stage of cooling (ONAN) not equipped with cooling fans, will be used in the Project. An ONAN rating of 65 dBA is considered for this 34.5 kV/480 V 4.8 MVA transformer. The approximative dimensions of the noise producing elements of the transformer are: 2850 mm wide, 2800 mm long and 2555 mm high (see Appendix F).

Table 8: Octave band sound power levels for the medium voltage transformer model size given provided in Appendix F

Octave band (Hz)	Sound power (dBA)
31.5	45.6
63	64.8
125	76.9
250	79.4
500	84.8
1000	82.0
2000	78.2
4000	73.0

Octave band (Hz)	Sound power (dBA)
8000	63.9
Lw (total)	**88.4**
Including 5dB tonal penalty	

The sound power of the medium voltage transformer was calculated from a theoretical prediction using the Bies, D., Hansen method[2] and will have to be confirmed once the transformer is chosen. MECP NPC-104 Sound Level Adjustments[3] guidelines prescribe adjustments for sources with special qualities or characters of sound. They are punitive adjustments that apply to noise sources with subjectively annoying characteristics, including tonal sounds, quasi-impulsive sounds, and beating sounds (i.e., sounds with cyclically varying amplitudes). Based on manufacturer test results, noise sources associated with the medium voltage transformers are expected to be a tonal noise source. In this regard, a 5 dB tonal penalty has been applied to the transformer sound power level as per the NPC-300 guideline.

6.2. Energy storage battery packs: 420 BESS units

The proposed battery energy storage units are the 'TESLA Megapack 2 XL' (see Appendix G). The primary source of noise arising from the unit will be from the cooling fans. For the purposes of this assessment, it has been assumed that the cooling fan will be operating at 50% maximum of their capacity during the day and 30% an evening time and at nighttime. Sound power data supplied by the manufacturer are provided in Table 8. See Appendix H for the battery supplier Project-specific analysis.

Each BESS is modelled as a point source with the sound power levels shown in Table 9 below. This point is positioned 0.5 m above a reflective box with the dimensions of the BESS (see Appendix G, page 4), so the point source is at 3.27 m elevation. The point is positioned 0.3 m from the front of the BESS towards the centre of the units to reproduce the same directivity as measured by the manufacturer. A security factor of 1.2 dB is included in the model as per manufacturer recommendation.

Due to the large number of sources, only the closest source in each cardinal direction relative to the UTM location has been included. These represent the BESS sources for each direction and are listed in Table 9 below.

[2] Engineering Noise Control p554-556 Edition 5th(2017)
[3] Publication NPC-104 - Sound-Level Adjustments (part of Reference Model Municipal Noise Control By-Law - Final Report. August 1978. Ontario Ministry of the Environment.)

Table 9: BESS locations

BESS	UTM
BESS1	491 485.170; 4 921 555.958
BESS2	491 629.104; 4 921 576.595
BESS3	491 647.096; 4 921 457.268
BESS4	491 418.760; 4 921 423.401

A tonal analysis was performed in accordance with ISO 1996-2 Annex K and MECP's NPC-104 guideline. A receptor-based tonal sound analysis was conducted, considering the worse case scenario, with the BESS in operation at 50% fan speed. This analysis, using one-third-octave band data, demonstrated that the sound at the receivers does not meet the audibility criteria, and thus a tonal correction is not needed. The results at the receptors as well as the tonal analysis data are provided in Appendix I.

Table 10: Third octave band sound power levels for BESS Tesla units

Octave band frequency	Point source 30% fan load capacity	Point source 50% fan load capacity
	Sound power (dBA)	Sound power (dBA)
100	56.9	57.9
125	59.5	59.0
160	58.5	57.3
200	62.4	58.2
250	69.2	72.5
315	66.4	79.9
400	66.4	70.9
500	66.1	69.5
630	68.6	75.9
800	66.3	71.4
1000	67.9	74.7
1250	66.7	73.4
1600	66.0	72.3
2000	65.9	71.9
2500	65.5	72.2
3150	62.6	70.1
4000	59.3	67.4
5000	56.0	64.4

Octave band frequency	Point source 30% fan load capacity	Point source 50% fan load capacity
	Sound power (dBA)	Sound power (dBA)
6300	50.5	59.5
8000	46.2	55.1
10000	41.9	49.6
12500	56.9	43.3
16000	59.5	40.9
Sum	**77.9**	**84.9**
Note: security factor of 1.2 dB is included in the model not in this table as per manufacturer recommendation see Appendix G page 8		

6.3. High-voltage transformers

The Project will have three HV transformers to transform electricity from the BESS system to the grid. Only two will be in operation at any given time, while the third will serve as a backup in the event of a failure. The Oil Natural Air Forced (ONAF) transformers are modelled assuming the worst noise conditions. Octave band levels were derived using published ONAF spectral data, shown in Table 11 below. Using equipment with higher sound power levels than the generic one used for the assessment would prompt an update of the assessment and compliance conclusions. The approximative dimensions of the noise producing elements of the transformer are 7300 mm in width, 9700 mm in length and 4418 mm in height. See the drawing in Appendix F.

Table 11: Octave band sound power level for the substation transformer 132/176/220 MVA rate

Octave band (Hz)	Sound power (dBA)
31.5	71.6
63	84.8
125	96.9
250	99.4
500	104.8
1000	102.0
2000	98.2
4000	93.0
8000	83.9
Lw (total)	**108.3**
Including 5dB tonal penalty	

The sound power of the high-voltage transformer was calculated from a theoretical prediction using the Crocker 2007 method[4] and will have to be confirmed once the transformer is chosen.

As for medium voltage transformers, the NPC-1045 guidelines prescribe adjustments for sources with special qualities or characters of sound. They are punitive adjustments that apply to noise sources with subjectively annoying characteristics, including tonal sounds, quasi-impulsive sounds, and beating sounds (i.e., sounds with cyclically varying amplitudes). Based on the manufacturer test results, noise sources associated with the transformers are expected to be a tonal noise source. To this end, a 5 dB tonal penalty has been applied to the transformer sound power level as per the NPC-300 guideline.

The coordinates of the three HV transformers are provided in Table 12 below:

Table 12: Transformer locations

Transformers	UTM
T1	491561.4913; 4921386.826
T2	491590.7014; 4921391.112
T3	491619.8321; 4921395.478

To ensure a conservative and protective assessment, the worst-case operational scenario was evaluated at all receptors—assuming full sound output from the two transformers in operation under ONAF conditions with the tonal penalty applied. In the study, Scenario 1 corresponds with transformers T1 and T2 in operation, and Scenario 2 corresponds with transformers T2 and T3 in operation.

7. Noise model

Sound propagations were completed using the technical software package CADNA/A, published by Datakustik GmbH, which is configured to implement the ISO 9613-2 Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General method of calculation, 2024, (ISO 1996:2024). This is quality assured software with full support of ISO/TR 1753-3, which provides recommendations to ensure uniformity in the interpretation of the ISO 9613. The acoustic model accounts for the following:

[4] Handbook of Noise and Vibration Control from Livre de Malcolm J. Crocker
[5] NPC-104 - Sound Level Adjustments (part of Reference Model Municipal Noise Control By-Law - Final Report. August 1978. Ontario Ministry of the Environment

- Geometrical divergence;
- Equipment noise emission and location;
- Equipment dimensions;
- Noise barrier effect;
- Atmospheric absorption;
- Ground absorption;
- Local topography.

Table 13 presents the modelling parameters used for all calculations.

Table 13: Model parameters

Modelling parameters	Setting	
Temperature	10 °C	
Humidity	70%	
Ground absorption	Paving and concrete	0
	Mixed (urban)	0.4
	Grass and wooded areas	0.6
Number of sound reflections	3	
Operation Condition BESS daytime	50%	
Operation Condition BESS nighttime end evening time	30%	
Operation conditions other equipment	100%	

Topography of the site was included in the model. Local barrier effects and reflection effects from the onsite equipment were included but screening of any off-site buildings (e.g., for agricultural use) was not included. Within the study and surrounding area, the ground surfaces are predominantly agricultural fields, with some roads. Any bodies of water (such as the on-site pond and the pond near POR02) were modelled as fully reflective (G=0). Typical Ontario meteorological parameters were included in the model: a temperature of 10 degrees Celsius and a relative humidity of 70%.

NPC-300 requires that the established sound level limit be compared against the predictable worst-case operation of the Project. This means the basis of the noise assessment should be the hour when noise emissions from the stationary source(s) have the greatest impact at a point of reception, relative to the lowest hourly sound level at any hour (applicable limit). The predictable

worst-case operation of the Project is considered as the simultaneous operation of all on-site sources during day, evening, and nighttime periods, and is expected to be conservative.

Three transformers are present in the Project layout, but only two are operating at the same time; the worst-case scenario was used in the model.

7.1. Modelling results

Predicted sound levels for the project are presented in Table 15. Results assume continuous, 24-hour operation, with the BESS fans operating at 50% load capacity during the daytime and 30% load capacity during evening and nighttime hours. Two scenarios were evaluated, as the three high-voltage transformers do not operate simultaneously. The scenarios considered are Scenario 1, with transformers T1 and T2 in operation, and Scenario 2, with transformers T2 and T3 in operation. Since results for both scenarios are very similar (< 0.3 dB difference at receptors), only the worst-case scenario has isocontour maps, which is scenario 1 for all, except for maps where there was a vacant lot, for which the worst case is scenario 2. See Table 14 for the maps provided and their names. The worst cases are defined as those where the limiting receptor has the highest result. If two limiting receptors have the maximums in different scenarios, both scenarios have isocontours. A limiting receptor is a receptor that drives mitigation measures.

Distances between receptors and closest sources as well as the sound pressure level from the closest sources to the receptors are presented in Appendix J.

Table 14. Names of isocontour maps provided

Case	Fan speed	Mapping height	Names for scenario 1	Names for scenario 2
Without mitigation	50%	1.5	Map1	
	50%	4.5	Map2	Map3
	30%	1.5	Map5	
	30%	4.5	Map6	Map4
With mitigation (except for vacant lots)	50%	1.5	Map7	
	50%	4.5	Map8	
	30%	1.5	Map9	
	30%	4.5	Map10	
With mitigation (including vacant lots)	50%	4.5		Map11
	30%	4.5		Map12

Results are organized into two sections: one for current receptors, representing existing dwellings, and another for vacant lots, which reflect hypothetical receptor locations for potential future residences.

7.1.1. Results at actual receptors

The simulated sound levels for each of the two operational scenarios are presented in the following three tables, corresponding to the most affected dwellings during each period: daytime (Table 15), evening (Table 16), and nighttime (Table 17).

Table 15: Predicted sound pressure levels (dBA) at the most affected dwellings for daytime

POR ID receptor number	POR address	POR height	Predicted sound level daytime (dBA) with BESS 50% Scenario 1	Predicted sound level daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR1	**37 Concession 4 Arran, Arran-Elderslie**	1.5	53.5	53.4	45	No
POR1	**37 Concession 4 Arran, Arran-Elderslie**	1.5	52.9	52.8	45	No
OPOR2	**16970 Grey Bruce Line, Tara**	1.5	51.4	51.3	62	Yes
POR2	**16970 Grey Bruce Line, Tara**	1.5	52.3	52.2	62	Yes
OPOR3	**32 Concession 4 Arran, Arran-Elderslie**	1.5	50.6	50.6	45	No
POR3	**32 Concession 4 Arran, Arran-Elderslie**	1.5	50.1	50.1	45	No
OPOR4	**32 Concession 4 Arran, Arran-Elderslie**	1.5	50.9	50.8	45	No
POR4	**32 Concession 4 Arran, Arran-Elderslie**	1.5	50.4	50.3	45	No
OPOR5	**17001 Grey Bruce Line, Tara**	1.5	45.5	45.6	45	No
POR5	**17001 Grey Bruce Line, Tara**	4.5	47.2	47.1	45	No

POR ID receptor number	POR address	POR height	Predicted sound level daytime (dBA) with BESS 50% Scenario 1	Predicted sound level daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR6	74 Concession 4 Arran, Arran-Elderslie	1.5	44.9	44.8	45	Yes
POR6	74 Concession 4 Arran, Arran-Elderslie	4.5	46.5	46.4	45	No
OPOR7	104 Concession 4 Arran, Arran-Elderslie	1.5	43.2	42.9	45	Yes
POR7	104 Concession 4 Arran, Arran-Elderslie	4.5	44.7	44.6	45	Yes
OPOR8	126 Concession 4 Arran, Arran-Elderslie	1.5	41.5	41.4	45	Yes
POR8	126 Concession 4 Arran, Arran-Elderslie	4.5	43.2	43.1	45	Yes
OPOR9	162 Concession 4 Arran, Arran-Elderslie	1.5	38.5	38.4	45	Yes
POR9	162 Concession 4 Arran, Arran-Elderslie	4.5	38.1	38.0	45	Yes

Table 16: Predicted sound pressure levels (dBA) at the most affected dwellings for evening time

POR ID Receptor number	POR address	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR1	37 Concession 4 Arran, Arran-Elderslie	1.5	51.3	51.1	40	No
POR1	37 Concession 4 Arran, Arran-Elderslie	1.5	50.7	50.5	40	No
OPOR2	16970 Grey Bruce Line, Tara	1.5	49.4	49.3	57	Yes
POR2	16970 Grey Bruce Line, Tara	1.5	50.4	50.3	57	Yes
OPOR3	32 Concession 4 Arran, Arran-Elderslie	1.5	48.6	48.5	40	No

POR ID Receptor number	POR address	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
POR3	32 Concession 4 Arran, Arran-Elderslie	1.5	48.1	48.0	40	No
OPOR4	32 Concession 4 Arran, Arran-Elderslie	1.5	48.9	48.7	40	No
POR4	32 Concession 4 Arran, Arran-Elderslie	1.5	48.4	48.2	40	No
OPOR5	17001 Grey Bruce Line, Tara	1.5	43.6	43.7	40	No
POR5	17001 Grey Bruce Line, Tara	4.5	45.5	45.3	40	No
OPOR6	74 Concession 4 Arran, Arran-Elderslie	1.5	43.1	43.0	40	No
POR6	74 Concession 4 Arran, Arran-Elderslie	4.5	44.7	44.5	40	No
OPOR7	104 Concession 4 Arran, Arran-Elderslie	1.5	41.4	41.0	40	No
POR7	104 Concession 4 Arran, Arran-Elderslie	4.5	42.7	42.6	40	No
OPOR8	126 Concession 4 Arran, Arran-Elderslie	1.5	39.6	39.5	40	Yes
POR8	126 Concession 4 Arran, Arran-Elderslie	4.5	41.2	41.1	40	No
OPOR9	162 Concession 4 Arran, Arran-Elderslie	1.5	36.7	36.5	40	Yes
POR9	162 Concession 4 Arran, Arran-Elderslie	4.5	36.3	36.2	40	Yes

Table 17: Predicted sound pressure levels (dBA) at the most affected dwellings for nighttime

POR ID Receptor number	POR address	POR height	Predicted Sound Level nighttime (dBA) with BESS 30% Scenario 1	Predicted Sound Level nighttime (dBA) with BESS 30% Scenario 2	Sound-Level Limit (dBA)	Conformity
POR1	**37 Concession 4 Arran, Arran-Elderslie**	1.5	50.7	50.5	40	**No**
POR2	**16970 Grey Bruce Line, Tara**	1.5	50.4	50.3	48	**No**
POR3	**32 Concession 4 Arran, Arran-Elderslie**	1.5	48.1	48.0	40	**No**
POR4	**32 Concession 4 Arran, Arran-Elderslie**	1.5	48.4	48.2	40	**No**
POR5	**17001 Grey Bruce Line, Tara**	4.5	45.5	45.3	40	**No**
POR6	**74 Concession 4 Arran, Arran-Elderslie**	4.5	44.7	44.5	40	**No**
POR7	**104 Concession 4 Arran, Arran-Elderslie**	4.5	42.7	42.6	40	**No**
POR8	**126 Concession 4 Arran, Arran-Elderslie**	4.5	41.2	41.1	40	**No**
POR9	**162 Concession 4 Arran, Arran-Elderslie**	4.5	36.3	36.2	40	**Yes**

Without any mitigation, receptor OPOR1 is expected to be the most affected dwelling by noise from the Project, having a maximum sound pressure level at the window of 53.5 dBA in the daytime, 51.3 dBA level in the evening, and 50.7 at nighttime. The Project sound level contours are shown in Appendix K.

Since the closest receiver POR1 is the most exposed to the Project's noise, the octave-band spectrum at this location was assessed and allows to quantify the potential maximum impact and shows the distribution of noise across different frequencies. Table 18 below gives the 1/1 octave band at POR1.

Table 18: Predicted sound pressure levels (dBA) at POR1 daytime

POR1	Frequency (Hz)								
	31.5	63	125	250	500	1k	2k	4k	8k
Sound pressure level	16.6	31.3	40.5	46.2	47.6	48.4	44.9	33.3	-1.9

The level reaches a maximum between 500 Hz and 1 kHz, typical for electrical equipment such as transformers.

The table in Appendix J presents the acoustically dominant sources for each receptor. It includes the sound level of the three most dominant sources at each POR, along with the setback distance from each source to each receptor.

7.1.2. Results for vacant lots

The simulated sound levels for vacant lots are presented in the three tables below for each two scenarios for the daytime (Table 19), evening (Table 20), and nighttime (Table 21) periods at the most affected dwellings.

Table 19: Predicted sound pressure levels (dBA) at vacant lots for daytime

POR ID receptor number	UTM localization	POR height	Predicted sound level daytime (dBA) with BESS 50% Scenario 1	Predicted sound level daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	61.2	62.5	62	No
R11	491475.28;4922505.11	4.5	44.2	44.4	62	Yes
R12	491667.11;4921832.97	4.5	53.8	53.7	62	Yes

Table 20: Predicted sound pressure levels (dBA) at vacant lots for evening time

POR ID receptor number	UTM localization	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	59.4	61.1	57	No

POR ID receptor number	UTM localization	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
R11	491475.28;4922505.11	4.5	41.9	42.2	57	**Yes**
R12	491667.11;4921832.97	4.5	51.5	51.4	57	**Yes**

Table 21: Predicted sound pressure levels (dBA) at vacant lots for nighttime

POR ID receptor number	UTM localization	POR height	Predicted sound level nighttime (dBA) with BESS 30% Scenario 1	Predicted sound level nighttime (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	59.9	61.6	48	**No**
R11	491475.28;4922505.11	4.5	42.3	42.6	48	**Yes**
R12	491667.11;4921832.97	4.5	51.8	51.7	48	**No**

Without any mitigation, receptor R10 is expected to be the most affected by noise from the Project, having a maximum sound pressure level of 62.2 dBA in daytime and 61.6 dBA level at evening and nighttime.

7.2. Site modelling with mitigation measures

7.2.1. Wall specification

A sound level simulation was performed by applying a noise protection wall around the BESS and transformers as presented on Figure 2. The acoustic wall will be fully sealed from bottom to top and will incorporate noise-absorbing materials. Specifications related to this type of wall are presented in Appendix M and are as follows:

- Noise reduction coefficient: NRC 0.9
- Sound absorption average: SAA 0.89

7.2.2. Wall geometry for sensitive receptors

The noise absorbing wall will be built at specific areas within the BESS layout. Details are provided below.

High-voltage transformers

Seven-meter-high walls will be erected on three sides of each HV transformers. They will be erected directly on the perimeter of the transformer's individual oil containment basin. The size of the containment basin is: 19 x 14 m.

BESS and MV transformers

BESS and HV Transformers will be constructed in five (5) clusters within the site. All will have 7-meter-high walls on their north and west-facing sides, except for one cluster that will require a 7.5-meter-high wall. Spacing between the noise barrier wall and the BESS containers is 4.2 m to enable vehicle passage. The geometry of the walls is shown on Figure 2 and an example of the wall structure is presented in Appendix M.

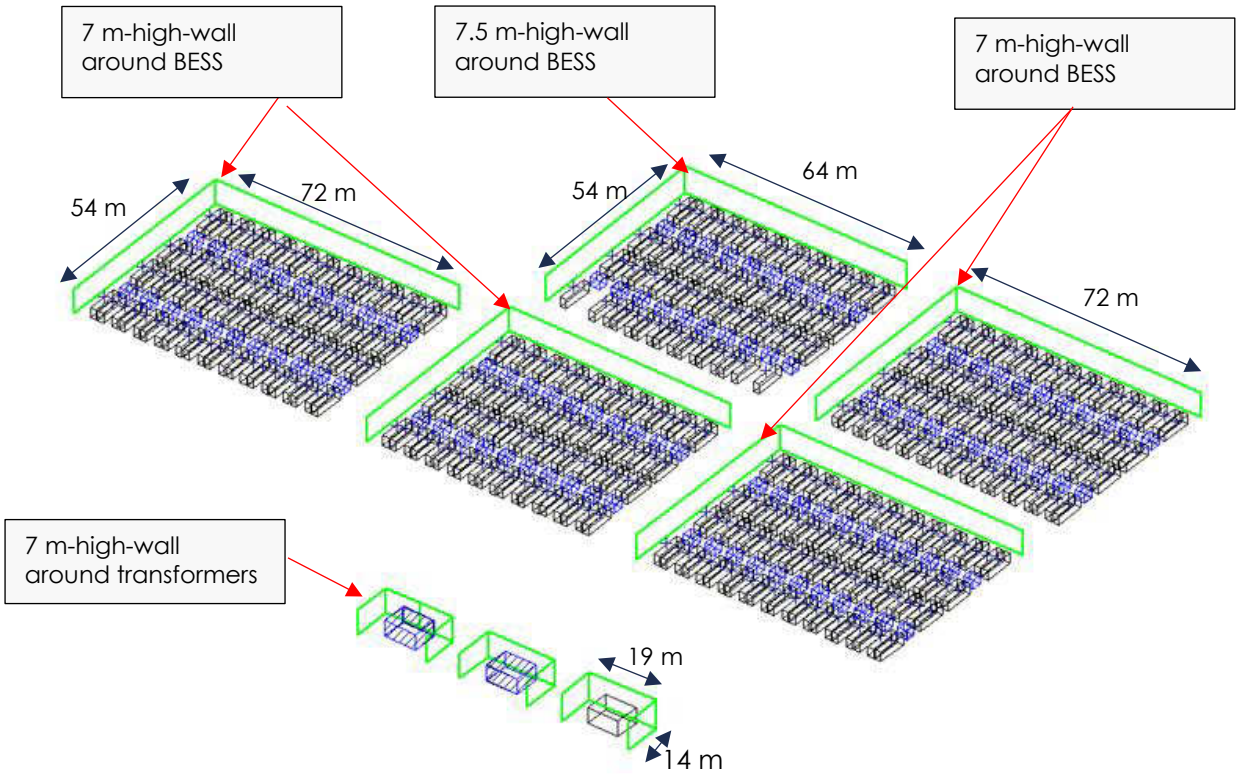


Figure 2: Geometry of the acoustic walls around the BESS and transformers

7.2.3. Mitigation measures and compliance at sensitive receptors

The simulated sound levels at the residence's points, as prescribed by the regulation, are presented for daytime (Table 22), evening (Table 23) and nighttime (Table 24) conditions when incorporating noise wall mitigation measures as proposed in Section 7.2.2. Maps showing the sound level propagated across the area surrounding the project are available in Appendix L. This section provides an analysis of the results shown in these maps.

Table 22: Predicted sound pressure levels (dBA) with mitigation measure at the most affected dwellings for daytime

POR ID receptor number	POR address	POR height	Predicted sound level daytime (dBA) with BESS 50% Scenario 1	Predicted sound level daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR1	37 Concession 4 Arran, Arran-Elderslie	1.5	44.4	44.4	45	Yes
POR1	37 Concession 4 Arran, Arran-Elderslie	1.5	44	44.0	45	Yes
OPOR2	16970 Grey Bruce Line, Tara	1.5	44.7	44.7	62	Yes
POR2	16970 Grey Bruce Line, Tara	1.5	45.9	45.9	62	Yes
OPOR3	32 Concession 4 Arran, Arran-Elderslie	1.5	42.7	42.7	45	Yes
POR3	32 Concession 4 Arran, Arran-Elderslie	1.5	42.4	42.4	45	Yes
OPOR4	32 Concession 4 Arran, Arran-Elderslie	1.5	42.9	42.8	45	Yes
POR4	32 Concession 4 Arran, Arran-Elderslie	1.5	42.6	42.5	45	Yes
OPOR5	17001 Grey Bruce Line, Tara	1.5	40.4	40.5	45	Yes
POR5	17001 Grey Bruce Line, Tara	4.5	42.1	42.1	45	Yes

POR ID receptor number	POR address	POR height	Predicted sound level daytime (dBA) with BESS 50% Scenario 1	Predicted sound level daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR6	74 Concession 4 Arran, Arran-Elderslie	1.5	39.2	39.1	45	Yes
POR6	74 Concession 4 Arran, Arran-Elderslie	4.5	40.9	40.8	45	Yes
OPOR7	104 Concession 4 Arran, Arran-Elderslie	1.5	38.2	38.2	45	Yes
POR7	104 Concession 4 Arran, Arran-Elderslie	4.5	40	40.1	45	Yes
OPOR8	126 Concession 4 Arran, Arran-Elderslie	1.5	37.4	37.4	45	Yes
POR8	126 Concession 4 Arran, Arran-Elderslie	4.5	39.3	39.3	45	Yes
OPOR9	162 Concession 4 Arran, Arran-Elderslie	1.5	34.6	34.6	45	Yes
POR9	162 Concession 4 Arran, Arran-Elderslie	4.5	34.3	34.3	45	Yes

Table 23: Predicted sound pressure levels (dBA) with mitigation measure at the most affected dwellings for evening time

POR ID receptor number	POR address	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR1	37 Concession 4 Arran, Arran-Elderslie	1.5	40.0	39.9	40	Yes
POR1	37 Concession 4 Arran, Arran-Elderslie	1.5	39.5	39.4	40	Yes

POR ID receptor number	POR address	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR2	16970 Grey Bruce Line, Tara	1.5	40.2	40.1	57	Yes
POR2	16970 Grey Bruce Line, Tara	1.5	41.3	41.4	57	Yes
OPOR3	32 Concession 4 Arran, Arran-Elderslie	1.5	38.0	37.9	40	Yes
POR3	32 Concession 4 Arran, Arran-Elderslie	1.5	37.6	37.6	40	Yes
OPOR4	32 Concession 4 Arran, Arran-Elderslie	1.5	38.2	38.1	40	Yes
POR4	32 Concession 4 Arran, Arran-Elderslie	1.5	37.8	37.8	40	Yes
OPOR5	17001 Grey Bruce Line, Tara	1.5	35.8	35.9	40	Yes
POR5	17001 Grey Bruce Line, Tara	4.5	37.5	37.6	40	Yes
OPOR6	74 Concession 4 Arran, Arran-Elderslie	1.5	34.2	34.1	40	Yes
POR6	74 Concession 4 Arran, Arran-Elderslie	4.5	35.8	35.7	40	Yes
OPOR7	104 Concession 4 Arran, Arran-Elderslie	1.5	33.4	33.2	40	Yes
POR7	104 Concession 4 Arran, Arran-Elderslie	4.5	35.1	35.1	40	Yes
OPOR8	126 Concession 4 Arran, Arran-Elderslie	1.5	32.8	32.7	40	Yes
POR8	126 Concession 4 Arran, Arran-Elderslie	4.5	34.7	34.6	40	Yes

POR ID receptor number	POR address	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR9	162 Concession 4 Arran, Arran-Elderslie	1.5	30.2	30.1	40	Yes
POR9	162 Concession 4 Arran, Arran-Elderslie	4.5	29.8	29.7	40	Yes

Table 24: Predicted sound pressure levels (dBA) with mitigation measure at the most affected dwellings for nighttime

POR ID receptor number	POR address	POR height	Predicted Sound Level nighttime (dBA) with BESS 30% Scenario 1	Predicted Sound Level nighttime (dBA) with BESS 30% Scenario 2	Sound-Level Limit (dBA)	Conformity
POR1	37 Concession 4 Arran, Arran-Elderslie	1.5	39.5	39.4	40	Yes
POR2	16970 Grey Bruce Line, Tara	1.5	41.3	41.4	57	Yes
POR3	32 Concession 4 Arran, Arran-Elderslie	1.5	37.6	37.6	40	Yes
POR4	32 Concession 4 Arran, Arran-Elderslie	1.5	37.8	37.8	40	Yes
POR5	17001 Grey Bruce Line, Tara	4.5	37.5	37.6	40	Yes
POR6	74 Concession 4 Arran, Arran-Elderslie	4.5	35.8	35.7	40	Yes
POR7	104 Concession 4 Arran, Arran-Elderslie	4.5	35.1	35.1	40	Yes
POR8	126 Concession 4 Arran, Arran-Elderslie	4.5	34.7	34.6	40	Yes
POR9	162 Concession 4 Arran, Arran-Elderslie	4.5	29.8	29.7	40	Yes

By implementing all proposed mitigation measures—including fan operation restrictions during daytime and nighttime periods, as well as the installation of noise barrier walls—all receptors are expected to comply with NPC-300 noise limits at all times of the day and night.

7.2.4. Results for vacant lots

The simulated sound levels with the noise walls, as proposed in Figure 2, for vacant lots are presented in the three tables below for each of the two scenarios for the daytime (Table 25), evening (Table 26), and nighttime (Table 27) periods at the most affected dwellings.

Table 25: Predicted sound pressure levels (dBA) at vacant lots for daytime with mitigation measure

POR ID receptor number	UTM localization	POR height	Predicted sound level daytime (dBA) with BESS 50% Scenario 1	Predicted sound level daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	56.4	56.7	62	**Yes**
R11	491475.28;4922505.11	4.5	39.3	39.3	62	**Yes**
R12	491667.11;4921832.97	4.5	47.6	47.6	62	**Yes**

Table 26: Predicted sound pressure levels (dBA) at vacant lots for evening time with mitigation measure

POR ID receptor number	UTM localization	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	52.5	53.0	57	**Yes**
R11	491475.28;4922505.11	4.5	34.2	34.3	57	**Yes**
R12	491667.11;4921832.97	4.5	42.9	43.1	57	**Yes**

Table 27: Predicted sound pressure levels (dBA) at vacant lots for nighttime with mitigation measure

POR ID receptor number	UTM localization	POR height	Predicted sound level nighttime (dBA) with BESS 30% Scenario 1	Predicted sound level nighttime (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	52.5	53.0	48	**No**
R11	491475.28;4922505.11	4.5	34.2	34.3	48	**Yes**
R12	491667.11;4921832.97	4.5	42.9	43.1	48	**Yes**

The results presented in the tables above indicate that sound levels comply at all receptors except for one vacant lot receptor (R10) during nighttime. To address this, a sound level reduction of 5 dBA would be required to meet the applicable NPC-300 limit. As such, additional mitigation measures will need to be evaluated to ensure future compliance if a dwelling is built at this location. This is further discussed in the next section.

7.2.5. Additional mitigation for vacant lots

For vacant lots, additional mitigation measures have been evaluated to ensure future compliance with NPC-300 if dwellings are built on the lot of receptor point R10. Accordingly, the wall mitigation described in Section 7.2.2 will be implemented, including the addition of a 120-meter-long, 7-meter-high wall along the eastern boundary of the Project property to protect Receptor R10 (Figure 3).

An example of the structure of the wall is in Appendix M.

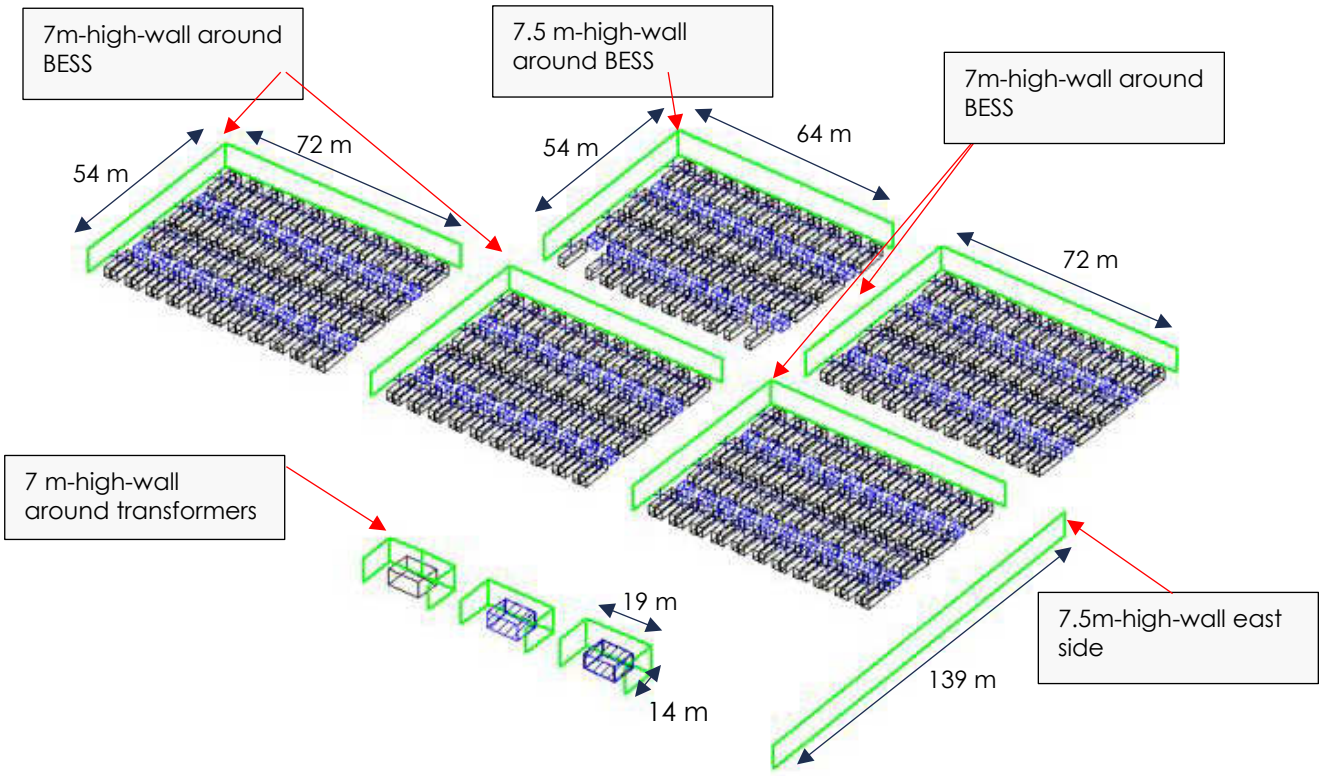


Figure 3: Geometry of the acoustic walls around BESS and transformers and along the east side of the property

7.2.6. Supplemental mitigation measures and compliance at vacant lots

The simulated sound levels at the vacant lot receptors, incorporating all mitigation measures shown in Figure 3, are presented for daytime (Table 28), evening (Table 29), and nighttime (Table 30) conditions. Sound propagation maps illustrating noise levels with mitigation in the area surrounding the Project site are provided in Appendix L. This section includes an analysis of the results depicted in these maps.

Table 28: Predicted sound pressure levels (dBA) with mitigation measure for vacant lots for daytime

POR ID receptor number	UTM localization	POR height	Predicted sound level Daytime (dBA) with BESS 50% Scenario 1	Predicted sound level Daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	51.9	52.0	62	**Yes**
R11	491475.28;4922505.11	4.5	39.3	39.3	62	**Yes**
R12	491667.11;4921832.97	4.5	47.6	47.6	62	**Yes**

Table 29: Predicted sound pressure levels (dBA) at vacant lots with mitigation measure for vacant lots for evening time

POR ID receptor number	UTM localization	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	47.9	47.9	57	**Yes**
R11	491475.28;4922505.11	4.5	34.2	34.3	57	**Yes**
R12	491667.11;4921832.97	4.5	43.0	43.1	57	**Yes**

Table 30: Predicted sound pressure levels (dBA) at vacant lots with mitigation measure for vacant lots for nighttime

POR ID Receptor number	UTM localization	POR height	Predicted Sound Level nighttime (dBA) with BESS 30% Scenario 1	Predicted Sound Level nighttime (dBA) with BESS 30% Scenario 2	Sound-Level Limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	47.9	47.9	48	**Yes**
R11	491475.28;4922505.11	4.5	34.2	34.3	48	**Yes**
R12	491667.11;4921832.97	4.5	43.0	43.1	48	**Yes**

Results from the simulation show that with the implementation of supplemental mitigation measures, future dwellings constructed on the vacant lots would achieve compliance with NPC-300 during daytime, evening, and nighttime periods.

8. Conclusions

Nine receptors were identified within a 1.5 km radius from the centre of the noise-emitting equipment at the Tara BESS project, all of which were included in the noise impact assessment. The assessment follows the NPC-300 guideline and considers worst-case operational scenarios. Two vacant lots were identified near the east side of the Project.

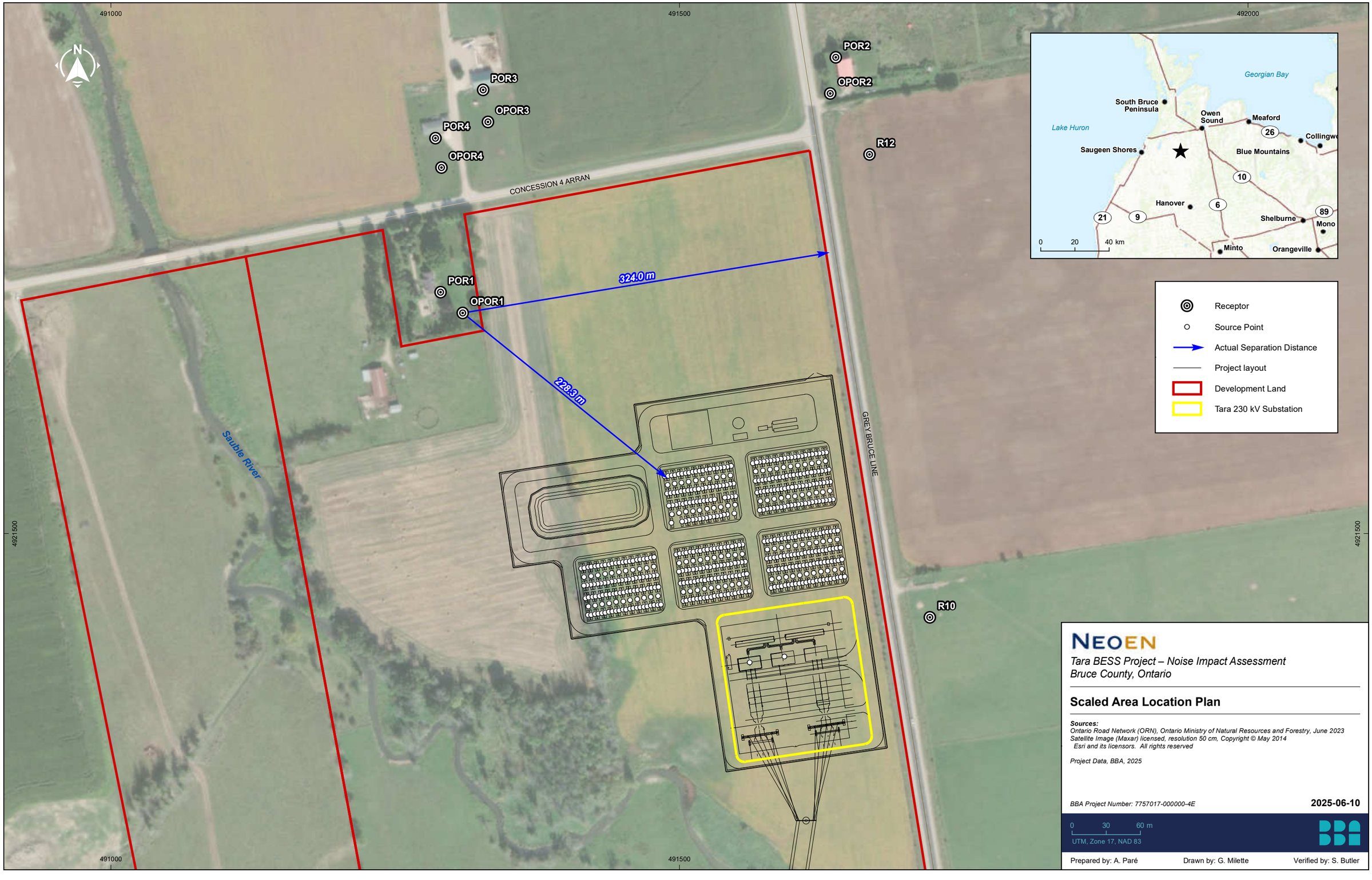
The noise-emitting equipment modelled includes the High Voltage (HV) and Medium Voltage (MV) transformers, as well as the BESS units, all of which are assumed to operate continuously, 24 hours a day. The model assumes that HV and MV transformers operate at 100% capacity. To mitigate overall noise impacts and ensure compliance with NPC-300 at all assessed PORs, the BESS cooling fans will operate at a maximum of 50% load during daytime and 30% during evening and nighttime. These load capacities were provided by Tesla based on the average annual temperature in the Project area. Additionally, sound barrier walls will be installed around HV transformers and BESS units to further reduce noise emissions.

With these mitigation measures in place, the Tara BESS project is expected to remain compliant with NPC-300 guidelines and prevent noise-related impacts on neighbouring receptors.

Supplemental mitigation measures were also assessed and proposed for vacant lots in the vicinity of the Project, including a supplemental wall along the eastern property boundary. However, this supplemental measure does not need to be implemented until a sensitive dwelling or facility is proposed and constructed on the vacant lot of receptor R10.

The report details the sound power-level data and assumptions for the specific noise sources considered in the Project's sound emissions modelling. If any selected equipment at the detailed design stage differs and has a higher sound power level from the modelled assumptions, a new noise impact assessment will be required to confirm compliance with NPC-300.

Appendix A: Site Plan and Scaled Area Location Plan



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Scaled Area Location Plan

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
Satellite Image (Maxar) licensed, resolution 50 cm, Copyright © May 2014
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

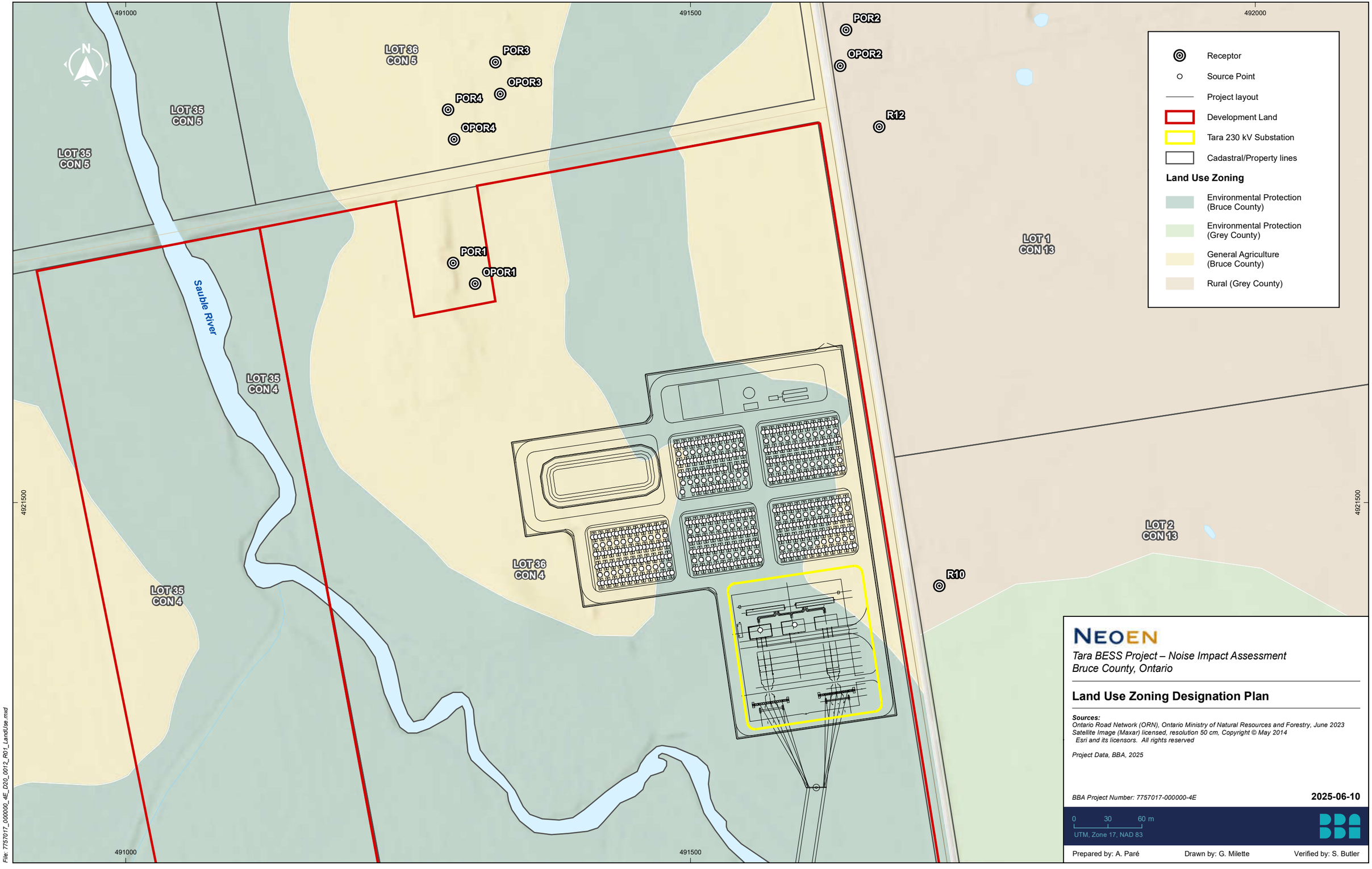
2025-06-10

0 30 60 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D20_0011_R01_LocationPlan.mxd

Appendix B: Land-use Zoning Plan



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Land Use Zoning Designation Plan

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-10

0 30 60 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D20_0012_R01_LandUse.mxd

Appendix C: Weather Conditions

Rapport de données horaires pour le 13 août 2024

Si vous avez sélectionné l'heure normale locale (HNL), ajoutez 1h pour convertir l'heure locale en heure avancée, s'il y a lieu.

MOUNT FOREST (AUT)
ONTARIO
Opérateur de station opérationnelle : ECCC - SMC

Latitude :	43°59'00,000" N
Longitude :	80°45'00,000" O
Altitude :	414,50 m
ID climatologique :	6145504
ID de l'OMM :	71631
ID de TC :	WLS

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
00:00	13,3	13,2	99	0,0	4	4		97,05			ND
01:00	12,5	12,0	97	0,0		0		97,05			ND
02:00	12,1	12,0	99	0,0		0		97,05			ND
03:00	11,3	11,3	100	0,0		0		97,08			ND
04:00	10,9	10,8	99	0,0		0		97,11			ND
05:00	11,4	11,4	100	0,0	8	4		97,14			ND
06:00	11,2	11,1	99	0,0		0		97,18			ND
07:00	13,2	12,7	97	0,0		0		97,20			ND
08:00	16,3	13,7	85	0,0		0		97,19			ND
09:00											
10:00											
11:00	21,7	13,5	60	0,0	31	5		97,22	**25**		ND
12:00	22,6	12,8	54	0,0	34	6		97,19	**25**		ND
13:00	23,0	11,8	49	0,0	32	4		97,18	**25**		ND
14:00	23,6	12,7	50	0,0	31	6		97,16	**26**		ND
15:00	24,0	13,7	53	0,0	26	7		97,14	**27**		ND
16:00	23,6	13,8	54	0,0	32	9		97,11	**27**		ND
17:00	23,6	13,7	54	0,0	33	6		97,09	**27**		ND
18:00	22,2	13,3	57	0,0	1	10		97,13	**25**		ND
19:00	20,6	14,8	69	0,0	34	5		97,15			ND

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
20:00	18,1	15,1	82	0,0	1	5		97,19			ND
21:00	17,0	15,0	88	0,0	4	4		97,20			ND
22:00	15,7	14,4	92	0,0		0		97,20			ND
23:00	14,2	13,6	96	0,0		0		97,22			ND

Légende

- E = Valeur estimée
- M = Données manquantes
- ND = Non disponible*
- [vide] = Indique une valeur non observée

Date de modification :

2024-06-27

Rapport de données horaires pour le 14 août 2024

Si vous avez sélectionné l'heure normale locale (HNL), ajoutez 1h pour convertir l'heure locale en heure avancée, s'il y a lieu.

MOUNT FOREST (AUT)
ONTARIO
Opérateur de station opérationnelle : ECCC - SMC

Latitude :	43°59'00,000" N
Longitude :	80°45'00,000" O
Altitude :	414,50 m
ID climatologique :	6145504
ID de l'OMM :	71631
ID de TC :	WLS

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
00:00	13,3	12,4	95	0,0		0		97,24			ND
01:00	12,9	12,1	95	0,0	9	4		97,23			ND
02:00	12,2	11,6	96	0,0		0		97,24			ND
03:00	11,3	11,0	98	0,0		0		97,26			ND
04:00	10,9	10,2	95	0,0		0		97,27			ND
05:00	10,3	10,0	98	0,0		0		97,29			ND
06:00	10,2	9,8	97	0,0		0		97,32			ND
07:00	13,6	12,7	94	0,0		0		97,36			ND
08:00	18,2	14,0	76	0,0		0		97,38			ND
09:00	20,2	14,0	67	0,0	27	4		97,39			ND
10:00	21,4	12,4	57	0,0	30	6		97,42			ND
11:00	22,2	11,8	52	0,0	32	8		97,43			ND
12:00	23,3	11,8	48	0,0	28	5		97,38	25		ND
13:00	24,0	12,7	49	0,0	36	6		97,35	27		ND
14:00	24,9	13,8	50	0,0	32	6		97,30	28		ND
15:00	25,3	14,4	51	0,0		0		97,28	29		ND
16:00	25,4	12,6	45	0,0	34	7		97,25	28		ND
17:00	25,2	12,9	46	0,0	32	7		97,20	28		ND
18:00	24,7	12,8	47	0,0	29	7		97,19	27		ND
19:00	22,2	15,1	64	0,0	32	8		97,25	26		ND

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
20:00	19,5	15,0	75	0,0	32	3		97,26			ND
21:00	18,0	14,6	81	0,0		0		97,29			ND
22:00	16,6	14,8	89	0,0	7	5		97,29			ND
23:00	15,4	14,0	91	0,0	9	3		97,26			ND

Légende

- E = Valeur estimée
- M = Données manquantes
- ND = Non disponible*
- [vide] = Indique une valeur non observée

Date de modification :

2024-06-27

Rapport de données horaires pour le 15 août 2024

Si vous avez sélectionné l'heure normale locale (HNL), ajoutez 1h pour convertir l'heure locale en heure avancée, s'il y a lieu.

MOUNT FOREST (AUT)
ONTARIO
Opérateur de station opérationnelle : ECCC - SMC

Latitude :	43°59'00,000" N
Longitude :	80°45'00,000" O
Altitude :	414,50 m
ID climatologique :	6145504
ID de l'OMM :	71631
ID de TC :	WLS

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
00:00	14,3	13,3	94	0,0		0		97,24			ND
01:00	13,8	13,2	96	0,0		0		97,22			ND
02:00	13,5	12,6	95	0,0		0		97,19			ND
03:00	13,3	12,1	92	0,0	10	4		97,17			ND
04:00	13,2	11,7	91	0,0	10	5		97,18			ND
05:00	12,7	11,2	91	0,0	11	3		97,19			ND
06:00	12,5	11,1	91	0,0		0		97,24			ND
07:00	15,9	12,2	79	0,0		0		97,28			ND
08:00	20,1	14,2	69	0,0		0		97,27			ND
09:00	22,9	14,0	57	0,0		0		97,25	**26**		ND
10:00	23,5	14,9	58	0,0	23	6		97,25	**27**		ND
11:00	24,0	13,5	52	0,0	25	6		97,20	**27**		ND
12:00	24,8	13,6	50	0,0	19	8		97,16	**28**		ND
13:00	25,8	12,3	43	0,0	19	10		97,11	**28**		ND
14:00	26,2	12,3	42	0,0	18	7		97,06	**29**		ND
15:00	26,1	12,1	42	0,0	18	7		97,01	**28**		ND
16:00	26,0	13,5	46	0,0	21	8		96,97	**29**		ND
17:00	25,9	13,3	46	0,0	22	8		96,96	**29**		ND
18:00	24,7	14,5	53	0,0	24	7		96,93	**28**		ND
19:00	23,9	14,3	55	0,0	21	7		96,92	**27**		ND

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
20:00	22,4	14,8	62	0,0	19	4		96,94	**26**		ND
21:00	20,7	15,3	71	0,0	17	6		96,96	**25**		ND
22:00	19,3	14,7	75	0,0	17	6		96,94			ND
23:00	18,2	14,6	79	0,0	16	6		96,92			ND

Légende

- E = Valeur estimée
- M = Données manquantes
- ND = Non disponible*
- [vide] = Indique une valeur non observée

Date de modification :

2024-06-27

Rapport de données horaires pour le 16 août 2024

Si vous avez sélectionné l'heure normale locale (HNL), ajoutez 1h pour convertir l'heure locale en heure avancée, s'il y a lieu.

MOUNT FOREST (AUT)
ONTARIO
Opérateur de station opérationnelle : ECCC - SMC

Latitude :	43°59'00,000" N
Longitude :	80°45'00,000" O
Altitude :	414,50 m
ID climatologique :	6145504
ID de l'OMM :	71631
ID de TC :	WLS

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
00:00	17,7	13,8	78	0,0	16	5		96,88			ND
01:00	17,7	13,1	74	0,0	16	7		96,85			ND
02:00	17,4	12,6	74	0,0	16	7		96,82			ND
03:00	17,1	12,6	75	0,0		0		96,77			ND
04:00	17,3	12,8	75	0,0		0		96,74			ND
05:00	18,0	12,8	72	0,0	14	4		96,71			ND
06:00	19,0	13,1	69	0,0	14	5		96,64			ND
07:00	19,2	13,8	71	0,0	14	5		96,68			ND
08:00	19,9	14,6	72	0,0	16	6		96,68			ND
09:00	20,7	15,3	71	0,0	17	10		96,67	**25**		ND
10:00	21,8	16,5	72	0,0	16	10		96,64	**27**		ND
11:00	22,4	17,1	72	0,0	17	8		96,62	**28**		ND
12:00	22,9	16,3	67	0,0	17	10		96,57	**28**		ND
13:00	23,0	16,9	69	0,0	17	11		96,53	**28**		ND
14:00	21,3	16,0	72	0,0	13	6		96,47	**26**		ND
15:00	21,7	16,6	73	0,0	11	4		96,42	**27**		ND
16:00	22,1	16,1	69	0,0	15	5		96,36	**27**		ND
17:00	20,5	17,9	85	0,0		0		96,38	**26**		ND
18:00	19,3	18,3	94	2,1	13	5		96,31			ND
19:00	19,1	18,2	95	1,0	14	5		96,30			ND

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
20:00	18,8	18,1	96	0,0	16	6		96,28			ND
21:00	18,8	18,3	97	0,0	15	6		96,27			ND
22:00	19,0	18,5	97	0,0	16	8		96,26			ND
23:00	19,2	18,7	97	0,0	18	8		96,21			ND

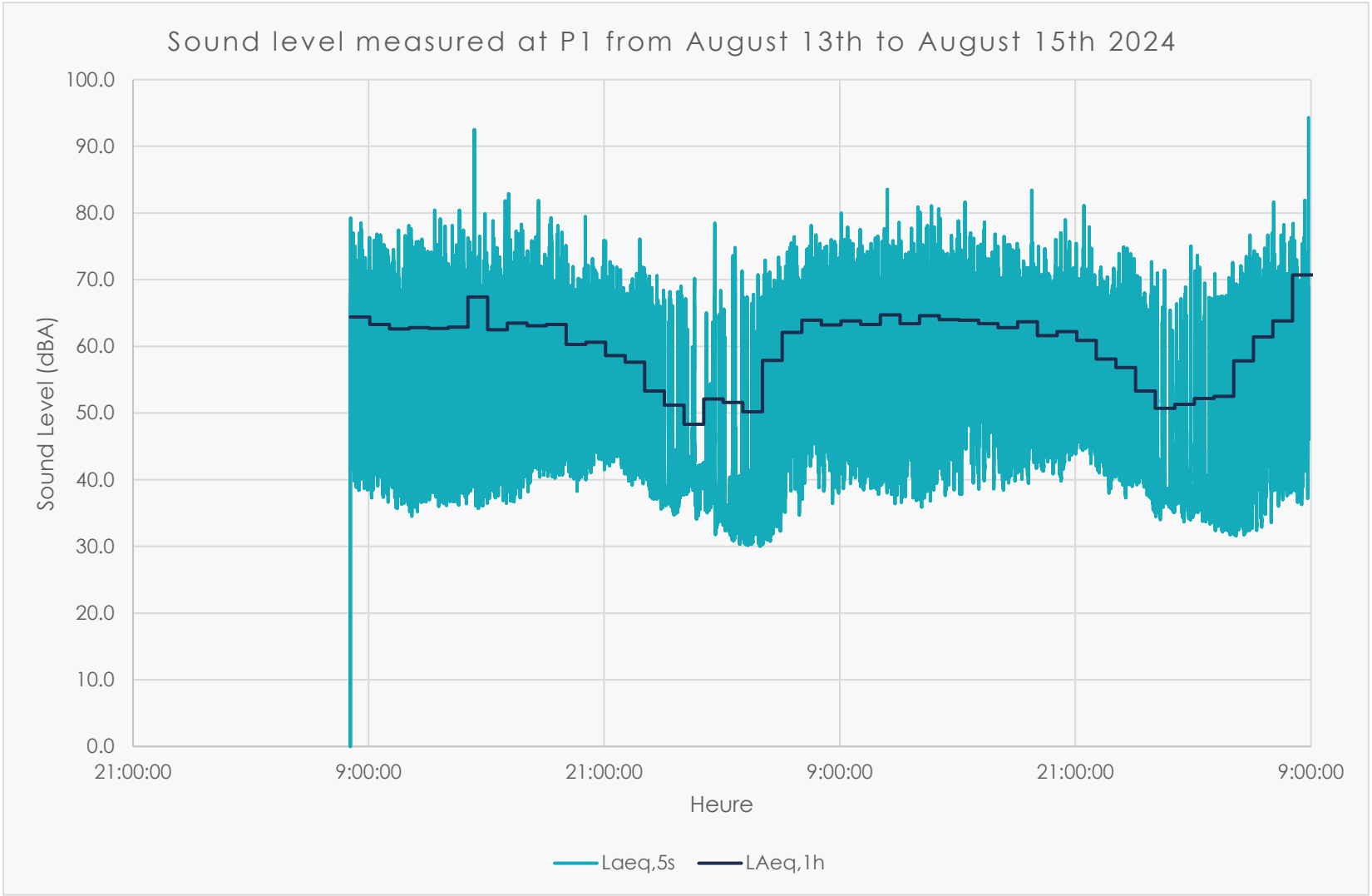
Légende

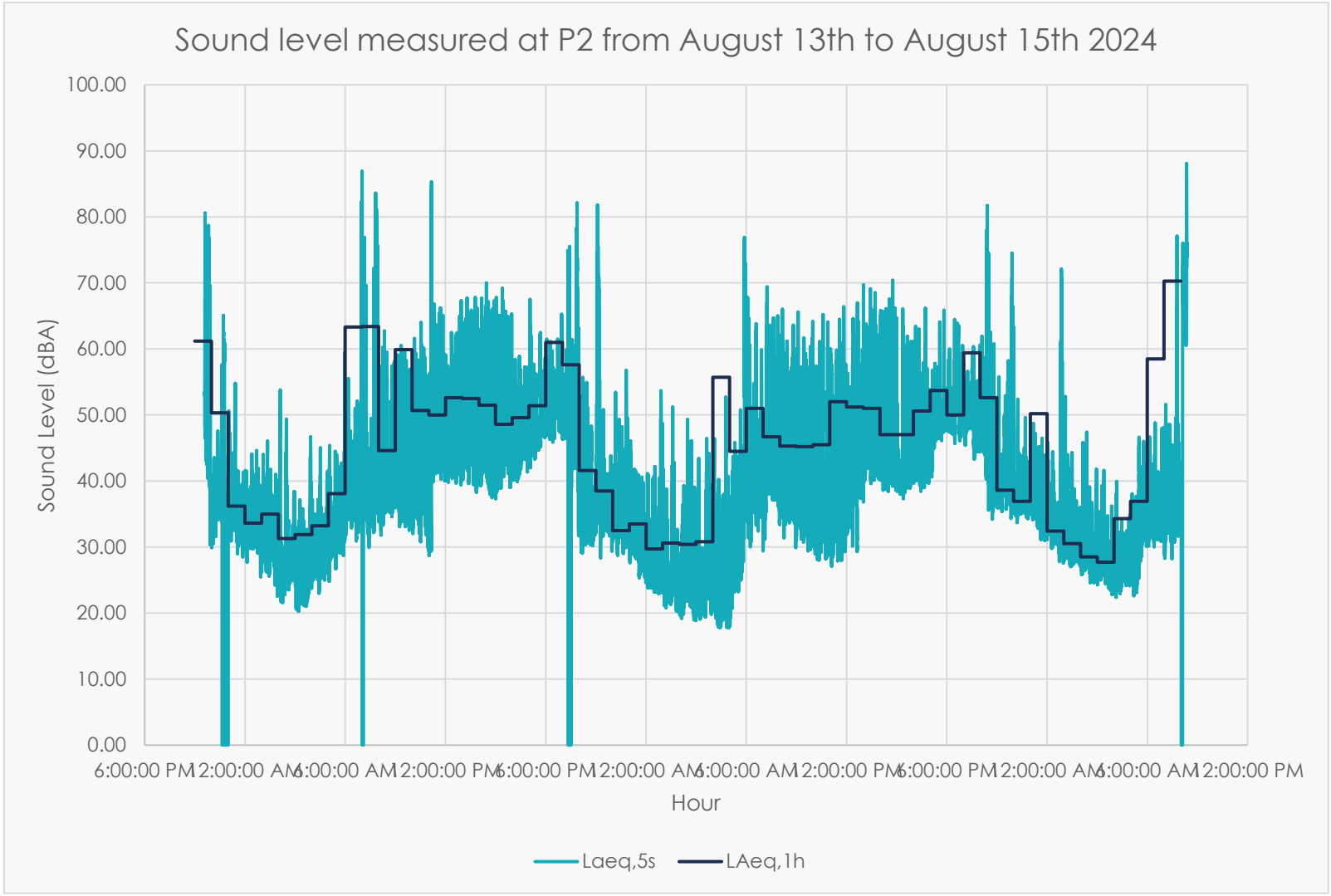
- E = Valeur estimée
- M = Données manquantes
- ND = Non disponible*
- [vide] = Indique une valeur non observée

Date de modification :

2024-06-27

Appendix D: Sound Spectrum


Sound level measured at P1 from August 13th to August 15th 2024
Sound Level (dBA)
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
21:00:00
9:00:00
21:00:00
9:00:00
21:00:00
9:00:00
Heure
Laeq,5s
LAeq,1h


Sound level measured at P2 from August 13th to August 15th 2024
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Sound Level (dBA)
6:00:00 PM
12:00:00 AM
6:00:00 AM
12:00:00 PM
6:00:00 PM
12:00:00 AM
6:00:00 AM
12:00:00 PM
6:00:00 PM
12:00:00 AM
6:00:00 AM
12:00:00 PM
Hour
Laeq,5s
LAeq,1h

Appendix E: Noise Impact Measurement

Measurement sheet			
		Survey	P1
Projet	Neoen Ontario BESS 1 Inc. - 7757017		
Address	GPS 44.448401 ; -81.110430 37 Concession 4 Arran, Arran-Elderslie, ON N0H 2N0		
Sound-Level Meter	Microphone – Class 1 (BBA2483) Sound level meter integrator class I – Larson-Davis	Start Time	2024-08-13 21:36
Calibrator	Reference Sound Source – Larson-Davis CAL200	End Time	2024-08-16 08:19

Measurement sheet							
Results							
Time	LAeq,h	L5%	L10%	L50%	L66%	L90%	L95%
21	61.2	57.6	49.2	41.3	37.0	32.5	31.7
22	50.3	59.9	49.4	38.4	37.0	34.3	33.3
23	36.2	40.0	38.6	34.0	33.0	31.2	30.5
0	33.6	37.4	36.0	32.0	31.2	29.3	28.6
1	35.0	39.0	36.9	31.7	29.8	26.4	24.7
2	31.3	36.6	32.7	28.3	26.8	23.5	22.0
3	31.9	35.4	34.3	29.0	26.8	22.5	21.7
4	33.2	37.1	35.7	30.6	29.6	27.5	25.8
5	38.1	42.1	40.1	34.6	32.3	29.8	29.1
6	63.3	49.6	44.6	38.7	37.3	34.9	34.0
7	63.4	57.1	49.8	38.3	36.7	34.1	33.1
8	44.6	47.1	43.3	39.6	38.5	36.3	35.4
9	44.6	49.2	43.7	36.5	35.4	34.0	33.5
10	59.9	49.6	44.8	38.2	36.3	32.5	31.2
11	50.7	54.6	50.6	44.7	43.4	41.4	40.8
12	50.0	53.4	50.4	45.4	43.8	41.1	40.6
13	52.6	57.9	52.7	46.8	45.1	40.9	39.9
14	52.5	58.0	51.5	44.0	42.4	39.9	38.9
15	51.5	54.9	50.5	45.8	44.2	41.8	40.8
16	48.6	52.1	49.2	45.2	44.4	42.8	41.8
17	49.6	53.9	50.6	47.8	46.6	45.1	44.6
18	51.4	55.3	54.3	49.1	48.0	46.9	46.6
19	61.0	61.1	55.9	46.8	43.2	35.1	31.3
20	57.6	54.2	50.1	34.1	33.0	31.4	30.9
21	41.6	43.5	41.2	35.9	34.7	32.6	31.6
22	38.5	43.0	41.1	35.3	33.6	31.2	30.2
23	32.5	37.8	36.1	30.0	28.1	25.6	25.2
0	33.5	38.3	34.7	25.6	24.4	22.9	21.9
1	29.7	35.2	31.7	22.9	21.9	20.1	19.8
2	30.6	35.5	33.2	23.6	21.5	19.9	19.6

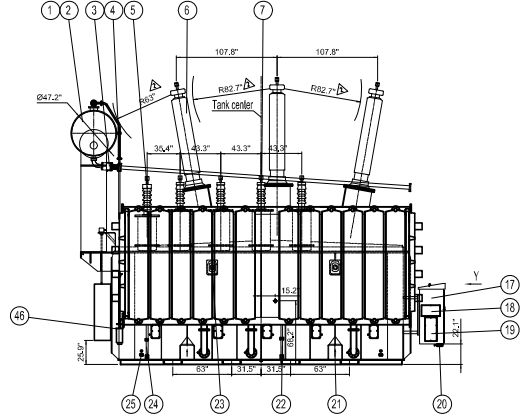
Measurement sheet							
3	30.4	36.2	33.3	23.0	21.5	20.3	19.9
4	30.8	36.0	33.1	21.4	19.7	18.2	18.0
5	55.7	51.7	45.8	35.4	32.3	26.8	25.5
6	44.5	47.2	45.4	40.0	38.3	35.2	33.9
7	51.0	55.5	51.1	43.4	41.7	38.6	37.5
8	46.7	50.8	47.0	38.4	37.0	34.3	33.3
9	45.3	50.8	44.0	34.3	32.7	30.5	29.9
10	45.2	47.0	41.0	32.5	31.2	29.2	28.6
11	45.5	48.7	44.9	35.1	33.3	30.1	29.3
12	52.0	54.8	52.9	43.0	40.6	38.1	36.6
13	51.2	53.1	48.9	44.2	43.1	41.3	40.7
14	51.0	53.6	47.9	42.1	41.2	39.6	39.1
15	47.0	48.0	44.0	41.3	40.7	39.3	38.7
16	47.0	50.7	46.9	41.8	41.1	40.0	39.5
17	50.6	53.3	51.4	49.2	48.7	47.5	46.7
18	53.7	59.8	56.9	49.5	48.6	47.3	46.7
19	50.0	54.9	52.3	47.9	46.3	45.1	44.7
20	59.4	54.9	48.0	41.1	39.6	37.3	36.6
21	52.6	50.0	46.3	39.5	38.5	36.1	35.6
22	38.6	42.3	40.7	36.8	36.1	35.2	34.8
23	36.9	41.8	39.9	34.7	33.5	32.2	31.8
0	50.2	46.0	39.3	32.4	31.5	29.7	29.0
1	32.4	37.4	33.8	28.9	28.1	26.9	26.4
2	30.5	34.5	32.2	27.2	26.5	25.3	24.9
3	28.5	32.9	30.7	25.6	24.7	23.5	23.2
4	27.7	32.0	30.5	25.9	25.3	24.0	23.6
5	34.3	38.7	36.6	32.5	31.2	25.6	24.2
6	36.9	40.9	39.1	35.0	34.0	31.9	31.1
7	58.5	66.8	47.8	37.3	35.8	33.0	32.0
8	70.3	72.4	70.0	65.6	64.5	62.3	61.4

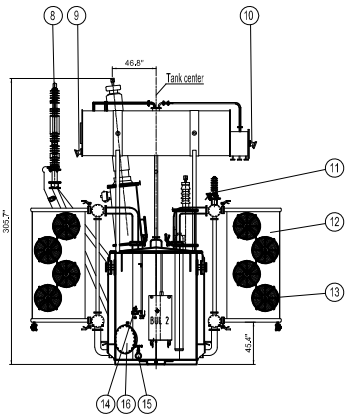
Measurement sheet			
		Survey	P2
Project	Neoen Ontario BESS 1 Inc. - 7757017		
Address	GPS 44.449417; -81.105257 16970 Grey Bruce Line, Tara, ON N0H 2N0		
Sound-Level Meter	Microphone – Class 1 (BBA2867) Sound level meter integrator class I – Larson-Davis	Start Time	2024-08-14 08:10:00
Calibrator	Reference Sound Source – Larson-Davis CAL200	End Time	2024-08-16 08:53:00

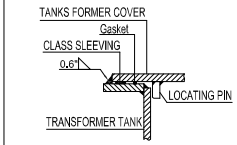
Measurement sheet							
Results							
Time	LAeq,h	L5%	L10%	L33%	L50%	L66%	L90%
8	64.4	71.1	68.4	57.6	51.8	47.8	42.0
9	63.3	70.1	67.9	56.1	50.0	45.8	40.0
10	62.6	68.9	66.9	56.6	49.6	44.8	38.9
11	62.8	69.1	66.8	54.6	48.1	43.0	38.1
12	62.7	68.9	66.7	53.5	46.6	42.6	38.8
13	62.9	69.0	66.6	54.7	48.4	43.8	39.0
14	67.4	69.5	67.0	55.3	48.7	44.2	38.5
15	62.5	68.7	66.6	55.0	48.8	44.2	39.4
16	63.5	69.5	66.9	53.6	48.2	44.2	39.2
17	63.1	69.4	67.3	55.4	50.3	46.9	42.4
18	63.3	69.5	67.1	53.3	49.3	45.7	42.1
19	60.3	68.0	63.9	52.9	48.7	45.1	41.7
20	60.6	68.2	64.0	53.9	49.5	46.5	43.5
21	58.6	66.0	60.6	51.0	48.0	45.4	43.1
22	57.6	63.9	58.2	47.6	44.6	42.7	41.0
23	53.3	55.8	48.8	41.5	39.8	38.7	37.2
0	51.2	52.4	46.6	39.9	38.3	37.1	35.8
1	48.3	43.9	42.7	41.5	40.8	40.2	38.7
2	52.1	48.1	42.9	39.8	38.4	36.8	34.1
3	51.6	48.2	42.4	35.4	34.1	33.0	32.0
4	50.2	50.2	43.8	33.8	32.3	30.7	30.3
5	57.9	64.6	58.9	47.1	40.4	35.8	32.0
6	62.1	69.1	66.1	55.6	51.2	47.8	41.1
7	63.9	70.7	68.4	59.1	54.7	51.4	45.6
8	63.2	70.2	67.8	57.4	52.1	48.1	42.1
9	63.8	70.2	67.9	56.9	50.4	46.3	41.9
10	63.3	69.8	67.7	57.0	50.5	45.1	40.0
11	64.7	70.4	68.2	57.4	50.5	45.6	40.2
12	63.4	69.6	67.3	55.9	50.5	46.3	40.0
13	64.6	70.0	67.7	57.8	51.7	46.5	40.2

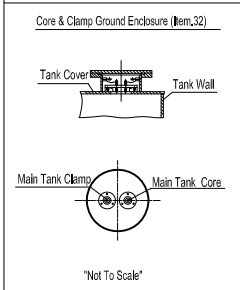
Measurement sheet							
14	64.0	70.2	68.1	57.3	51.3	46.9	41.8
15	63.9	70.1	68.2	57.5	53.3	51.0	46.5
16	63.4	69.8	67.9	57.4	53.6	51.4	47.1
17	62.8	69.9	67.8	55.7	51.3	47.6	42.1
18	63.7	70.8	68.1	55.2	51.3	48.1	43.2
19	61.6	69.2	66.6	54.6	50.8	47.2	43.5
20	62.2	69.6	66.0	53.5	49.3	46.9	43.5
21	60.9	67.9	62.9	52.5	49.5	47.4	45.2
22	58.1	65.4	59.8	49.3	45.8	43.8	41.4
23	56.8	61.1	55.1	45.8	43.0	41.7	40.1
0	53.3	56.3	50.3	42.8	41.5	40.0	37.5
1	50.7	50.6	43.0	38.1	37.6	37.1	35.6
2	51.3	49.4	43.4	38.6	37.9	37.5	36.3
3	52.2	51.3	44.6	39.0	38.7	38.4	35.0
4	52.5	54.0	45.3	37.9	35.4	33.9	32.6
5	57.8	63.6	57.5	43.3	39.1	35.2	32.2
6	61.4	68.8	64.7	54.0	49.4	45.3	37.6
7	63.8	70.1	67.4	58.0	53.8	49.2	40.9
8	70.7	70.4	67.1	56.7	52.5	48.3	41.0
9	38.6	42.3	40.7	36.8	36.1	35.2	34.8

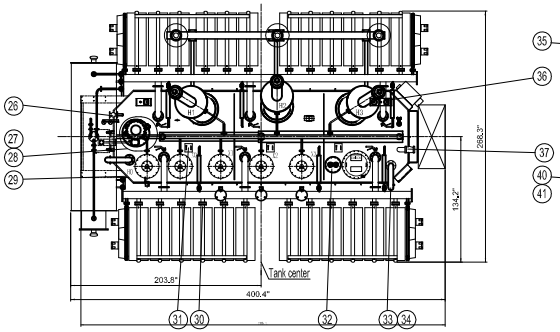
Appendix F: Substation 245 kV and MV Transformers Drawing

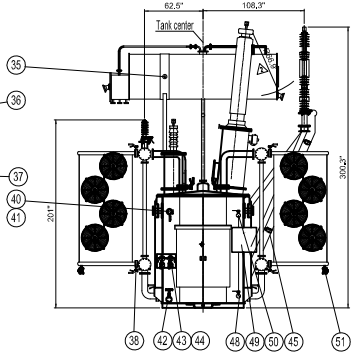


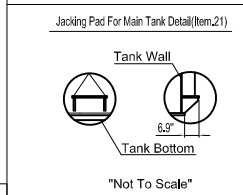


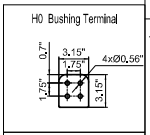


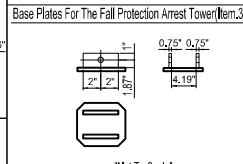


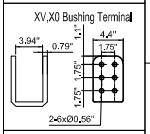


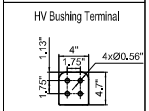


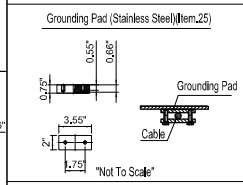


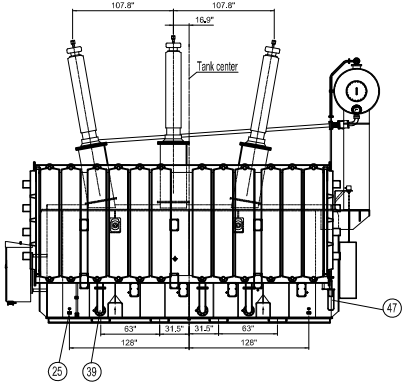








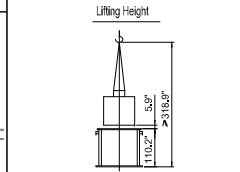


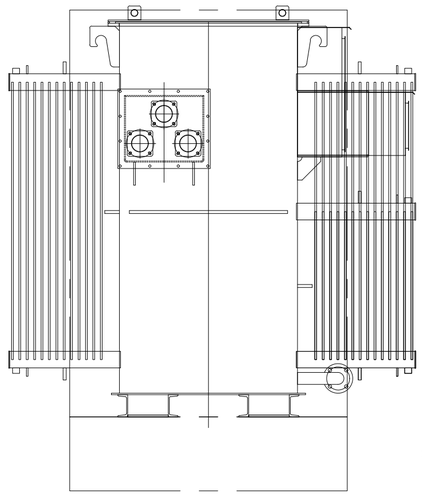


Data Sheet of Weight

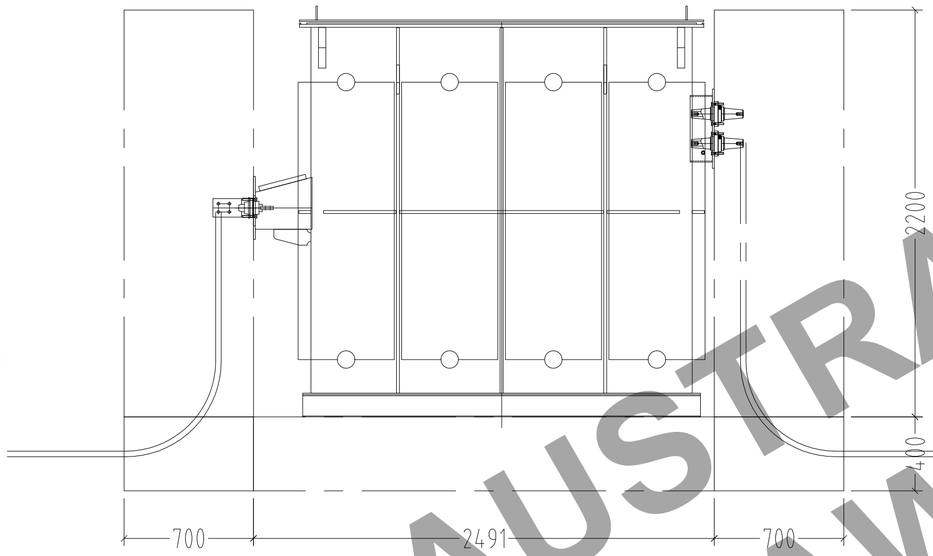
Item	Weight (LBS)
Core & Coil	253080
Tank,fittings	102750
Total Mass	457710
Transportation (Air filled)	307780
Total Oil 12060(US Gallon)	89210
Radiator Oil (1750 US GAL.)	13110
Conservator Oil (560 US GAL.)	4190

Shipping Dimension	Pulling Eyes	Lifting Lug
SIZE	1.42" Ø3.94" R3.94"	Tank Wall 0.2"
L389.8"xW118.3"xH145.7"	7.87" For pulling	Ø7.64" 5.12"
Shipping Center of gravity	"Not To Scale"	"Not To Scale"
Operating Center of gravity		
Jacking Point		

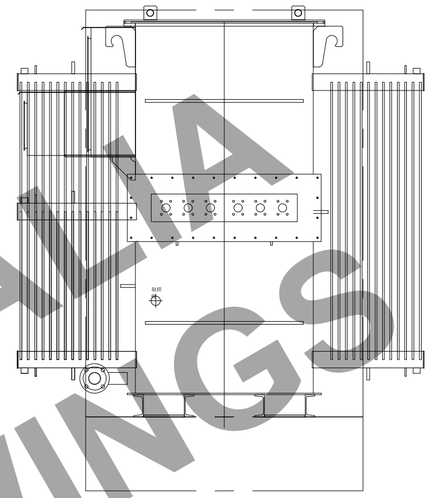




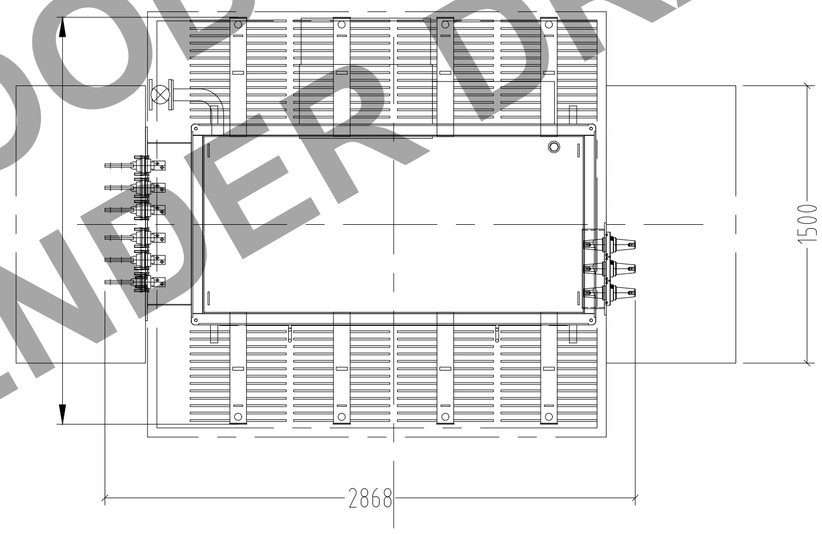
SIDE VIEW



FRONT VIEW



SIDE VIEW



PLAN VIEW

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES.
2. THE DIMENSIONS SHOWN IN THIS DRAWING ARE TENTATIVE AT THIS STAGE. THIS WILL BE RECONFIRMED PRIOR TO THE PROJECT AWARD.

FOR TENDER
NOT FOR CONSTRUCTION

REVISIONS

REV	DRN	DATE	REVISION DETAILS	CHK	APP
A	AP	07/04/25	ISSUED FOR TENDER	TG	TG

REFERENCE DRAWINGS

REFERENCE DRAWING No.	REFERENCE DRAWING TITLE

NEOEN

TGOOD
Energy. Fast!

SCALE 1:16 (WHEN PRINTED AT SIZE)

3rd ANGLE PROJECTION (uno)

	SIGNATURE	DATE
DRAWN	TGOOD	07/04/25
CHECKED	TGOOD	07/04/25
APPROVED	TGOOD	07/04/25
DESIGN ENG	TGOOD	07/04/25

DRAWING No.. P250863-DRG-GAD-002

CLIENT DRAWING No..

RPEQ APPROVAL
NAME: NAME
NUMBER: Eng Aus No.
SIGNATURE:

CLIENT: NEOEN

TITLE: TARA BESS PROJECT
TRANSFORMER KIOSK
34.5/0.48KV 4.8MVA TRANSFORMER KIOSK
GENERAL ARRANGEMENT

PROJECT No.	P250863	SHEET No.	1 OF 1	REVISION	A	A1

Date Printed: 07/04/2025

Appendix G: Tesla Megapack Datasheet

Confidential and subject to a Non-Disclosure Agreement (NDA)

Appendix H: Tesla Temperature Analysis

Confidential and subject to a Non-Disclosure Agreement (NDA)

Appendix I: Tonal Analyses of the BESS at Receptors

Table 31: Third-octave band tonal analysis according to Annex K of ISO 1996-2 with only BESS sources active at 50% load capacity at the receptors with wall

	1/3 octave		OPOR1	OPOR2	OPOR3	OPOR4	OPOR5	OPOR6	OPOR7	OPOR8	OPOR9
Limit level difference between 1/3 band octave (dB)	Hz	LP(dBA)	43.7	43.6	41.9	42.1	39.4	38.5	37.3	36.3	33.3
15	100	(dB)	39.8	38.5	37.3	37.6	33.9	33	32	31.2	28.9
15	125	(dB)	37.5	36.4	35.2	35.4	31.9	31	30	29.1	26.8
8	160	(dB)	32.7	31.8	30.4	30.7	27.3	26.3	25.3	24.5	22.1
8	200	(dB)	29.2	28.7	27.6	27.7	24.6	23.8	22.8	21.9	19.4
8	250	(dB)	40.8	40.3	39.1	39.3	36.3	35.5	34.5	33.6	31
8	315	(dB)	45.7	45.5	44.2	44.3	41.5	40.5	39.5	38.6	35.9
8	400	(dB)	34.4	34.8	32.9	33	31	29.9	29	28.3	25.7
5	500	(dB)	30.8	31.5	29.5	29.6	27.7	26.5	25.6	24.9	22.1
5	630	(dB)	35.4	36.3	34.1	34.2	32.5	31.2	30.3	29.4	26.6
5	800	(dB)	31.6	32.7	30.4	30.5	28.9	27.5	26.6	25.7	22.7
5	1000	(dB)	33.6	34.7	32.3	32.4	30.6	29.3	28.3	27.3	23.9
5	1250	(dB)	30.8	32.1	29.5	29.6	27.7	26.3	25.1	23.9	20.2
5	1600	(dB)	28.5	29.9	27	27.1	25	23.4	22	20.6	16.3
5	2000	(dB)	26.4	27.8	24.6	24.7	21.9	20.2	18.5	16.7	11.4
5	2500	(dB)	24.5	25.8	22.2	22.3	18.5	16.4	14.1	11.7	4.9
5	3150	(dB)	19.5	20.6	16.3	16.6	10.8	8.3	5.1	1.7	-7.5
5	4000	(dB)	12.8	13.3	8.2	8.6	-0.2	-3.5	-8.3	-13.2	-26.1

	1/3 octave		OPOR1	OPOR2	OPOR3	OPOR4	OPOR5	OPOR6	OPOR7	OPOR8	OPOR9
Limit level difference between 1/3 band octave (dB)	**Hz**	**LP(dBA)**	43.7	43.6	41.9	42.1	39.4	38.5	37.3	36.3	33.3
5	5000	(dB)	4.3	3.8	-2.6	-1.9	-15.7	-20.2	-27.3	-34.5	-53.3
5	6300	(dB)	-8.8	-10.7	-19.1	-18	-39.5	-45.9	-56.3	-66.9	-80.1
5	8000	(dB)	-24.5	-28.8	-40.1	-38.4	-70.9	-77.4	-80.1	-80.2	-80.2
5	10000	(dB)	-45.6	-53.6	-68.3	-66	-80.2	-80.2	-80.2	-80.2	-80.2
Tonal band			None	None	None	None	None	None	None	None	None

Table 32: Third-octave band tonal analysis according to Annex K of ISO 1996-2 with only BESS sources active at 50% load capacity with the walls required if the vacant lot is occupied

	1/3 octave		R10	R11	R12
Limit level difference between 1/3 band octave (dB)	Hz	LP(dBA)	49.2	38.5	46.6
15	100	(dB)	43.9	31.7	39.2
15	125	(dB)	41.7	29.7	37.2
8	160	(dB)	37	25	32.6
8	200	(dB)	35.4	24.4	31.6
8	250	(dB)	47	36.1	43.4
8	315	(dB)	51.9	41.3	48.6
8	400	(dB)	41.6	31.3	38.9
5	500	(dB)	38.2	27.9	35.7
5	630	(dB)	42.7	32.6	40.6
5	800	(dB)	36.5	26.3	34.7
5	1000	(dB)	38.2	27.9	36.8
5	1250	(dB)	35.6	24.7	34.3
5	1600	(dB)	32.9	21.1	31.9
5	2000	(dB)	31	17.3	30
5	2500	(dB)	29.6	12.6	28.3
5	3150	(dB)	25.3	3	23.5
5	4000	(dB)	19.9	-11.2	16.9

	1/3 octave		R10	R11	R12
Limit level difference between 1/3 band octave (dB)	**Hz**	**LP(dBA)**	49.2	38.5	46.6
5	5000	(dB)	13.5	-31.7	8.3
5	6300	(dB)	4.3	-63.1	-4.9
5	8000	(dB)	-5.3	-80.2	-21
5	10000	(dB)	-16.9	-80.2	-42.8
Tonal band			None	None	None

Appendix J: Sound Level Contribution of Each Type of Source at the Receiver with and Without Mitigation

Table 33: Sound level contribution of each type of source at the receiver without mitigation (dBA) for daytime

POR ID Receptor number	Predicted Sound Level day (dBA) with BESS 50%	Closest transformer	Closest BESS	Closest MV transformer
OPOR1	53.5	46.8	26.4	29.8
OPOR2	51.4	44.6	23.4	26.3
OPOR3	50.6	43.9	22.3	25.8
OPOR4	50.9	44.2	22.7	25.7
OPOR5	45.5	38.6	16.3	19.5
OPOR6	44.9	40.3	17.6	21.3
OPOR7	43.2	37.1	14.0	18.6
OPOR8	41.5	34.8	12.4	17.2
OPOR9	38.5	31.8	9.2	13.1

Table 34: Sound level contribution of each type of source at the receiver without mitigation (dBA) for evening

POR ID Receptor number	Predicted Sound Level evening (dBA) with BESS 30%	Closest transformer	Closest BESS	Closest MV transformer
OPOR1	50.9	46.2	19.7	29.8
OPOR2	49.0	44.0	16.7	26.3
OPOR3	48.2	43.3	15.7	25.8
OPOR4	48.5	43.6	16.1	25.7
OPOR5	43.3	38.0	9.5	19.5
OPOR6	42.7	38.1	9.1	19.9
OPOR7	41.0	36.5	7.1	18.6
OPOR8	39.3	34.2	5.4	17.2
OPOR9	36.3	31.2	2.2	13.1

Table 35: Sound level contribution of each type of source at the receiver without mitigation (dBA) for nighttime

POR ID Receptor number	Predicted Sound Level nighttime (dBA) with BESS 30%	Closest transformer	Closest BESS	Closest MV transformer
POR1	50.3	45.6	18.8	28.9
POR2	50.0	45.1	17.0	26.8
POR3	47.7	42.8	15.0	24.8
POR4	48.0	43.1	15.4	25.1
POR5	45.1	40.1	10.7	21.0
POR6	44.3	39.7	10.5	21.3
POR7	42.4	37.2	8.7	19.9
POR8	40.8	35.7	6.9	17.5
POR9	35.9	30.8	1.8	12.2

Table 36: Sound level contribution of each type of source at the receiver with mitigation (dBA) for daytime

POR ID Receptor number	Predicted Sound Level daytime (dBA) with BESS 50%	Closest transformer	Closest BESS	Closest MV transformer
OPOR1	44.4	28.8	21.3	20.4
OPOR2	44.7	26.5	23.0	25.5
OPOR3	42.7	26.1	19.4	17.9
OPOR4	42.9	26.4	19.6	17.4
OPOR5	40.4	21.7	16.3	18.4
OPOR6	39.2	22.4	15.7	12.0
OPOR7	38.2	21.7	14.3	13.9
OPOR8	37.4	22.3	12.3	13.2
OPOR9	34.6	18.4	11.1	9.1

Table 37: Sound level contribution of each type of source at the receiver with mitigation (dBA) for the evening

POR ID Receptor number	Predicted Sound Level evening (dBA) with BESS 30%	Closest transformer	Closest BESS	Closest MV transformer
OPOR1	40.0	28.8	14.4	20.4
OPOR2	40.2	26.5	16.4	25.5
OPOR3	38.0	26.1	12.4	17.9
OPOR4	38.2	26.4	12.7	17.4
OPOR5	35.7	21.1	9.6	18.4
OPOR6	34.1	21.8	8.9	12.6
OPOR7	33.3	21.1	7.4	13.9
OPOR8	32.7	21.7	5.4	13.2
OPOR9	30.1	17.8	9.0	2.1

Table 38: Sound level contribution of each type of source at the receiver with mitigation (dBA) for nighttime

POR ID Receptor number	Predicted Sound Level nighttime (dBA) with BESS 30%	Closest transformer	Closest BESS	Closest MV transformer
POR1	39.5	27.7	14.1	19.4
POR2	41.2	26.9	16.7	26.2
POR3	37.6	25.0	12.1	17.4
POR4	37.8	25.3	12.4	17.1
POR5	37.4	25.4	10.9	19.6
POR6	35.7	23.4	10.4	14.3
POR7	35.0	21.7	9.0	15.9
POR8	34.6	24.0	6.9	14.9
POR9	29.8	17.5	1.6	11.1

Table 39: Distance from receiver to closest sources (m)

POR ID Receptor number	T1	T2	T3	Closest BESS	Closest MV transformer
OPOR1/POR1	397/426	413/437	431/457	225/251	234/261
OPOR2/POR2	506/526	497/518	491/511	310/331	322/343
OPOR3/POR3	527/555	537/564	547/574	344/370	355/383
OPOR4/POR4	515/537	525/550	539/562	330/355	342/369
OPOR5/POR5	831/870	826/864	821/858	640/678	653/889
OPOR6/POR6	871/896	891/917	910/937	712/738	721/745
OPOR7/POR7	1002/1033	1028/1057	1052/1082	832/861	838/868
OPOR8/POR8	1131/1181	1160/1208	1186/1235	970/1017	972/1021
OPOR9/POR9	1459/1500	1488/1529	1515/1556	1302/1342	1305/1345

Appendix K: Sound Level Contours Without Mitigation

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 1
Day without Mitigation
Scenario 1 – 1.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

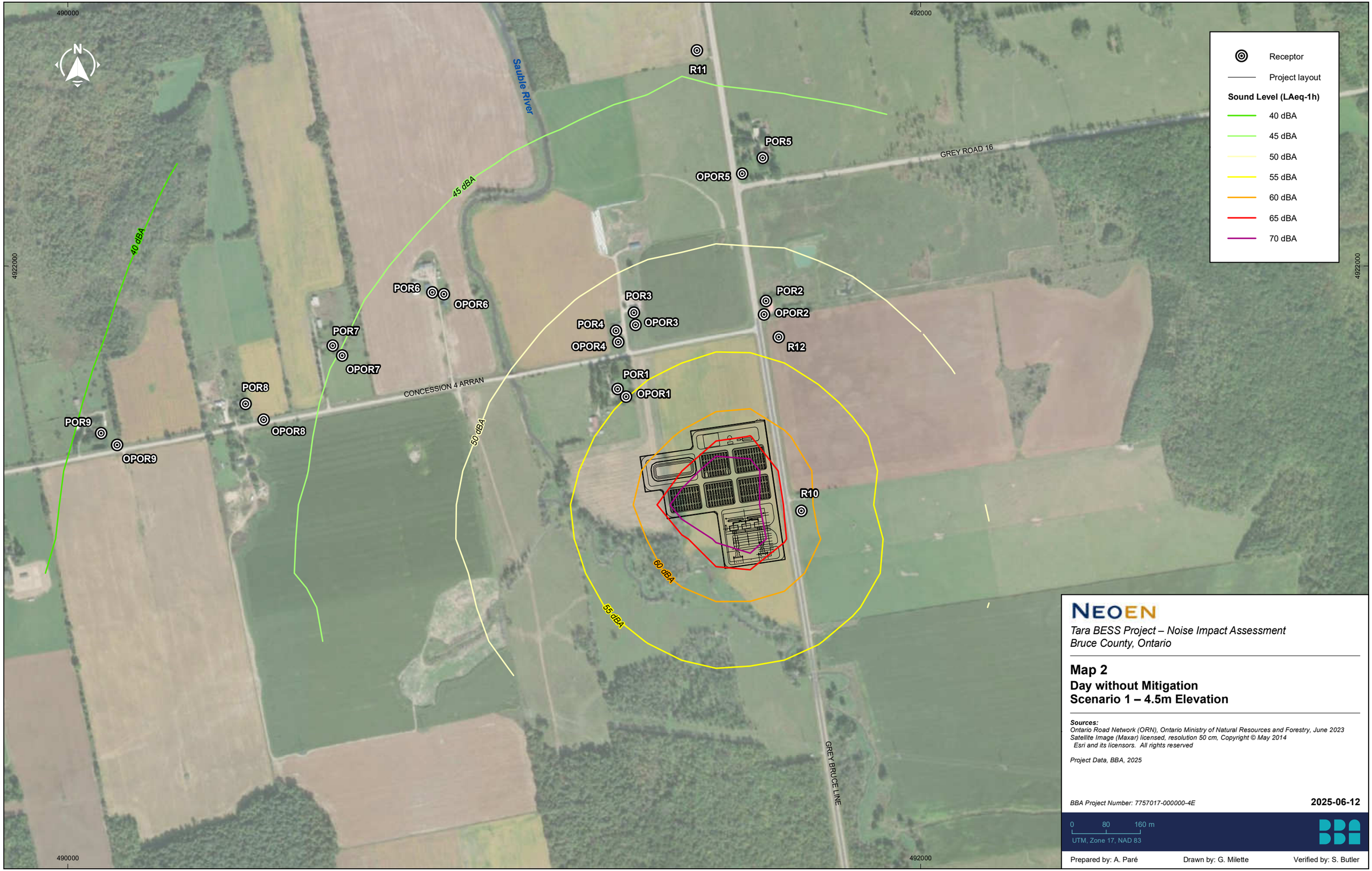
BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_030_0013_R01_Map1.mxd



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 2
Day without Mitigation
Scenario 1 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_030_0014_R01_Map2.mxd

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 3
Day without Mitigation
Scenario 2 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0015_R01_Map3.mxd

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 4
Evening and Night without Mitigation
Scenario 2 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E **2025-06-12**

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0016_R01_Map4.mxd

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 5
Evening and Night without Mitigation
Scenario 1 – 1.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0017_R01_Map5.mxd

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 6
Evening and Night without Mitigation
Scenario 1 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

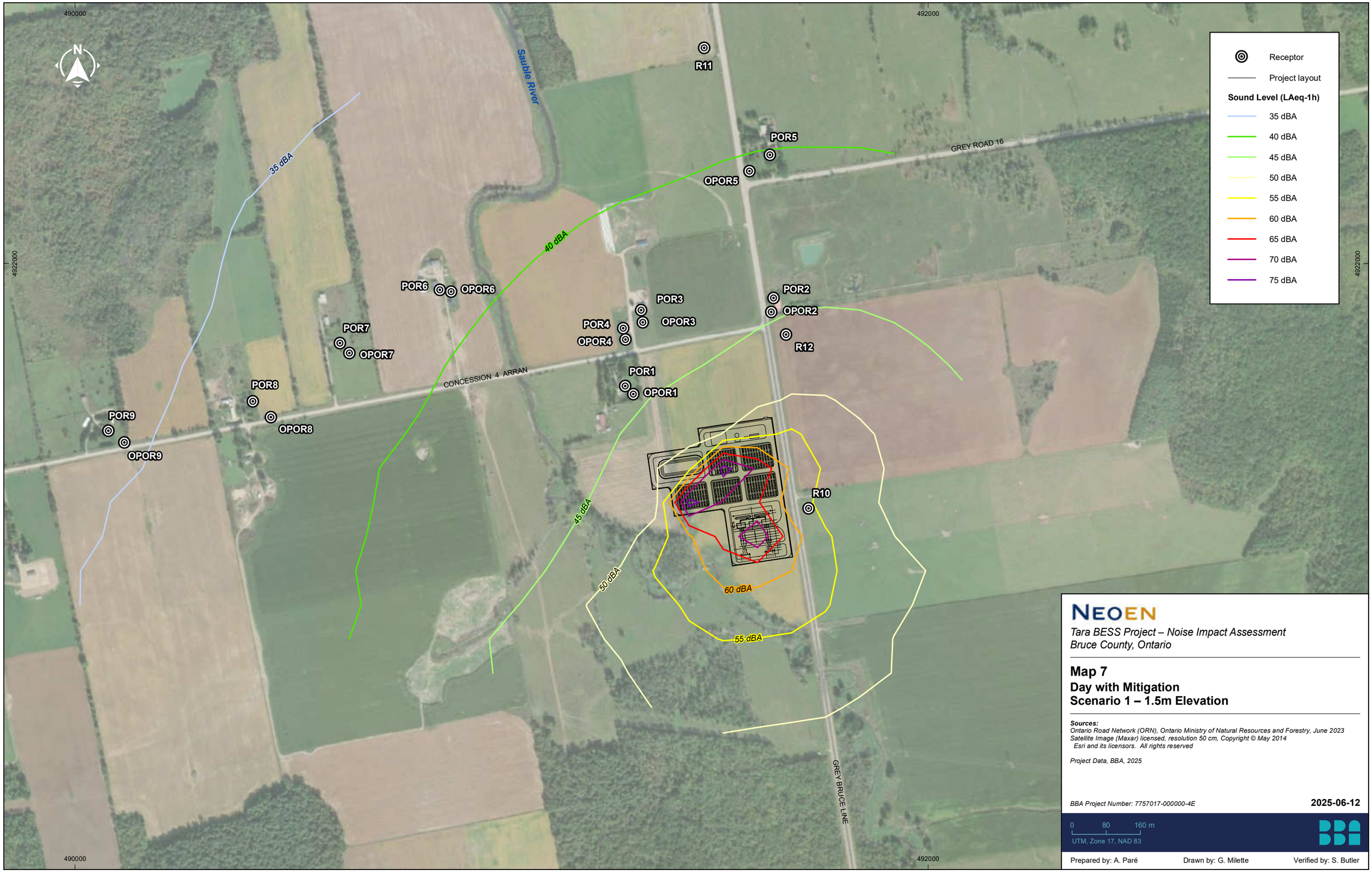
2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0018_R01_Map6.mxd

Appendix L: Sound Level Contours with Mitigation



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 7
Day with Mitigation
Scenario 1 – 1.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

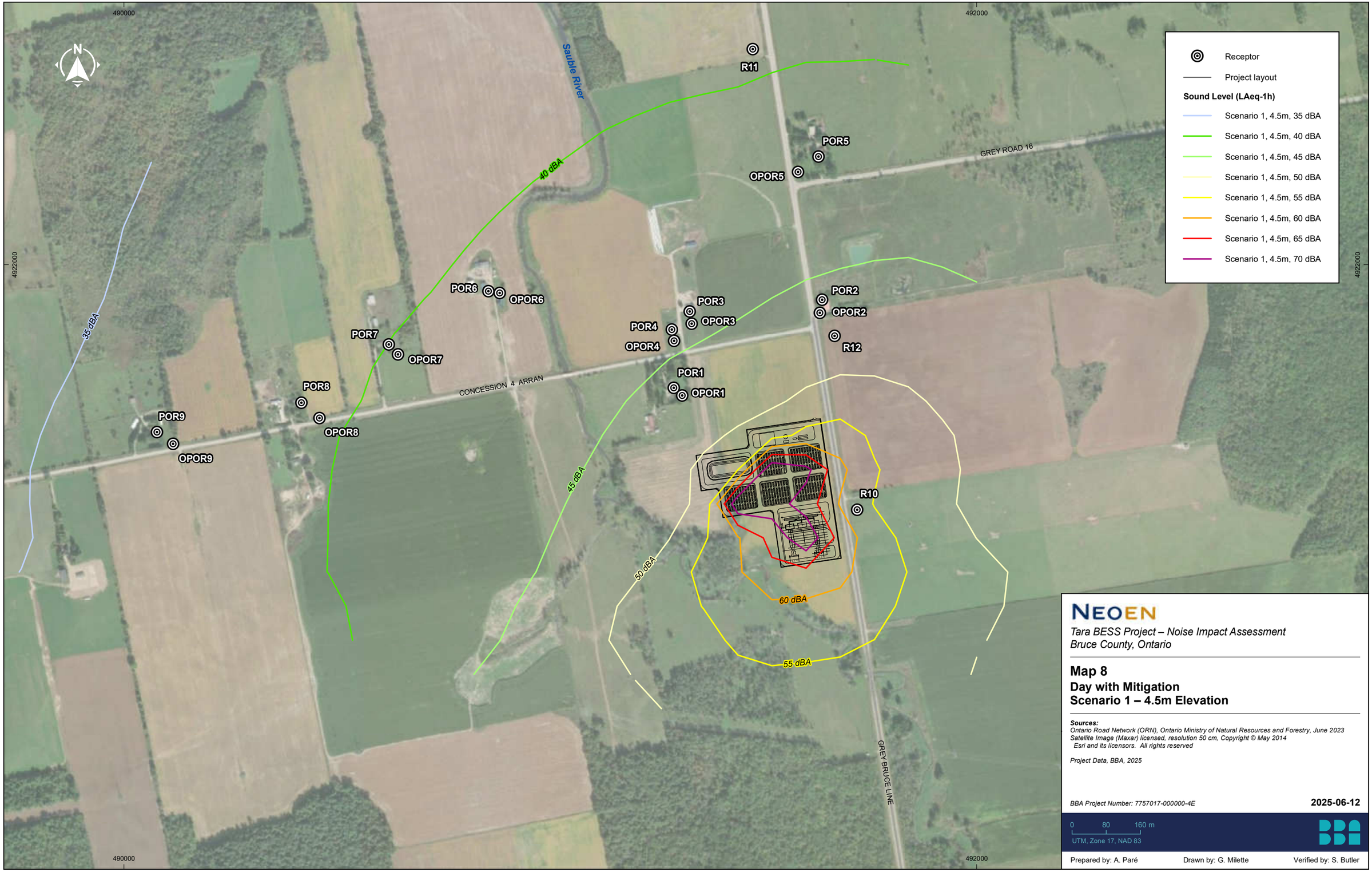
BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0019_R01_Map7.mxd



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 8
Day with Mitigation
Scenario 1 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0020_R01_Map8.mxd

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 9
Evening and Night with Mitigation
Scenario 1 – 1.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0021_R01_Map9.mxd

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 10
Evening and Night with Mitigation
Scenario 1 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

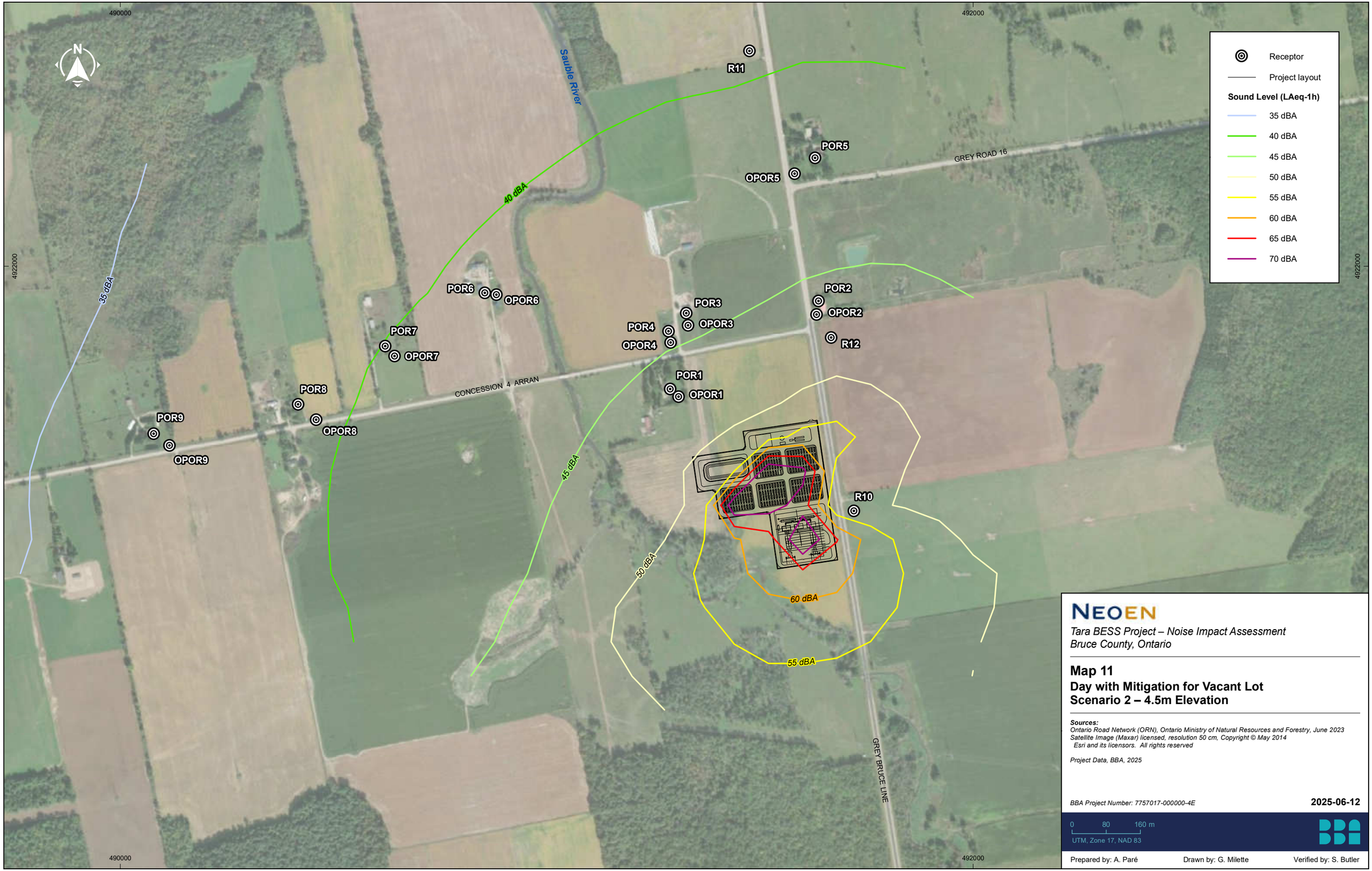
BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0022_R01_Map10.mxd



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 11
Day with Mitigation for Vacant Lot
Scenario 2 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

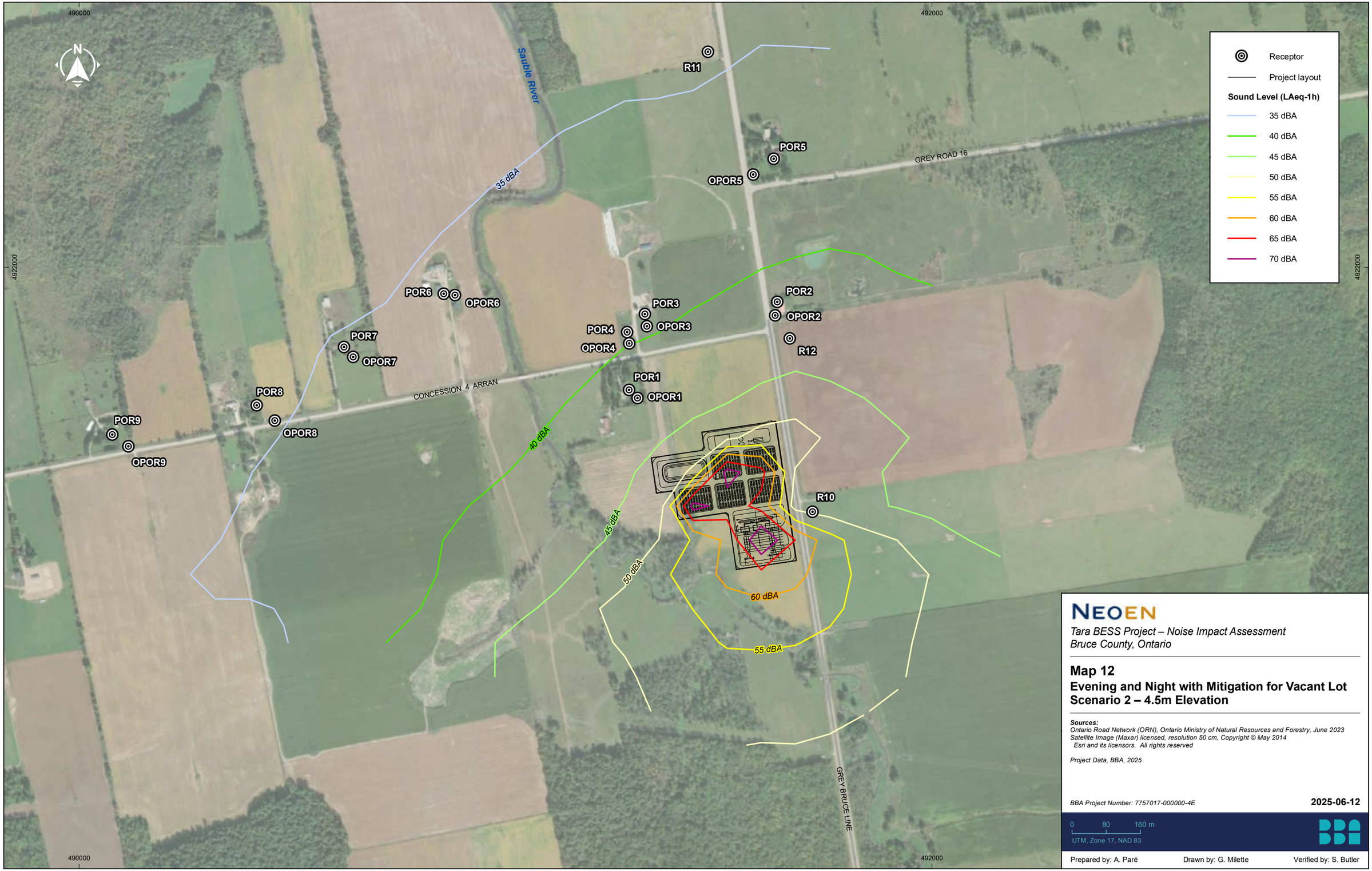
BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0023_R01_Map11.mxd



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 12
Evening and Night with Mitigation for Vacant Lot Scenario 2 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0024_R01_Map12.mxd

Appendix M: Specification of Acoustic Wall Barrier

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SOUND TRANSMISSION TESTING CONDUCTED ON
Sound Barrier Panel 30NAM:NA/2440

Durisol
51 Arthur Street South
Ontario, Canada N0K 1N0

Date: September 2, 2021
Author: Shaun Montgomery
Report Number: ESP036101P-11

Customer PO: 314

This Page Alone is not a complete report

Ear Controlled Data

Sound Transmission Class Testing (ASTM E90)

INTRODUCTION:

This report presents the results of acoustical testing of a painted Durisol Sound Barrier. This testing was requested by Mr. Bruce Walker of Durisol and was conducted on August 27th, 2021

This report must not be reproduced except in full without the approval of Element Materials Technology. The test results contained in this report pertain only to the specific assemblies tested and not necessarily to all similar constructions.

The results stated in this report represent only the specific construction and acoustical conditions present at the time of the test. Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

TEST RESULTS SUMMARY:

Sound Transmission Class (STC) Test - ASTM E-90				Test Results		
Test #	**Sample Identification**	**Weight (lbs)**	**Weight (psf)**	**STC**	**Def.**	**OITC**
11	NB15 - Panel ID: 30NAM:NA/2440	1,120 lbs.	46.7	***38***	***25***	***35***

Tabular and graphical presentations of the data are presented under “TEST RESULTS” below.

SPECIMEN DESCRIPTION: (Also see "Test Results")

The material was described as a Durisol sound barrier and consisted of one (1) panel. The panel was measured at approximately 96” x 36”. The panel Durisol layers consisted of a 51mm base/25mm pattern on the “Mould” side and a 51mm base/ 25mm pattern on the “Lid” side – separated by a 47mm concrete core. The panel was approximately 8” thick. The perimeter of the sample was sealed with a non-hardening duct seal.

TEST PROCEDURE:

Sound Transmission Test

ASTM:E90(09), "Laboratory Measurement of Airborne Sound Transmission of Building Partitions," was followed in every respect. The STC value was obtained by applying the Transmission Loss (TL) values to the STC reference contour of ASTM: E413(16), "Determination of Sound Transmission Class." The actual transmission loss at each frequency was calculated by the following equations:

$$TL = NR + 10 \log S - 10 \log A_{2s}$$

where: TL = Transmission Loss (dB)
NR = Noise Reduction (dB)
S = Surface area common to both sides (sq. ft.)
A_2 = Sound absorption of the receiving room with the sample in place (sabins)

OITC Procedure

ASTM:E1332(16), "Determination of Outdoor-Indoor Transmission Class", was followed in every respect. Basically, the OITC was calculated by using the sound transmission loss values in the 80 to 4000 Hz range as measured in accordance with ASTM E-90(09). These transmission loss data are then used to determine the A-weighted sound level reduction of the specimen for the reference source spectrum specified in Table 1 of ASTM E1332(16). The appropriate calculations were made to determine the OITC value. TL measurements were obtained in a single direction, from Source Room to the Receiving room. The source room has a volume of 2948-ft^3 (83-m^3) and the receiving room has a volume of 5825-ft^3 (165-m^3).

TEST EQUIPMENT:

Item Description	ID #	Manufacturer/Model	Serial #	Calibration Due	Location
1/2" Pressure Condenser Microphone	PT-162-108	GRAS/46AD	167994	6/18/2022	Reverberation Chamber
1/2" Pressure Condenser Microphone	PT-162-216	BSWA/MP253	450005	11/31/2021	Source Chamber
Microphone Calibrator	PT-162-076	Norsonic/1251	29144	6/18/2022	N/A
Data Acquisition Module	PT-162-086	National Instruments/NI9234	154D0E4-1548E92	6/7/2022	Control Center
Temp and Humidity Transmitter	PT-162-077	Dwyer Instruments/Series RH	M90714-E4SV-Y	6/3/2022	Reverberation Chamber
Temp and Humidity Transmitter	PT-162-079	Dwyer Instruments/Series RH	M93237-E09W-A	6/3/2022	Source Chamber

Test Data:

SOUND TRANSMISSION LOSS
ASTM E90

General Information

Project No.:	ESP036101P-11
Customer:	Durisol
Test Date:	08-27-2021
Specimen ID:	30 NAM NA 2440
Specimen Description:	Concrete Barrier 96.00" W x 36.00" H - 24.00 ft²
Specimen (depth-weight):	7.5" - lbs
Operator:	MJC

Data Table

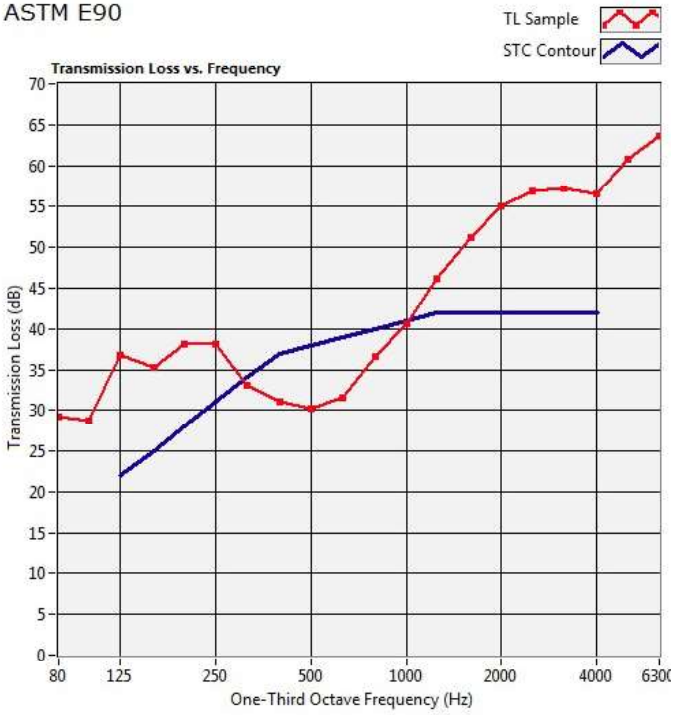
	TL (dB)	deficiencies	95% CI
80	29	-	1.56
100	29	-	1.45
125	37	0	1.60
160	35	0	1.43
200	38	0	0.90
250	38	0	0.82
315	33	1	0.57
400	31	6	0.57
500	30	8	0.49
630	32	7	0.35
800	37	3	0.29
1000	41	0	0.33
1250	46	0	0.29
1600	51	0	0.33
2000	55	0	0.26
2500	57	0	0.23
3150	57	0	0.37
4000	56	0	0.30
5000	61 #	-	0.46

background < 5.0 below receive room
* 95% Confidence Interval exceeded

Source Room
Temperature 22.5 °C
R.H. 55 %

Receive Room
Temperature 22.6 °C
R.H. 53 %

ATM
980 hPa



STC Rating	deficiencies	OITC
38	25	35

Ear Controlled Data

Photo:

Shaun Montgomery
Senior Fenestration Technician
Fenestration Department
651-659-7260

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SOUND ABSORPTION TESTING CONDUCTED ON Sound Barriers

Durisol
51 Arthur Street South
Ontario, Canada N0K1N0

Date: September 2, 2021
Author: Shaun Montgomery
Report Number: ESP036101P-6

Customer PO: 314

ACCREDITED
TESTING CERT #98.03

This Page Alone is not a complete report

Ear Controlled Data

Noise Reduction Coefficient (ASTM C423-17)

INTRODUCTION:

This report presents the results of acoustical testing of painted Durisol Sound Barriers. This testing was requested by Mr. Bruce Walker of Durisol and was conducted on August 5th, 2021.

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The results stated in this report represent only the specific construction and acoustical conditions present at the time of the test. Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

TEST RESULTS SUMMARY:

Noise Reduction Coefficient (NRC) Test				Test Results		
Test #	**Sample Identification**	**Weight (lbs)**	**Weight (psf)**	**NRC**	**SAA**	**--**
6	NB15 - Panel ID: 30NAM:NA/2440 – (Mould)	3,360 lbs.	46.2	***0.90***	***0.89***	--

Tabular and graphical presentations of the data are presented under "TEST RESULTS" below.

SPECIMEN DESCRIPTION: (Also see "Test Results")

The material was described as a Durisol sound barrier and consisted of three (3) panels positioned in a 96" x 109" orientation. The samples were tested in a "Type A" mounting method laid directly on the chamber floor with the "Mould" side facing the chamber ceiling. Each panel measured 96" x 36". The panel Durisol layers consisted of a 51mm base/ 25mm pattern on the "Mould" side and a 51mm base/ 25mm pattern on the "Lid" side – separated by a 47mm concrete core. The panels averaged 8" thick.

TEST PROCEDURE AND EQUIPMENT:

Sound Absorption Test

ASTM C 423-17, "Sound Absorption and Sound Absorption Coefficient by the Reverberation Room Method", was followed in every respect. The samples were laid on the chamber floor in a Type A mounting method in accordance with ASTM E795-16.

NRC was calculated by rounding the sound absorption coefficients for 250, 500, 1000 and 2000 Hz to the nearest 0.05. SAA was calculated by rounding the sound absorption coefficients for the twelve frequencies from 200 Hz to 2500 Hz to the nearest 0.01.

TEST EQUIPMENT:

Item Description	ID #	Manufacturer/Model	Serial #	Calibration Due	Location
1/2" Pressure Condenser Microphone	PT-162-108	GRAS/46AD	167994	6/18/2022	Reverberation Chamber
Microphone Calibrator	PT-162-076	Norsonic/1251	29144	6/18/2022	N/A
Data Acquisition Module	PT-162-086	National Instruments/NI9234	154D0E4-1548E92	6/7/2022	Control Center
Temp and Humidity Transmitter	PT-162-077	Dwyer Instruments/Series RH	M90714-E4SV-Y	6/3/2022	Reverberation Chamber

Test Data:

SOUND ABSORPTION
ASTM C423

General Information

Project No:	ESP036101P-6
Customer:	Durisol
Test Date:	08-05-2021
Specimen ID:	30NAM-NA-2440
Specimen Description:	Sound Barriers 96" x 109"
Specimen Dimensions - Area:	96.00" W x 109.00" H - 72.67 ft²
Operator:	SJM

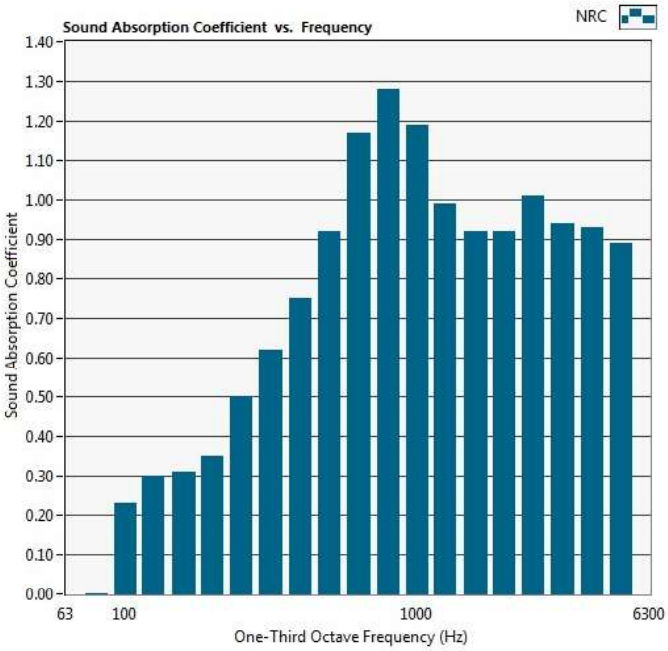
Data Table

	absorption empty (m²)	absorption * sample (m²)	Absorption Coefficient
80	4.60	-0.02	-0.00
100	6.15	1.58	0.23
125	3.50	2.03	0.30
160	3.64	2.10	0.31
200	4.08	2.35	0.35
250	4.12	3.37	0.50
315	3.91	4.17	0.62
400	4.00	5.08	0.75
500	4.43	6.18	0.92
630	4.62	7.90	1.17
800	5.04	8.65	1.28
1000	5.38	8.03	1.19
1250	5.76	6.71	0.99
1600	6.54	6.22	0.92
2000	7.51	6.18	0.92
2500	8.03	6.81	1.01
3150	9.27	6.36	0.94
4000	11.01	6.26	0.93
5000	13.02	5.99	0.89

* based on an extended plane area of 72.67 ft²

Room Conditions

Temperature	21.8	°C
R.H.	52	%
ATM	982	hPa



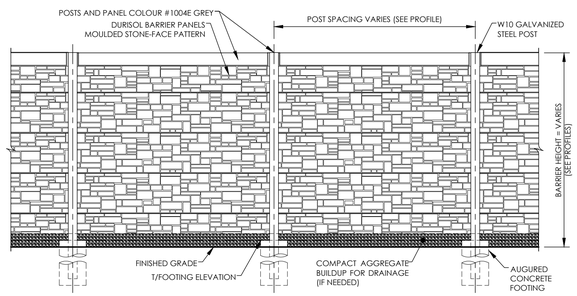
NRC	SAA
0.90	0.89

Ear Controlled Data

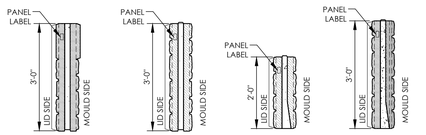
Photo:

Shaun Montgomery
Senior Fenestration Technician
Fenestration Department
651-659-7260

FORMATTED FOR PRINTING ON ARCH D (24"X36") SHEET SIZE

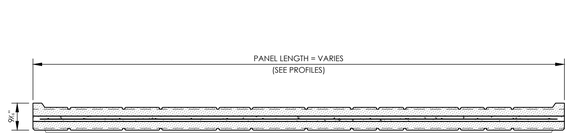


TYPICAL BARRIER ELEVATION
SCALE: 3/16" = 1'-0"



(T2)30NT:NT (T2)30NM:N (T2)20NB:N (T2)30NB:N

PANEL SECTION
SCALE: 1/2" = 1'-0"



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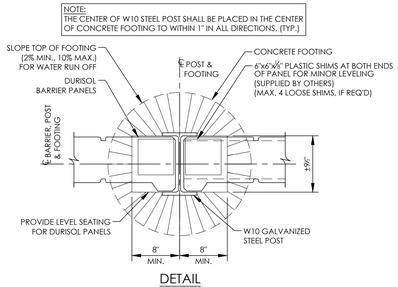

DETAIL
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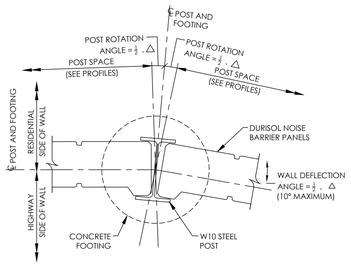

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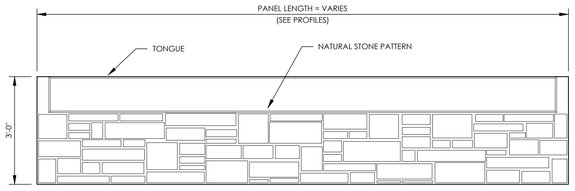

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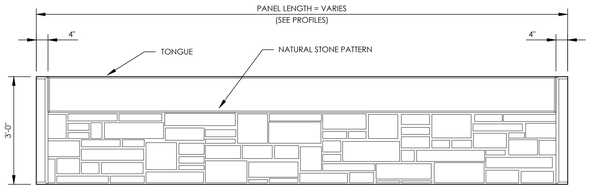

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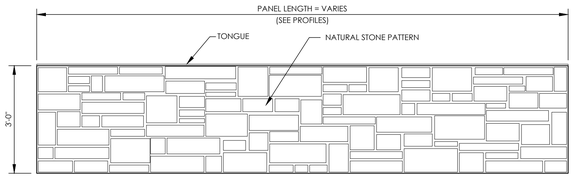

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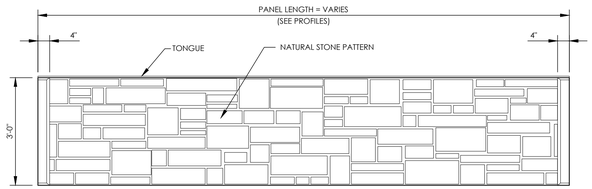

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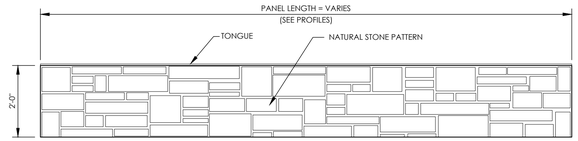

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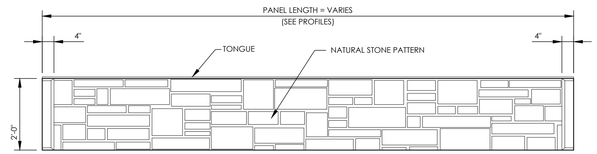

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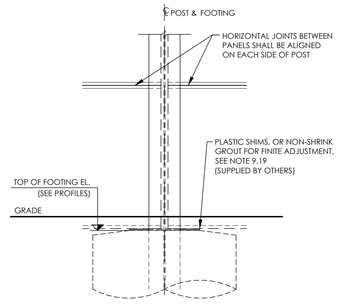

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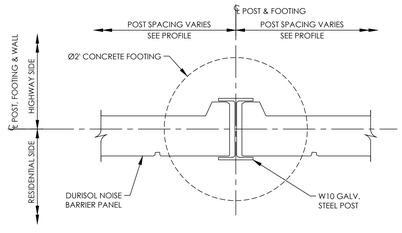

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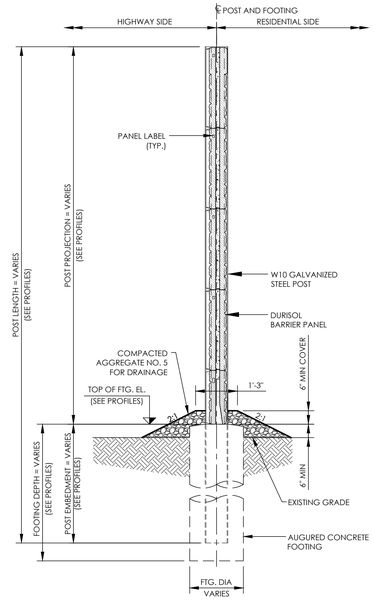

TYPICAL SECTION
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CANADIAN OFFICE
70 Frid Street, Suite 1
Hamilton, Ontario, CANADA L8P 4M4
Phone: 905-521-0999 * Fax: 905-521-8658

PROJECT TITLE:

LOCATION:

DRAWING TITLE:

GENERAL DETAILS

FEDERAL PROJECT No:

STATE PROJECT No:

SCALE: NOTED	ACAD FILE:
DRAWN BY:	
CHECKED BY: AJK	
DATE: APRIL 29, 2019	SHEET No:
DATE of PRINT: JUNE 10, 2019	OF

From:	Brittany Morrison
To:	Janet Galant; manager.energy@saugeenojibwaynation.ca; environmentoffice@saugeenojibwaynation.ca;
Cc:	Mario De Aguero
Subject:	Tara BESS Noise Impact Assessment Report
Attachments:	103 Noise Impact Assessment - Tara BESS - 06.16.25.pdf
Sent:	2025-06-16 1:17:00 PM

Hello Saugeen Ojibway Nation,

Attached please find a copy of the Noise Impact Assessment for the Tara BESS project. Neoen is happy to provide capacity funding for reviewing the report. The report will be included as part of Neoen's Class Environmental Assessment.

Thank you,

Brittany Morrison
Communication, Engagement & Stakeholder Relations Manager

NEOEN

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Appendix C: Noise Impact Assessment

Neoen Ontario BESS 1 Inc.

Tara BESS Project

Lot 39, Concession 4, Arran Township, Ontario

Technical Report

Noise Impact Assessment

BBA Document No.-Rev.: 7757017-000000-4E-ERA-0003-R03

June 12, 2025

FINAL

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BBA Document No.-Rev.: 7757017-000000-4E-ERA-0003-R03

REVISION HISTORY

Revision	Document Status – Revision Description	Date
R00	Final	2025-03-04
R01	Final	2025-03-21
R02	Final – Update to Appendices G and H	2025-04-02
R03	Final - Update to Appendices and addition of L and M	2025-06-12

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APPENDICES

1. Introduction

Neoen Ontario BESS 1 Inc. (Neoen), an Independent Power Producer, proposes to build and operate a new 400 MW Battery Energy Storage System (BESS) project, the Tara BESS Project (the Project), which will provide electricity storage services to the Ontario grid. The Project will occupy approximately 24.91 hectares and have an approximately 490 m 230 kV overhead transmission line connecting to the provincial grid. The Project is in the Municipality of Arran-Elderslie, Ontario on private land currently used for agriculture.

2. Project description

The proposed location of the Project is within lands herein referred to as the Development Land, which is an irregular shaped area to the southwest of the intersection of Concession 4 Arran and the Grey-Bruce Line. The Development Land totalling approximately 67.60 hectares includes four assessment parcels (410349000307100, 410349000307200, 410349000104201, and a portion of 410349000305200) at municipal address 39 Concession 4 Arran, in the Municipality of Arran-Elderslie. It is a rural farmstead with a mixture of cultivated fields, pastureland, and woodlot, bisected by the Sauble River. There is a Hydro One transmission line (B27S/B28S) traversing the southern boundary of the Development Land. The BESS facility will connect to this 230 kV line, which extends from Bruce Power Centre to Owen Sound. This is a key transmission line that has a high voltage carrying capacity and connects to other lines across Ontario. As a result, this transmission line is ideally suited for a BESS project. It is the intent that Neoen will occupy approximately 24.91 hectares of the east portion of the Development Land to accommodate the facility. The BESS will have two accesses: one off Concession 4 Road and a second, which will enter from the Grey Bruce Line on the east side of the Development Land, north of Sauble River. The balance of the Development Land will remain in agricultural use. The footprint of the BESS avoids wetlands and woodlands.

The proposed Project includes installation and operation of a 400 MW BESS facility, a substation (with two transformers in-service and a third transformer for redundancy), and an overhead 230 kV transmission line on private land in the Municipality of Arran-Elderslie. A gravel access road will be constructed off Concession 4 Arran to allow access to the BESS facility. Site grading will occur across the BESS facility site, stormwater system, and gravel access roads from both Concession Road and Grey Bruce Line. No ground disturbance, aside from structure foundations, is planned for the overhead transmission line. A system of roadside and pad ditches, along with a stormwater pond at the northwestern section of the BESS/substation area, will be installed to manage on-site runoff. A floodplain compensation area (14.19 hectares) will be constructed to maintain flood storage volume and floodplain function in the Development Land.

The transmission line will consist of double-circuit steel-monopole structures as well as associated switching structures and gantries on Hydro One's ROW. The transmission line crosses the Sauble River; however, no in-stream works are planned, and no riparian habitat is expected to be disturbed as the transmission line will span wetlands and riparian habitats, while transmission structures will be sited away from the wetlands and riparian habitat.

The area surrounding the proposed Project is at the intersection of Concession Road 4 and Grey Bruce Line, generally being agricultural lands interspersed with remnant woodland and rural residences. The Sauble River is approximately 30 m to the southwest at its closest point to the BESS/substation area, with the proposed Project being situated within the 100-year floodplain and the ground being approximately 240 metres above sea level (masl) across the BESS site, dropping to approximately 237 masl at the river. There are nine dwellings within 1.5 km of the proposed Project. There is no recreational use of the land or waters in the area, and it is unknown if any hunting, gathering, or fishing occurs in the area.

3. Objective

The objective of this Noise Impact Assessment is to evaluate potential noise from the Project on receptors to ensure sound levels at the receptors are below the established guidelines.

Noise Impact Assessment for a BESS in Ontario should refer to the noise pollution control guidelines (NPC) established by the Ontario Ministry of Environment, Conservation and Parks (MECP). These guidelines, specifically the ***Environmental Noise Guideline - Stationary and Transportation Sources - Approval and Planning (NPC-3001)*** (hereafter referred to as NPC-300), outline the sound limits, and the assessment processes required for stationary sources like BESS facilities.

The assessments consider all surrounding noise-sensitive residents and factors such as background sound levels and predicted sound levels at sensitive receptors in the area.

Background sound levels are typically caused by road traffic. Sound from existing adjacent stationary sources may be included in determining the background one-hour equivalent sound level (Leq), if such stationary sources of sound have the appropriate approvals and are not under consideration for noise abatement by the municipality or the MECP.

[1] https://www.ontario.ca/page/environmental-noise-guideline-stationary-and-transportation-sources-approval-and-planning

3.1. Scope of the study

The study area includes nine receptors within a 1.5 km radius around the centre of the Project's footprint. The Site Plan identifying all significant noise sources is in Appendix A and the zoning map in Appendix B.

3.2. Receptors

In accordance with NPC-300, Project noise impacts are evaluated at Points of Reception (PORs) located on noise-sensitive land uses. The following noise sensitive land uses are considered as per the NPC-300 guideline:

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

Nine representative POR are considered for this assessment. For the existing dwellings, both plane of windows and outdoor PORs are considered. Per NPC-300, the PORs located at the exterior plane of windows at the highest floor of the receptor were considered. Per NPC-300, the receptor heights are defined as 1.5 m for the first floor, and an additional 3 m for each subsequent floor. For the Outdoor Point of Reception (OPOR), the receptor was modelled at a height of 1.5 m above ground level, within 30 m of the façade of the dwelling and within the property line of the receptor, in the direction of the Project. The PORs considered in this assessment are listed in Table 2 and are shown in relation to the Project layout in Figure 1. All POR within 1 km of the Project fence line have been assessed.

Figure 1: Points of reception for the study area

As long as the Project's sound level limits are met at all identified PORs, it is anticipated that these limits will also be met at all noise-sensitive receptors located farther from the Project.

Table 1: Points of reception summary

Receptor number	Address	UTM		Receptor height (m)
POR1/OPOR1	37 Concession 4 Arran, Arran-Elderslie	491289.93;4921712.00	491309.51;4921693.86	1.5/1.5
POR2/OPOR2	16970 Grey Bruce Line, Tara	491638.99;4921907.22	491290.77;4921821.61	1.5/1.5
POR3/OPOR3	32 Concession 4 Arran, Arran-Elderslie	491327.53;4921890.05	491331.65;4921861.89	1.5/1.5
POR4/OPOR4	32 Concession 4 Arran, Arran-Elderslie	491285.61;4921847.73	491632.76;4921886.89	1.5/1.5
POR5/OPOR5	17001 Grey Bruce Line, Tara	491629.25;4922253.89	491581.4; 4922217.05	4.5/1.5
POR6/OPOR6	74 Concession 4 Arran, Arran-Elderslie	490855.27;4921937.86	490882.13;4921933.83	4.5/1.5
POR7/OPOR7	104 Concession 4 Arran, Arran-Elderslie	490621.48;4921813.20	490643.34;4921789.83	4.5/1.5
POR8/OPOR8	126 Concession 4 Arran, Arran-Elderslie	490416.82;4921676.59	490459.2; 4921640.27	4.5/1.5
POR9/OPOR9	162 Concession 4 Arran, Arran-Elderslie	490078.22;4921608.09	490115.71;4921580.08	1.5/1.5

Based on a review of the surrounding area zoning and lots, three vacant lots close to the Project were identified. As required by the regulation, noise impact was assessed on the following lots: R10, R11 and R12 (Figure 1, Table 2).

Table 2: Points of reception at vacant lots

Receptor number	UTM	Receptor height (m)
R10	491720.40;4921426.34	4.5
R11	491475.28;4922505.11	4.5
R12	491667.11;4921832.97	4.5

4. Guidelines assessment process

To calculate the sound levels at the receptors, the international standard ISO 9613-2:2024, "Acoustics – Attenuation of sound during propagation outdoors" was used following the NPC-300 environmental noise guidelines.

The NPC-300 guideline sets sound level limits to both outdoor and window-plane receptors. Sound levels are determined as Leq at receptors. The applicable sound level limit is defined as the higher of either the background sound level or the MECP sound level limit.

Background sound levels are established as the lowest hourly sound levels recorded over a monitoring period of at least 48 hours.

According to MECP guidelines, the Project lies in a Class 3 Area, which is defined as a rural area with an acoustical environment that is dominated by natural sounds having little or no road traffic, such as:

- A small community;
- Agricultural area;
- A rural recreational area such as a cottage or a resort area;
- A wilderness area.

Therefore, sound limits for Class 3 Area receptors are applied in this assessment (Table 3, Table 4). For reference, the NPC-300 guideline stipulates:

> *The sound level limit at a point of reception, expressed in terms of the Leq is the higher of the applicable exclusion limit value given in Table 2 or Table 3, or the background sound level for that point of reception.*
>
> *The outdoor sound level limits for stationary sources apply only to daytime and evening (07:00 - 23:00). Sound level limits apply during the nighttime period (23:00 - 07:00) for the plane of the window of a noise-sensitive space. In general, the outdoor points of reception will be protected during nighttime due to meeting the sound level limits at the adjacent plane of window of noise-sensitive spaces.*
>
> *Note that for Class 1, 2, and 3 areas, the plane of window limits apply to a window that is assumed to be open. For Class 4 areas, the plane of window limits applies to a window which is assumed to be closed. This distinction does not affect the prediction of plane of window sound levels.*

Table 3: Exclusion limit values of one-hour equivalent sound level (L_{eq}, dBA) for outdoor points of reception

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 - 19:00	50	50	45	55
19:00 - 23:00	50	45	40	55

Outdoor receptors are not assessed for the nighttime period in the guide.

Table 4: Exclusion limit values of one-hour equivalent sound level (L_{eq}, dBA) plane of window for noise-sensitive spaces

Time of day	Class 1 area	Class 2 area	Class 3 area	Class 4 area
07:00 - 19:00	50	50	45	55
19:00 - 23:00	50	45	40	55
23:00-07:00	45	45	40	55

5. On site sound measurement

The background sound level is defined as the lowest hourly sound level established by on site sound measurement over a 48-hour period.

Sound recordings at the site were made by BBA from August 13 to August 15, 2024. As shown on Figure 1, measurement point P1 corresponds to the sound measurement location taken at the closest residence to the future Project. Measurement point P2 was located at the intersection of the main road (Figure 1).

5.1. Measurement equipment

The measurement equipment used for the sound recordings are as follows:

- Class I integrating sound level meters certified by an independent laboratory: Larson-Davis 831 and Larson-Davis LXT;
- Class I calibrator certified by an independent laboratory;
- Audio recorder.

The equipment was installed 1.5 m above the ground and calibrated before and after the measurements. For each recording, a deviation of less than 0.5 dB was observed, confirming the measurements are reliable.

5.2. Weather conditions

The sound recordings were taken during adequate weather conditions to most accurately represent background sound levels. Weather conditions during measurement were as follows:

- Relative humidity below 90%;
- Outdoor temperature between -10 and 50°C (required tolerance for measurement equipment);
- Winds below 20 km/h;
- No precipitation and dry road conditions.

During measurements, temperature, humidity, and wind conditions were conducive to good sound propagation, and there was no precipitation. The temperature and humidity were within the instrument's operational limits. Details of the weather conditions during the measurement period are presented in Appendix C.

5.3. Coordinates of the long-term measurement point

The measurement points P1 and P2 were chosen because they are at the same distance from the road as residences R1 and R2 to measure the influence of road noise on these residences. Their coordinates are presented in Table 5.

Table 5: Geographic coordinates and measurement periods for measurement points

Measurement point	Equivalent address	Localization UTM		Measurement period
P1	37 Concession 4 Arran	491587.36	4921808.3	August 13 until August 15, 2024
P2	16970 Grey Bruce Line	491202.16	4921739.1	August 14 until August 16, 2024

The recordings enabled the assessment of existing ambient sound levels, specifically the background sound levels at locations P1 and P2. As shown in Table 6, higher sound levels were measured at P2, which is influenced by its proximity to Grey Bruce Line, a road with higher traffic volume, as well as its intersection with Concession 4 Road.

For all monitoring locations, the existing background sound level (Leq) was determined through continuous measurements conducted over a minimum duration of 48 hours. Monitoring was scheduled during periods when background noise levels were expected to be at their lowest. The lowest hourly Leq recorded during this period—within a tolerance of ±1 dB—was selected to represent the background sound level, as presented under "Measured Background Noise" in Table 6. The measurement and graphs are provided in Appendix D and Appendix E.

Table 6: Measured sound levels at measurement points (dBA)

Measurement point	Time of day	Measured background noise (dBA)	Default criterion (dBA)	Criteria (dBA)
P1	Day 07:00-19:00	45	45	**45**
	Evening 19:00 -23:00	38	40	**40**
	Night 2:00-07:00	28	40	**40**
P2	Day 07:00-19:00	62	45	**62**
	Evening 19:00 -23:00	57	40	**57**
	Night 23:00-7:00	48	40	**48**

6. Noise sources

Three different significant noise sources stemming from the Project have been identified and are presented in Table 7 below.

Table 7: Noise source summary

Name	Description	Dimension (m)	Quantity	Sound characteristic	Source type	Source location	Sound Power Level (dBA)		Noise control
Medium Voltage Transformers	4.8 MVA transformers, Details of similar equipment in Appendix F	H=2.55 L= 2.8 W=2.85	106	Steady sound and tonal	Vertical surface source	Outside	87.9*		Barrier
BESS units Tesla	Model: Tesla Megapack 2XL Appendix G	Point height =3.27	420	Steady sound	Point source	Outside	Day : 86.1	Night : 79.1	Barrier
High-Voltage Transformers	245 kV transformer Details of similar equipment in Appendix F 132/176/220 MVA	H=4.418 L=9.700 W=7.3	2	Steady sound and tonal	Vertical surface source	Outside	108.3*		Barrier

Note: * Including 5dB tonal penalty

For the noise assessment, it is assumed that only the BESS is anticipated to operate at 50% maximum fan load capacity during daytime and at 30% maximum during the evening and nighttime, while the other equipment is assumed to be operating at full fan load. This assumption is based on the understanding that the selected BESS for the Project is designed to function optimally under extreme temperatures, which differ from conditions in Ontario. See Appendix H from Tesla temperature analyses.

BESS units were modelled as point sources and transformers were modelled as vertical surface sources. Truck traffic to and from the Project is expected to be occasional for maintenance and thus not included as part of this assessment. No other significant noise sources are expected at the Project.

Validity conditions

The sound power-level data and assumption of different noise sources considered in the Project to model sound emissions are detailed in the following subsections. If any of the equipment changes from the specifics given in this report, resulting in higher sound levels, a new noise impact assessment would have to be done to confirm the new hypotheses.

6.1. Medium voltage transformer

A total of 106 transformers (4.8 MVA), with only one stage of cooling (ONAN) not equipped with cooling fans, will be used in the Project. An ONAN rating of 65 dBA is considered for this 34.5 kV/480 V 4.8 MVA transformer. The approximative dimensions of the noise producing elements of the transformer are: 2850 mm wide, 2800 mm long and 2555 mm high (see Appendix F).

Table 8: Octave band sound power levels for the medium voltage transformer model size given provided in Appendix F

Octave band (Hz)	Sound power (dBA)
31.5	45.6
63	64.8
125	76.9
250	79.4
500	84.8
1000	82.0
2000	78.2
4000	73.0

Octave band (Hz)	Sound power (dBA)
8000	63.9
Lw (total)	**88.4**
Including 5dB tonal penalty	

The sound power of the medium voltage transformer was calculated from a theoretical prediction using the Bies, D., Hansen method[2] and will have to be confirmed once the transformer is chosen. MECP NPC-104 Sound Level Adjustments[3] guidelines prescribe adjustments for sources with special qualities or characters of sound. They are punitive adjustments that apply to noise sources with subjectively annoying characteristics, including tonal sounds, quasi-impulsive sounds, and beating sounds (i.e., sounds with cyclically varying amplitudes). Based on manufacturer test results, noise sources associated with the medium voltage transformers are expected to be a tonal noise source. In this regard, a 5 dB tonal penalty has been applied to the transformer sound power level as per the NPC-300 guideline.

6.2. Energy storage battery packs: 420 BESS units

The proposed battery energy storage units are the 'TESLA Megapack 2 XL' (see Appendix G). The primary source of noise arising from the unit will be from the cooling fans. For the purposes of this assessment, it has been assumed that the cooling fan will be operating at 50% maximum of their capacity during the day and 30% an evening time and at nighttime. Sound power data supplied by the manufacturer are provided in Table 8. See Appendix H for the battery supplier Project-specific analysis.

Each BESS is modelled as a point source with the sound power levels shown in Table 9 below. This point is positioned 0.5 m above a reflective box with the dimensions of the BESS (see Appendix G, page 4), so the point source is at 3.27 m elevation. The point is positioned 0.3 m from the front of the BESS towards the centre of the units to reproduce the same directivity as measured by the manufacturer. A security factor of 1.2 dB is included in the model as per manufacturer recommendation.

Due to the large number of sources, only the closest source in each cardinal direction relative to the UTM location has been included. These represent the BESS sources for each direction and are listed in Table 9 below.

[2] Engineering Noise Control p554-556 Edition 5th(2017)
[3] Publication NPC-104 - Sound-Level Adjustments (part of Reference Model Municipal Noise Control By-Law - Final Report. August 1978. Ontario Ministry of the Environment.)

Table 9: BESS locations

BESS	UTM
BESS1	491 485.170; 4 921 555.958
BESS2	491 629.104; 4 921 576.595
BESS3	491 647.096; 4 921 457.268
BESS4	491 418.760; 4 921 423.401

A tonal analysis was performed in accordance with ISO 1996-2 Annex K and MECP's NPC-104 guideline. A receptor-based tonal sound analysis was conducted, considering the worse case scenario, with the BESS in operation at 50% fan speed. This analysis, using one-third-octave band data, demonstrated that the sound at the receivers does not meet the audibility criteria, and thus a tonal correction is not needed. The results at the receptors as well as the tonal analysis data are provided in Appendix I.

Table 10: Third octave band sound power levels for BESS Tesla units

Octave band frequency	Point source 30% fan load capacity	Point source 50% fan load capacity
	Sound power (dBA)	Sound power (dBA)
100	56.9	57.9
125	59.5	59.0
160	58.5	57.3
200	62.4	58.2
250	69.2	72.5
315	66.4	79.9
400	66.4	70.9
500	66.1	69.5
630	68.6	75.9
800	66.3	71.4
1000	67.9	74.7
1250	66.7	73.4
1600	66.0	72.3
2000	65.9	71.9
2500	65.5	72.2
3150	62.6	70.1
4000	59.3	67.4
5000	56.0	64.4

Octave band frequency	Point source 30% fan load capacity	Point source 50% fan load capacity
	Sound power (dBA)	Sound power (dBA)
6300	50.5	59.5
8000	46.2	55.1
10000	41.9	49.6
12500	56.9	43.3
16000	59.5	40.9
Sum	**77.9**	**84.9**
Note: security factor of 1.2 dB is included in the model not in this table as per manufacturer recommendation see Appendix G page 8		

6.3. High-voltage transformers

The Project will have three HV transformers to transform electricity from the BESS system to the grid. Only two will be in operation at any given time, while the third will serve as a backup in the event of a failure. The Oil Natural Air Forced (ONAF) transformers are modelled assuming the worst noise conditions. Octave band levels were derived using published ONAF spectral data, shown in Table 11 below. Using equipment with higher sound power levels than the generic one used for the assessment would prompt an update of the assessment and compliance conclusions. The approximative dimensions of the noise producing elements of the transformer are 7300 mm in width, 9700 mm in length and 4418 mm in height. See the drawing in Appendix F.

Table 11: Octave band sound power level for the substation transformer 132/176/220 MVA rate

Octave band (Hz)	Sound power (dBA)
31.5	71.6
63	84.8
125	96.9
250	99.4
500	104.8
1000	102.0
2000	98.2
4000	93.0
8000	83.9
Lw (total)	**108.3**
Including 5dB tonal penalty	

The sound power of the high-voltage transformer was calculated from a theoretical prediction using the Crocker 2007 method[4] and will have to be confirmed once the transformer is chosen.

As for medium voltage transformers, the NPC-1045 guidelines prescribe adjustments for sources with special qualities or characters of sound. They are punitive adjustments that apply to noise sources with subjectively annoying characteristics, including tonal sounds, quasi-impulsive sounds, and beating sounds (i.e., sounds with cyclically varying amplitudes). Based on the manufacturer test results, noise sources associated with the transformers are expected to be a tonal noise source. To this end, a 5 dB tonal penalty has been applied to the transformer sound power level as per the NPC-300 guideline.

The coordinates of the three HV transformers are provided in Table 12 below:

Table 12: Transformer locations

Transformers	UTM
T1	491561.4913; 4921386.826
T2	491590.7014; 4921391.112
T3	491619.8321; 4921395.478

To ensure a conservative and protective assessment, the worst-case operational scenario was evaluated at all receptors—assuming full sound output from the two transformers in operation under ONAF conditions with the tonal penalty applied. In the study, Scenario 1 corresponds with transformers T1 and T2 in operation, and Scenario 2 corresponds with transformers T2 and T3 in operation.

7. Noise model

Sound propagations were completed using the technical software package CADNA/A, published by Datakustik GmbH, which is configured to implement the ISO 9613-2 Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General method of calculation, 2024, (ISO 1996:2024). This is quality assured software with full support of ISO/TR 1753-3, which provides recommendations to ensure uniformity in the interpretation of the ISO 9613. The acoustic model accounts for the following:

[4] Handbook of Noise and Vibration Control from Livre de Malcolm J. Crocker
[5] NPC-104 - Sound Level Adjustments (part of Reference Model Municipal Noise Control By-Law - Final Report. August 1978. Ontario Ministry of the Environment

- Geometrical divergence;
- Equipment noise emission and location;
- Equipment dimensions;
- Noise barrier effect;
- Atmospheric absorption;
- Ground absorption;
- Local topography.

Table 13 presents the modelling parameters used for all calculations.

Table 13: Model parameters

Modelling parameters	Setting	
Temperature	10 °C	
Humidity	70%	
Ground absorption	Paving and concrete	0
	Mixed (urban)	0.4
	Grass and wooded areas	0.6
Number of sound reflections	3	
Operation Condition BESS daytime	50%	
Operation Condition BESS nighttime end evening time	30%	
Operation conditions other equipment	100%	

Topography of the site was included in the model. Local barrier effects and reflection effects from the onsite equipment were included but screening of any off-site buildings (e.g., for agricultural use) was not included. Within the study and surrounding area, the ground surfaces are predominantly agricultural fields, with some roads. Any bodies of water (such as the on-site pond and the pond near POR02) were modelled as fully reflective (G=0). Typical Ontario meteorological parameters were included in the model: a temperature of 10 degrees Celsius and a relative humidity of 70%.

NPC-300 requires that the established sound level limit be compared against the predictable worst-case operation of the Project. This means the basis of the noise assessment should be the hour when noise emissions from the stationary source(s) have the greatest impact at a point of reception, relative to the lowest hourly sound level at any hour (applicable limit). The predictable

worst-case operation of the Project is considered as the simultaneous operation of all on-site sources during day, evening, and nighttime periods, and is expected to be conservative.

Three transformers are present in the Project layout, but only two are operating at the same time; the worst-case scenario was used in the model.

7.1. Modelling results

Predicted sound levels for the project are presented in Table 15. Results assume continuous, 24-hour operation, with the BESS fans operating at 50% load capacity during the daytime and 30% load capacity during evening and nighttime hours. Two scenarios were evaluated, as the three high-voltage transformers do not operate simultaneously. The scenarios considered are Scenario 1, with transformers T1 and T2 in operation, and Scenario 2, with transformers T2 and T3 in operation. Since results for both scenarios are very similar (< 0.3 dB difference at receptors), only the worst-case scenario has isocontour maps, which is scenario 1 for all, except for maps where there was a vacant lot, for which the worst case is scenario 2. See Table 14 for the maps provided and their names. The worst cases are defined as those where the limiting receptor has the highest result. If two limiting receptors have the maximums in different scenarios, both scenarios have isocontours. A limiting receptor is a receptor that drives mitigation measures.

Distances between receptors and closest sources as well as the sound pressure level from the closest sources to the receptors are presented in Appendix J.

Table 14. Names of isocontour maps provided

Case	Fan speed	Mapping height	Names for scenario 1	Names for scenario 2
Without mitigation	50%	1.5	Map1	
	50%	4.5	Map2	Map3
	30%	1.5	Map5	
	30%	4.5	Map6	Map4
With mitigation (except for vacant lots)	50%	1.5	Map7	
	50%	4.5	Map8	
	30%	1.5	Map9	
	30%	4.5	Map10	
With mitigation (including vacant lots)	50%	4.5		Map11
	30%	4.5		Map12

Results are organized into two sections: one for current receptors, representing existing dwellings, and another for vacant lots, which reflect hypothetical receptor locations for potential future residences.

7.1.1. Results at actual receptors

The simulated sound levels for each of the two operational scenarios are presented in the following three tables, corresponding to the most affected dwellings during each period: daytime (Table 15), evening (Table 16), and nighttime (Table 17).

Table 15: Predicted sound pressure levels (dBA) at the most affected dwellings for daytime

POR ID receptor number	POR address	POR height	Predicted sound level daytime (dBA) with BESS 50% Scenario 1	Predicted sound level daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR1	**37 Concession 4 Arran, Arran-Elderslie**	1.5	53.5	53.4	45	No
POR1	**37 Concession 4 Arran, Arran-Elderslie**	1.5	52.9	52.8	45	No
OPOR2	**16970 Grey Bruce Line, Tara**	1.5	51.4	51.3	62	Yes
POR2	**16970 Grey Bruce Line, Tara**	1.5	52.3	52.2	62	Yes
OPOR3	**32 Concession 4 Arran, Arran-Elderslie**	1.5	50.6	50.6	45	No
POR3	**32 Concession 4 Arran, Arran-Elderslie**	1.5	50.1	50.1	45	No
OPOR4	**32 Concession 4 Arran, Arran-Elderslie**	1.5	50.9	50.8	45	No
POR4	**32 Concession 4 Arran, Arran-Elderslie**	1.5	50.4	50.3	45	No
OPOR5	**17001 Grey Bruce Line, Tara**	1.5	45.5	45.6	45	No
POR5	**17001 Grey Bruce Line, Tara**	4.5	47.2	47.1	45	No

POR ID receptor number	POR address	POR height	Predicted sound level daytime (dBA) with BESS 50% Scenario 1	Predicted sound level daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR6	74 Concession 4 Arran, Arran-Elderslie	1.5	44.9	44.8	45	Yes
POR6	74 Concession 4 Arran, Arran-Elderslie	4.5	46.5	46.4	45	No
OPOR7	104 Concession 4 Arran, Arran-Elderslie	1.5	43.2	42.9	45	Yes
POR7	104 Concession 4 Arran, Arran-Elderslie	4.5	44.7	44.6	45	Yes
OPOR8	126 Concession 4 Arran, Arran-Elderslie	1.5	41.5	41.4	45	Yes
POR8	126 Concession 4 Arran, Arran-Elderslie	4.5	43.2	43.1	45	Yes
OPOR9	162 Concession 4 Arran, Arran-Elderslie	1.5	38.5	38.4	45	Yes
POR9	162 Concession 4 Arran, Arran-Elderslie	4.5	38.1	38.0	45	Yes

Table 16: Predicted sound pressure levels (dBA) at the most affected dwellings for evening time

POR ID Receptor number	POR address	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR1	37 Concession 4 Arran, Arran-Elderslie	1.5	51.3	51.1	40	No
POR1	37 Concession 4 Arran, Arran-Elderslie	1.5	50.7	50.5	40	No
OPOR2	16970 Grey Bruce Line, Tara	1.5	49.4	49.3	57	Yes
POR2	16970 Grey Bruce Line, Tara	1.5	50.4	50.3	57	Yes
OPOR3	32 Concession 4 Arran, Arran-Elderslie	1.5	48.6	48.5	40	No

POR ID Receptor number	POR address	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
POR3	32 Concession 4 Arran, Arran-Elderslie	1.5	48.1	48.0	40	No
OPOR4	32 Concession 4 Arran, Arran-Elderslie	1.5	48.9	48.7	40	No
POR4	32 Concession 4 Arran, Arran-Elderslie	1.5	48.4	48.2	40	No
OPOR5	17001 Grey Bruce Line, Tara	1.5	43.6	43.7	40	No
POR5	17001 Grey Bruce Line, Tara	4.5	45.5	45.3	40	No
OPOR6	74 Concession 4 Arran, Arran-Elderslie	1.5	43.1	43.0	40	No
POR6	74 Concession 4 Arran, Arran-Elderslie	4.5	44.7	44.5	40	No
OPOR7	104 Concession 4 Arran, Arran-Elderslie	1.5	41.4	41.0	40	No
POR7	104 Concession 4 Arran, Arran-Elderslie	4.5	42.7	42.6	40	No
OPOR8	126 Concession 4 Arran, Arran-Elderslie	1.5	39.6	39.5	40	Yes
POR8	126 Concession 4 Arran, Arran-Elderslie	4.5	41.2	41.1	40	No
OPOR9	162 Concession 4 Arran, Arran-Elderslie	1.5	36.7	36.5	40	Yes
POR9	162 Concession 4 Arran, Arran-Elderslie	4.5	36.3	36.2	40	Yes

Table 17: Predicted sound pressure levels (dBA) at the most affected dwellings for nighttime

POR ID Receptor number	POR address	POR height	Predicted Sound Level nighttime (dBA) with BESS 30% Scenario 1	Predicted Sound Level nighttime (dBA) with BESS 30% Scenario 2	Sound-Level Limit (dBA)	Conformity
POR1	**37 Concession 4 Arran, Arran-Elderslie**	1.5	50.7	50.5	40	**No**
POR2	**16970 Grey Bruce Line, Tara**	1.5	50.4	50.3	48	**No**
POR3	**32 Concession 4 Arran, Arran-Elderslie**	1.5	48.1	48.0	40	**No**
POR4	**32 Concession 4 Arran, Arran-Elderslie**	1.5	48.4	48.2	40	**No**
POR5	**17001 Grey Bruce Line, Tara**	4.5	45.5	45.3	40	**No**
POR6	**74 Concession 4 Arran, Arran-Elderslie**	4.5	44.7	44.5	40	**No**
POR7	**104 Concession 4 Arran, Arran-Elderslie**	4.5	42.7	42.6	40	**No**
POR8	**126 Concession 4 Arran, Arran-Elderslie**	4.5	41.2	41.1	40	**No**
POR9	**162 Concession 4 Arran, Arran-Elderslie**	4.5	36.3	36.2	40	**Yes**

Without any mitigation, receptor OPOR1 is expected to be the most affected dwelling by noise from the Project, having a maximum sound pressure level at the window of 53.5 dBA in the daytime, 51.3 dBA level in the evening, and 50.7 at nighttime. The Project sound level contours are shown in Appendix K.

Since the closest receiver POR1 is the most exposed to the Project's noise, the octave-band spectrum at this location was assessed and allows to quantify the potential maximum impact and shows the distribution of noise across different frequencies. Table 18 below gives the 1/1 octave band at POR1.

Table 18: Predicted sound pressure levels (dBA) at POR1 daytime

POR1	Frequency (Hz)								
	31.5	63	125	250	500	1k	2k	4k	8k
Sound pressure level	16.6	31.3	40.5	46.2	47.6	48.4	44.9	33.3	-1.9

The level reaches a maximum between 500 Hz and 1 kHz, typical for electrical equipment such as transformers.

The table in Appendix J presents the acoustically dominant sources for each receptor. It includes the sound level of the three most dominant sources at each POR, along with the setback distance from each source to each receptor.

7.1.2. Results for vacant lots

The simulated sound levels for vacant lots are presented in the three tables below for each two scenarios for the daytime (Table 19), evening (Table 20), and nighttime (Table 21) periods at the most affected dwellings.

Table 19: Predicted sound pressure levels (dBA) at vacant lots for daytime

POR ID receptor number	UTM localization	POR height	Predicted sound level daytime (dBA) with BESS 50% Scenario 1	Predicted sound level daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	61.2	62.5	62	No
R11	491475.28;4922505.11	4.5	44.2	44.4	62	Yes
R12	491667.11;4921832.97	4.5	53.8	53.7	62	Yes

Table 20: Predicted sound pressure levels (dBA) at vacant lots for evening time

POR ID receptor number	UTM localization	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	59.4	61.1	57	No

POR ID receptor number	UTM localization	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
R11	491475.28;4922505.11	4.5	41.9	42.2	57	**Yes**
R12	491667.11;4921832.97	4.5	51.5	51.4	57	**Yes**

Table 21: Predicted sound pressure levels (dBA) at vacant lots for nighttime

POR ID receptor number	UTM localization	POR height	Predicted sound level nighttime (dBA) with BESS 30% Scenario 1	Predicted sound level nighttime (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	59.9	61.6	48	**No**
R11	491475.28;4922505.11	4.5	42.3	42.6	48	**Yes**
R12	491667.11;4921832.97	4.5	51.8	51.7	48	**No**

Without any mitigation, receptor R10 is expected to be the most affected by noise from the Project, having a maximum sound pressure level of 62.2 dBA in daytime and 61.6 dBA level at evening and nighttime.

7.2. Site modelling with mitigation measures

7.2.1. Wall specification

A sound level simulation was performed by applying a noise protection wall around the BESS and transformers as presented on Figure 2. The acoustic wall will be fully sealed from bottom to top and will incorporate noise-absorbing materials. Specifications related to this type of wall are presented in Appendix M and are as follows:

- Noise reduction coefficient: NRC 0.9
- Sound absorption average: SAA 0.89

7.2.2. Wall geometry for sensitive receptors

The noise absorbing wall will be built at specific areas within the BESS layout. Details are provided below.

High-voltage transformers

Seven-meter-high walls will be erected on three sides of each HV transformers. They will be erected directly on the perimeter of the transformer's individual oil containment basin. The size of the containment basin is: 19 x 14 m.

BESS and MV transformers

BESS and HV Transformers will be constructed in five (5) clusters within the site. All will have 7-meter-high walls on their north and west-facing sides, except for one cluster that will require a 7.5-meter-high wall. Spacing between the noise barrier wall and the BESS containers is 4.2 m to enable vehicle passage. The geometry of the walls is shown on Figure 2 and an example of the wall structure is presented in Appendix M.

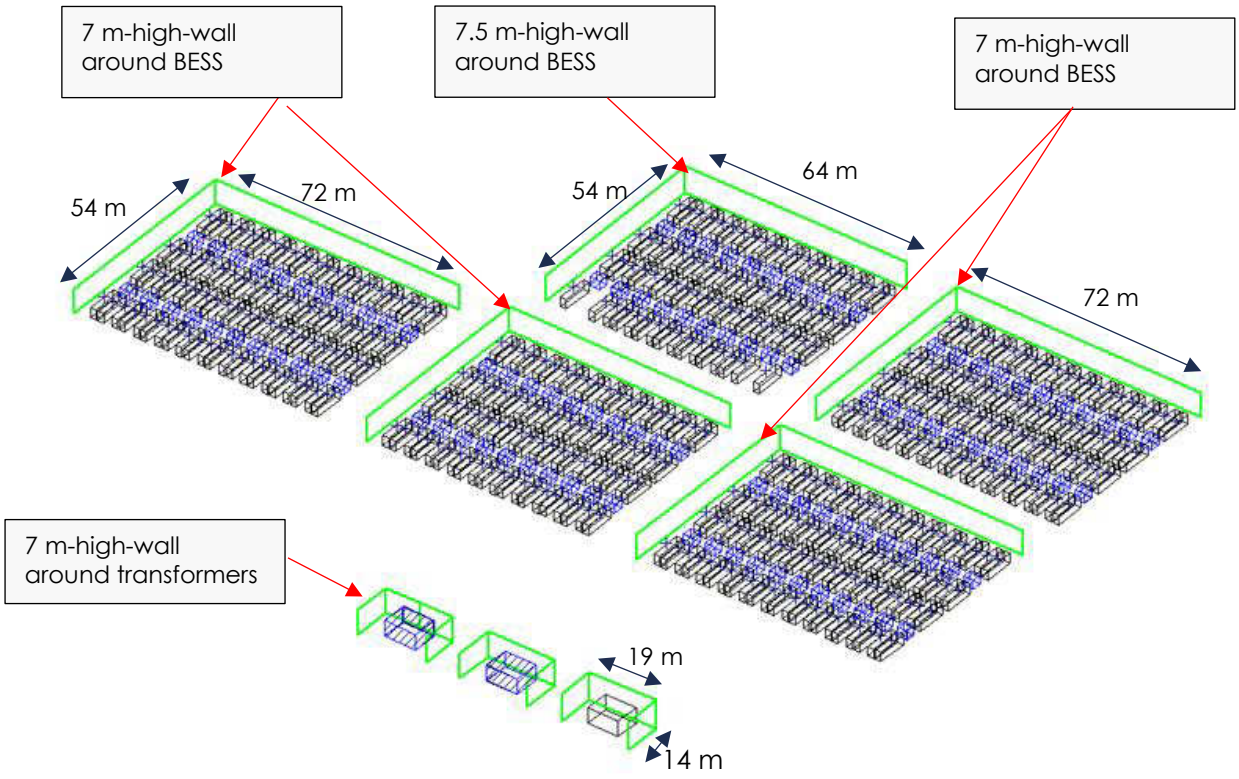


Figure 2: Geometry of the acoustic walls around the BESS and transformers

7.2.3. Mitigation measures and compliance at sensitive receptors

The simulated sound levels at the residence's points, as prescribed by the regulation, are presented for daytime (Table 22), evening (Table 23) and nighttime (Table 24) conditions when incorporating noise wall mitigation measures as proposed in Section 7.2.2. Maps showing the sound level propagated across the area surrounding the project are available in Appendix L. This section provides an analysis of the results shown in these maps.

Table 22: Predicted sound pressure levels (dBA) with mitigation measure at the most affected dwellings for daytime

POR ID receptor number	POR address	POR height	Predicted sound level daytime (dBA) with BESS 50% Scenario 1	Predicted sound level daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR1	37 Concession 4 Arran, Arran-Elderslie	1.5	44.4	44.4	45	Yes
POR1	37 Concession 4 Arran, Arran-Elderslie	1.5	44	44.0	45	Yes
OPOR2	16970 Grey Bruce Line, Tara	1.5	44.7	44.7	62	Yes
POR2	16970 Grey Bruce Line, Tara	1.5	45.9	45.9	62	Yes
OPOR3	32 Concession 4 Arran, Arran-Elderslie	1.5	42.7	42.7	45	Yes
POR3	32 Concession 4 Arran, Arran-Elderslie	1.5	42.4	42.4	45	Yes
OPOR4	32 Concession 4 Arran, Arran-Elderslie	1.5	42.9	42.8	45	Yes
POR4	32 Concession 4 Arran, Arran-Elderslie	1.5	42.6	42.5	45	Yes
OPOR5	17001 Grey Bruce Line, Tara	1.5	40.4	40.5	45	Yes
POR5	17001 Grey Bruce Line, Tara	4.5	42.1	42.1	45	Yes

POR ID receptor number	POR address	POR height	Predicted sound level daytime (dBA) with BESS 50% Scenario 1	Predicted sound level daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR6	74 Concession 4 Arran, Arran-Elderslie	1.5	39.2	39.1	45	Yes
POR6	74 Concession 4 Arran, Arran-Elderslie	4.5	40.9	40.8	45	Yes
OPOR7	104 Concession 4 Arran, Arran-Elderslie	1.5	38.2	38.2	45	Yes
POR7	104 Concession 4 Arran, Arran-Elderslie	4.5	40	40.1	45	Yes
OPOR8	126 Concession 4 Arran, Arran-Elderslie	1.5	37.4	37.4	45	Yes
POR8	126 Concession 4 Arran, Arran-Elderslie	4.5	39.3	39.3	45	Yes
OPOR9	162 Concession 4 Arran, Arran-Elderslie	1.5	34.6	34.6	45	Yes
POR9	162 Concession 4 Arran, Arran-Elderslie	4.5	34.3	34.3	45	Yes

Table 23: Predicted sound pressure levels (dBA) with mitigation measure at the most affected dwellings for evening time

POR ID receptor number	POR address	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR1	37 Concession 4 Arran, Arran-Elderslie	1.5	40.0	39.9	40	Yes
POR1	37 Concession 4 Arran, Arran-Elderslie	1.5	39.5	39.4	40	Yes

POR ID receptor number	POR address	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR2	16970 Grey Bruce Line, Tara	1.5	40.2	40.1	57	Yes
POR2	16970 Grey Bruce Line, Tara	1.5	41.3	41.4	57	Yes
OPOR3	32 Concession 4 Arran, Arran-Elderslie	1.5	38.0	37.9	40	Yes
POR3	32 Concession 4 Arran, Arran-Elderslie	1.5	37.6	37.6	40	Yes
OPOR4	32 Concession 4 Arran, Arran-Elderslie	1.5	38.2	38.1	40	Yes
POR4	32 Concession 4 Arran, Arran-Elderslie	1.5	37.8	37.8	40	Yes
OPOR5	17001 Grey Bruce Line, Tara	1.5	35.8	35.9	40	Yes
POR5	17001 Grey Bruce Line, Tara	4.5	37.5	37.6	40	Yes
OPOR6	74 Concession 4 Arran, Arran-Elderslie	1.5	34.2	34.1	40	Yes
POR6	74 Concession 4 Arran, Arran-Elderslie	4.5	35.8	35.7	40	Yes
OPOR7	104 Concession 4 Arran, Arran-Elderslie	1.5	33.4	33.2	40	Yes
POR7	104 Concession 4 Arran, Arran-Elderslie	4.5	35.1	35.1	40	Yes
OPOR8	126 Concession 4 Arran, Arran-Elderslie	1.5	32.8	32.7	40	Yes
POR8	126 Concession 4 Arran, Arran-Elderslie	4.5	34.7	34.6	40	Yes

POR ID receptor number	POR address	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
OPOR9	162 Concession 4 Arran, Arran-Elderslie	1.5	30.2	30.1	40	Yes
POR9	162 Concession 4 Arran, Arran-Elderslie	4.5	29.8	29.7	40	Yes

Table 24: Predicted sound pressure levels (dBA) with mitigation measure at the most affected dwellings for nighttime

POR ID receptor number	POR address	POR height	Predicted Sound Level nighttime (dBA) with BESS 30% Scenario 1	Predicted Sound Level nighttime (dBA) with BESS 30% Scenario 2	Sound-Level Limit (dBA)	Conformity
POR1	37 Concession 4 Arran, Arran-Elderslie	1.5	39.5	39.4	40	Yes
POR2	16970 Grey Bruce Line, Tara	1.5	41.3	41.4	57	Yes
POR3	32 Concession 4 Arran, Arran-Elderslie	1.5	37.6	37.6	40	Yes
POR4	32 Concession 4 Arran, Arran-Elderslie	1.5	37.8	37.8	40	Yes
POR5	17001 Grey Bruce Line, Tara	4.5	37.5	37.6	40	Yes
POR6	74 Concession 4 Arran, Arran-Elderslie	4.5	35.8	35.7	40	Yes
POR7	104 Concession 4 Arran, Arran-Elderslie	4.5	35.1	35.1	40	Yes
POR8	126 Concession 4 Arran, Arran-Elderslie	4.5	34.7	34.6	40	Yes
POR9	162 Concession 4 Arran, Arran-Elderslie	4.5	29.8	29.7	40	Yes

By implementing all proposed mitigation measures—including fan operation restrictions during daytime and nighttime periods, as well as the installation of noise barrier walls—all receptors are expected to comply with NPC-300 noise limits at all times of the day and night.

7.2.4. Results for vacant lots

The simulated sound levels with the noise walls, as proposed in Figure 2, for vacant lots are presented in the three tables below for each of the two scenarios for the daytime (Table 25), evening (Table 26), and nighttime (Table 27) periods at the most affected dwellings.

Table 25: Predicted sound pressure levels (dBA) at vacant lots for daytime with mitigation measure

POR ID receptor number	UTM localization	POR height	Predicted sound level daytime (dBA) with BESS 50% Scenario 1	Predicted sound level daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	56.4	56.7	62	**Yes**
R11	491475.28;4922505.11	4.5	39.3	39.3	62	**Yes**
R12	491667.11;4921832.97	4.5	47.6	47.6	62	**Yes**

Table 26: Predicted sound pressure levels (dBA) at vacant lots for evening time with mitigation measure

POR ID receptor number	UTM localization	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	52.5	53.0	57	**Yes**
R11	491475.28;4922505.11	4.5	34.2	34.3	57	**Yes**
R12	491667.11;4921832.97	4.5	42.9	43.1	57	**Yes**

Table 27: Predicted sound pressure levels (dBA) at vacant lots for nighttime with mitigation measure

POR ID receptor number	UTM localization	POR height	Predicted sound level nighttime (dBA) with BESS 30% Scenario 1	Predicted sound level nighttime (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	52.5	53.0	48	**No**
R11	491475.28;4922505.11	4.5	34.2	34.3	48	**Yes**
R12	491667.11;4921832.97	4.5	42.9	43.1	48	**Yes**

The results presented in the tables above indicate that sound levels comply at all receptors except for one vacant lot receptor (R10) during nighttime. To address this, a sound level reduction of 5 dBA would be required to meet the applicable NPC-300 limit. As such, additional mitigation measures will need to be evaluated to ensure future compliance if a dwelling is built at this location. This is further discussed in the next section.

7.2.5. Additional mitigation for vacant lots

For vacant lots, additional mitigation measures have been evaluated to ensure future compliance with NPC-300 if dwellings are built on the lot of receptor point R10. Accordingly, the wall mitigation described in Section 7.2.2 will be implemented, including the addition of a 120-meter-long, 7-meter-high wall along the eastern boundary of the Project property to protect Receptor R10 (Figure 3).

An example of the structure of the wall is in Appendix M.

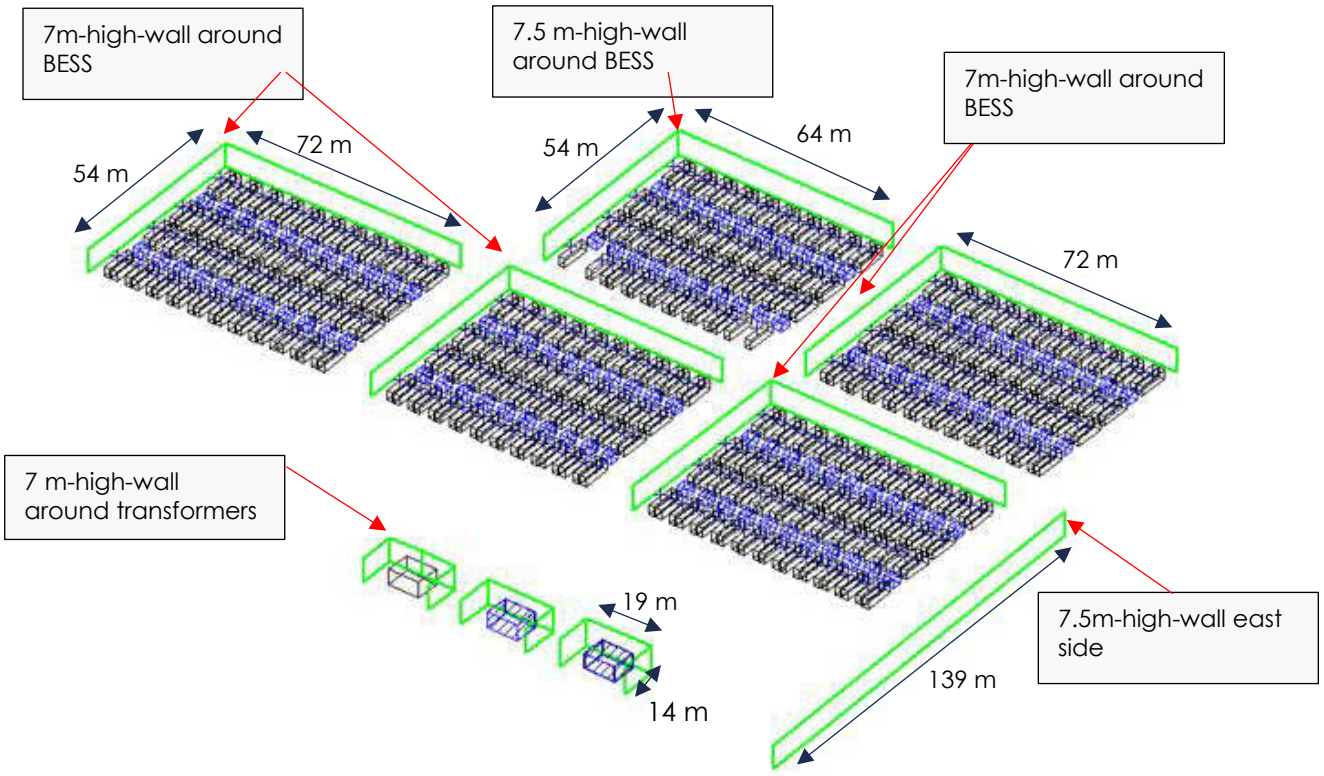


Figure 3: Geometry of the acoustic walls around BESS and transformers and along the east side of the property

7.2.6. Supplemental mitigation measures and compliance at vacant lots

The simulated sound levels at the vacant lot receptors, incorporating all mitigation measures shown in Figure 3, are presented for daytime (Table 28), evening (Table 29), and nighttime (Table 30) conditions. Sound propagation maps illustrating noise levels with mitigation in the area surrounding the Project site are provided in Appendix L. This section includes an analysis of the results depicted in these maps.

Table 28: Predicted sound pressure levels (dBA) with mitigation measure for vacant lots for daytime

POR ID receptor number	UTM localization	POR height	Predicted sound level Daytime (dBA) with BESS 50% Scenario 1	Predicted sound level Daytime (dBA) with BESS 50% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	51.9	52.0	62	**Yes**
R11	491475.28;4922505.11	4.5	39.3	39.3	62	**Yes**
R12	491667.11;4921832.97	4.5	47.6	47.6	62	**Yes**

Table 29: Predicted sound pressure levels (dBA) at vacant lots with mitigation measure for vacant lots for evening time

POR ID receptor number	UTM localization	POR height	Predicted sound level evening (dBA) with BESS 30% Scenario 1	Predicted sound level evening (dBA) with BESS 30% Scenario 2	Sound-level limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	47.9	47.9	57	**Yes**
R11	491475.28;4922505.11	4.5	34.2	34.3	57	**Yes**
R12	491667.11;4921832.97	4.5	43.0	43.1	57	**Yes**

Table 30: Predicted sound pressure levels (dBA) at vacant lots with mitigation measure for vacant lots for nighttime

POR ID Receptor number	UTM localization	POR height	Predicted Sound Level nighttime (dBA) with BESS 30% Scenario 1	Predicted Sound Level nighttime (dBA) with BESS 30% Scenario 2	Sound-Level Limit (dBA)	Conformity
R10	491720.40;4921426.34	4.5	47.9	47.9	48	**Yes**
R11	491475.28;4922505.11	4.5	34.2	34.3	48	**Yes**
R12	491667.11;4921832.97	4.5	43.0	43.1	48	**Yes**

Results from the simulation show that with the implementation of supplemental mitigation measures, future dwellings constructed on the vacant lots would achieve compliance with NPC-300 during daytime, evening, and nighttime periods.

8. Conclusions

Nine receptors were identified within a 1.5 km radius from the centre of the noise-emitting equipment at the Tara BESS project, all of which were included in the noise impact assessment. The assessment follows the NPC-300 guideline and considers worst-case operational scenarios. Two vacant lots were identified near the east side of the Project.

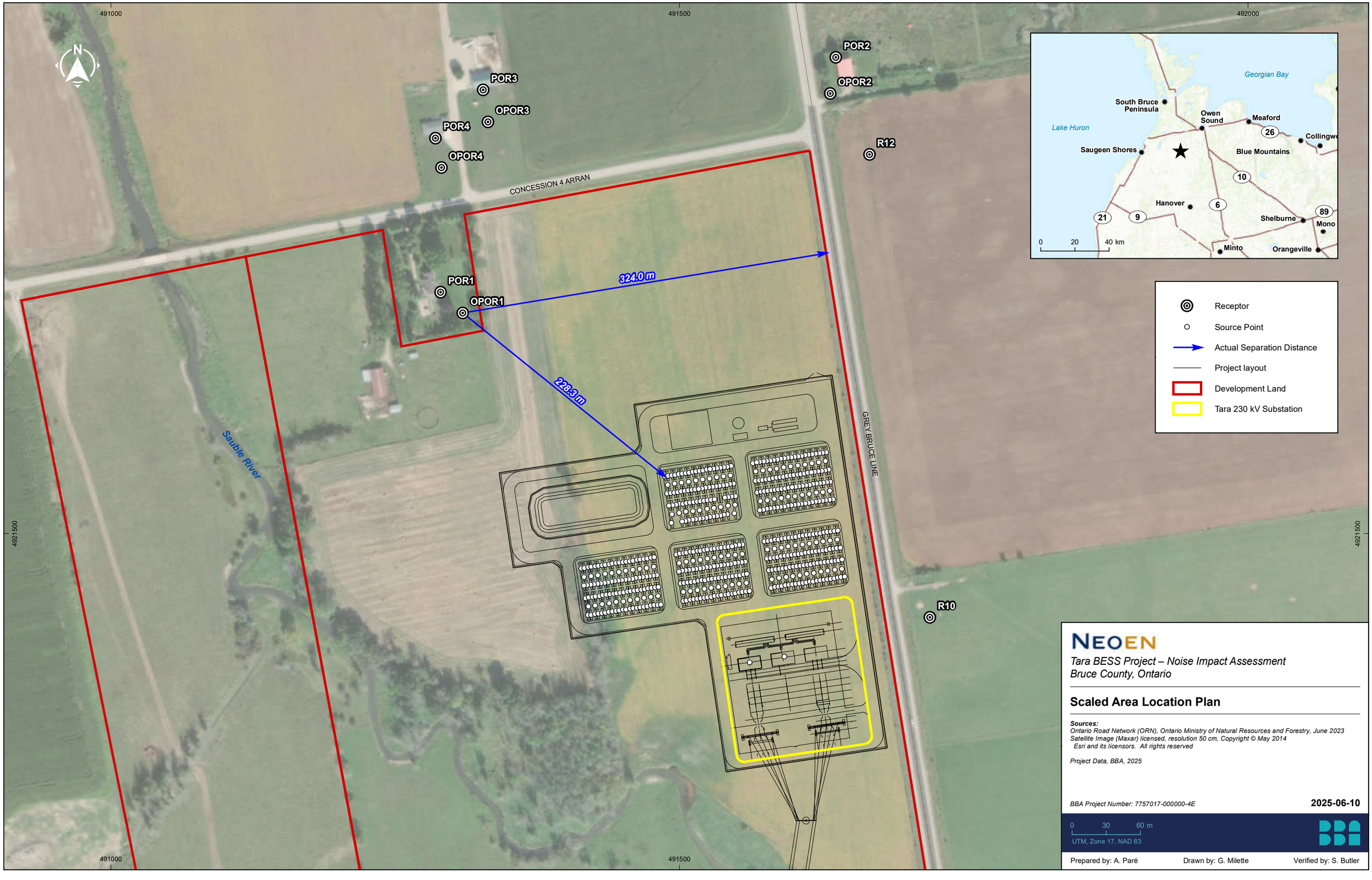
The noise-emitting equipment modelled includes the High Voltage (HV) and Medium Voltage (MV) transformers, as well as the BESS units, all of which are assumed to operate continuously, 24 hours a day. The model assumes that HV and MV transformers operate at 100% capacity. To mitigate overall noise impacts and ensure compliance with NPC-300 at all assessed PORs, the BESS cooling fans will operate at a maximum of 50% load during daytime and 30% during evening and nighttime. These load capacities were provided by Tesla based on the average annual temperature in the Project area. Additionally, sound barrier walls will be installed around HV transformers and BESS units to further reduce noise emissions.

With these mitigation measures in place, the Tara BESS project is expected to remain compliant with NPC-300 guidelines and prevent noise-related impacts on neighbouring receptors.

Supplemental mitigation measures were also assessed and proposed for vacant lots in the vicinity of the Project, including a supplemental wall along the eastern property boundary. However, this supplemental measure does not need to be implemented until a sensitive dwelling or facility is proposed and constructed on the vacant lot of receptor R10.

The report details the sound power-level data and assumptions for the specific noise sources considered in the Project's sound emissions modelling. If any selected equipment at the detailed design stage differs and has a higher sound power level from the modelled assumptions, a new noise impact assessment will be required to confirm compliance with NPC-300.

Appendix A: Site Plan and Scaled Area Location Plan



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Scaled Area Location Plan

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
Satellite Image (Maxar) licensed, resolution 50 cm, Copyright © May 2014
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

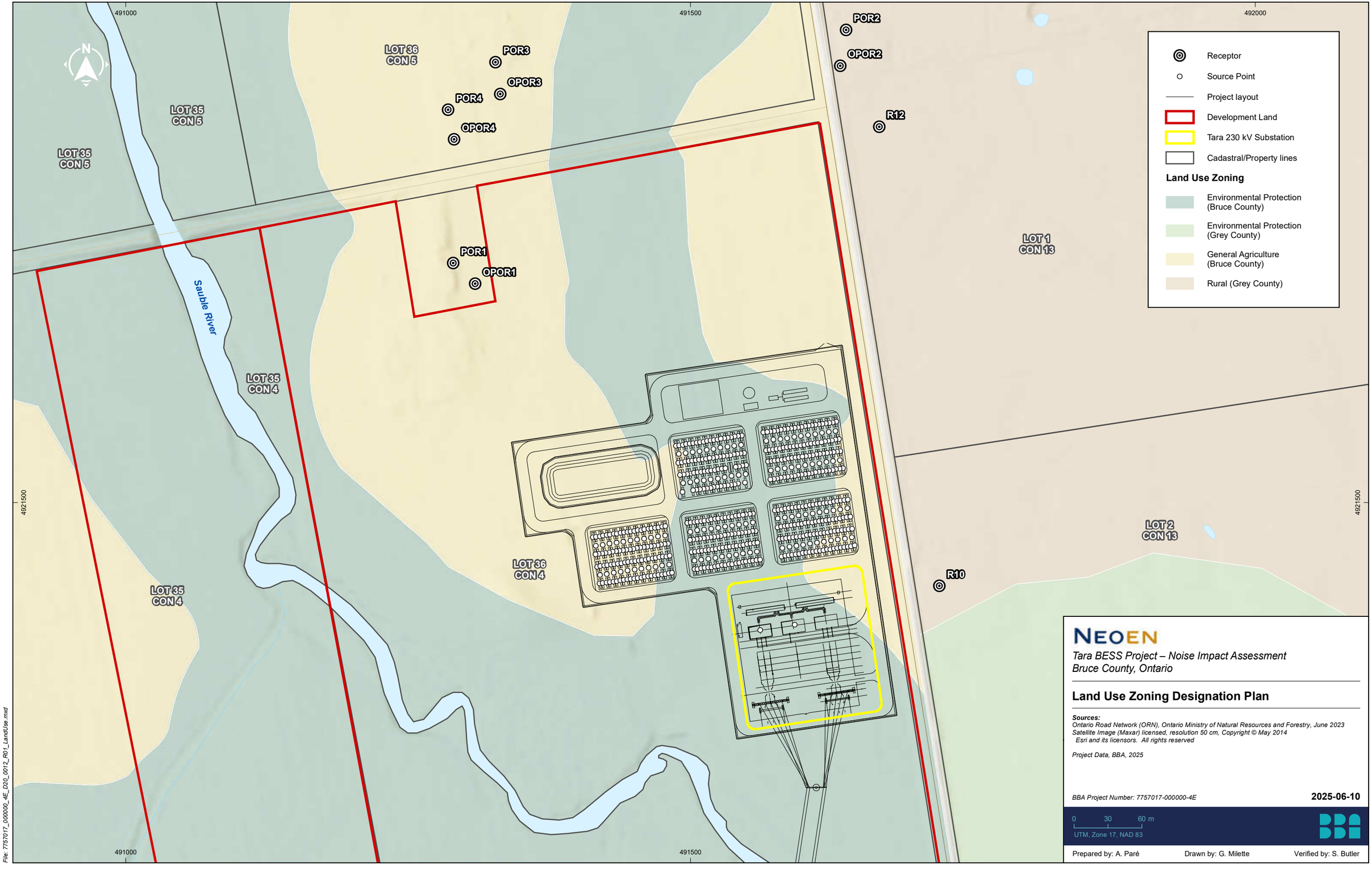
2025-06-10

0 30 60 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D20_0011_R01_LocationPlan.mxd

Appendix B: Land-use Zoning Plan



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Land Use Zoning Designation Plan

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-10

0 30 60 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D20_0012_R01_LandUse.mxd

Appendix C: Weather Conditions

Rapport de données horaires pour le 13 août 2024

Si vous avez sélectionné l'heure normale locale (HNL), ajoutez 1h pour convertir l'heure locale en heure avancée, s'il y a lieu.

MOUNT FOREST (AUT)
ONTARIO
Opérateur de station opérationnelle : ECCC - SMC

Latitude :	43°59'00,000" N
Longitude :	80°45'00,000" O
Altitude :	414,50 m
ID climatologique :	6145504
ID de l'OMM :	71631
ID de TC :	WLS

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
00:00	13,3	13,2	99	0,0	4	4		97,05			ND
01:00	12,5	12,0	97	0,0		0		97,05			ND
02:00	12,1	12,0	99	0,0		0		97,05			ND
03:00	11,3	11,3	100	0,0		0		97,08			ND
04:00	10,9	10,8	99	0,0		0		97,11			ND
05:00	11,4	11,4	100	0,0	8	4		97,14			ND
06:00	11,2	11,1	99	0,0		0		97,18			ND
07:00	13,2	12,7	97	0,0		0		97,20			ND
08:00	16,3	13,7	85	0,0		0		97,19			ND
09:00											
10:00											
11:00	21,7	13,5	60	0,0	31	5		97,22	**25**		ND
12:00	22,6	12,8	54	0,0	34	6		97,19	**25**		ND
13:00	23,0	11,8	49	0,0	32	4		97,18	**25**		ND
14:00	23,6	12,7	50	0,0	31	6		97,16	**26**		ND
15:00	24,0	13,7	53	0,0	26	7		97,14	**27**		ND
16:00	23,6	13,8	54	0,0	32	9		97,11	**27**		ND
17:00	23,6	13,7	54	0,0	33	6		97,09	**27**		ND
18:00	22,2	13,3	57	0,0	1	10		97,13	**25**		ND
19:00	20,6	14,8	69	0,0	34	5		97,15			ND

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
20:00	18,1	15,1	82	0,0	1	5		97,19			ND
21:00	17,0	15,0	88	0,0	4	4		97,20			ND
22:00	15,7	14,4	92	0,0		0		97,20			ND
23:00	14,2	13,6	96	0,0		0		97,22			ND

Légende

- E = Valeur estimée
- M = Données manquantes
- ND = Non disponible*
- [vide] = Indique une valeur non observée

Date de modification :

2024-06-27

Rapport de données horaires pour le 14 août 2024

Si vous avez sélectionné l'heure normale locale (HNL), ajoutez 1h pour convertir l'heure locale en heure avancée, s'il y a lieu.

MOUNT FOREST (AUT)
ONTARIO
Opérateur de station opérationnelle : ECCC - SMC

Latitude :	43°59'00,000" N
Longitude :	80°45'00,000" O
Altitude :	414,50 m
ID climatologique :	6145504
ID de l'OMM :	71631
ID de TC :	WLS

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
00:00	13,3	12,4	95	0,0		0		97,24			ND
01:00	12,9	12,1	95	0,0	9	4		97,23			ND
02:00	12,2	11,6	96	0,0		0		97,24			ND
03:00	11,3	11,0	98	0,0		0		97,26			ND
04:00	10,9	10,2	95	0,0		0		97,27			ND
05:00	10,3	10,0	98	0,0		0		97,29			ND
06:00	10,2	9,8	97	0,0		0		97,32			ND
07:00	13,6	12,7	94	0,0		0		97,36			ND
08:00	18,2	14,0	76	0,0		0		97,38			ND
09:00	20,2	14,0	67	0,0	27	4		97,39			ND
10:00	21,4	12,4	57	0,0	30	6		97,42			ND
11:00	22,2	11,8	52	0,0	32	8		97,43			ND
12:00	23,3	11,8	48	0,0	28	5		97,38	25		ND
13:00	24,0	12,7	49	0,0	36	6		97,35	27		ND
14:00	24,9	13,8	50	0,0	32	6		97,30	28		ND
15:00	25,3	14,4	51	0,0		0		97,28	29		ND
16:00	25,4	12,6	45	0,0	34	7		97,25	28		ND
17:00	25,2	12,9	46	0,0	32	7		97,20	28		ND
18:00	24,7	12,8	47	0,0	29	7		97,19	27		ND
19:00	22,2	15,1	64	0,0	32	8		97,25	26		ND

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
20:00	19,5	15,0	75	0,0	32	3		97,26			ND
21:00	18,0	14,6	81	0,0		0		97,29			ND
22:00	16,6	14,8	89	0,0	7	5		97,29			ND
23:00	15,4	14,0	91	0,0	9	3		97,26			ND

Légende

- E = Valeur estimée
- M = Données manquantes
- ND = Non disponible*
- [vide] = Indique une valeur non observée

Date de modification :

2024-06-27

Rapport de données horaires pour le 15 août 2024

Si vous avez sélectionné l'heure normale locale (HNL), ajoutez 1h pour convertir l'heure locale en heure avancée, s'il y a lieu.

MOUNT FOREST (AUT)
ONTARIO
Opérateur de station opérationnelle : ECCC - SMC

Latitude :	43°59'00,000" N
Longitude :	80°45'00,000" O
Altitude :	414,50 m
ID climatologique :	6145504
ID de l'OMM :	71631
ID de TC :	WLS

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
00:00	14,3	13,3	94	0,0		0		97,24			ND
01:00	13,8	13,2	96	0,0		0		97,22			ND
02:00	13,5	12,6	95	0,0		0		97,19			ND
03:00	13,3	12,1	92	0,0	10	4		97,17			ND
04:00	13,2	11,7	91	0,0	10	5		97,18			ND
05:00	12,7	11,2	91	0,0	11	3		97,19			ND
06:00	12,5	11,1	91	0,0		0		97,24			ND
07:00	15,9	12,2	79	0,0		0		97,28			ND
08:00	20,1	14,2	69	0,0		0		97,27			ND
09:00	22,9	14,0	57	0,0		0		97,25	**26**		ND
10:00	23,5	14,9	58	0,0	23	6		97,25	**27**		ND
11:00	24,0	13,5	52	0,0	25	6		97,20	**27**		ND
12:00	24,8	13,6	50	0,0	19	8		97,16	**28**		ND
13:00	25,8	12,3	43	0,0	19	10		97,11	**28**		ND
14:00	26,2	12,3	42	0,0	18	7		97,06	**29**		ND
15:00	26,1	12,1	42	0,0	18	7		97,01	**28**		ND
16:00	26,0	13,5	46	0,0	21	8		96,97	**29**		ND
17:00	25,9	13,3	46	0,0	22	8		96,96	**29**		ND
18:00	24,7	14,5	53	0,0	24	7		96,93	**28**		ND
19:00	23,9	14,3	55	0,0	21	7		96,92	**27**		ND

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
20:00	22,4	14,8	62	0,0	19	4		96,94	**26**		ND
21:00	20,7	15,3	71	0,0	17	6		96,96	**25**		ND
22:00	19,3	14,7	75	0,0	17	6		96,94			ND
23:00	18,2	14,6	79	0,0	16	6		96,92			ND

Légende

- E = Valeur estimée
- M = Données manquantes
- ND = Non disponible*
- [vide] = Indique une valeur non observée

Date de modification :

2024-06-27

Rapport de données horaires pour le 16 août 2024

Si vous avez sélectionné l'heure normale locale (HNL), ajoutez 1h pour convertir l'heure locale en heure avancée, s'il y a lieu.

MOUNT FOREST (AUT)
ONTARIO
Opérateur de station opérationnelle : ECCC - SMC

Latitude :	43°59'00,000" N
Longitude :	80°45'00,000" O
Altitude :	414,50 m
ID climatologique :	6145504
ID de l'OMM :	71631
ID de TC :	WLS

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
00:00	17,7	13,8	78	0,0	16	5		96,88			ND
01:00	17,7	13,1	74	0,0	16	7		96,85			ND
02:00	17,4	12,6	74	0,0	16	7		96,82			ND
03:00	17,1	12,6	75	0,0		0		96,77			ND
04:00	17,3	12,8	75	0,0		0		96,74			ND
05:00	18,0	12,8	72	0,0	14	4		96,71			ND
06:00	19,0	13,1	69	0,0	14	5		96,64			ND
07:00	19,2	13,8	71	0,0	14	5		96,68			ND
08:00	19,9	14,6	72	0,0	16	6		96,68			ND
09:00	20,7	15,3	71	0,0	17	10		96,67	**25**		ND
10:00	21,8	16,5	72	0,0	16	10		96,64	**27**		ND
11:00	22,4	17,1	72	0,0	17	8		96,62	**28**		ND
12:00	22,9	16,3	67	0,0	17	10		96,57	**28**		ND
13:00	23,0	16,9	69	0,0	17	11		96,53	**28**		ND
14:00	21,3	16,0	72	0,0	13	6		96,47	**26**		ND
15:00	21,7	16,6	73	0,0	11	4		96,42	**27**		ND
16:00	22,1	16,1	69	0,0	15	5		96,36	**27**		ND
17:00	20,5	17,9	85	0,0		0		96,38	**26**		ND
18:00	19,3	18,3	94	2,1	13	5		96,31			ND
19:00	19,1	18,2	95	1,0	14	5		96,30			ND

HEURE HNL	Temp. °C	Point de rosée °C	Hum. rel. %	Hauteur de précip. mm	Dir. du vent 10's deg	Vit. du vent km/h	Visibilité km	Pression à la station kPa	Hmdx	Refr. éolien	Météo
20:00	18,8	18,1	96	0,0	16	6		96,28			ND
21:00	18,8	18,3	97	0,0	15	6		96,27			ND
22:00	19,0	18,5	97	0,0	16	8		96,26			ND
23:00	19,2	18,7	97	0,0	18	8		96,21			ND

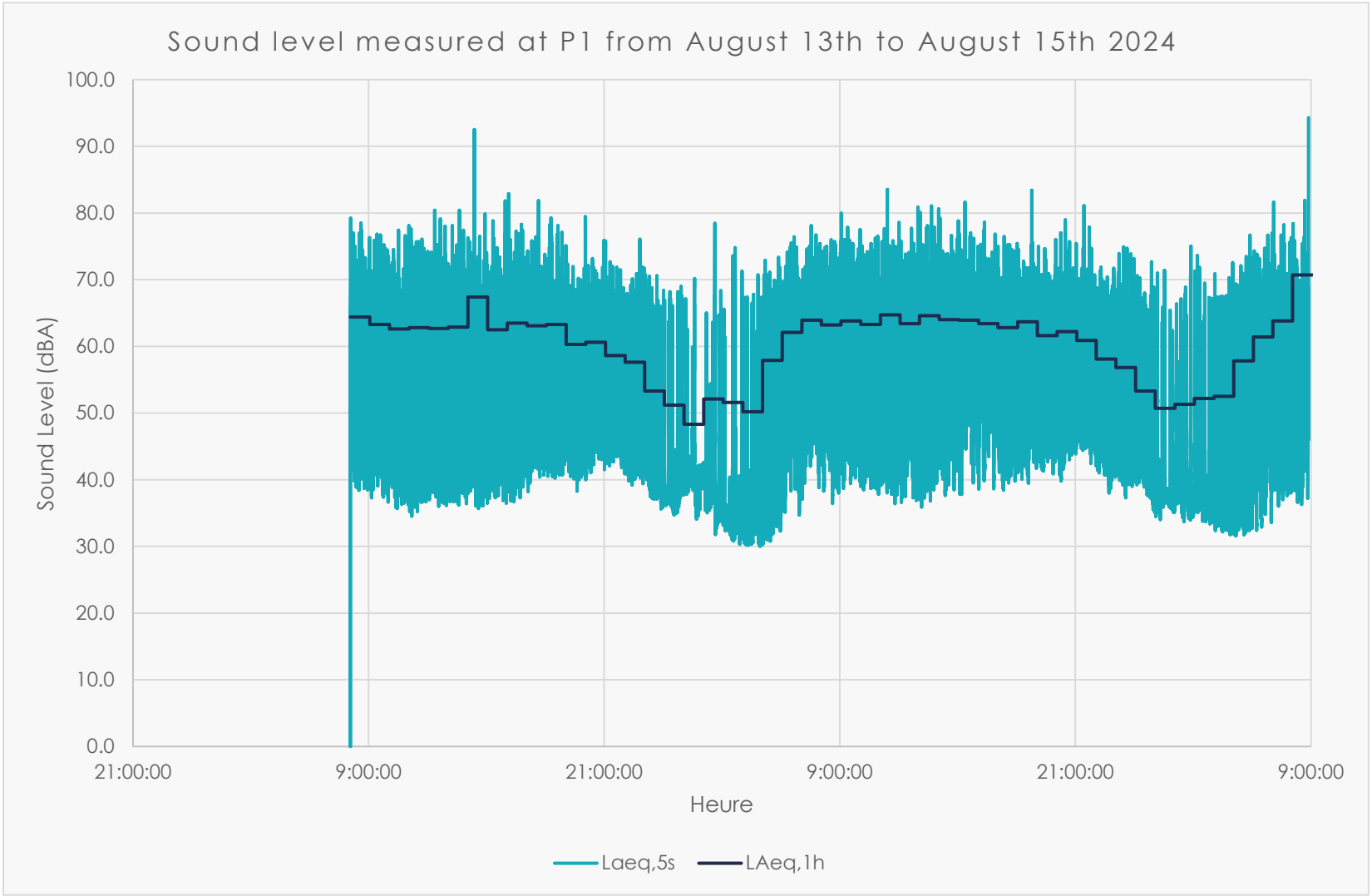
Légende

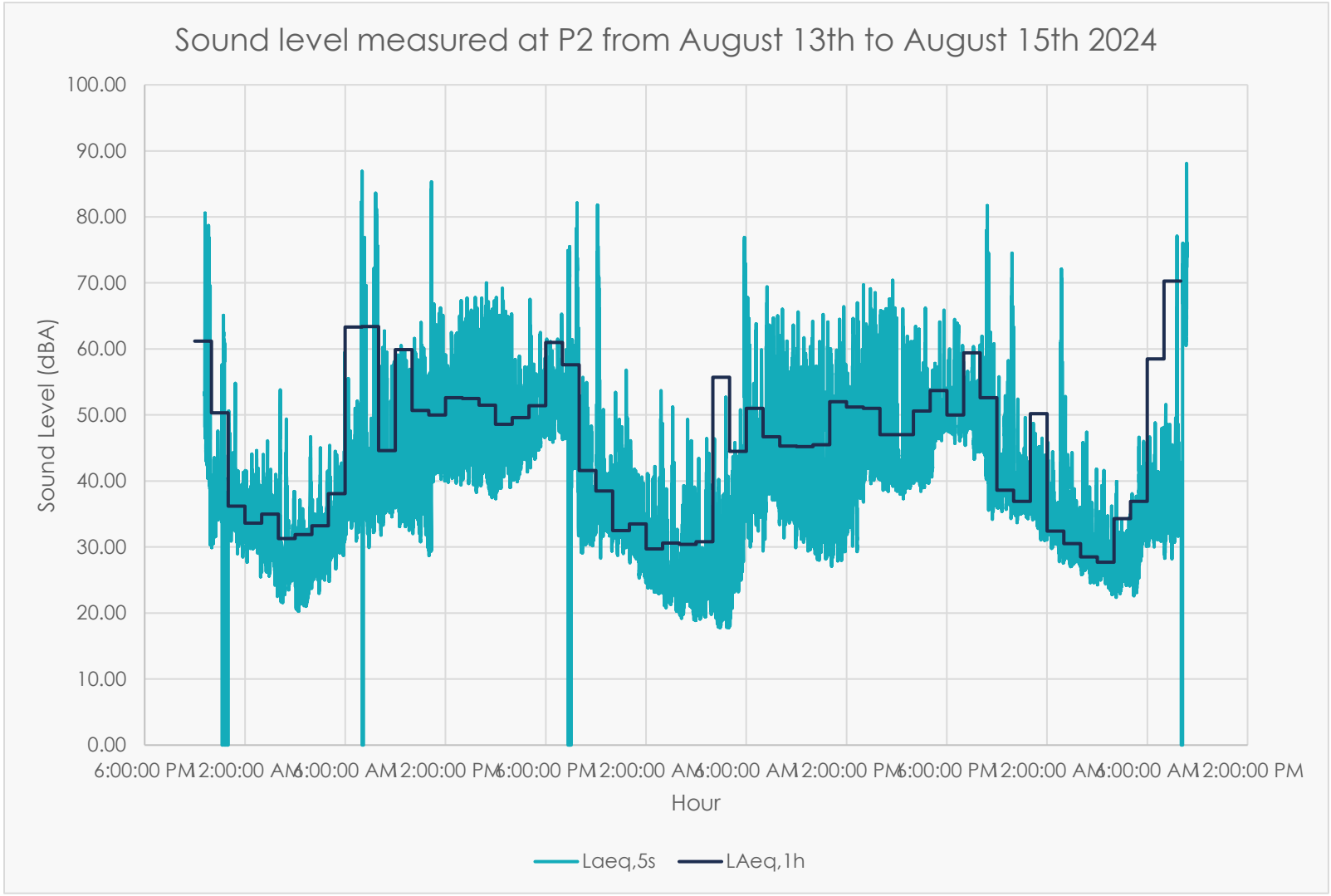
- E = Valeur estimée
- M = Données manquantes
- ND = Non disponible*
- [vide] = Indique une valeur non observée

Date de modification :

2024-06-27

Appendix D: Sound Spectrum


Sound level measured at P1 from August 13th to August 15th 2024
Sound Level (dBA)
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
21:00:00
9:00:00
21:00:00
9:00:00
21:00:00
9:00:00
Heure
Laeq,5s
LAeq,1h


Sound level measured at P2 from August 13th to August 15th 2024
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Sound Level (dBA)
6:00:00 PM
12:00:00 AM
6:00:00 AM
12:00:00 PM
6:00:00 PM
12:00:00 AM
6:00:00 AM
12:00:00 PM
6:00:00 PM
12:00:00 AM
6:00:00 AM
12:00:00 PM
Hour
Laeq,5s
LAeq,1h

Appendix E: Noise Impact Measurement

Measurement sheet			
		Survey	P1
Projet	Neoen Ontario BESS 1 Inc. - 7757017		
Address	GPS 44.448401 ; -81.110430 37 Concession 4 Arran, Arran-Elderslie, ON N0H 2N0		
Sound-Level Meter	Microphone – Class 1 (BBA2483) Sound level meter integrator class I – Larson-Davis	Start Time	2024-08-13 21:36
Calibrator	Reference Sound Source – Larson-Davis CAL200	End Time	2024-08-16 08:19

Measurement sheet							
Results							
Time	LAeq,h	L5%	L10%	L50%	L66%	L90%	L95%
21	61.2	57.6	49.2	41.3	37.0	32.5	31.7
22	50.3	59.9	49.4	38.4	37.0	34.3	33.3
23	36.2	40.0	38.6	34.0	33.0	31.2	30.5
0	33.6	37.4	36.0	32.0	31.2	29.3	28.6
1	35.0	39.0	36.9	31.7	29.8	26.4	24.7
2	31.3	36.6	32.7	28.3	26.8	23.5	22.0
3	31.9	35.4	34.3	29.0	26.8	22.5	21.7
4	33.2	37.1	35.7	30.6	29.6	27.5	25.8
5	38.1	42.1	40.1	34.6	32.3	29.8	29.1
6	63.3	49.6	44.6	38.7	37.3	34.9	34.0
7	63.4	57.1	49.8	38.3	36.7	34.1	33.1
8	44.6	47.1	43.3	39.6	38.5	36.3	35.4
9	44.6	49.2	43.7	36.5	35.4	34.0	33.5
10	59.9	49.6	44.8	38.2	36.3	32.5	31.2
11	50.7	54.6	50.6	44.7	43.4	41.4	40.8
12	50.0	53.4	50.4	45.4	43.8	41.1	40.6
13	52.6	57.9	52.7	46.8	45.1	40.9	39.9
14	52.5	58.0	51.5	44.0	42.4	39.9	38.9
15	51.5	54.9	50.5	45.8	44.2	41.8	40.8
16	48.6	52.1	49.2	45.2	44.4	42.8	41.8
17	49.6	53.9	50.6	47.8	46.6	45.1	44.6
18	51.4	55.3	54.3	49.1	48.0	46.9	46.6
19	61.0	61.1	55.9	46.8	43.2	35.1	31.3
20	57.6	54.2	50.1	34.1	33.0	31.4	30.9
21	41.6	43.5	41.2	35.9	34.7	32.6	31.6
22	38.5	43.0	41.1	35.3	33.6	31.2	30.2
23	32.5	37.8	36.1	30.0	28.1	25.6	25.2
0	33.5	38.3	34.7	25.6	24.4	22.9	21.9
1	29.7	35.2	31.7	22.9	21.9	20.1	19.8
2	30.6	35.5	33.2	23.6	21.5	19.9	19.6

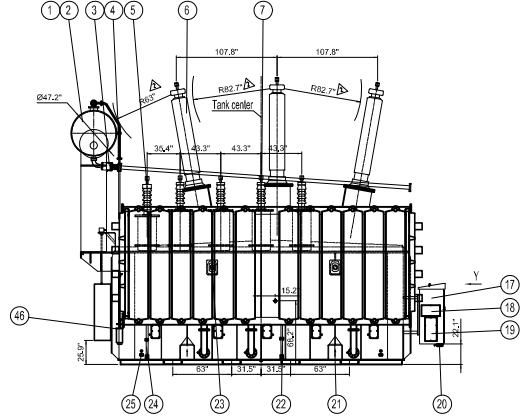
Measurement sheet							
3	30.4	36.2	33.3	23.0	21.5	20.3	19.9
4	30.8	36.0	33.1	21.4	19.7	18.2	18.0
5	55.7	51.7	45.8	35.4	32.3	26.8	25.5
6	44.5	47.2	45.4	40.0	38.3	35.2	33.9
7	51.0	55.5	51.1	43.4	41.7	38.6	37.5
8	46.7	50.8	47.0	38.4	37.0	34.3	33.3
9	45.3	50.8	44.0	34.3	32.7	30.5	29.9
10	45.2	47.0	41.0	32.5	31.2	29.2	28.6
11	45.5	48.7	44.9	35.1	33.3	30.1	29.3
12	52.0	54.8	52.9	43.0	40.6	38.1	36.6
13	51.2	53.1	48.9	44.2	43.1	41.3	40.7
14	51.0	53.6	47.9	42.1	41.2	39.6	39.1
15	47.0	48.0	44.0	41.3	40.7	39.3	38.7
16	47.0	50.7	46.9	41.8	41.1	40.0	39.5
17	50.6	53.3	51.4	49.2	48.7	47.5	46.7
18	53.7	59.8	56.9	49.5	48.6	47.3	46.7
19	50.0	54.9	52.3	47.9	46.3	45.1	44.7
20	59.4	54.9	48.0	41.1	39.6	37.3	36.6
21	52.6	50.0	46.3	39.5	38.5	36.1	35.6
22	38.6	42.3	40.7	36.8	36.1	35.2	34.8
23	36.9	41.8	39.9	34.7	33.5	32.2	31.8
0	50.2	46.0	39.3	32.4	31.5	29.7	29.0
1	32.4	37.4	33.8	28.9	28.1	26.9	26.4
2	30.5	34.5	32.2	27.2	26.5	25.3	24.9
3	28.5	32.9	30.7	25.6	24.7	23.5	23.2
4	27.7	32.0	30.5	25.9	25.3	24.0	23.6
5	34.3	38.7	36.6	32.5	31.2	25.6	24.2
6	36.9	40.9	39.1	35.0	34.0	31.9	31.1
7	58.5	66.8	47.8	37.3	35.8	33.0	32.0
8	70.3	72.4	70.0	65.6	64.5	62.3	61.4

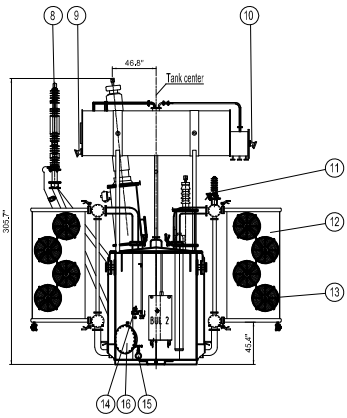
Measurement sheet			
		Survey	P2
Project	Neoen Ontario BESS 1 Inc. - 7757017		
Address	GPS 44.449417; -81.105257 16970 Grey Bruce Line, Tara, ON N0H 2N0		
Sound-Level Meter	Microphone – Class 1 (BBA2867) Sound level meter integrator class I – Larson-Davis	Start Time	2024-08-14 08:10:00
Calibrator	Reference Sound Source – Larson-Davis CAL200	End Time	2024-08-16 08:53:00

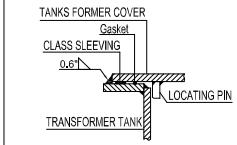
Measurement sheet							
Results							
Time	LAeq,h	L5%	L10%	L33%	L50%	L66%	L90%
8	64.4	71.1	68.4	57.6	51.8	47.8	42.0
9	63.3	70.1	67.9	56.1	50.0	45.8	40.0
10	62.6	68.9	66.9	56.6	49.6	44.8	38.9
11	62.8	69.1	66.8	54.6	48.1	43.0	38.1
12	62.7	68.9	66.7	53.5	46.6	42.6	38.8
13	62.9	69.0	66.6	54.7	48.4	43.8	39.0
14	67.4	69.5	67.0	55.3	48.7	44.2	38.5
15	62.5	68.7	66.6	55.0	48.8	44.2	39.4
16	63.5	69.5	66.9	53.6	48.2	44.2	39.2
17	63.1	69.4	67.3	55.4	50.3	46.9	42.4
18	63.3	69.5	67.1	53.3	49.3	45.7	42.1
19	60.3	68.0	63.9	52.9	48.7	45.1	41.7
20	60.6	68.2	64.0	53.9	49.5	46.5	43.5
21	58.6	66.0	60.6	51.0	48.0	45.4	43.1
22	57.6	63.9	58.2	47.6	44.6	42.7	41.0
23	53.3	55.8	48.8	41.5	39.8	38.7	37.2
0	51.2	52.4	46.6	39.9	38.3	37.1	35.8
1	48.3	43.9	42.7	41.5	40.8	40.2	38.7
2	52.1	48.1	42.9	39.8	38.4	36.8	34.1
3	51.6	48.2	42.4	35.4	34.1	33.0	32.0
4	50.2	50.2	43.8	33.8	32.3	30.7	30.3
5	57.9	64.6	58.9	47.1	40.4	35.8	32.0
6	62.1	69.1	66.1	55.6	51.2	47.8	41.1
7	63.9	70.7	68.4	59.1	54.7	51.4	45.6
8	63.2	70.2	67.8	57.4	52.1	48.1	42.1
9	63.8	70.2	67.9	56.9	50.4	46.3	41.9
10	63.3	69.8	67.7	57.0	50.5	45.1	40.0
11	64.7	70.4	68.2	57.4	50.5	45.6	40.2
12	63.4	69.6	67.3	55.9	50.5	46.3	40.0
13	64.6	70.0	67.7	57.8	51.7	46.5	40.2

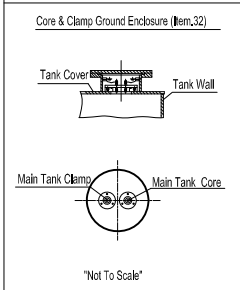
Measurement sheet							
14	64.0	70.2	68.1	57.3	51.3	46.9	41.8
15	63.9	70.1	68.2	57.5	53.3	51.0	46.5
16	63.4	69.8	67.9	57.4	53.6	51.4	47.1
17	62.8	69.9	67.8	55.7	51.3	47.6	42.1
18	63.7	70.8	68.1	55.2	51.3	48.1	43.2
19	61.6	69.2	66.6	54.6	50.8	47.2	43.5
20	62.2	69.6	66.0	53.5	49.3	46.9	43.5
21	60.9	67.9	62.9	52.5	49.5	47.4	45.2
22	58.1	65.4	59.8	49.3	45.8	43.8	41.4
23	56.8	61.1	55.1	45.8	43.0	41.7	40.1
0	53.3	56.3	50.3	42.8	41.5	40.0	37.5
1	50.7	50.6	43.0	38.1	37.6	37.1	35.6
2	51.3	49.4	43.4	38.6	37.9	37.5	36.3
3	52.2	51.3	44.6	39.0	38.7	38.4	35.0
4	52.5	54.0	45.3	37.9	35.4	33.9	32.6
5	57.8	63.6	57.5	43.3	39.1	35.2	32.2
6	61.4	68.8	64.7	54.0	49.4	45.3	37.6
7	63.8	70.1	67.4	58.0	53.8	49.2	40.9
8	70.7	70.4	67.1	56.7	52.5	48.3	41.0
9	38.6	42.3	40.7	36.8	36.1	35.2	34.8

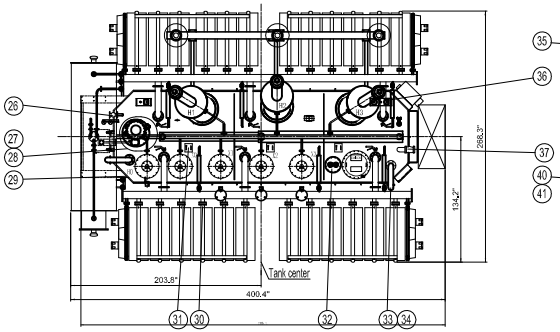
Appendix F: Substation 245 kV and MV Transformers Drawing

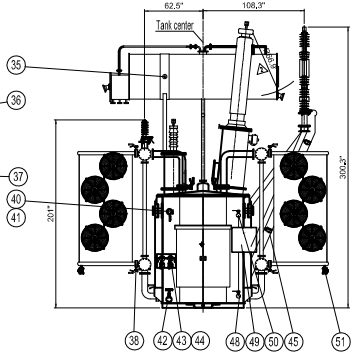


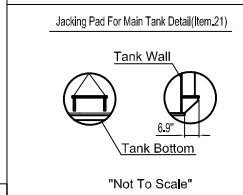


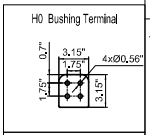


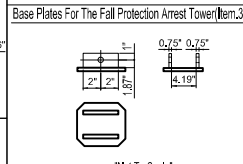


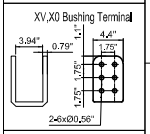


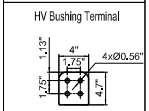


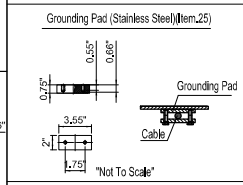


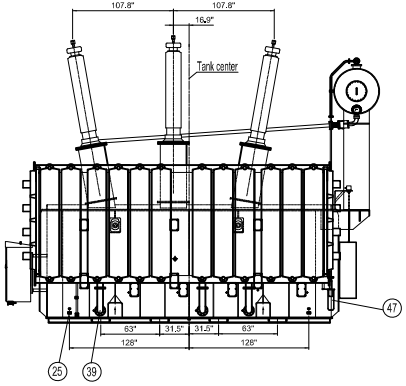








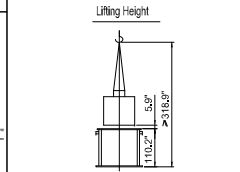


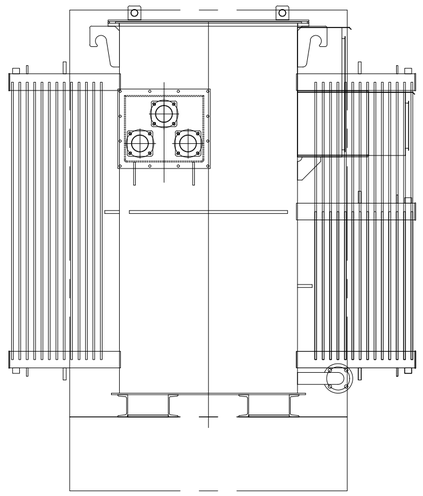


Data Sheet of Weight

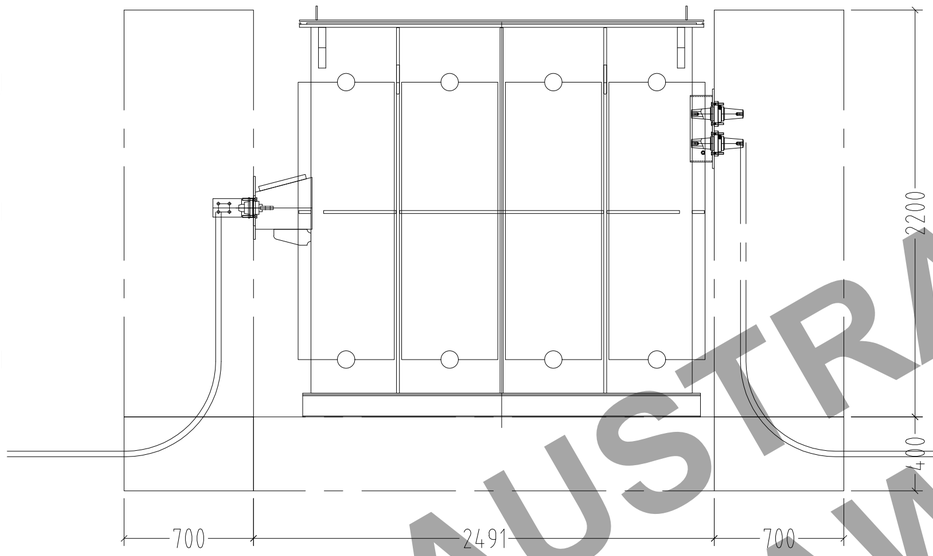
Item	Weight (LBS)
Core & Coil	253080
Tank,fittings	102750
Total Mass	457710
Transportation (Air filled)	307780
Total Oil 12060(US Gallon)	89210
Radiator Oil (1750 US GAL.)	13110
Conservator Oil (560 US GAL.)	4190

Shipping Dimension	Pulling Eyes	Lifting Lug
SIZE	1.42" Ø3.94" R3.94"	Tank Wall 0.2"
L389.8"xW118.3"xH145.7"	7.87" For pulling	Ø7.64" 5.12"
Shipping Center of gravity	"Not To Scale"	"Not To Scale"
Operating Center of gravity		
Jacking Point		

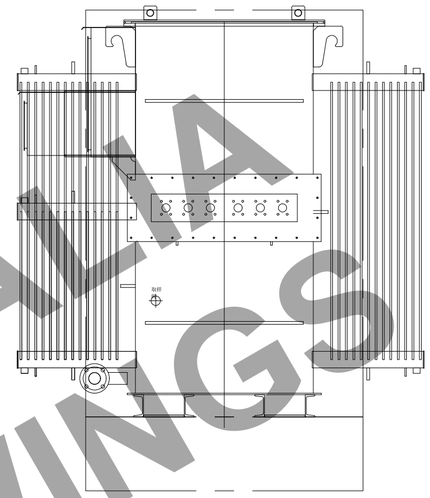




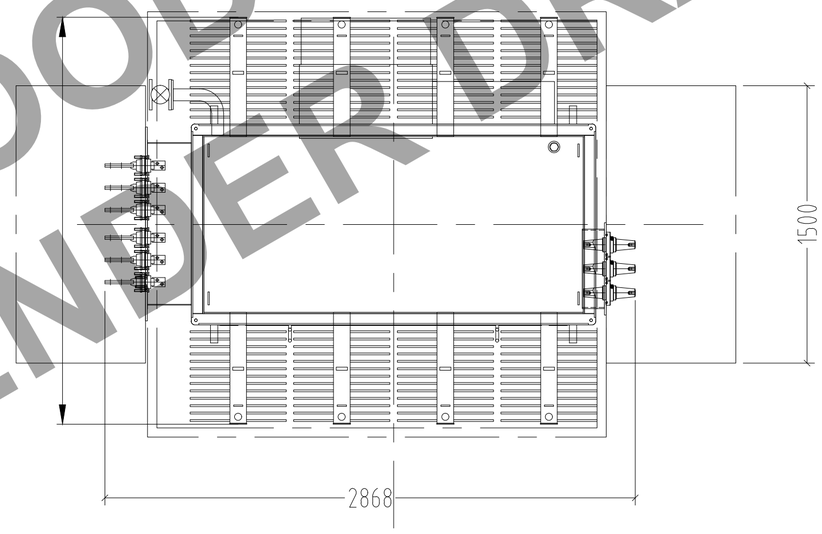
SIDE VIEW



FRONT VIEW



SIDE VIEW



PLAN VIEW

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES.
2. THE DIMENSIONS SHOWN IN THIS DRAWING ARE TENTATIVE AT THIS STAGE. THIS WILL BE RECONFIRMED PRIOR TO THE PROJECT AWARD.

FOR TENDER
NOT FOR CONSTRUCTION

REVISIONS

REV	DRN	DATE	REVISION DETAILS	CHK	APP
A	AP	07/04/25	ISSUED FOR TENDER	TG	TG

REFERENCE DRAWINGS

REFERENCE DRAWING No.	REFERENCE DRAWING TITLE

NEOEN

TGOOD
Energy. Fast!

SCALE 1:16 (WHEN PRINTED AT SIZE)

3rd ANGLE PROJECTION (uno)

	SIGNATURE	DATE
DRAWN	TGOOD	07/04/25
CHECKED	TGOOD	07/04/25
APPROVED	TGOOD	07/04/25
DESIGN ENG	TGOOD	07/04/25

DRAWING No.. P250863-DRG-GAD-002

CLIENT DRAWING No..

RPEQ APPROVAL
NAME: NAME
NUMBER: Eng Aus No.
SIGNATURE:

CLIENT: NEOEN

TITLE: TARA BESS PROJECT
TRANSFORMER KIOSK
34.5/0.48KV 4.8MVA TRANSFORMER KIOSK
GENERAL ARRANGEMENT

PROJECT No.	P250863	SHEET No.	1 OF 1	REVISION	A	A1

Date Printed: 07/04/2025

Appendix G: Tesla Megapack Datasheet

Confidential and subject to a Non-Disclosure Agreement (NDA)

Appendix H: Tesla Temperature Analysis

Confidential and subject to a Non-Disclosure Agreement (NDA)

Appendix I: Tonal Analyses of the BESS at Receptors

Table 31: Third-octave band tonal analysis according to Annex K of ISO 1996-2 with only BESS sources active at 50% load capacity at the receptors with wall

	1/3 octave		OPOR1	OPOR2	OPOR3	OPOR4	OPOR5	OPOR6	OPOR7	OPOR8	OPOR9
Limit level difference between 1/3 band octave (dB)	Hz	LP(dBA)	43.7	43.6	41.9	42.1	39.4	38.5	37.3	36.3	33.3
15	100	(dB)	39.8	38.5	37.3	37.6	33.9	33	32	31.2	28.9
15	125	(dB)	37.5	36.4	35.2	35.4	31.9	31	30	29.1	26.8
8	160	(dB)	32.7	31.8	30.4	30.7	27.3	26.3	25.3	24.5	22.1
8	200	(dB)	29.2	28.7	27.6	27.7	24.6	23.8	22.8	21.9	19.4
8	250	(dB)	40.8	40.3	39.1	39.3	36.3	35.5	34.5	33.6	31
8	315	(dB)	45.7	45.5	44.2	44.3	41.5	40.5	39.5	38.6	35.9
8	400	(dB)	34.4	34.8	32.9	33	31	29.9	29	28.3	25.7
5	500	(dB)	30.8	31.5	29.5	29.6	27.7	26.5	25.6	24.9	22.1
5	630	(dB)	35.4	36.3	34.1	34.2	32.5	31.2	30.3	29.4	26.6
5	800	(dB)	31.6	32.7	30.4	30.5	28.9	27.5	26.6	25.7	22.7
5	1000	(dB)	33.6	34.7	32.3	32.4	30.6	29.3	28.3	27.3	23.9
5	1250	(dB)	30.8	32.1	29.5	29.6	27.7	26.3	25.1	23.9	20.2
5	1600	(dB)	28.5	29.9	27	27.1	25	23.4	22	20.6	16.3
5	2000	(dB)	26.4	27.8	24.6	24.7	21.9	20.2	18.5	16.7	11.4
5	2500	(dB)	24.5	25.8	22.2	22.3	18.5	16.4	14.1	11.7	4.9
5	3150	(dB)	19.5	20.6	16.3	16.6	10.8	8.3	5.1	1.7	-7.5
5	4000	(dB)	12.8	13.3	8.2	8.6	-0.2	-3.5	-8.3	-13.2	-26.1

	1/3 octave		OPOR1	OPOR2	OPOR3	OPOR4	OPOR5	OPOR6	OPOR7	OPOR8	OPOR9
Limit level difference between 1/3 band octave (dB)	**Hz**	**LP(dBA)**	43.7	43.6	41.9	42.1	39.4	38.5	37.3	36.3	33.3
5	5000	(dB)	4.3	3.8	-2.6	-1.9	-15.7	-20.2	-27.3	-34.5	-53.3
5	6300	(dB)	-8.8	-10.7	-19.1	-18	-39.5	-45.9	-56.3	-66.9	-80.1
5	8000	(dB)	-24.5	-28.8	-40.1	-38.4	-70.9	-77.4	-80.1	-80.2	-80.2
5	10000	(dB)	-45.6	-53.6	-68.3	-66	-80.2	-80.2	-80.2	-80.2	-80.2
Tonal band			None	None	None	None	None	None	None	None	None

Table 32: Third-octave band tonal analysis according to Annex K of ISO 1996-2 with only BESS sources active at 50% load capacity with the walls required if the vacant lot is occupied

	1/3 octave		R10	R11	R12
Limit level difference between 1/3 band octave (dB)	Hz	LP(dBA)	49.2	38.5	46.6
15	100	(dB)	43.9	31.7	39.2
15	125	(dB)	41.7	29.7	37.2
8	160	(dB)	37	25	32.6
8	200	(dB)	35.4	24.4	31.6
8	250	(dB)	47	36.1	43.4
8	315	(dB)	51.9	41.3	48.6
8	400	(dB)	41.6	31.3	38.9
5	500	(dB)	38.2	27.9	35.7
5	630	(dB)	42.7	32.6	40.6
5	800	(dB)	36.5	26.3	34.7
5	1000	(dB)	38.2	27.9	36.8
5	1250	(dB)	35.6	24.7	34.3
5	1600	(dB)	32.9	21.1	31.9
5	2000	(dB)	31	17.3	30
5	2500	(dB)	29.6	12.6	28.3
5	3150	(dB)	25.3	3	23.5
5	4000	(dB)	19.9	-11.2	16.9

	1/3 octave		R10	R11	R12
Limit level difference between 1/3 band octave (dB)	**Hz**	**LP(dBA)**	49.2	38.5	46.6
5	5000	(dB)	13.5	-31.7	8.3
5	6300	(dB)	4.3	-63.1	-4.9
5	8000	(dB)	-5.3	-80.2	-21
5	10000	(dB)	-16.9	-80.2	-42.8
Tonal band			None	None	None

Appendix J: Sound Level Contribution of Each Type of Source at the Receiver with and Without Mitigation

Table 33: Sound level contribution of each type of source at the receiver without mitigation (dBA) for daytime

POR ID Receptor number	Predicted Sound Level day (dBA) with BESS 50%	Closest transformer	Closest BESS	Closest MV transformer
OPOR1	53.5	46.8	26.4	29.8
OPOR2	51.4	44.6	23.4	26.3
OPOR3	50.6	43.9	22.3	25.8
OPOR4	50.9	44.2	22.7	25.7
OPOR5	45.5	38.6	16.3	19.5
OPOR6	44.9	40.3	17.6	21.3
OPOR7	43.2	37.1	14.0	18.6
OPOR8	41.5	34.8	12.4	17.2
OPOR9	38.5	31.8	9.2	13.1

Table 34: Sound level contribution of each type of source at the receiver without mitigation (dBA) for evening

POR ID Receptor number	Predicted Sound Level evening (dBA) with BESS 30%	Closest transformer	Closest BESS	Closest MV transformer
OPOR1	50.9	46.2	19.7	29.8
OPOR2	49.0	44.0	16.7	26.3
OPOR3	48.2	43.3	15.7	25.8
OPOR4	48.5	43.6	16.1	25.7
OPOR5	43.3	38.0	9.5	19.5
OPOR6	42.7	38.1	9.1	19.9
OPOR7	41.0	36.5	7.1	18.6
OPOR8	39.3	34.2	5.4	17.2
OPOR9	36.3	31.2	2.2	13.1

Table 35: Sound level contribution of each type of source at the receiver without mitigation (dBA) for nighttime

POR ID Receptor number	Predicted Sound Level nighttime (dBA) with BESS 30%	Closest transformer	Closest BESS	Closest MV transformer
POR1	50.3	45.6	18.8	28.9
POR2	50.0	45.1	17.0	26.8
POR3	47.7	42.8	15.0	24.8
POR4	48.0	43.1	15.4	25.1
POR5	45.1	40.1	10.7	21.0
POR6	44.3	39.7	10.5	21.3
POR7	42.4	37.2	8.7	19.9
POR8	40.8	35.7	6.9	17.5
POR9	35.9	30.8	1.8	12.2

Table 36: Sound level contribution of each type of source at the receiver with mitigation (dBA) for daytime

POR ID Receptor number	Predicted Sound Level daytime (dBA) with BESS 50%	Closest transformer	Closest BESS	Closest MV transformer
OPOR1	44.4	28.8	21.3	20.4
OPOR2	44.7	26.5	23.0	25.5
OPOR3	42.7	26.1	19.4	17.9
OPOR4	42.9	26.4	19.6	17.4
OPOR5	40.4	21.7	16.3	18.4
OPOR6	39.2	22.4	15.7	12.0
OPOR7	38.2	21.7	14.3	13.9
OPOR8	37.4	22.3	12.3	13.2
OPOR9	34.6	18.4	11.1	9.1

Table 37: Sound level contribution of each type of source at the receiver with mitigation (dBA) for the evening

POR ID Receptor number	Predicted Sound Level evening (dBA) with BESS 30%	Closest transformer	Closest BESS	Closest MV transformer
OPOR1	40.0	28.8	14.4	20.4
OPOR2	40.2	26.5	16.4	25.5
OPOR3	38.0	26.1	12.4	17.9
OPOR4	38.2	26.4	12.7	17.4
OPOR5	35.7	21.1	9.6	18.4
OPOR6	34.1	21.8	8.9	12.6
OPOR7	33.3	21.1	7.4	13.9
OPOR8	32.7	21.7	5.4	13.2
OPOR9	30.1	17.8	9.0	2.1

Table 38: Sound level contribution of each type of source at the receiver with mitigation (dBA) for nighttime

POR ID Receptor number	Predicted Sound Level nighttime (dBA) with BESS 30%	Closest transformer	Closest BESS	Closest MV transformer
POR1	39.5	27.7	14.1	19.4
POR2	41.2	26.9	16.7	26.2
POR3	37.6	25.0	12.1	17.4
POR4	37.8	25.3	12.4	17.1
POR5	37.4	25.4	10.9	19.6
POR6	35.7	23.4	10.4	14.3
POR7	35.0	21.7	9.0	15.9
POR8	34.6	24.0	6.9	14.9
POR9	29.8	17.5	1.6	11.1

Table 39: Distance from receiver to closest sources (m)

POR ID Receptor number	T1	T2	T3	Closest BESS	Closest MV transformer
OPOR1/POR1	397/426	413/437	431/457	225/251	234/261
OPOR2/POR2	506/526	497/518	491/511	310/331	322/343
OPOR3/POR3	527/555	537/564	547/574	344/370	355/383
OPOR4/POR4	515/537	525/550	539/562	330/355	342/369
OPOR5/POR5	831/870	826/864	821/858	640/678	653/889
OPOR6/POR6	871/896	891/917	910/937	712/738	721/745
OPOR7/POR7	1002/1033	1028/1057	1052/1082	832/861	838/868
OPOR8/POR8	1131/1181	1160/1208	1186/1235	970/1017	972/1021
OPOR9/POR9	1459/1500	1488/1529	1515/1556	1302/1342	1305/1345

Appendix K: Sound Level Contours Without Mitigation

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 1
Day without Mitigation
Scenario 1 – 1.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

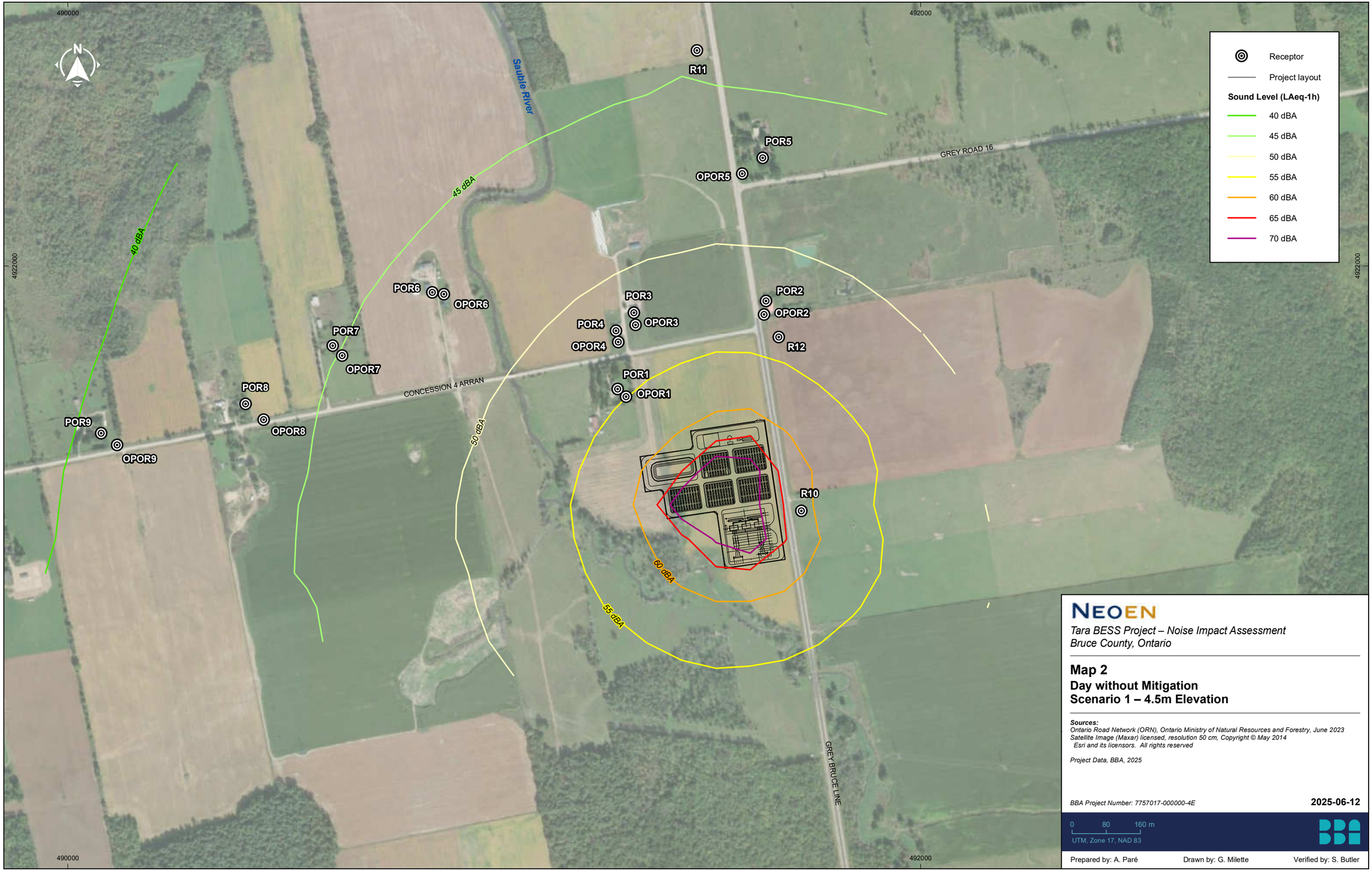
BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_030_0013_R01_Map1.mxd



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 2
Day without Mitigation
Scenario 1 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_030_0014_R01_Map2.mxd

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 3
Day without Mitigation
Scenario 2 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0015_R01_Map3.mxd

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 4
Evening and Night without Mitigation
Scenario 2 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E **2025-06-12**

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0016_R01_Map4.mxd

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 5
Evening and Night without Mitigation
Scenario 1 – 1.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0017_R01_Map5.mxd

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 6
Evening and Night without Mitigation
Scenario 1 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

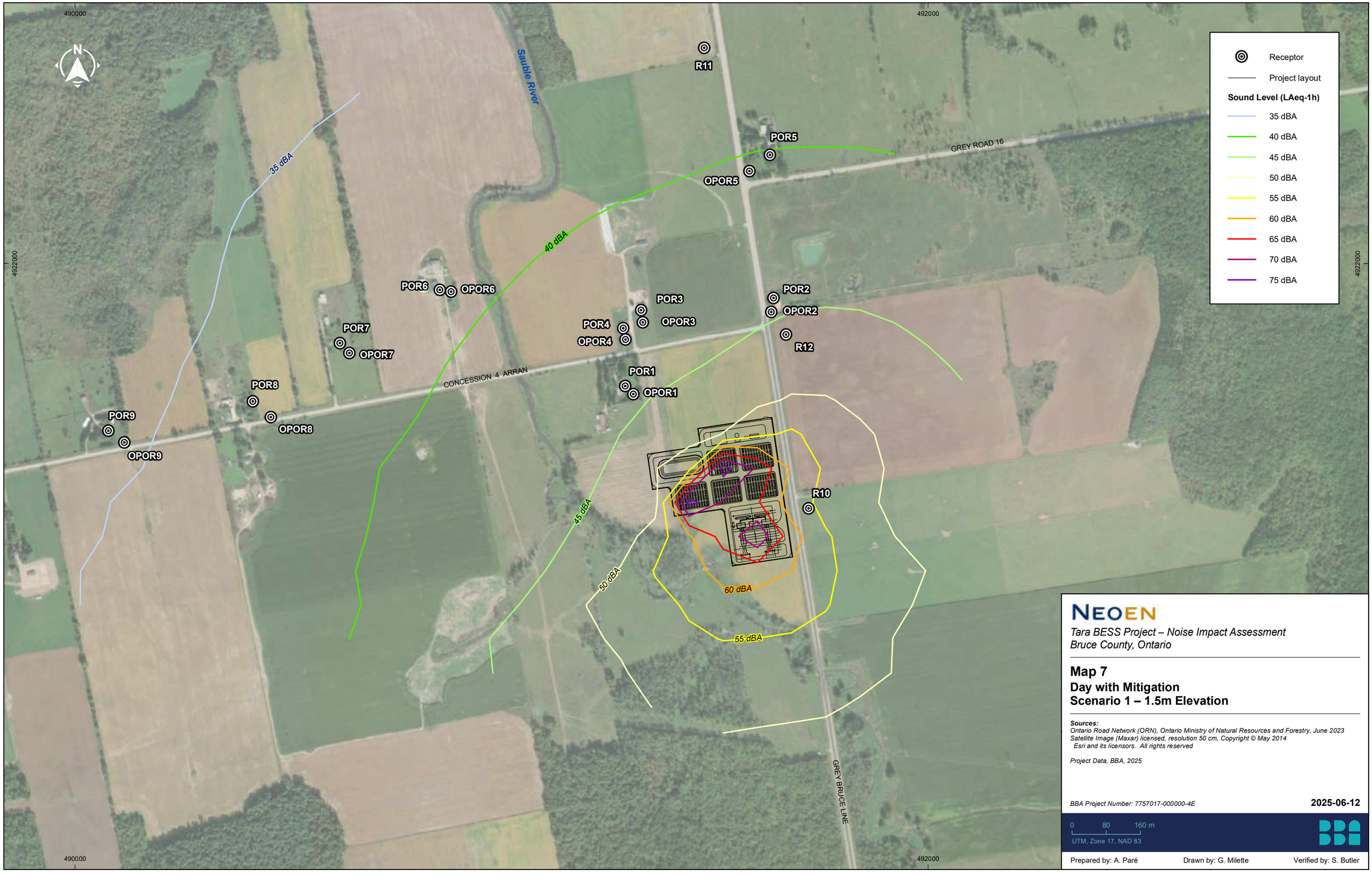
2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0018_R01_Map6.mxd

Appendix L: Sound Level Contours with Mitigation



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 7
Day with Mitigation
Scenario 1 – 1.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

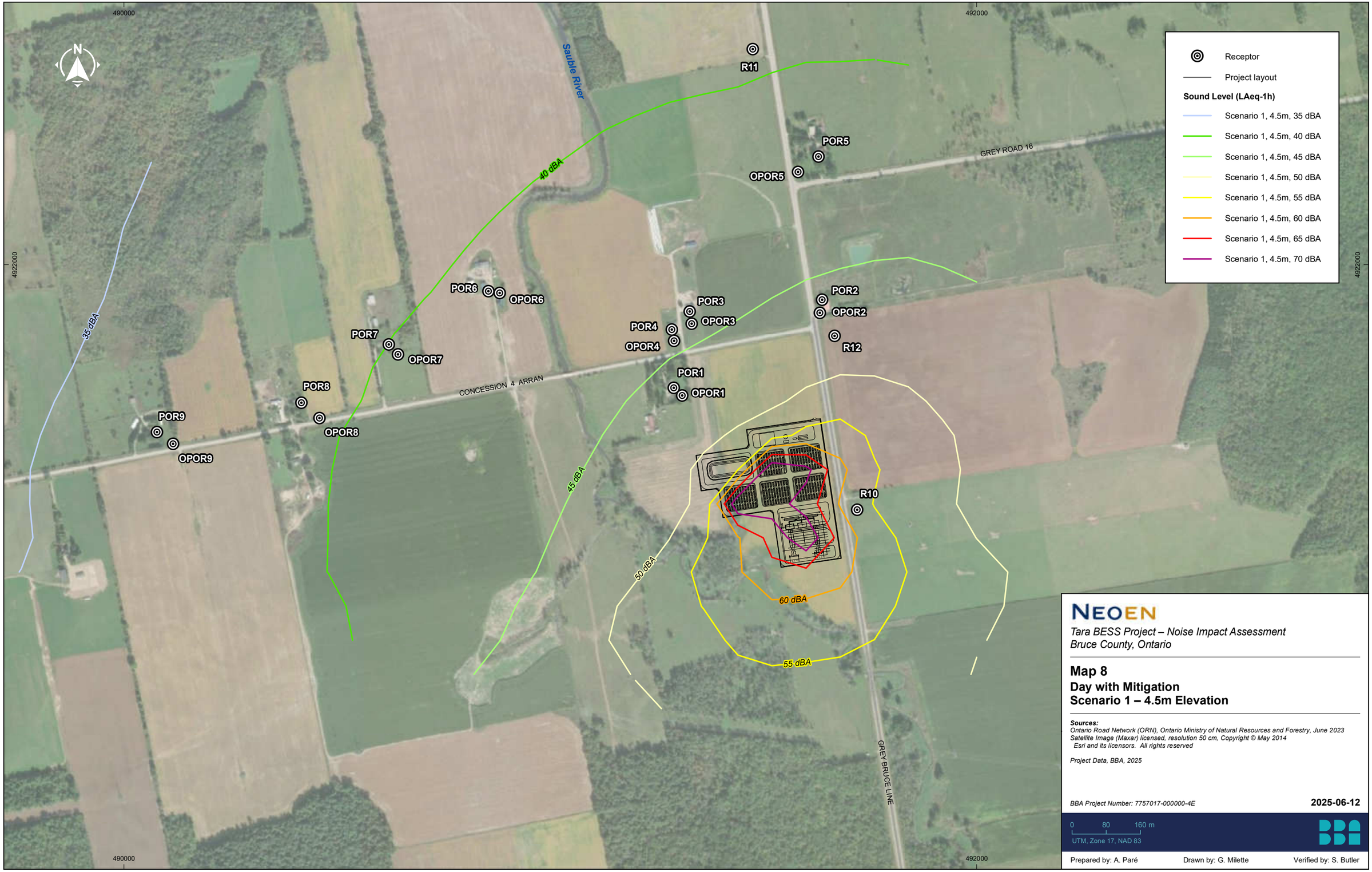
BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0019_R01_Map7.mxd



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 8
Day with Mitigation
Scenario 1 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0020_R01_Map8.mxd

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 9
Evening and Night with Mitigation
Scenario 1 – 1.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0021_R01_Map9.mxd

NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 10
Evening and Night with Mitigation
Scenario 1 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

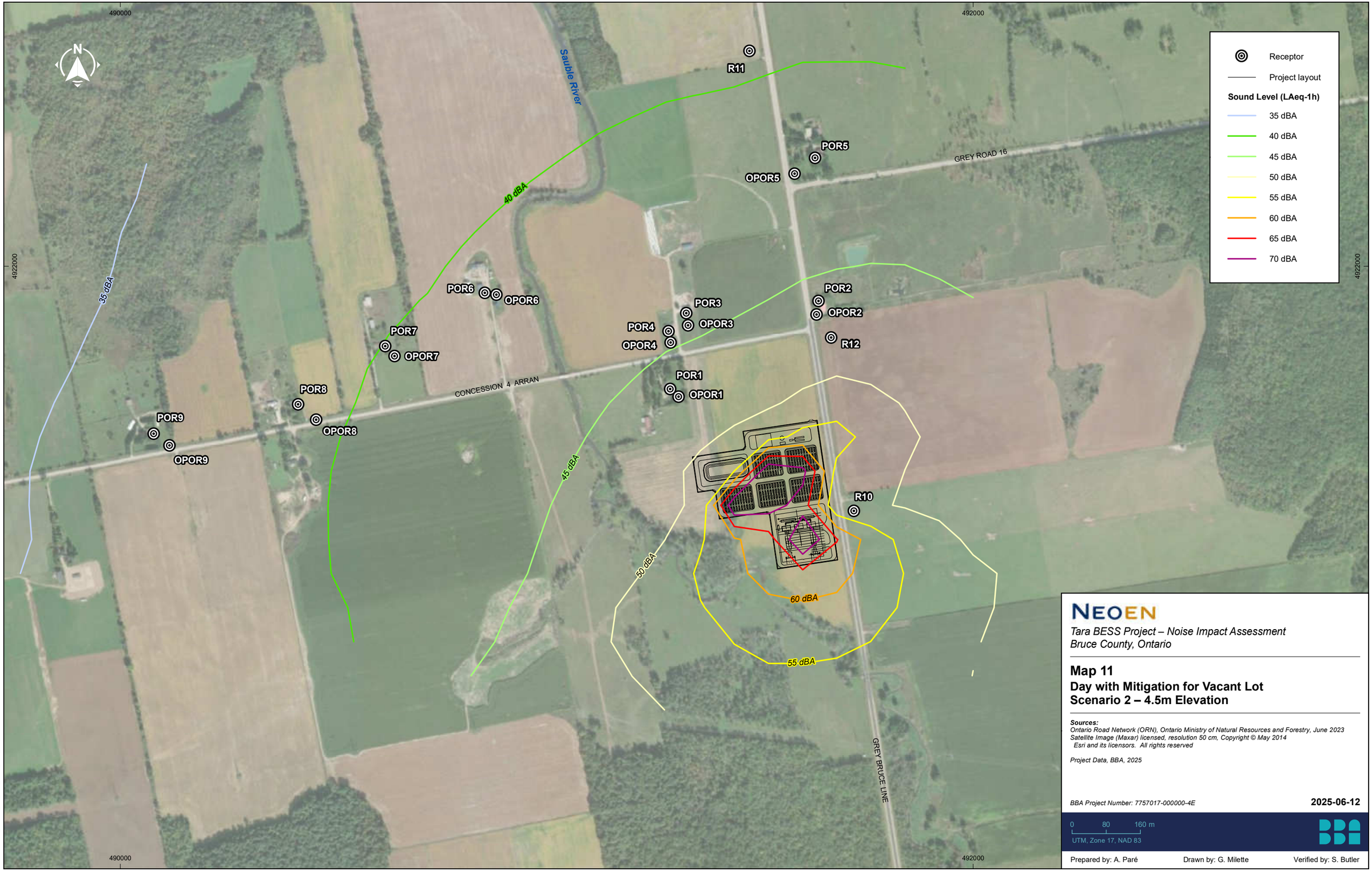
BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0022_R01_Map10.mxd



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 11
Day with Mitigation for Vacant Lot
Scenario 2 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

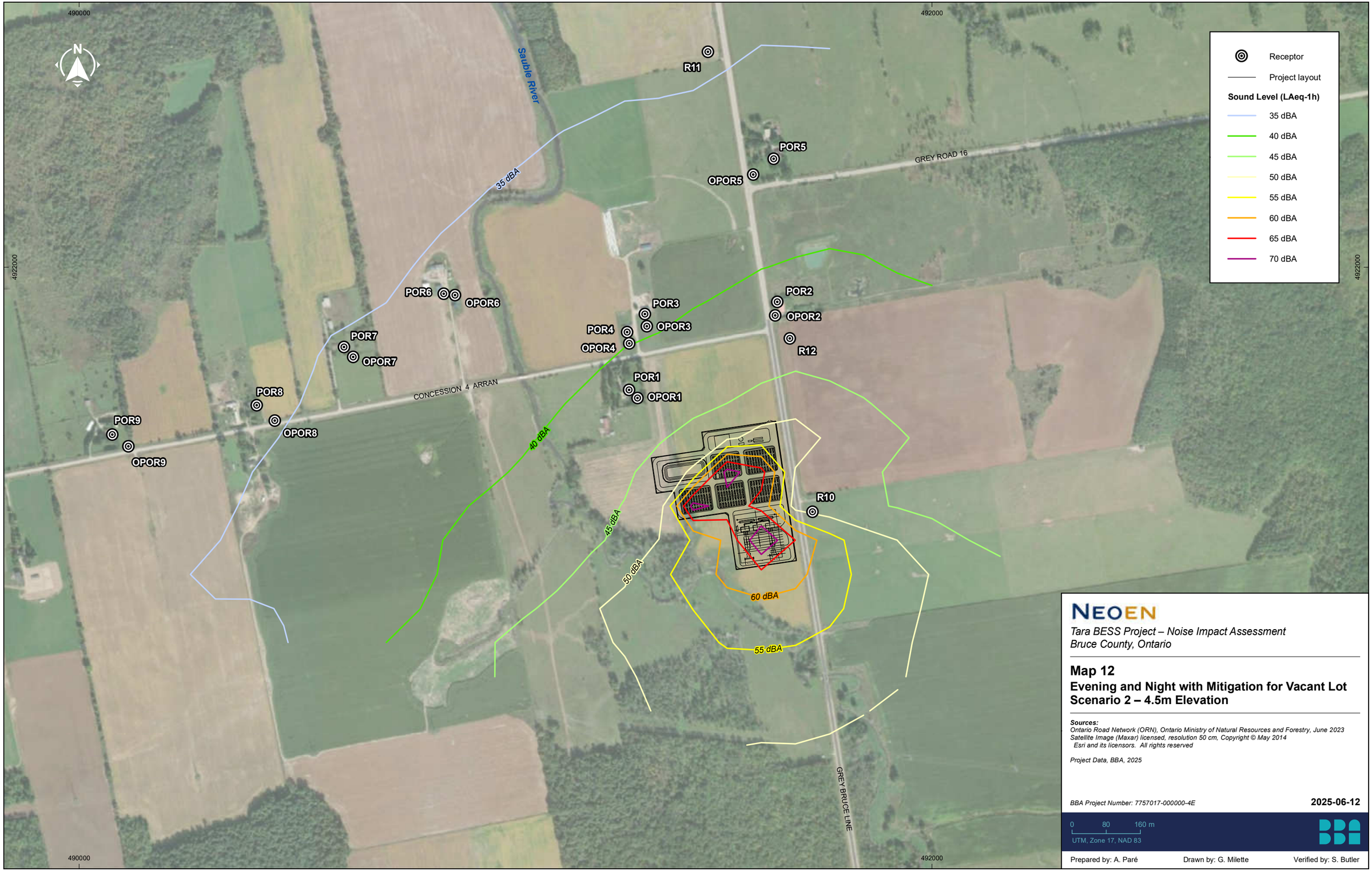
BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0023_R01_Map11.mxd



NEOEN

Tara BESS Project – Noise Impact Assessment
Bruce County, Ontario

Map 12
Evening and Night with Mitigation for Vacant Lot Scenario 2 – 4.5m Elevation

Sources:
Ontario Road Network (ORN), Ontario Ministry of Natural Resources and Forestry, June 2023
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Project Data, BBA, 2025

BBA Project Number: 7757017-000000-4E

2025-06-12

0 80 160 m
UTM, Zone 17, NAD 83

Prepared by: A. Paré | Drawn by: G. Milette | Verified by: S. Butler

File: 7757017_000000_4E_D30_0024_R01_Map12.mxd

Appendix M: Specification of Acoustic Wall Barrier

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SOUND TRANSMISSION TESTING CONDUCTED ON
Sound Barrier Panel 30NAM:NA/2440

Durisol
51 Arthur Street South
Ontario, Canada N0K 1N0

Date: September 2, 2021
Author: Shaun Montgomery
Report Number: ESP036101P-11

Customer PO: 314

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Ear Controlled Data

Sound Transmission Class Testing (ASTM E90)

INTRODUCTION:

This report presents the results of acoustical testing of a painted Durisol Sound Barrier. This testing was requested by Mr. Bruce Walker of Durisol and was conducted on August 27th, 2021

This report must not be reproduced except in full without the approval of Element Materials Technology. The test results contained in this report pertain only to the specific assemblies tested and not necessarily to all similar constructions.

The results stated in this report represent only the specific construction and acoustical conditions present at the time of the test. Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

TEST RESULTS SUMMARY:

Sound Transmission Class (STC) Test - ASTM E-90				Test Results		
Test #	**Sample Identification**	**Weight (lbs)**	**Weight (psf)**	**STC**	**Def.**	**OITC**
11	NB15 - Panel ID: 30NAM:NA/2440	1,120 lbs.	46.7	***38***	***25***	***35***

Tabular and graphical presentations of the data are presented under “TEST RESULTS” below.

SPECIMEN DESCRIPTION: (Also see "Test Results")

The material was described as a Durisol sound barrier and consisted of one (1) panel. The panel was measured at approximately 96” x 36”. The panel Durisol layers consisted of a 51mm base/25mm pattern on the “Mould” side and a 51mm base/ 25mm pattern on the “Lid” side – separated by a 47mm concrete core. The panel was approximately 8” thick. The perimeter of the sample was sealed with a non-hardening duct seal.

TEST PROCEDURE:

Sound Transmission Test

ASTM:E90(09), "Laboratory Measurement of Airborne Sound Transmission of Building Partitions," was followed in every respect. The STC value was obtained by applying the Transmission Loss (TL) values to the STC reference contour of ASTM: E413(16), "Determination of Sound Transmission Class." The actual transmission loss at each frequency was calculated by the following equations:

$$TL = NR + 10 \log S - 10 \log A_{2s}$$

where: TL = Transmission Loss (dB)
NR = Noise Reduction (dB)
S = Surface area common to both sides (sq. ft.)
A_2 = Sound absorption of the receiving room with the sample in place (sabins)

OITC Procedure

ASTM:E1332(16), "Determination of Outdoor-Indoor Transmission Class", was followed in every respect. Basically, the OITC was calculated by using the sound transmission loss values in the 80 to 4000 Hz range as measured in accordance with ASTM E-90(09). These transmission loss data are then used to determine the A-weighted sound level reduction of the specimen for the reference source spectrum specified in Table 1 of ASTM E1332(16). The appropriate calculations were made to determine the OITC value. TL measurements were obtained in a single direction, from Source Room to the Receiving room. The source room has a volume of 2948-ft^3 (83-m^3) and the receiving room has a volume of 5825-ft^3 (165-m^3).

TEST EQUIPMENT:

Item Description	ID #	Manufacturer/Model	Serial #	Calibration Due	Location
1/2" Pressure Condenser Microphone	PT-162-108	GRAS/46AD	167994	6/18/2022	Reverberation Chamber
1/2" Pressure Condenser Microphone	PT-162-216	BSWA/MP253	450005	11/31/2021	Source Chamber
Microphone Calibrator	PT-162-076	Norsonic/1251	29144	6/18/2022	N/A
Data Acquisition Module	PT-162-086	National Instruments/NI9234	154D0E4-1548E92	6/7/2022	Control Center
Temp and Humidity Transmitter	PT-162-077	Dwyer Instruments/Series RH	M90714-E4SV-Y	6/3/2022	Reverberation Chamber
Temp and Humidity Transmitter	PT-162-079	Dwyer Instruments/Series RH	M93237-E09W-A	6/3/2022	Source Chamber

Test Data:

SOUND TRANSMISSION LOSS
ASTM E90

General Information

Project No.:	ESP036101P-11
Customer:	Durisol
Test Date:	08-27-2021
Specimen ID:	30 NAM NA 2440
Specimen Description:	Concrete Barrier 96.00" W x 36.00" H - 24.00 ft²
Specimen (depth-weight):	7.5" - lbs
Operator:	MJC

Data Table

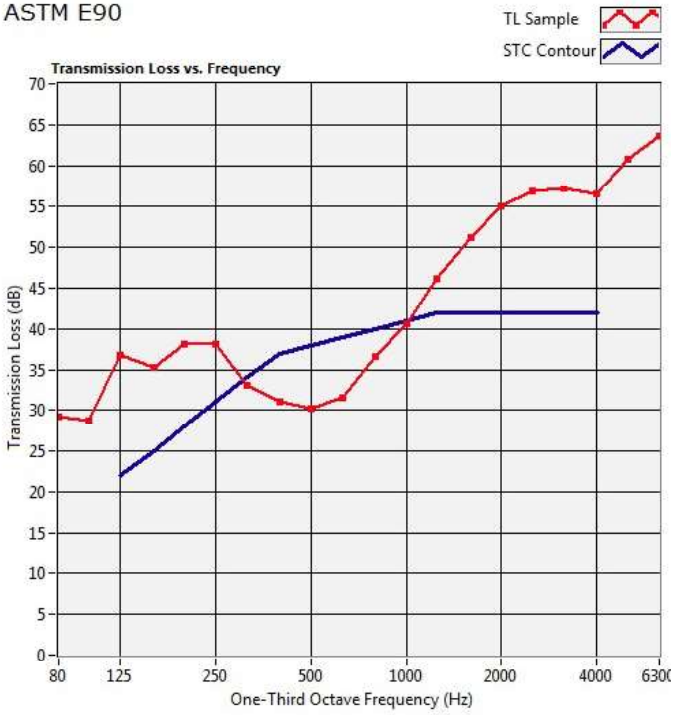
	TL (dB)	deficiencies	95% CI
80	29	-	1.56
100	29	-	1.45
125	37	0	1.60
160	35	0	1.43
200	38	0	0.90
250	38	0	0.82
315	33	1	0.57
400	31	6	0.57
500	30	8	0.49
630	32	7	0.35
800	37	3	0.29
1000	41	0	0.33
1250	46	0	0.29
1600	51	0	0.33
2000	55	0	0.26
2500	57	0	0.23
3150	57	0	0.37
4000	56	0	0.30
5000	61 #	-	0.46

background < 5.0 below receive room
* 95% Confidence Interval exceeded

Source Room
Temperature 22.5 °C
R.H. 55 %

Receive Room
Temperature 22.6 °C
R.H. 53 %

ATM
980 hPa



STC Rating	deficiencies	OITC
38	25	35

Ear Controlled Data

Photo:

Shaun Montgomery
Senior Fenestration Technician
Fenestration Department
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SOUND ABSORPTION TESTING CONDUCTED ON Sound Barriers

Durisol
51 Arthur Street South
Ontario, Canada N0K1N0

Date: September 2, 2021
Author: Shaun Montgomery
Report Number: ESP036101P-6

Customer PO: 314

ACCREDITED
TESTING CERT #98.03

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Ear Controlled Data

Noise Reduction Coefficient (ASTM C423-17)

INTRODUCTION:

This report presents the results of acoustical testing of painted Durisol Sound Barriers. This testing was requested by Mr. Bruce Walker of Durisol and was conducted on August 5th, 2021.

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The results stated in this report represent only the specific construction and acoustical conditions present at the time of the test. Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

TEST RESULTS SUMMARY:

Noise Reduction Coefficient (NRC) Test				Test Results		
Test #	**Sample Identification**	**Weight (lbs)**	**Weight (psf)**	**NRC**	**SAA**	**--**
6	NB15 - Panel ID: 30NAM:NA/2440 – (Mould)	3,360 lbs.	46.2	***0.90***	***0.89***	--

Tabular and graphical presentations of the data are presented under "TEST RESULTS" below.

SPECIMEN DESCRIPTION: (Also see "Test Results")

The material was described as a Durisol sound barrier and consisted of three (3) panels positioned in a 96" x 109" orientation. The samples were tested in a "Type A" mounting method laid directly on the chamber floor with the "Mould" side facing the chamber ceiling. Each panel measured 96" x 36". The panel Durisol layers consisted of a 51mm base/ 25mm pattern on the "Mould" side and a 51mm base/ 25mm pattern on the "Lid" side – separated by a 47mm concrete core. The panels averaged 8" thick.

TEST PROCEDURE AND EQUIPMENT:

Sound Absorption Test

ASTM C 423-17, "Sound Absorption and Sound Absorption Coefficient by the Reverberation Room Method", was followed in every respect. The samples were laid on the chamber floor in a Type A mounting method in accordance with ASTM E795-16.

NRC was calculated by rounding the sound absorption coefficients for 250, 500, 1000 and 2000 Hz to the nearest 0.05. SAA was calculated by rounding the sound absorption coefficients for the twelve frequencies from 200 Hz to 2500 Hz to the nearest 0.01.

TEST EQUIPMENT:

Item Description	ID #	Manufacturer/Model	Serial #	Calibration Due	Location
1/2" Pressure Condenser Microphone	PT-162-108	GRAS/46AD	167994	6/18/2022	Reverberation Chamber
Microphone Calibrator	PT-162-076	Norsonic/1251	29144	6/18/2022	N/A
Data Acquisition Module	PT-162-086	National Instruments/NI9234	154D0E4-1548E92	6/7/2022	Control Center
Temp and Humidity Transmitter	PT-162-077	Dwyer Instruments/Series RH	M90714-E4SV-Y	6/3/2022	Reverberation Chamber

Test Data:

SOUND ABSORPTION
ASTM C423

General Information

Project No:	ESP036101P-6
Customer:	Durisol
Test Date:	08-05-2021
Specimen ID:	30NAM-NA-2440
Specimen Description:	Sound Barriers 96" x 109"
Specimen Dimensions - Area:	96.00" W x 109.00" H - 72.67 ft²
Operator:	SJM

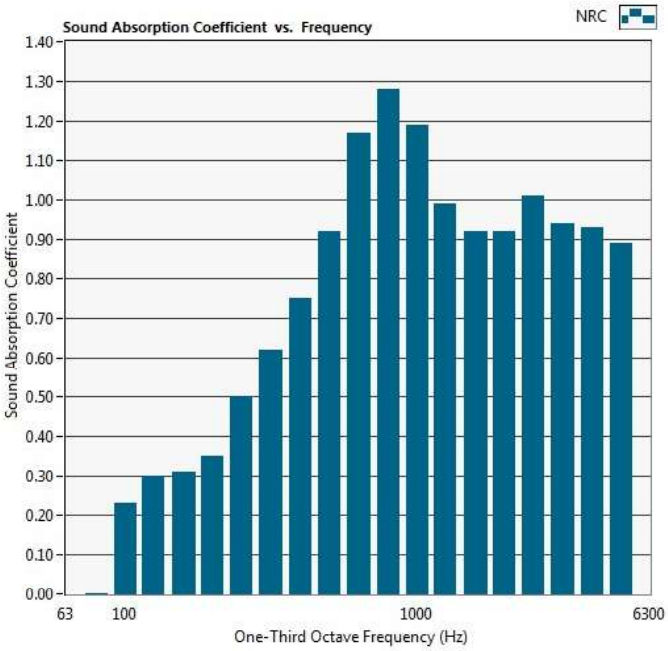
Data Table

	absorption empty (m²)	absorption * sample (m²)	Absorption Coefficient
80	4.60	-0.02	-0.00
100	6.15	1.58	0.23
125	3.50	2.03	0.30
160	3.64	2.10	0.31
200	4.08	2.35	0.35
250	4.12	3.37	0.50
315	3.91	4.17	0.62
400	4.00	5.08	0.75
500	4.43	6.18	0.92
630	4.62	7.90	1.17
800	5.04	8.65	1.28
1000	5.38	8.03	1.19
1250	5.76	6.71	0.99
1600	6.54	6.22	0.92
2000	7.51	6.18	0.92
2500	8.03	6.81	1.01
3150	9.27	6.36	0.94
4000	11.01	6.26	0.93
5000	13.02	5.99	0.89

* based on an extended plane area of 72.67 ft²

Room Conditions

Temperature	21.8	°C
R.H.	52	%
ATM	982	hPa



NRC	SAA
0.90	0.89

Ear Controlled Data

Photo:

Shaun Montgomery
Senior Fenestration Technician
Fenestration Department
651-659-7260

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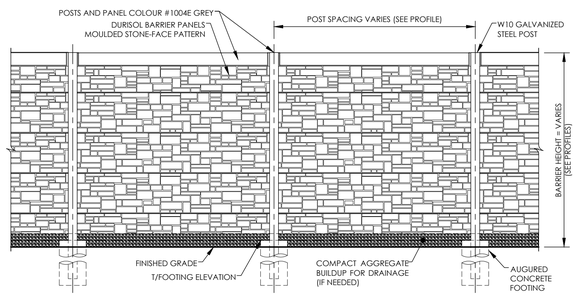

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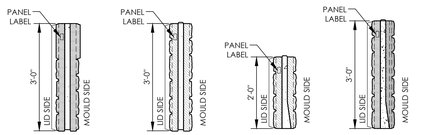

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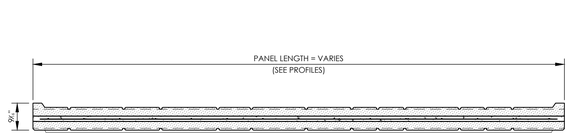

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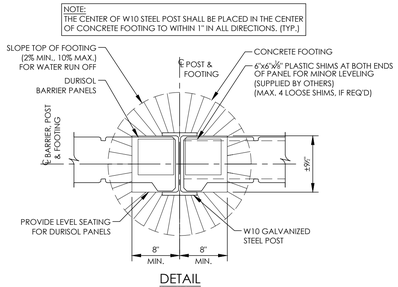

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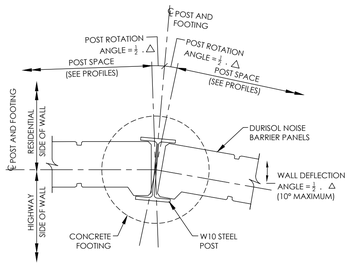

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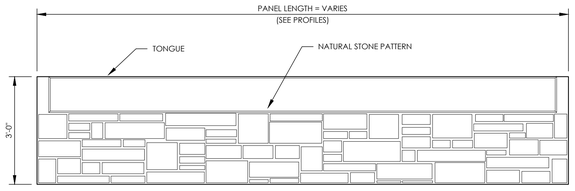

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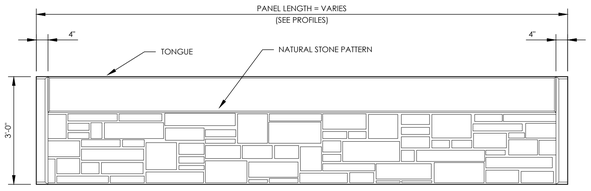

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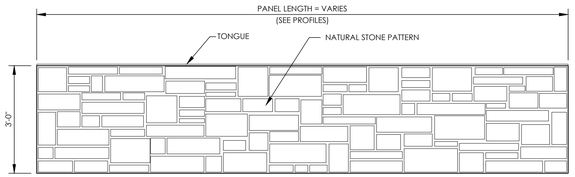

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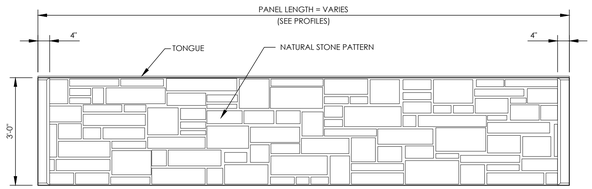

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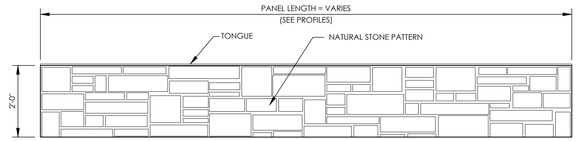

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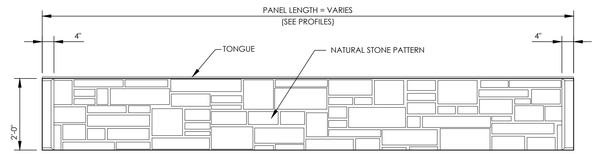

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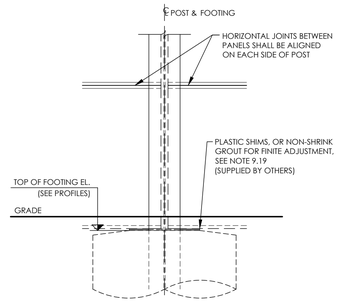

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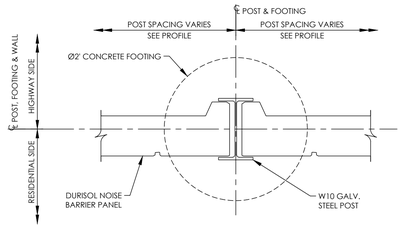

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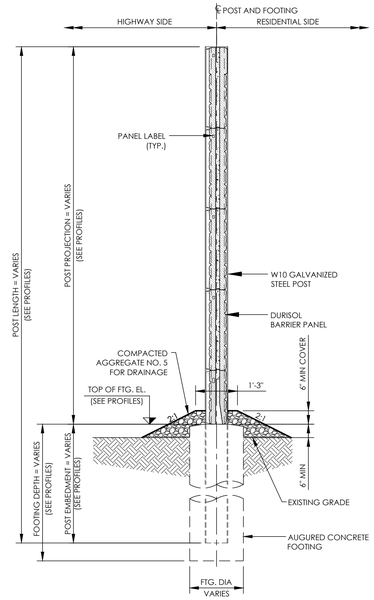


TYPICAL SECTION
SCALE: 3/8" = 1'-0"

CANADIAN OFFICE
70 Frid Street, Suite 1
Hamilton, Ontario, CANADA L8P 4M4
Phone: 905-521-0999 * Fax: 905-521-8658

PROJECT TITLE:

LOCATION:

DRAWING TITLE:

GENERAL DETAILS

FEDERAL PROJECT No:

STATE PROJECT No:

SCALE: NOTED	ACAD FILE:
DRAWN BY:	
CHECKED BY: AJK	
DATE: APRIL 29, 2019	SHEET No:
DATE of PRINT: JUNE 10, 2019	OF

Appendix D: Hydrogeological Survey

Tara BESS – 400MW Class EA Application

Hydrogeology Desktop Study

Neoen Ontario Bess 1 Inc.

June 13, 2025

BBAconsultants.com

Neoen Ontario Bess 1 Inc.

Preliminary Engineering for Tara BESS

Bruce County, Ontario

Technical Report

Tara Bess Hydrogeology Desktop Study

BBA Document No. / Rev.: : 8751002-000000-41-APP-0001-R00

June 13, 2025

FINAL
Not to be used for construction

Prepared by:
Azi Far, P.Eng
OIQ No. 5021555

Reviewed by:
Olivier Pontlevoy, M.S.C.

Reviewed by:
Ali Nowamooz, P.Eng., PhD.
PEO No. 100522590

REVISION HISTORY

Revision	Document Status – Revision Description	Date
R00	FINAL	2025-06-13

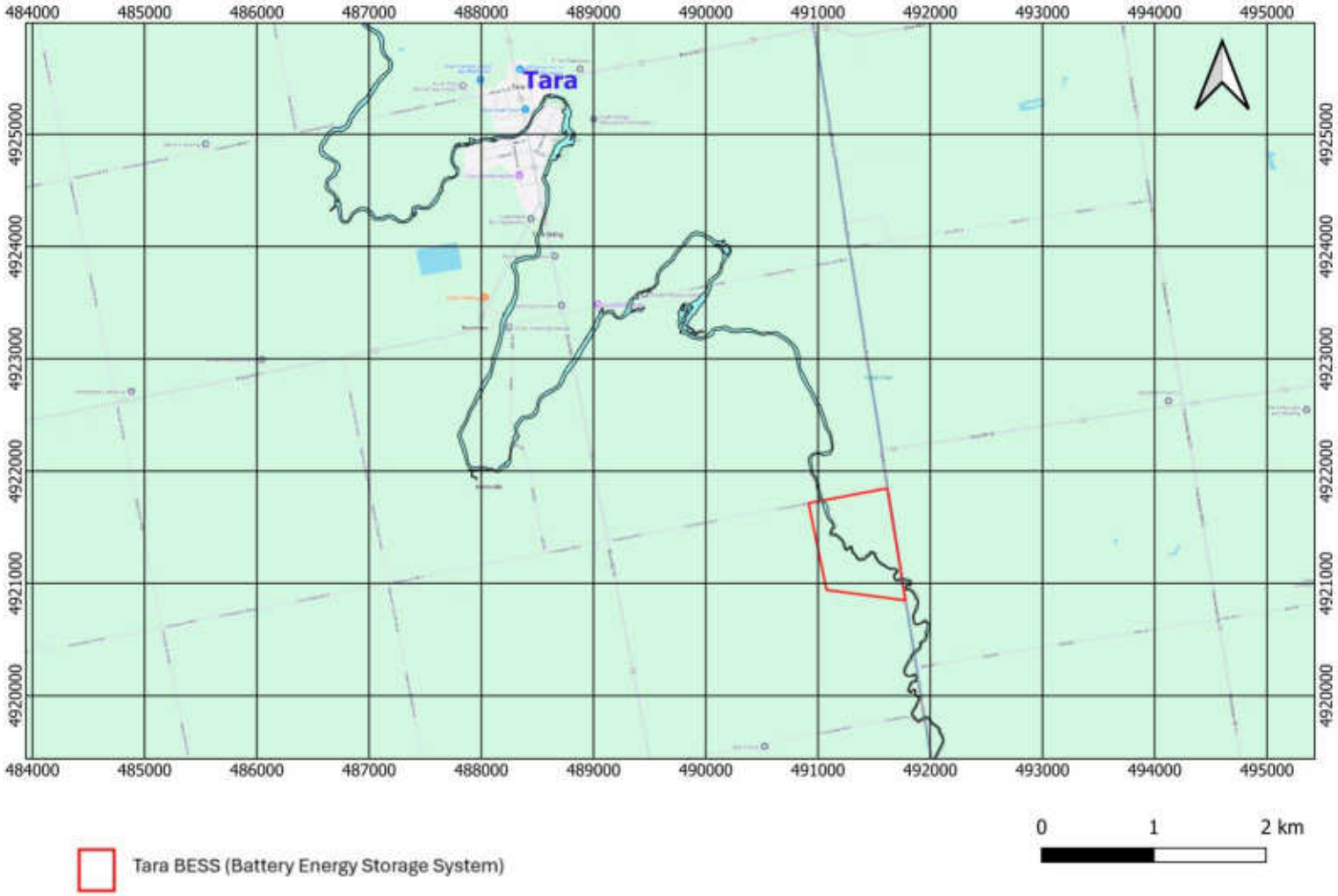
Table of Contents

Scope of work

- BBA Inc. was retained by Neoen to investigate the hydrogeological conditions at Tara Battery Energy Storage System (BESS) Facility located on agricultural land in Arran-Elderslie, ON. The objective of this study is to provide a hydrogeological assessment to support project planning and future permitting initiatives. To achieve these objectives, the following approach has been adopted:
  - Public and site-specific geological, geotechnical and hydrogeological data within and close to the Tara Bess property was reviewed and used to identify data gaps in the study area;
  - A hydrogeological field program was developed by BBA to characterize groundwater flow regime over the study area. The field program was executed by PRI Engineering between February 26 and March 6, 2025.
- Data available and collected during the field program was used to :
  - Identify soil stratigraphy within and close to the site property;
  - Estimate the hydraulic properties of overburden materials and shallow bedrock;
  - Investigate the potential impacts of future activities at Tara Bess site represent on the groundwater supply wells close to the study area;
  - Investigate the potential impacts of future developments at Tara Bess site to the water balance and quality of surface water bodies and wetlands close to the study area.

Site localisation

Tara BESS is proposed for development on private lands approximately 5 kilometers southeast of the Village Tara, in the Municipality of Arran-Eldersile, Bruce County.



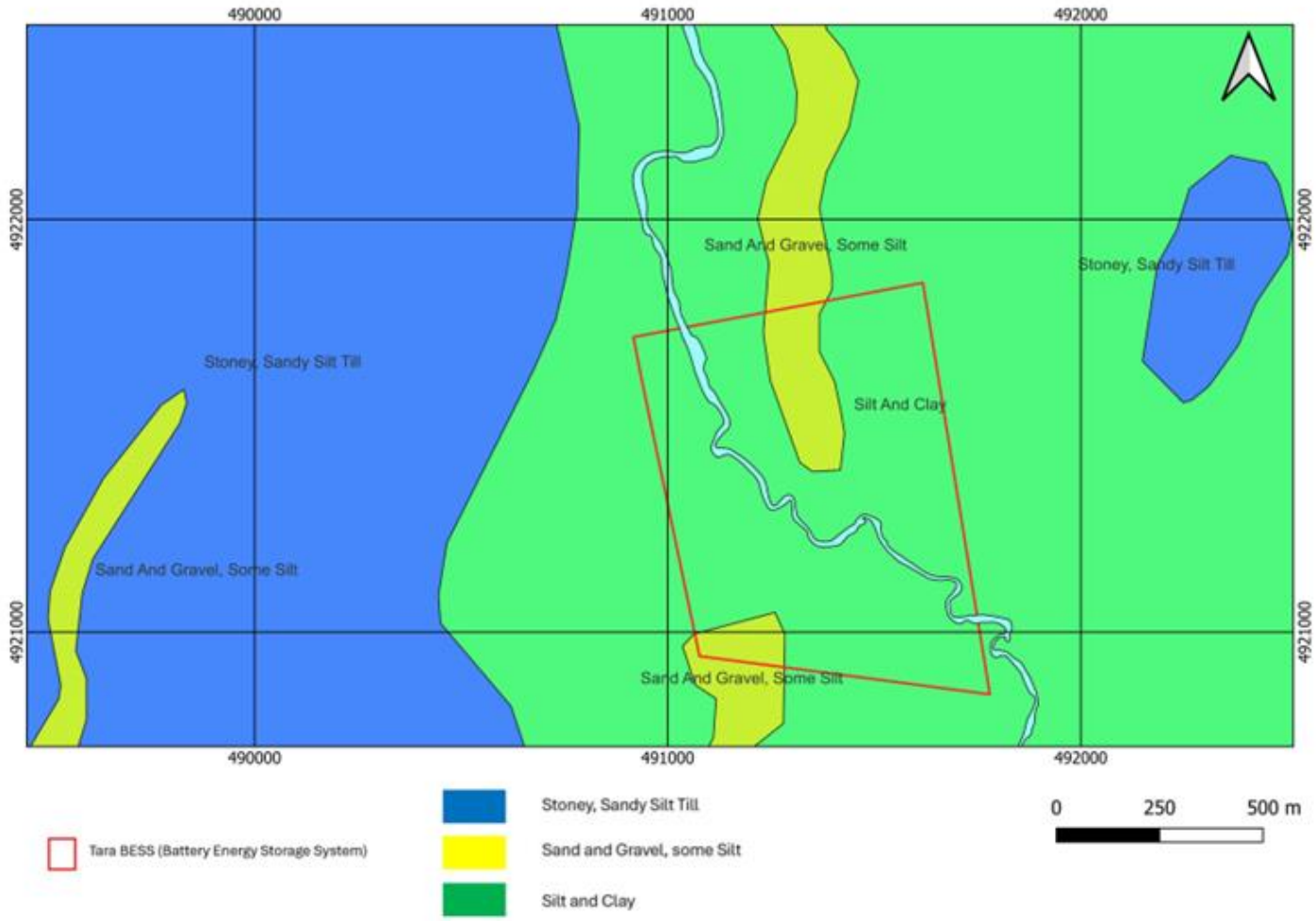
Surface geology (regional scale)

The Tara BESS project site (outlined in red), is situated within an area characterized by diverse surficial geology.

The predominant geological materials within and around the site include silt and clay, counting the patches of sand and gravel with some silt **(**GeologyOntario**).**

The presence of silt and clay suggests finer-grained glaciolacustrine or till deposits, which tend to have lower permeability and higher water retention.

Additionally, to the west and northeast of the project site, there are stoney, sandy silt till deposits, likely representing compacted glacial till (GeologyOntario).



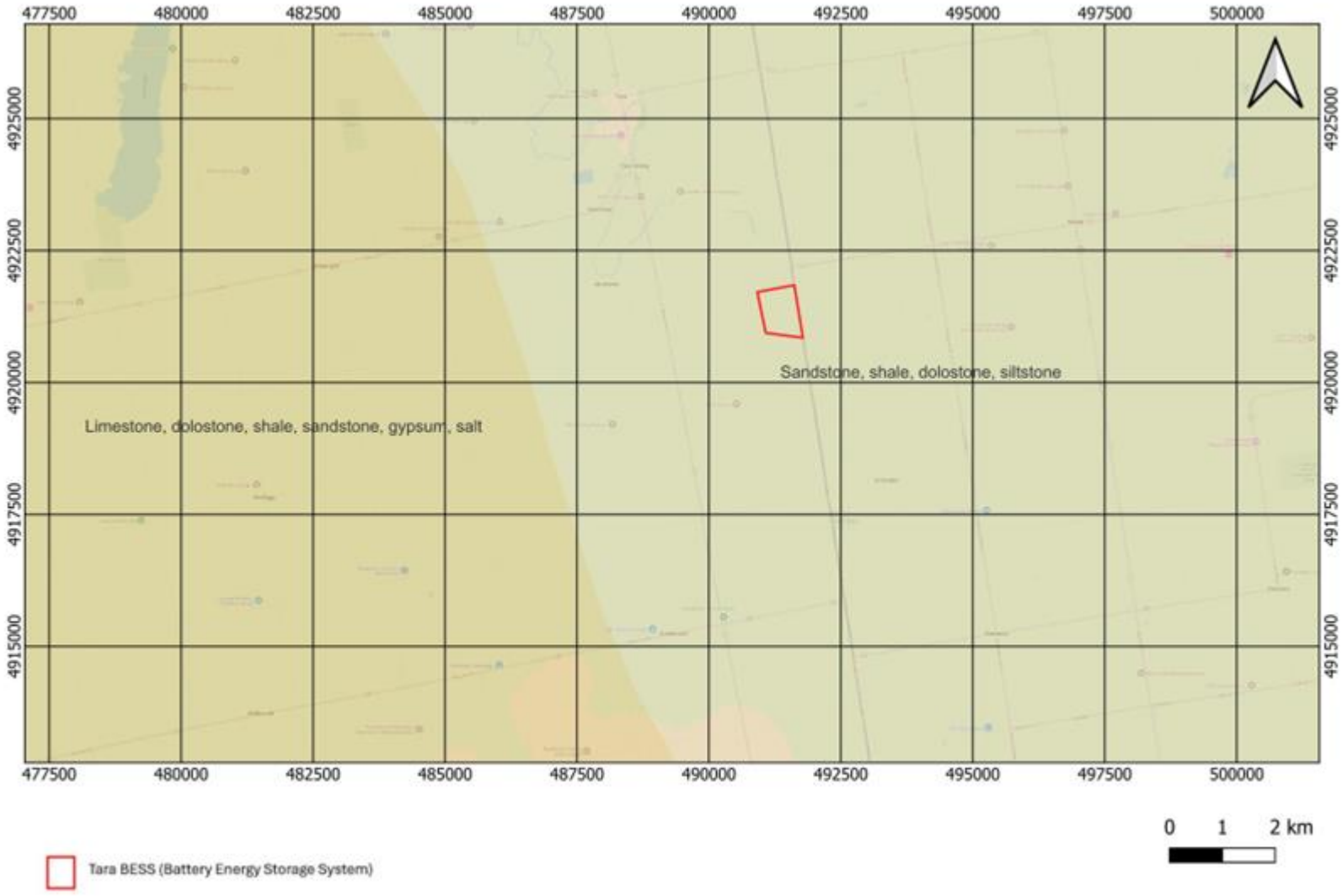
Surface geology (site scale)

The following are the specific subsurface conditions encountered at the boreholes and test pits installed over the study area (PRI Engineering 2024 and 2025):

- Topsoil: Observed all over the study area with thicknesses ranging between 0.1 and 0.8 m;
- Silt/ sandy silt/ silty sand/ silt and sand: Light brown to grey to brown with orange mottling encountered directly under the topsoil material or interbedded between various layers of sand, clayey silt, and silty clay. This layer begins at depths ranging from 0.2 to 10.7 mBGS, and extends to depths ranging from 0.5 to 12.2 mBGS;
- Sand: brown sand with some silt, clay, and gravel was observed under the topsoil or interbedded between various silty and clayey layers. This layer begins at depths ranging from 0.2 to 10.7 mBGS and extends to depths ranging from 0.8 to 14.1 mBGS;
- Clayey silt/ silt and clay: brown to grey to light brown with orange mottling clayey silt to silt and clay was encountered directly underlying the topsoil material or interbedded between various layers of sandy, silty, and gravely layers. This layer originates at depths ranging from 0.1 to 9.2 mBGS and extends to depths ranging from 0.6 to 12.2 mBGS;
- Sand and gravel/ sandy gravel/ gravel/ gravelly sand: Light brown to brown to grey to light grey sand and gravel to sandy gravel to gravel to gravelly sand was encountered above the rock unit. This layer contained some to trace amounts of silt, trace amounts of clay and fragments of limestone/feldspar.

Bedrock geology

The bedrock geology underlying the Tara BESS project site, as indicated on the map, consists of **sandstone, shale, dolostone, and siltstone**. These sedimentary rock formations are characteristic of ancient marine and coastal depositional environments (GeologyOntario).

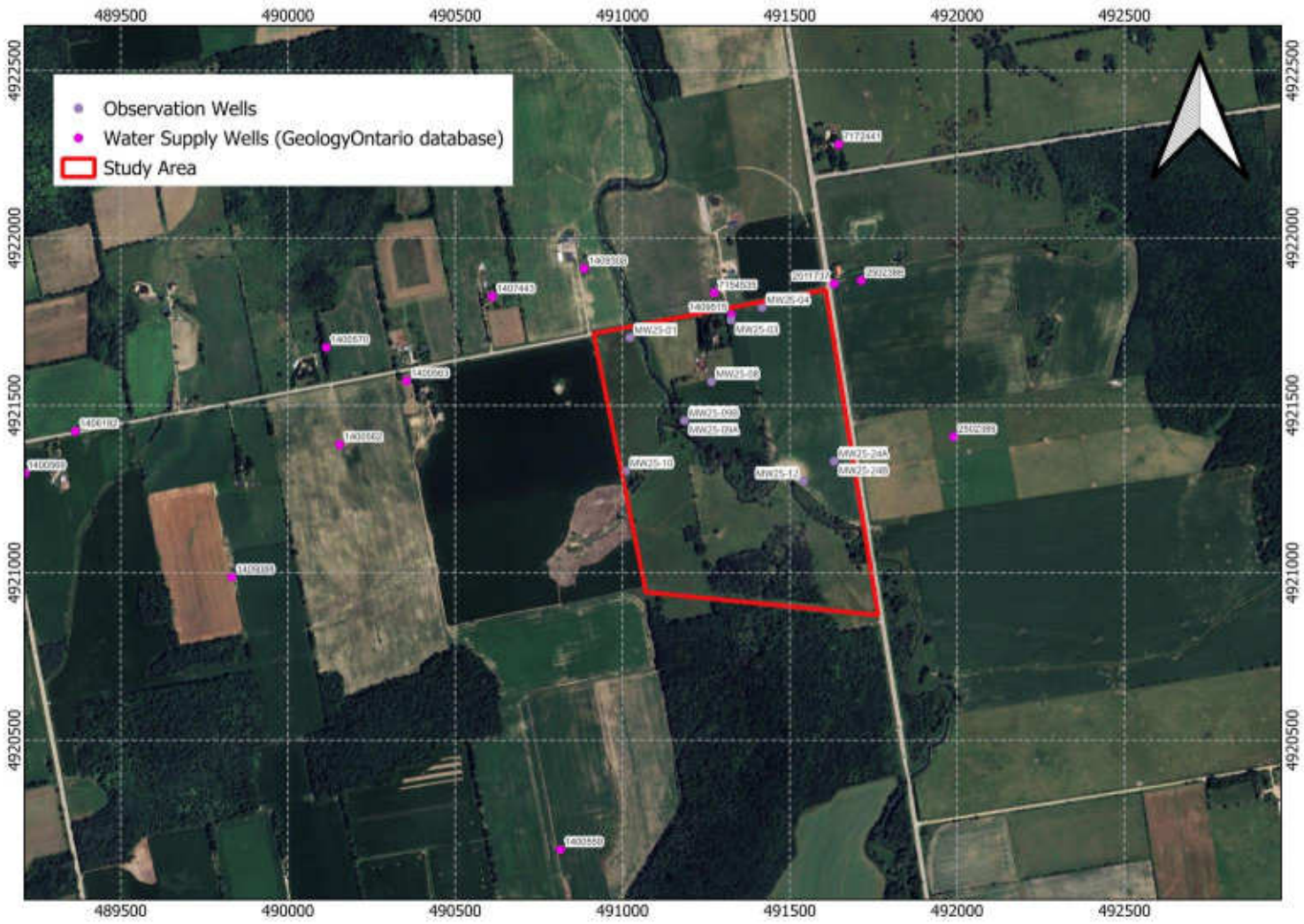


Hydrogeology (types of aquifers)

Southern Ontario has a mix of confined and unconfined aquifer systems, often composed of glacial till, sand, and gravel deposits overlying fractured bedrock aquifers.

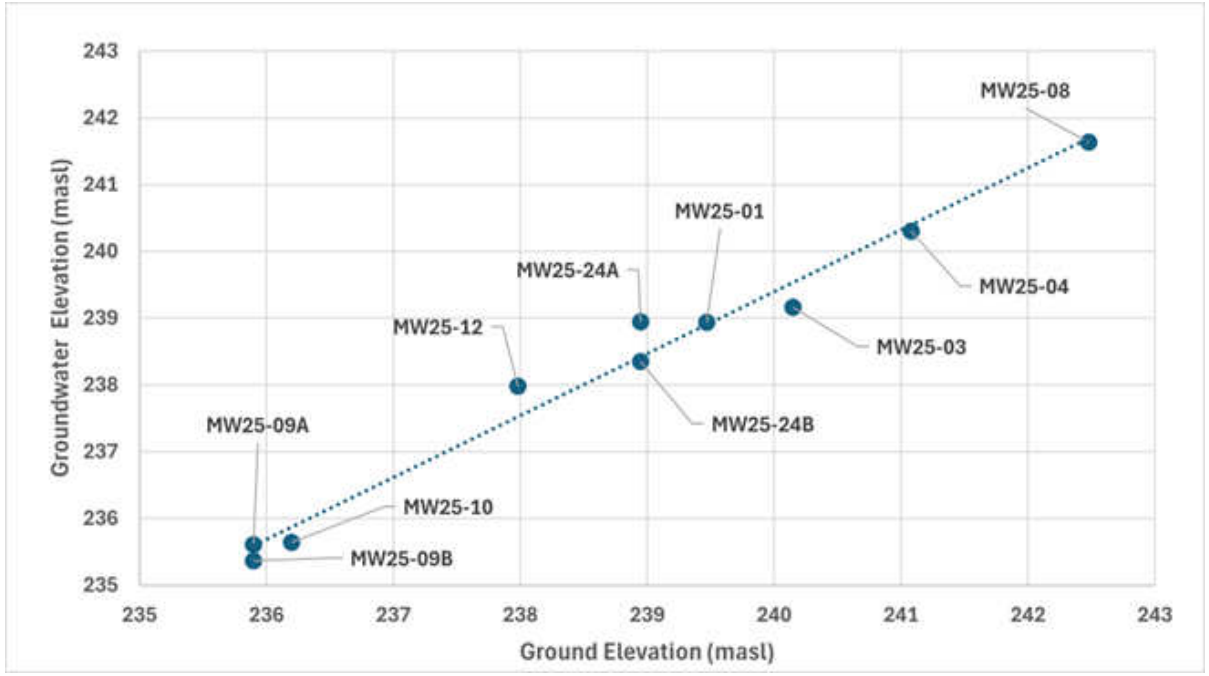
Two types of aquifers can be found over the site area:

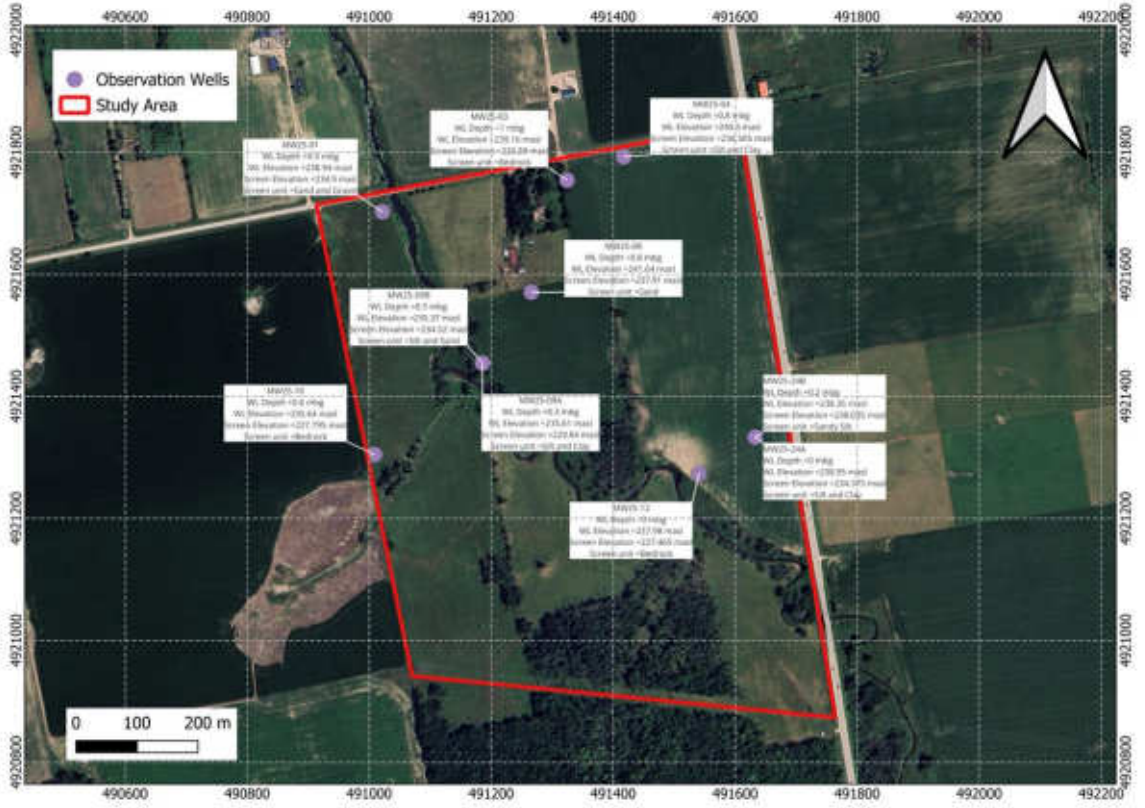
- Surficial unconfined aquifer consisting of unconsolidated sand and silt sediments;
- Deep confined/semi-confined aquifer consisting of sand and gravel and fractured rock. This aquifer is overlayed (confined/semi-confined) by a low permeability silt/clay unit.



Hydrogeology (groundwater levels)

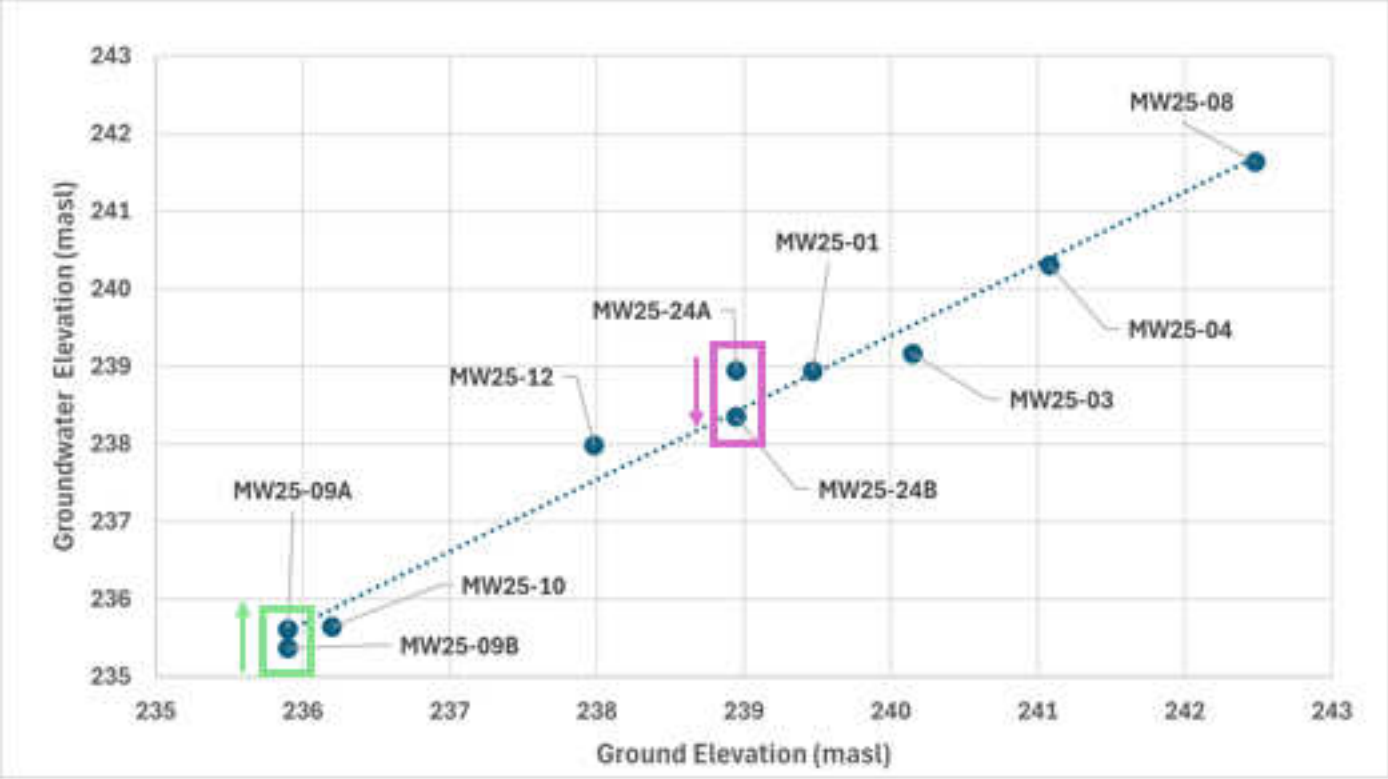
- Groundwater levels were at or near the surface in the monitoring wells installed over the site area.
- Groundwater flow direction seems to be topography-driven over the site area.

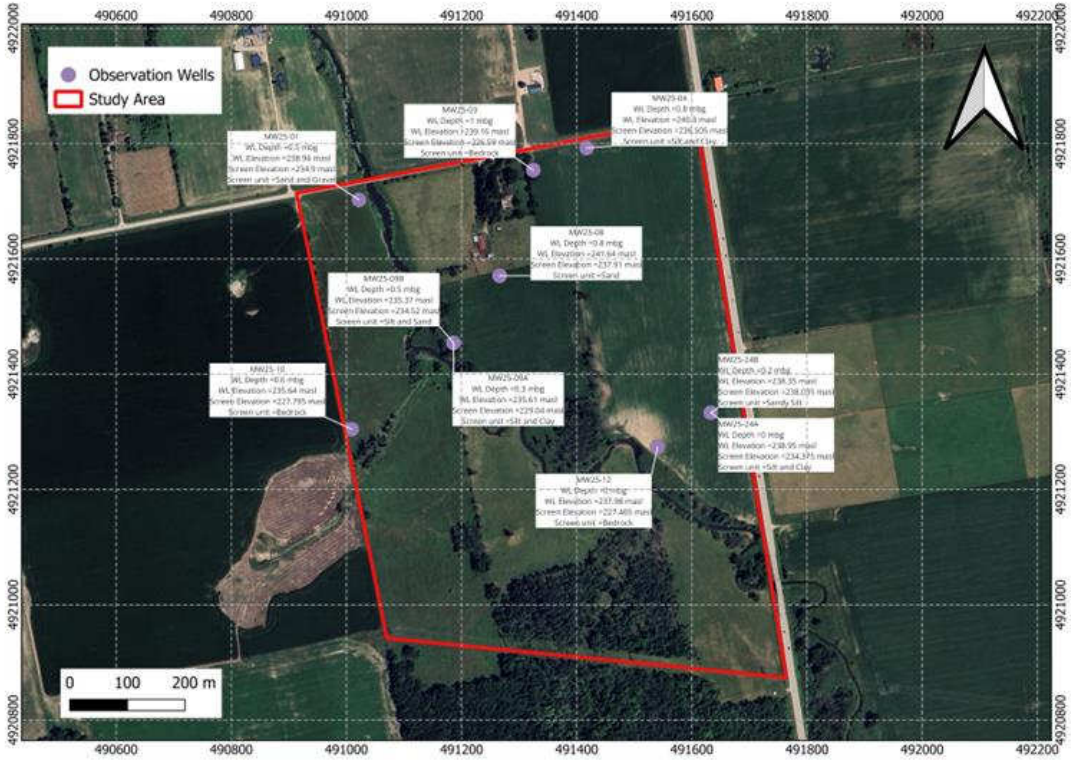




Analysis (optional)

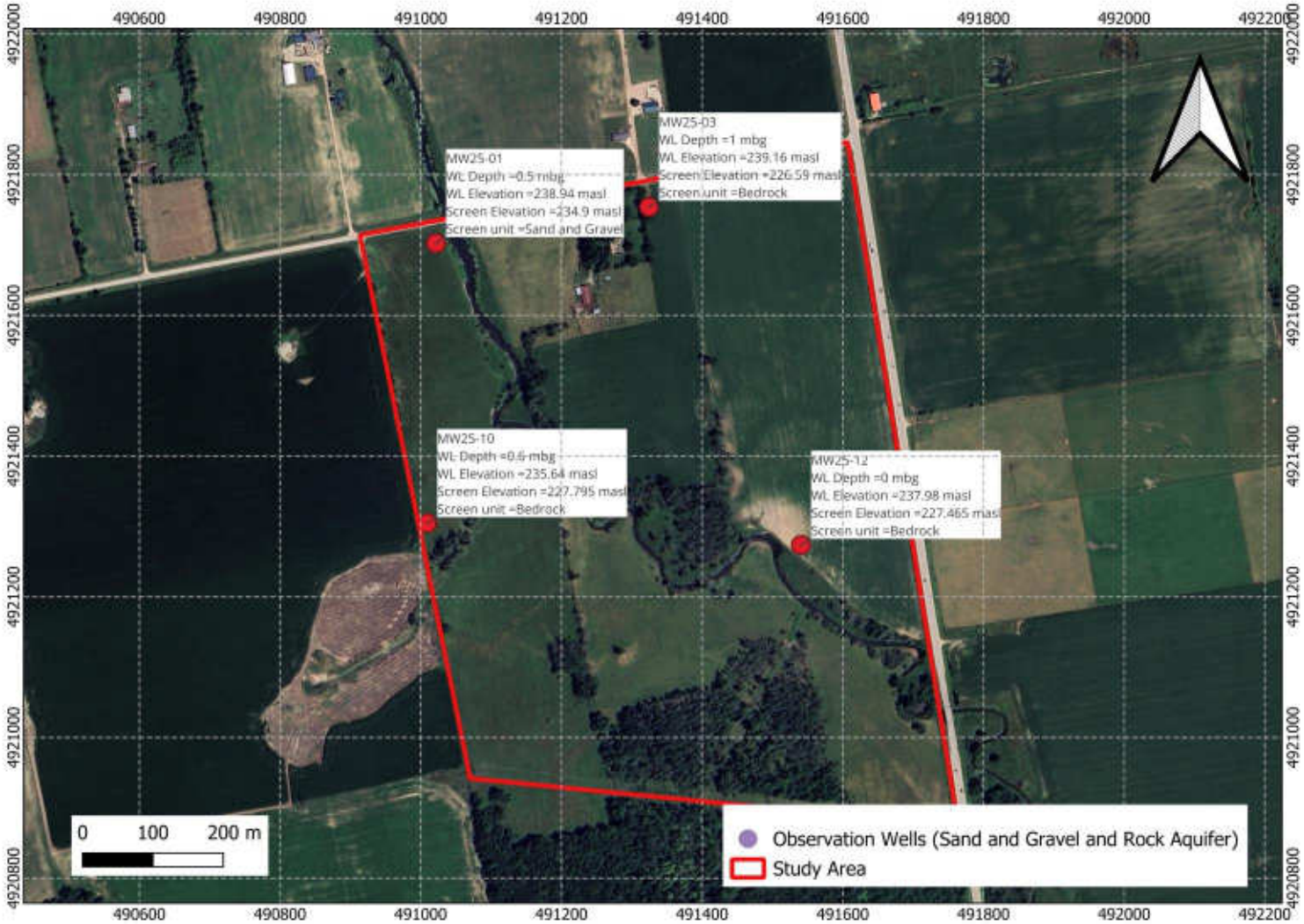
The groundwater gradient is downward (from shallow to deep aquifer) at higher elevations (MW25-24A and MW25-24B) and becomes upward (from deep to shallow aquifer) close to the Sauble River passing through the study area (MW25-09A and MW25-09B).





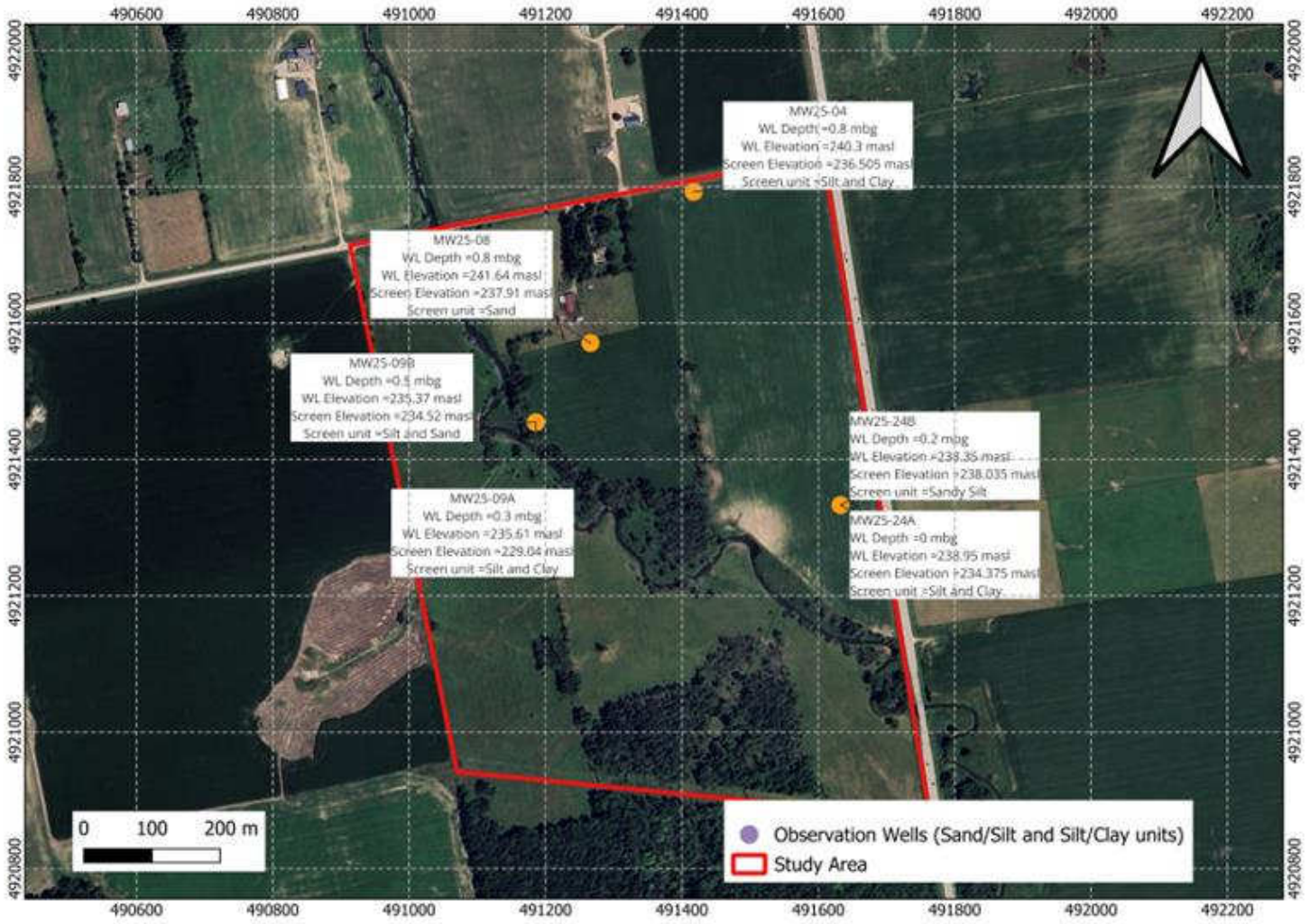
Hydrogeology (groundwater)

- Groundwater flow direction in the sand and gravel and fractured rock aquifer is from northeast (NE) to southwest (SW).



Hydrogeology (groundwater)

- Groundwater flow direction in the sand and silt surficial aquifer is driven by topography but remain mainly toward the Sauble River passing through the site.



Hydrogeology (hydrodynamic properties)

Hydraulic conductivity of overburden and bedrock units were estimated using slug test results (PRI Engineering 2025).

Monitoring Well	NAD83 - UTM Zone 17		Ground Elevation	Water Level Depth	Water Level Elevation	Screen Elevation		Screen Unit	Hydraulic Conductivity
	Northing	Easting	masl	mbg	masl	Top - masl	Bottom - masl		m/s
MW25-01	4921702.5	491021.7	239.47	0.5	238.94	236.42	233.38	Sand and Gravel	2.20E-07
MW25-03	4921754.3	491324.4	240.15	1	239.16	229.64	223.54	Bedrock	5.00E-06
MW25-04	4921792.7	491417.3	241.08	0.8	240.3	238.03	234.98	Silt and Clay	8.90E-08
MW25-08	4921570.8	491265.9	242.48	0.8	241.64	239.43	236.39	Sand	1.90E-05
MW25-09A	4921454.4	491185.8	235.9	0.3	235.61	229.8	228.28	Silt and Clay	4.70E-07
MW25-09B	4921454.4	491185.8	235.9	0.5	235.37	235.13	233.91	Silt and Sand	2.10E-06
MW25-10	4921304.6	491008.9	236.2	0.6	235.64	230.84	224.75	Bedrock	1.70E-05
MW25-12	4921273.6	491540.6	237.98	0	237.98	230.51	224.42	Bedrock	9.10E-06
MW25-24A	4921333.1	491632.7	238.95	0	238.95	235.9	232.85	Silt and Clay	5.80E-09
MW25-24B	4921333.1	491632.7	238.95	0.2	238.35	238.34	237.73	Sandy Silt	6.20E-07

Sand/Sand and Gravel/Rock
Deep aquifer
$2x10^{-7}$ to $2x10^{-5}$ m/s
Geomean = $5x10^{-6}$ m/s

>

Sand and Silt/Sandy Silt
Surficial aquifer
$6x10^{-7}$ to $2x10^{-6}$ m/s
Geomean = $1.5x10^{-6}$ m/s

>

Silt and Clay
Confining/semi-confining unit
$6x10^{-9}$ to $5x10^{-7}$ m/s
Geomean = $6x10^{-8}$ m/s

Unconfined surficial aquifier distribution

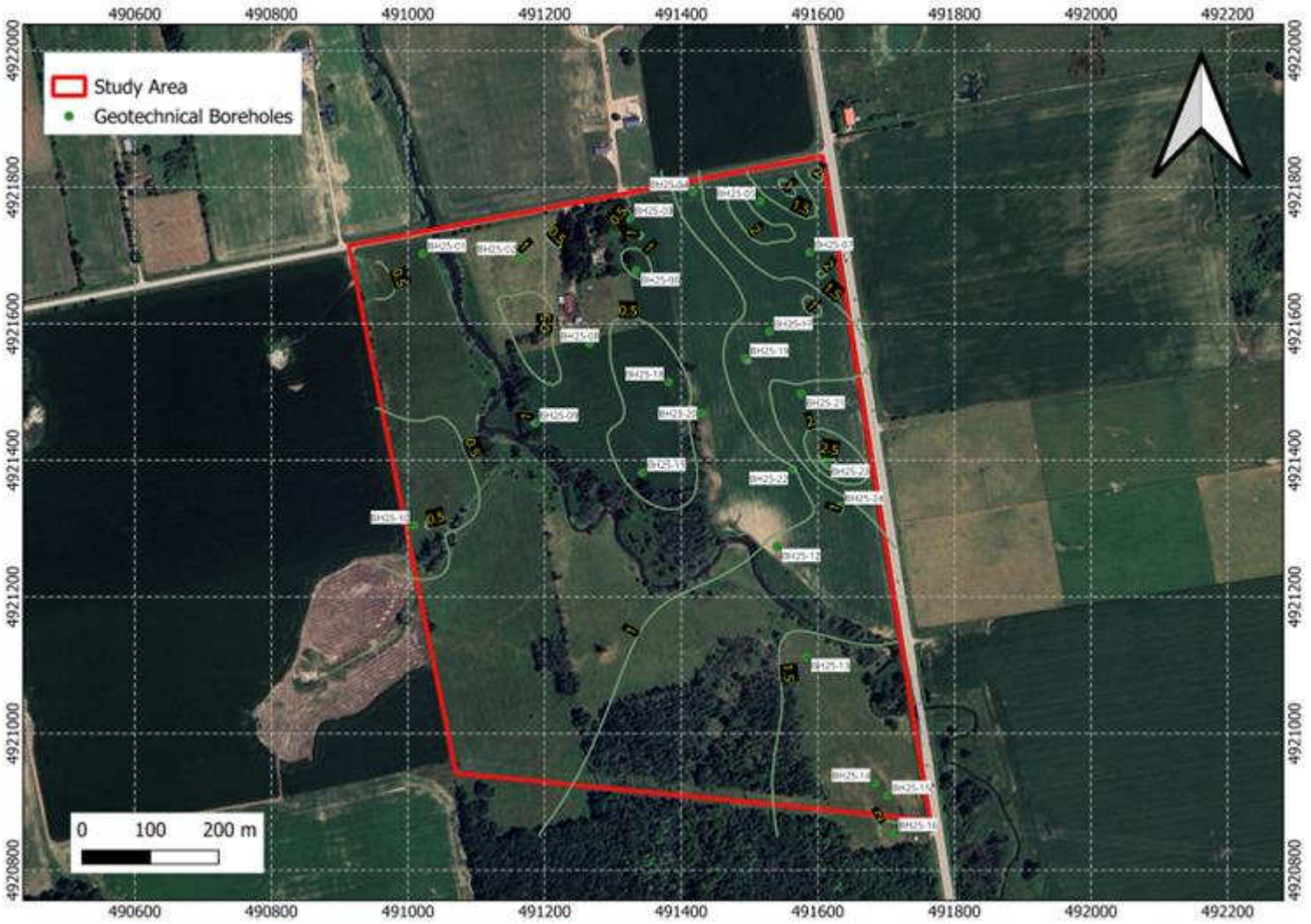
The thickness of the unconfined surficial aquifer varies between 0.5 and 3.3 meters over the study area.

Thicknesses higher than 1 meter are local and distributed along the eastern boundary of the study area.

Thicknesses lower than 1 meter cover 60% of the site area (red polygon).

This layer has a low-to-moderate hydraulic conductivity ($6x10^{-7}$ to $2x10^{-6}$ m/s).

This layer lays generally on a low permeability silt/clay unit. Water infiltrating in this layer flows laterally toward water bodies and wetlands in the study area.



Unconfined aquifer thickness over the study area

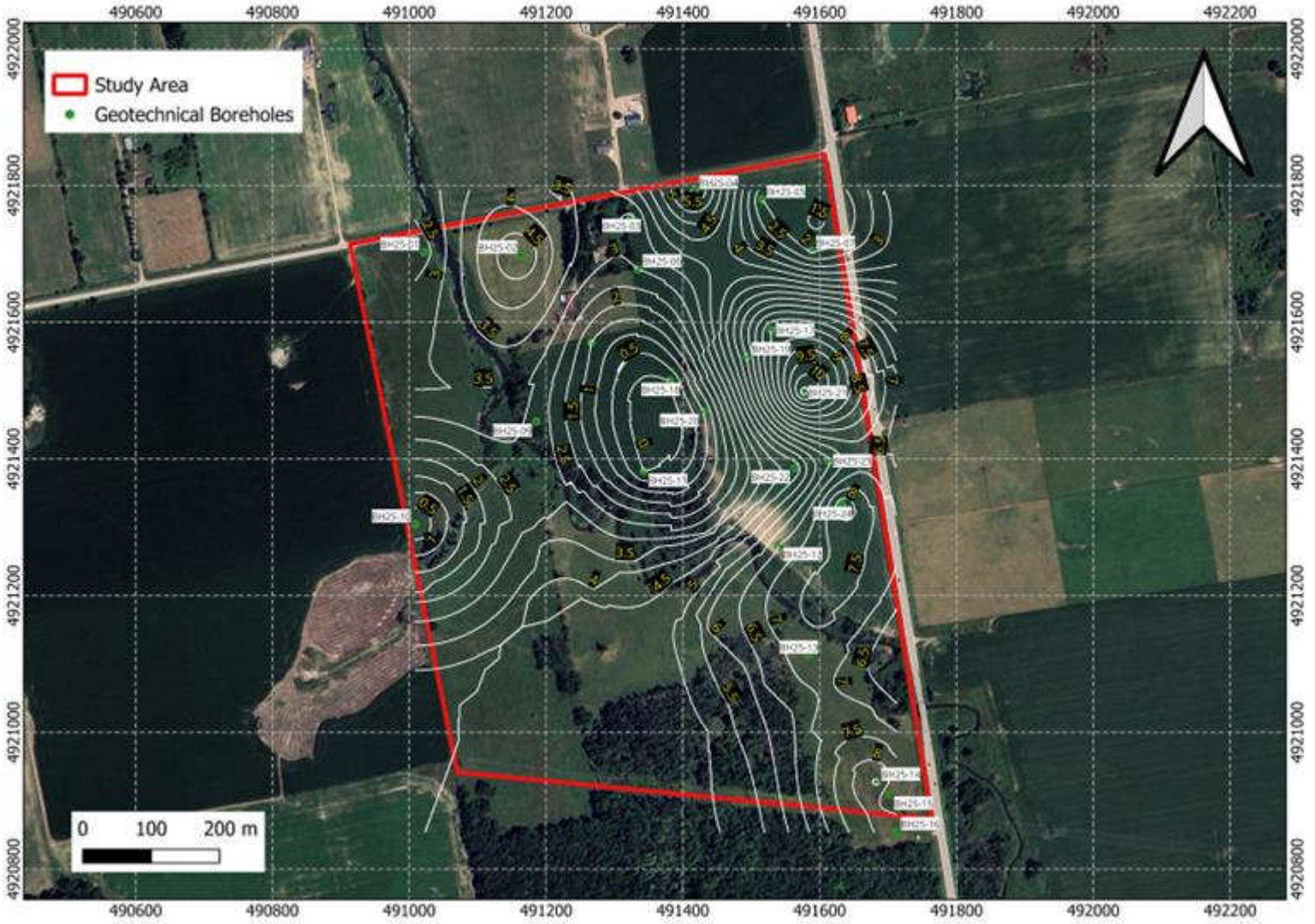
Silt/clay aquitard distribution

A silt/clay layer was observed in 52 of 56 boreholes/test pits drilled/excavated over the study area (PRI Engineering 2024 and 2025).

The thickness of the silt/clay layer varies between 0 and 10.7 meters.

This layer has a low hydraulic conductivity and acts as a barrier.

Close to the center of the site, the slit/clay layer becomes discontinuous, causing a direct connection between ground surface and deep sand and gravel and rock aquifer. The upward groundwater flow gradient observed at and close to this location should, however, limit the infiltration and migration of any contaminant toward the deep aquifer.



Silt/clay layer thickness over the study area

Summary

- Overburden over the site area is composed of (1) topsoil, (2) silt/ sandy silt/ silty sand/ silt and sand layer, (3) sand, (4) clayey silt/ silt and clay layer and (5) sand and gravel/ sandy gravel/ gravel/ gravelly sand layer.
- Two types of aquifers can be found over the site area:
  - Surficial unconfined aquifer consisting of unconsolidated sand; and
  - Silt sediments and deep confined/semi-confined aquifer consisting of sand and gravel and fractured rock.
- Groundwater levels were at or near the surface in the monitoring wells installed over the site area;
- Groundwater flow direction seems to be topography-driven over the site area;
- The groundwater gradient is downward (from shallow to deep aquifer) at higher elevations and becomes upward close to the stream passing through the study area (MW25-09A and MW25-09B);
- The thickness of the unconfined aquifer varies between 0 and 3.3 meters. This aquifer communicates with water bodies and wetlands over the study area.

Summary

- The silt/clay confining layer was observed in 52 of 56 boreholes/test pits, with thickness ranging from 0 to 10.7 m. This layer acts as a natural barrier limiting vertical migration of contaminants;
- In the central portion of the site, the confining layer is locally discontinuous, creating a possible vertical pathway to the deep aquifer. However, the upward groundwater flow gradient in this area significantly reduces the potential for contaminant migration to depth;
- Molecular diffusion will be the main contaminant transport mechanism based on current knowledge of the hydrogeological conditions over the study area, due to slow migration of contaminants through low-permeability material;
- The low-permeability conditions provide natural attenuation, enhancing protection of the deep aquifer;
- The overall risk to deep groundwater quality is considered low, based on site conditions (greater time for spill response and remediation), mitigation measures and infrastructure design, including:
    - Stormwater management systems to capture and treat all runoff and potential spills that could originate from the site operation;
    - Restoration of surrounding areas to natural and existing conditions.

Conclusion and recommendations (deep aquifer)

- The deep aquifer has a moderate-to-high hydraulic conductivity and could be considered as the main source of potable water (2x10-7 to 2x10-5 m/s). All nearby water supply wells are installed in this layer;
- Groundwater flow direction in the sand and gravel and fractured rock aquifer is from northeast (NE) to southwest (SW);
- The Aquifer Vulnerability Index (AVI) of the deep aquifer is lower than 40, scoring the aquifer as medium to highly vulnerable;
- Except for a small area at the middle of the parcel, the deep aquifer is covered by a confining/semi-confining silt/clay layer. This layer has a low hydraulic conductivity and acts as a barrier against potential migration of contaminant stemming from ground surface;
- The upward groundwater flow gradient and low–permeability material close to the middle of the parcel, where the silt/clay layer becomes discontinuous, will limit the migration of contaminant from the ground surface towards the deep aquifer;
- Excavation of the surface material for the floodplain mitigation will not disturb the protective clay layer present on the site;
- Monitoring wells installed close to the site infrastructures should be sampled and tested to define the baseline groundwater quality prior to initiating construction. Seasonal groundwater quality monitoring should also be conducted during construction and operation periods.

Conclusion and recommendations (unconfined surficial aquifer)

- The surficial aquifer has a low-to-moderate hydraulic conductivity ($6x10^{-7}$ to $2x10^{-6}$ m/s);
- This layer lays on a low permeability silt/clay unit except for a small area at the middle of the parcel;
- Groundwater flow direction in this layer is affected by the local topography, flowing from high topographies toward wetlands and Sauble River;
- Excavating the surface material for the floodplain mitigation will disturb the distribution of this layer over the study area. This may slightly increase runoff and decrease infiltration. However, the overall impact on the site water balance (including wetlands and Sauble River) should be unsignificant due to the negligeable thickness of this layer (lower than 1 meter over 60% of the property area);
- Monitoring wells installed in this layer should be sampled and tested to define the baseline groundwater quality prior to initiating construction. Seasonal groundwater quality monitoring should also be conducted during the construction and operation periods.

BBA.CA

Appendix E: Natural Heritage and Constraints Assessment

Tara Battery Energy Storage System (BESS) Class EA

Natural Environment Report - Existing Conditions and Constraints Assessment

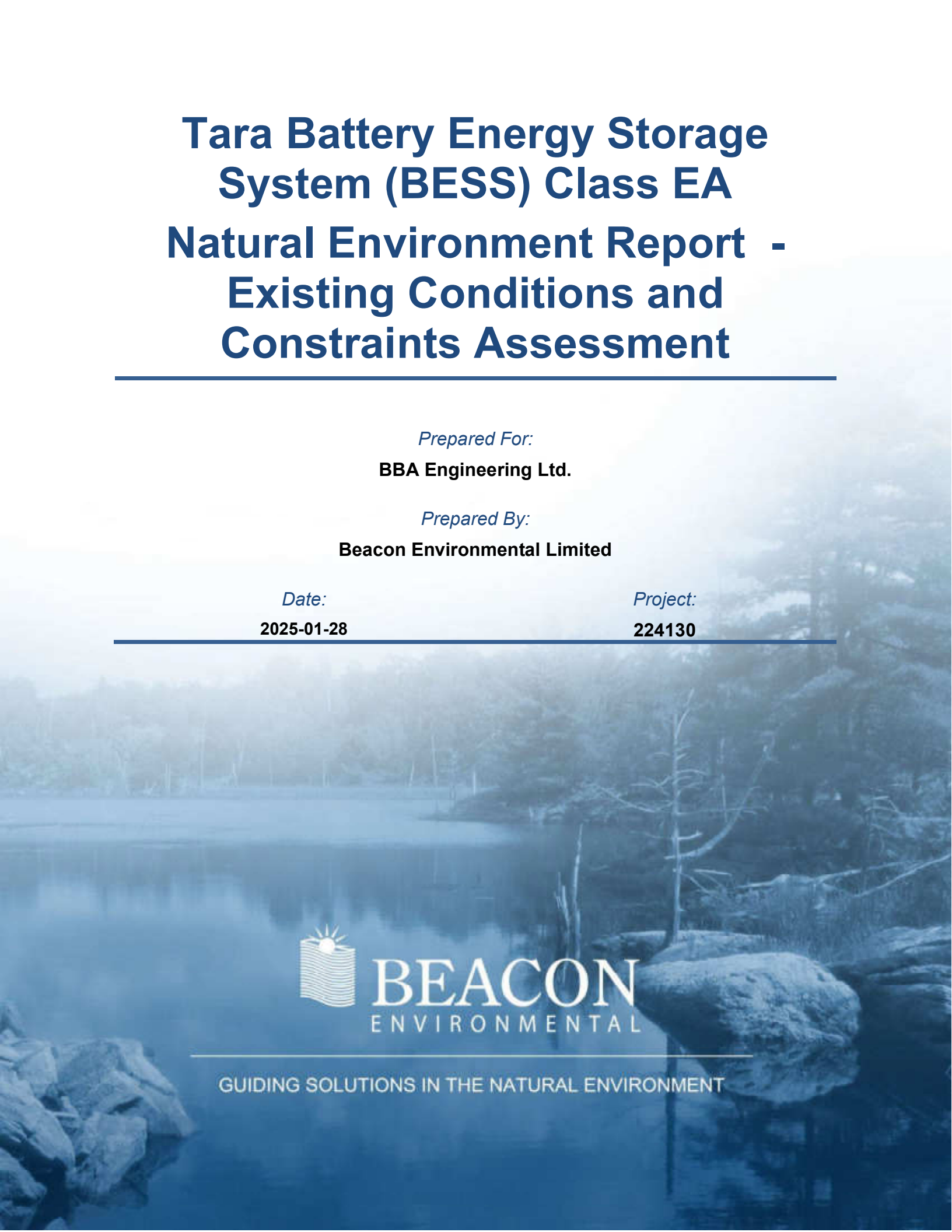
Prepared For:

BBA Engineering Ltd.

Prepared By:

Beacon Environmental Limited

Date:	*Project:*
2025-01-28	**224130**



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Figures

Tables

Appendices

Report Versions Issued

Version	Date	Revisions
1.	October 2024	Draft to client
2.	November 2024	Final to client

1. Introduction

Beacon Environmental Limited (Beacon) has been retained by BBA Engineering Ltd. to prepare a Natural Environment Report for a Class Environmental Assessment (Class EA) in support of a proposed Battery Energy Storage System (BESS) facility located at 39 Concession 4 Arran in the Municipality of Arran–Elderslie, Bruce County. The study area for this project also included the adjacent property to the west with no civic address. The two parcels are hereafter referred to as the subject properties. The location of the subject properties is illustrated in **Figure 1**.

The subject properties are approximately 66 hectares in size and is used for agricultural purposes. The subject property is traversed by the Sauble River and two tributaries and supports natural heritage features including woodlands and wetlands.

The purpose of this report is to identify and characterize the natural heritage and hydrological features on the subject properties through a background review and field investigations and provide a summary of constraints related to the natural heritage features on the subject properties to inform the location and layout of the BESS facility and associated infrastructure (e.g. power lines) in a way that avoids or minimizes impacts on natural features and their ecological functions.

2. Methodology

2.1 Background Review

Beacon conducted a background review of information sources and policy documents related to the subject properties including, but not limited to:

- Provincial Planning Statement (2024);
- Bruce County Official Plan;
- Provincially Tracked Species Layer from Land Information Ontario (LIO);
- Ontario Breeding Bird Atlas;
- Ontario Reptile and Amphibian Atlas;
- Natural Heritage Information Centre (NHIC) Data via the Make-A-Map application;
- Species at risk range maps https://www.ontario.ca/environment-and-energy/species-risk-ontario-list;
- High Resolution aerial photography of the property (Google Earth, Bruce County on-line mapping);
- Natural and physical feature layers from LIO—these geospatial layers include wetlands (provincially significant and un-evaluated wetlands), and watercourses with thermal regime;
- Local Area Municipality schedules and any associated online mapping; and
- Conservation Authority mapping (e.g., regulated areas, wetlands, etc.);
- Significant Wildlife Habitat for Ecoregion 6E.

2.2 Field Investigations

Field investigations undertaken by Beacon to delineate and characterize the natural heritage and hydrological features on the subject properties included Ecological Land Classification (ELC), flora inventories, breeding bird surveys, breeding amphibian surveys, aquatic habitat assessment, and bat habitat and acoustic assessment. The dates of surveys are summarized in Table 1.

Table 1. Dates of Field Investigation

Field Investigation	Dates
Breeding Bird Surveys	June 6 and July 4, 2024
Ecological Land Classification and Flora	June 6 &14, July 4, August 8 2024
Aquatic Habitat Assessment	June 19 and August 15, 2024
Breeding Amphibian Surveys	June 14 and July 2, 2024
Bat Acoustic Monitoring	June 19 – August 15, 2024
Woodpecker Nest Cavity Search	August 8 and October 2, 2024

2.2.1 Aquatic Habitat Assessment

An aquatic habitat assessment of the watercourses was undertaken on June 19 and August 15, 2024 by a Beacon aquatic ecologist to identify and assess watercourse characteristics that provide habitat for fish, as outlined in the federal *Fisheries Act*. The habitat assessment details the characteristics and major physical attributes of the water body. The habitat assessment takes into consideration a variety of details including both flow characteristics and land influences, such as:

- Surrounding land use – classifies potential pollution sources and adjacent land use that may affect the water body;
- Riparian zone and canopy cover – a healthy riparian zone consists of vegetation characterized by trees, shrubs, grasses and herbaceous plants. These plants help buffer the water body from runoff, provide shade and create habitat for fish and insects;
- Stream banks – characteristics assessed include signs of erosion and bank scouring, undercut banks, evidence of the normal water mark and high water mark which indicate the water level fluctuation;
- In-stream characteristics – details include substrate type (i.e. silt, gravel, cobble), aquatic vegetation, small and large woody debris. All of these in-stream characteristics provide habitat and cover for fish species and benthic macroinvertebrates, which are an important food source for fish;
- Stream morphology – this includes the wetted width of the active channel and average wetted depth as well as a description of the stream morphology:
    - Runs – typically deep, fast moving water with little to no turbulence;
    - Riffles – shallow, fast moving water typically running over rocks. Riffles provide areas of high oxygenated waters;
    - Flats – low flowing water with a smooth un-agitated surface;
    - Pools – deep pockets of slow moving water that provide ideal refuge habitat for fish; and

- General water characteristics – water colour and clarity, presence and description of algae, and description of flow.

Stream physical conditions were inspected and documented with photographs.

2.2.2 Ecological Land Classification and Flora Surveys

Vegetation surveys of the subject properties were conducted on June 6, June 14, July 4, and August 8, 2024. Ecological communities were mapped and described following the protocols of the ELC System for Southern Ontario (Lee *et al.* 1998). This involved delineating distinct ecological communities on aerial photos of the property and recording pertinent information on the vegetation composition and structure and other notable attributes.

Floristic inventories were also completed in conjunction with ELC surveys to document spring and summer flora. A list of all vascular plant species was compiled for each ecological community.

2.2.3 Breeding Bird Surveys

Two early morning breeding bird surveys were undertaken on June 6 and July 4, 2024, to determine what species of birds are breeding or nesting on or adjacent to the subject properties. The breeding bird community was surveyed using a roving type survey by an experienced bird biologist, with all parts of the property walked to within 50 m and all birds heard or observed and showing some inclination toward breeding recorded as breeding species. The lands represent a small survey area and can be walked such that all singing birds can be heard or observed and recorded. A summary of the survey details is included in **Table 2**.

Table 2. 2024 Breeding Bird Survey Details

Details	Survey Round 1	Survey Round 2
Date:	June 6, 2024	July 4, 2024
Time	6:30 – 9:30	6:40 – 9:45
Temp (°C):	15	18
Wind (Beaufort):	2	2
Cloud cover (%):	100	60
Precipitation	Scattered showers (surveys paused while raining)	None

2.2.4 Woodpecker Nest Cavity Search

Searches for Red-headed Woodpecker nesting cavities were conducted on August 8 and October 2, 2024 in areas where potential impacts may occur. All trees within these areas were visually assessed for the presence of woodpecker nest cavities or any other cavity features with the potential to support nesting woodpeckers. For any cavities discovered, a GPS point was taken along with photographs and notes on the cavity and tree characteristics.

2.2.5 Breeding Amphibian Surveys

Nocturnal amphibian call surveys were conducted to assess habitat for frogs and toads on the subject properties. Surveys were conducted using the point count method according to the Marsh Monitoring Protocol (Birds Canada 2008) whereby the surveyor stands at a set point for a minimum three-minute period and records all calling frog/toad species and their call levels. Some frogs breed earlier in the spring, while others breeding later; therefore, per the Marsh Monitoring Protocol, three surveys are typically required between April and July to document the full suite of amphibians in an area. Surveys were conducted on June 14 and July 2, 2024. Due to the timing of project initiation, it was not possible to conduct an early spring survey; however, based on observed site conditions, potential breeding habitat for early spring frogs was noted. Survey details are summarized in **Table 3.** On June 14, 2023, three (3) survey points were established on the subject properties to listen for calling frogs/toads from potentially suitable breeding habitat (i.e. areas containing slow moving or standing water). And additional survey point was added on July 2, 2024 for the western parcel, which was added to the project scope following the first survey.

The approximate locations of calling anurans were noted on a standard MMP data sheet and chorus activity for each species was assigned a call code as follows:

- Code 0: No calls;
- Code 1: Individual calls do not overlap and calling individuals can be discretely counted;
- Code 2: Calls of individuals sometimes overlap, but numbers of individuals can still be estimated; and
- Code 3: Overlap among calls seems continuous (full chorus), and a count estimate is impossible.

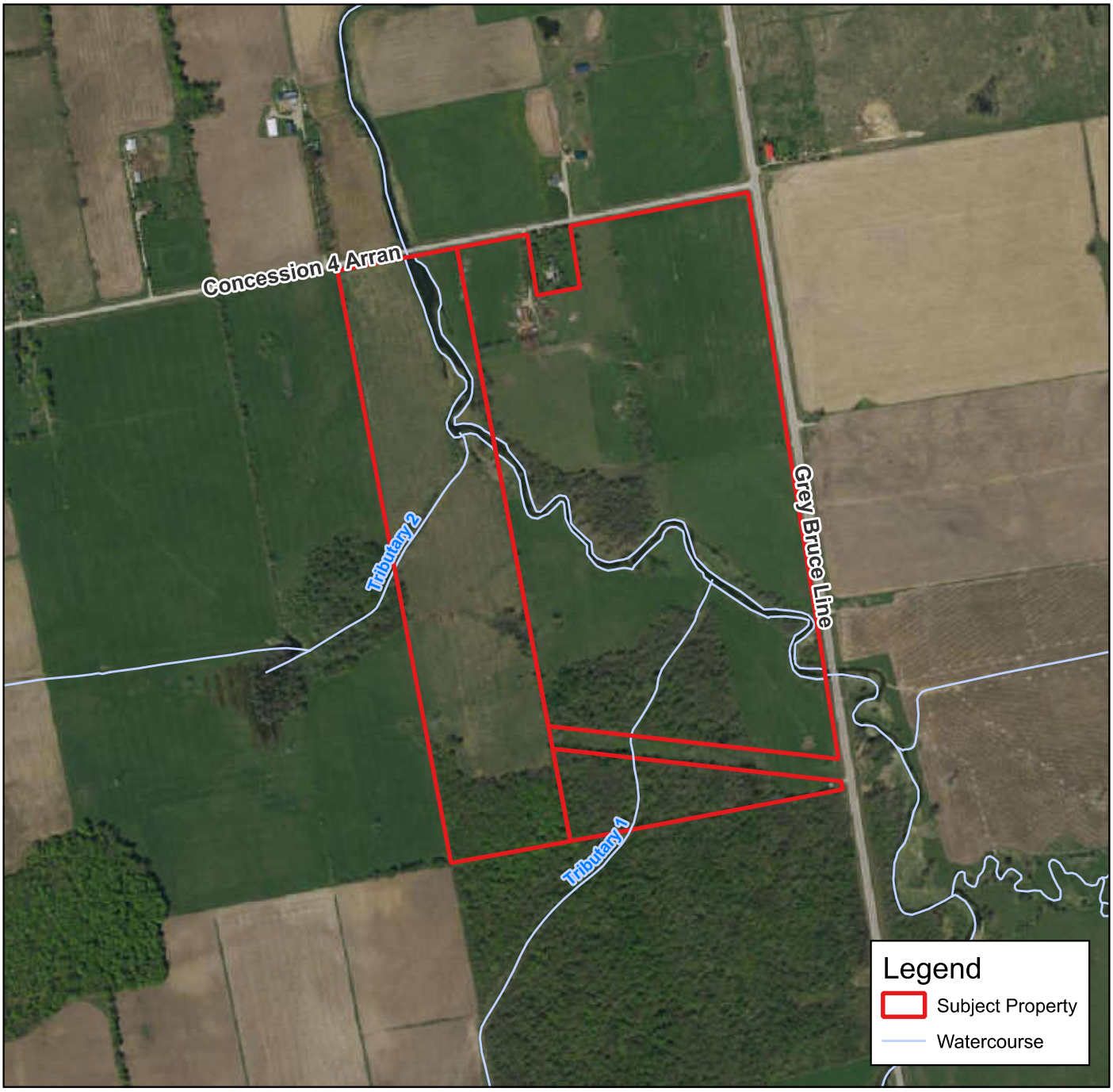
Table 3. 2024 Amphibian Survey Details

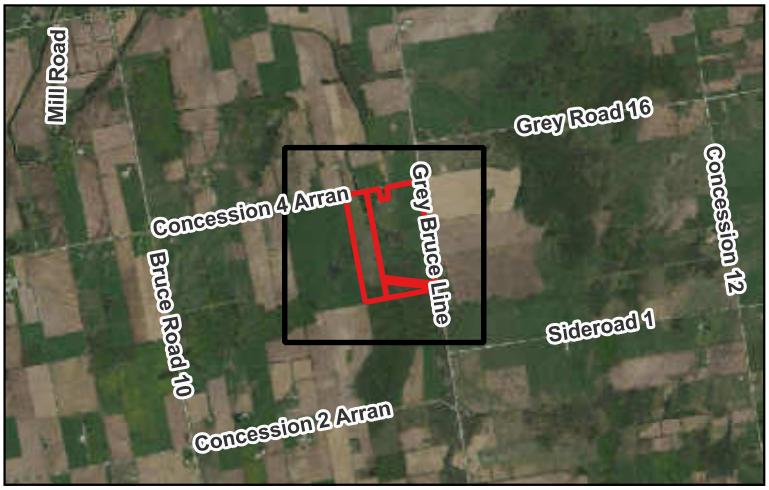
Details	Survey Round 1	Survey Round 2
Date:	June 14, 2024	July 2, 2024
Time	21:30-22:00	21:45 – 22:40
Temp (°C):	20	20
Wind (Beaufort):	0	0
Cloud cover (%):	0	100
Precipitation	None	Drizzle

2.2.6 Bat Habitat Assessment

There are currently four species of bats listed as endangered on the Species at Risk list under the Ontario *Endangered Species Act* (ESA). A bat habitat assessment was undertaken in accordance with the Ministry of the Environment, Conservation and Parks (MECP) 'Species at Risk Bats Survey Note 2022' and "Maternity Rost Surveys" guidelines for woodlands within the subject properties.

As per Step 1 of the MECP protocol "Maternity Roost Surveys" any coniferous, deciduous or mixed wooded ecosite that include trees at least 10 cm diameter at breast height (DBH) are considered candidate maternity roost habitat.





Site Location	Figure 1
Tara BESS	
BEACON ENVIRONMENTAL	Project: 224130 Last Revised: December 2024
Client: BBA Engineering Ltd.	Prepared by: BD Checked by: SM
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The second step in identifying bat habitat is a "snag" tree survey to determine if any trees with wooded ecosites have characteristics that make them suitable for maternity roosting for Little Brown and Northern Myotis (e.g. cracks, loose bark, cavities, etc.), or any oaks or maples are present, which are favoured by Tri-colored Bat. This step is typically completed during "leaf off" season (late fall-early spring). Due to the timing of project initiation (June 2024), this step was skipped and Beacon proceeded to step 3.

Step 3 is acoustic monitoring which involves setting up electronic bat detectors, which record bat calls. The calls are then analysed to identify the species of bats in the area, as bats species vocalize at different frequencies. Following the MECP protocol, this deployment period provided at least ten nights of data recorded under suitable weather conditions (air temp ≥10°C, low winds, and minimal precipitation). Detectors were deployed in four woodland communities on the subject properties (**Figure 2**). The monitoring locations were selected based on potential impacts of the project and the range of the acoustic monitor.

At each of the acoustic monitoring locations an SM4BAT passive monitor equipped with a SMM-U1 or SMM-U2 ultrasonic microphone was installed. Microphones were oriented to optimize the echolocation detections. Each monitor was programmed to record during triggered events each night for a period of six hours beginning at sunset. A 12dB gain setting, was selected based on the SMM-U1 or SMM-U2 microphone and the surrounding habitat and proximity to potential roost trees. The unit was programmed to record in full spectrum with a 256 kHz sample rate. The high pass filter was set to 16 kHz to eliminate low frequency noise but to still capture the lowest frequency bat calls (i.e., Hoary Bat [Lasiurus cinereus] for the study area). The trigger level was set to +18SNR with a 0.5 second minimum call duration trigger. All files were recorded as full spectrum in .WAV format.

Recordings from each of the four monitors were analyzed using Kaleidoscope Pro software. A combination of auto-identification and manual analysis was applied to call files to make species determinations. All unclassified files (No ID Files) were manually reviewed for call frequency to determine if unclassified calls fell within the 40 kHz Myotis species and Tri-Colored Bat range. If the call did not fall within the approximate 40 kHz range, it was not analyzed further as it is likely not an endangered species of bat. Furthermore, a random selection of noise files was reviewed to ensure that the batch filters functioned as intended.

3. Findings

3.1 Aquatic Habitat Assessment

The subject properties are within the Sauble River Watershed of Lake Huron. The main branch of the Sauble River entered the property under the Grey Bruce Line bridge within the southeastern portion of the subject properties, meandering in a northwest direction before exiting under the Concession Road 4 bridge (**Figure 2**). The river is identified as having a coldwater thermal regime (MNRF, 2010). Two tributaries originated off property and entered the south and west boundaries, respectively, flowing northward across the property to join the Sauble River (**Figure 2**).

Sauble River

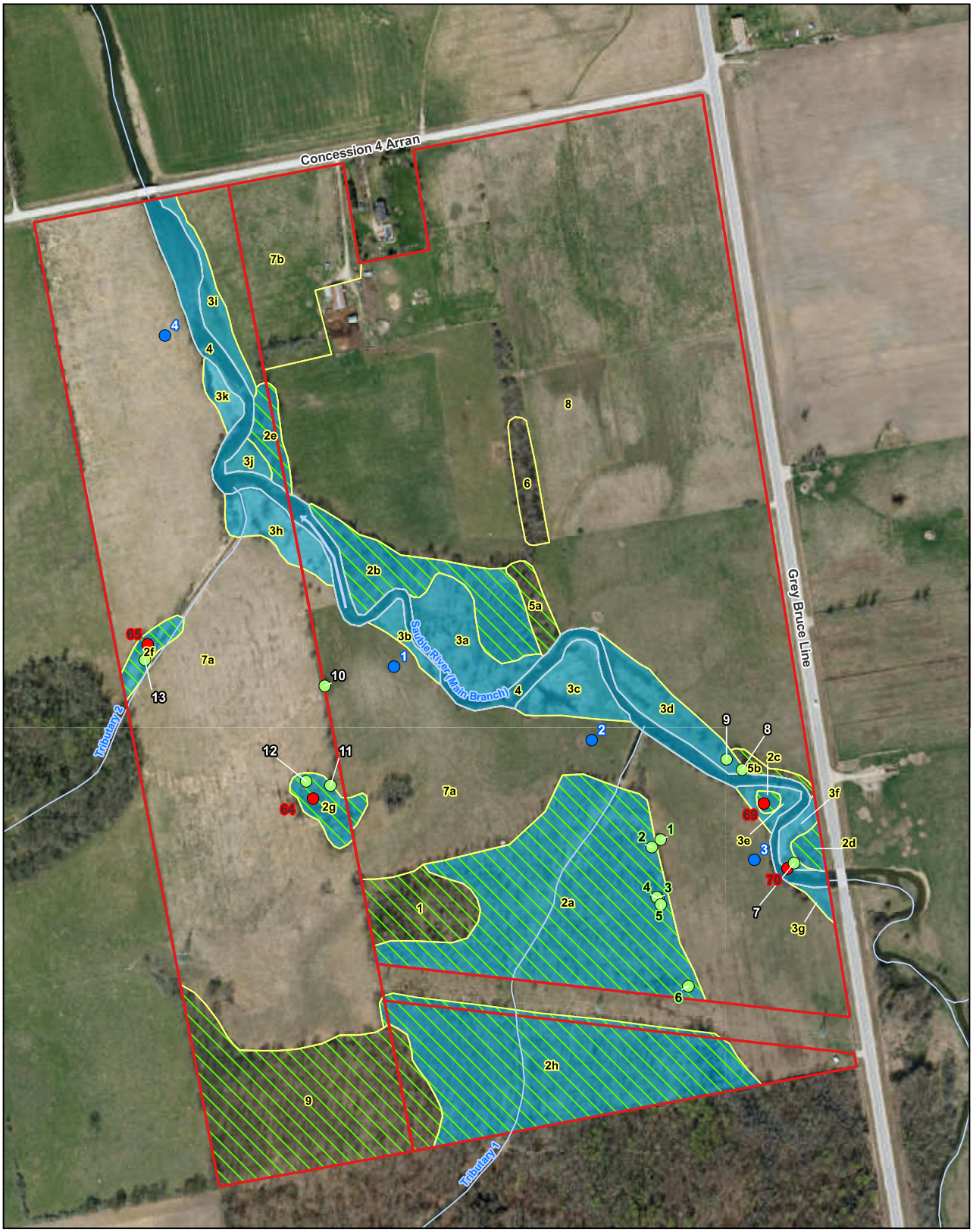
The river flows through a small valley feature within the agricultural landscape of the subject properties (**Photograph 1**). Stream morphology consisted of a mix of pools, runs, and riffles, offering diverse habitat conditions suitable for fish spawning, feeding, and refuge. The fish community is historically known to include species such as Central Mudminnow (*Umbra limi*), Creek Chub (*Semotilus atromaculatus*), Johnny Darter (*Etheostoma nigrum*), Least Darter (*Etheostoma microperca*), Northern Pike (*Esox lucius*), Pumpkinseed (*Lepomis gibbosus*), Rainbow Darter (*Etheostoma caeruleum*), Rock Bass (*Ambloplites rupestris*), and Spotfin Shiner (*Cyprinella spiloptera*) (OMNR 1996). Based on DFO, mapping, there are no aquatic species at risk records for the Sauble River.

The substrate was predominantly composed of sand and silt, which supported an abundance of emergent and submergent vegetation throughout the river. Undercut banks and woody debris were abundant and provided ample in-stream cover, enhancing habitat complexity. Canopy cover along the river was limited, provided only by sporadic trees. The majority of the river remained unshaded due to the agricultural use of the surrounding lands. The wetted width of the watercourse ranged from 5 to 12 m, with wetted depths ranging from as shallow as 0.5 m in some riffles to deeper than 1.4 m in some pools.

Photograph 1. **The main branch of the Sauble River, facing upstream (August 15, 2024)**

Tributary 1

Tributary 1 entered the subject property through the southern boundary via the hydro corridor, flowing northward to its confluence with the Sauble River.



Legend

- Subject Property
- Ecological Communities
- Watercourse
- Flow Direction
- Wetland (Beacon 2024)
- Woodland (Beacon 2024)
- Acoustic Detector Locations
- Cavity Tree Locations
- Amphibian Survey Locations

ID	Code	Wetland Communities
3	MAM2-2	Reed-canary Grass Mineral Meadow Marsh
2	SWD2-2	Green Ash Mineral Deciduous Swamp
		Aquatic Communities
4	SAS1-1	Pondweed Submerged Shallow Aquatic (Sauble River)
		Forest Communities
9	FOD5-7	Dry - Fresh Sugar Maple - Black Cherry Deciduous Forest
1	FOD8-1	Fresh - Moist Poplar Deciduous Forest
		Cultural Communities
5	CUW1	Mineral Cultural Woodland
		Other Communities
7	AG (Hay)	Agricultural Hay Crop
8	AG (Row Crop)	Agricultural Row Crop
6	HE	Hedgerow

Existing Conditions

Figure 2

Tara BESS

BEACON ENVIRONMENTAL

Project: 224130
Last Revised: January 2025

Client: BBA Engineering Ltd.

Prepared by: BD
Checked by: SM

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Much of the tributary is confined within a dense, deciduous swamp (SWD2-2) with abundant emergent vegetation protruding from the watercourse (**Photograph 2**). At a farm equipment crossing, the riparian zone transitions to agricultural land, where a damaged corrugated steel pipe (CSP) culvert remained in the watercourse. Watercress (*Nasturtium officinale*) was present throughout the tributary, suggesting a coolwater input within the tributary.

Due to the abundance of vegetation, the tributary exhibited minimal morphological variation, with a consistent flat profile. For the exception of the farm crossing, aquatic vegetation provided full shading to the tributary. The wetted width ranged from 1 to 2 m, and the wetted depth from 0.2 to 0.4 m. Substrates consisted of equal parts sand, silt, and clay. No fish were observed during the survey, likely due to the dense vegetation impeding passage. However, as no barriers were identified at the confluence with the Sauble River, fish are presumed to have access to the tributary during favourable conditions.

Photograph 2. **Tributary 1 at the farm equipment crossing, facing downstream (June 19, 2024).**

Tributary 2

Tributary 2 entered the subject properties through the east boundary from the adjacent agricultural field, flowing northward to its confluence with the Sauble River. It entered the property within a small valley feature, with substrate primarily consisting of sand, silt, and clay (**Photograph 3**). The riparian zone transitioned from deciduous swamp (SWD2-2) to agricultural land near a farm equipment crossing, where the tributary passed through a 0.56 m CSP culvert.

The tributary exhibited a consistent run morphology, with little variation in its channel pattern. The feature appears to have been channelized/straightened in the past to accommodate the existing agricultural land use. Wetted widths ranged from 0.5 to 1.75 m, and the wetted depth from 0.10 and 0.25 m. Emergent vegetation was present within the tributary, with watercress (*Nasturtium officinale*) present in the lower section, indicating a coolwater input to the tributary. Canopy cover along the tributary was limited, provided only by sporadic trees. The majority of the river remained unshaded due to the agricultural use of the surrounding lands. The tributary supports an abundance of fishes and frogs which were visible during the assessment.

Photograph 3. Tributary 2 as it flowed through the agricultural field, facing upstream (June 19, 2024).

3.2 Ecological Land Classification

The subject properties are comprised primarily of agricultural lands (row crops and pasture), as well as deciduous swamp, deciduous forest, and meadow marsh. ELC communities are illustrated in **Figure 2** and described below.

ELC Unit 1: Fresh-Moist Poplar Deciduous Forest (FOD8-1)

This forest community is dominated by Trembling Aspen (*Populus tremuloides*) with lesser amounts of White Elm (*Ulmus americana*), Sugar Maple (*Acer saccharum*), and Black Cherry (Prunus serotina). The subcanopy and understory consists of hawthorn (*Crataegus* spp.), White Elm, Choke Cherry (Prunus virginiana), and Alternate-leaved Dogwood (*Cornus alternifolia*).

Dominant ground covers include Urban Avens (*Geum urbanum*), Orchard Grass (*Dactylis glomerata*), Graceful Sedge (*Carex gracillima*), and Herb Robert (*Geranium robertianum*).

ELC Unit 2: Green Ash Mineral Deciduous Swamp (SWD2-2)

Most of the wooded areas on the subject properties are occupied by Green Ash (*Fraxinus pennsylvanica*) swamp. The canopy layer is dominated by Green Ash, with smaller amounts of American Elm, Balsam Poplar (*Populus balsamifera),* Trembling Aspen and Red Maple (*Acer rubrum*). The Green Ash are generally declining or dead as a result of Emerald Ash Borer infestation. There are relatively few sub-canopy trees or shrubs, likely due to cattle grazing (within units south of the Sauble River), while the ground layer is more diverse and dominated by sedges, Fowl Bluegrass (*Poa palustris*), Reed Canary Grass, Sensitive Fern (*Onoclea sensibilis*), and other wetland forbs and graminoids.

ELC Unit 3: Reed Canary Grass Mineral Meadow Marsh (MAM2-2)

There are areas of marsh at several different points along the watercourse that are dominated by Reed Canary Grass, with smaller amounts of other wetland plants such as sedge (Carex spp.), Spotted Joe-pye-weed (*Eutrochium maculatum*), Swamp Milkweed (*Asclepitas incarnta*), Water Smaretweed (*Persicaria amphibium*), and other wetland plants.

ELC Unit 4: Pondweed Submerged Shallow Aquatic (SAS1-1)

This ELC unit corresponds with the Sauble River, which is slow-moving and shallow in most areas, providing habitat for aquatic plants such as pondweeds (*Potamogeton* spp), Variegated Pond-lily (*Nuphar variagatum*), and Water Smartweed.

ELC Unit 5: Cultural Woodland (CUW1)

There are several more disturbed areas of cultural woodland (units 5a and 5b) within the subject properties, which are dominated by hawthorns (*Crataegus* spp.) with a more open canopy of Green Ash. Dominant ground covers are Urban Avens (*Geum urbanum*), Canada anemone (*Anemonastrum canadense*), Graceful Sedge, and pasture grasses.

ELC Unit 6: Hedgerow (HE)

The hedgerow consists of dead or declining ash tree with some Wild Red Raspberry (*Rubus ideaus ssp. strigosus*). Dominant ground covers are typical of old field meadows, including non-native grasses (*Dactylis glomerata, Lolium pratense, Bromus inermis, Phalaris arundinacea*), Tall Goldenrod (*Solidago altissima*), Tall Buttercup (*Ranunculus acris*), and Hedge Bedstraw (*Galllium mollugo*).

ELC Unit 7: Agriculture – Pasture

Large areas of the subject properties are occupied by cattle pastures, primarily south of Sauble River Pasture grasses like Tall Ryegrass (*Lolium pratensis*) and Orchard Grass) are the dominant vegetation cover in most areas, with occurrences of Common Buttercup (*Ranunculus acris*), Woolly Sedge (*Carex pellita*), Red Clover (*Trifolium pratensis*), Bird's Foot Trefoil (*Lotus corniculatus*) and Prickly Sedge (*Carex spicata*). other common components. There are scattered trees and shrubs in some areas, such as hawthorns and Green Ash.

ELC Unit 8: Agriculture – Row Crop

Several crop fields are present on the subject properties which were planted in soybeans and wheat.

ELC Unit 9: Dry-Fresh Sugar Maple-Black Cherry Deciduous Forest (FOD5-7)

There is an area of upland forest to the southwest corner of the subject property. This forest is dominated by mature Sugar Maple and Black Cherry in the canopy. Due to grazing by cattle, smaller trees and shrubs are nearly absent, and the sparse groundcover is dominated by Garlic Mustard and Broad-leaved Enchanter's Nightshade (*Circaea canadensis*).

3.3 Flora

A total of 167 species of vascular plants were observed during field investigations. A full list is provided in **Appendix A.** All species observed are ranked as provincially common (S4 or S5) and are not SAR.

Four species observed are considered rare in southern Bruce County based on the Owen Sound Field Naturalists *Vascular Plant List of Bruce and Grey Counties* (2021), including:

- Pale Sedge (*Carex pallescens*), uncommon in moister areas of pastures (ELC unit 7a);
- Tall Mannagrass (*Glyceria grandis*), uncommon in marshes along the watercourse (ELC unit 3c and 3e);
- Shining Ladies' Tresses (*Spiranthes lucida*), a few individuals seen in pastures adjacent to the watercourse (ELC unit 7a); and
- Long-leaved Starwort (*Stellaria longifolia*), rarely encountered in swamps and moister areas of pastures (ELC unit 2a and 7a).

3.4 Breeding Bird Surveys

65 species of birds were observed on or adjacent to the subject properties during breeding bird surveys. A full list and summary of species observed is provided in **Appendix B.**

Four of the species observed do not have suitable breeding/nesting habitat present in the subject properties (Great Blue Heron (*Ardea herodias*), Great Egret (*Ardea alba*), Herring Gull (*Larus argentatus*), Ring-billed Gull (*Larus delawarensis*)), but the remainder are likely to be nesting on or adjacent to the subject properties.

By far the most common species observed was Red-winged Blackbird (*Agelaius phoeniceus*), with up to 24 separate territories/pairs observed. Other species observed in relatively large numbers include other species with generalised habitat preferences: Song Sparrow (*Melospiza melodia*), Common Grackle (*Quiscalus quiscula*) and European Starling (*Sturnus vulgaris*).

Given the diversity of habitats on site, many species specialised in specific habitats were also observed, including species of forests (Brown Creeper (*Certhia americana*), Ovenbird (*Seiurus aurocapilla*), Hairy Woodpecker (*Dryobates villosus*)), grasslands (Eastern Meadowlark (*Sturnella magna*), Savannah Sparrow (*Passerculus sandwichensis*), American Kestrel (*Falco sparverius*)), wetlands and waterbodies (Spotted Sandpiper (*Actitis macularius*), Swamp Sparrow (*Melospiza georgiana*), Wood Duck (*Aix sponsa*)), and open woodlands (Red-headed Woodpecker (*Melanerpes erythrocephalus*), Yellow-throated Vireo (*Vireo flavifrons*)).

Two species observed are listed as Threatened or Endangered under the ESA: Eastern Meadowlark and Red-headed Woodpecker. These species are discussed further in **Section 4.4**. Two additional species are listed as Special Concern: Barn Swallow (*Hirundo rustica*) and Eastern Wood-pewee (*Contopus virens*). Special Concern species do not receive habitat protection under the ESA.

Ten of the species observed are considered to be area-sensitive species. These species typically require large areas of suitable habitat for sustainable populations, though sometimes can be found in smaller habitat patches. The majority of area sensitive species observed on or adjacent to the subject properties are associated with the woodlands and treed swamp communities, including:

- Hairy Woodpecker;
- Pileated Woodpecker (*Dryocopus pileatus*) located off-site to the south);
- Least Flycatcher (*Empidonax minimus*);
- White-breasted Nuthatch (*Sitta carolinensis*);
- Brown Creeper (*Certhia americana*);
- Blue-gray Gnatcatcher (*Polioptila caerulea*);
- Yellow-throated Vireo;
- American Redstart (*Setophaga ruticilla*);
- Ovenbird; and
- Savannah Sparrow.

Targeted surveys for woodpecker nest cavities were also completed, discussed in section 4.5.2 below.

3.5 Breeding Amphibian Surveys

The only frog species heard calling during nocturnal call surveys was Green Frog (*Lithobates clamitans*), which was heard from all surveys stations along the length of the Sauble River through the subject properties. Green Frog tadpoles were also noted incidentally in Tributary 2 at multiple locations over the course of other field investigations.

As discussed in **Section 2.2.4**, due to the timing of project initiation, the early spring amphibian calling surveys could not be not completed, however, based on observed site conditions and incidental observation, potential breeding habitat for early spring frogs was noted.

Northern Leopard Frog (*Lithobates pipeins*), which breed earlier in the spring, were observed within the pasture south of the Sauble River during daytime surveys. It is assumed the Northern Leopard Frog would use the Sauble River and adjacent wetlands for breeding.

Treed swamp communities within the subject properties were dry at the time of surveys; however, there is potential habitat for Wood Frog (*Lithobates sylvaticus*) and Spring Peeper (*Pseudacris crucifer*), which breed earlier in the spring when conditions are typically wetter.

Table 4. Amphibian Survey Results

Location (see Fig. 2)	Survey Date	
	June 14, 2024	July 2, 2024
1	GRFR 1(6)	GRFR 1(1)
2	GRFR 1(2)	GRFR 1 (4)
3	GRFR 1 (3)	0
4	0	0 (on-site) GRFR (calling from river north of property)

GRFR – Green Frog
Code 0: No calls;
Code 1: Individual calls do not overlap and calling individuals can be counted (number of calls indicated in parentheses)

3.6 Bat Habitat Assessment

Detectors were installed from June 19 to August 15, 2024, with a recording window of 6 hours after sunset. Although all data was analysed, data during the 12 nights of recording in June is of primary relevance to determine bat roosting habitat.

Among the four acoustic monitoring locations, seven bat species were documented within the subject properties: Big Brown Bat (*Eptesicus fuscus*), Eastern Red Bat (*Lasiurus borealis*), Hoary Bat (*Lasiurus cinereus*), Silver-haired Bat (*Lasionycteris noctivagans*), Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*) and Tri-colored Bat (*Perimyotis subflavus*). Additionally, unidentified Myotis species were recorded. As the call spectrograms of all three Myotis species have overlapping characteristics, it can sometimes be difficult to differentiate between them. The results of the acoustic analysis are summarized in **Table 5 and Table 6**, listing the total number of detections of each species over the monitoring period.

Of the species recorded in June, three are listed as endangered under the ESA: Little Brown Myotis, Eastern Small-footed Myotis, and Tri-colored Bat. The recordings of the regulated species were further analyzed to determine if they aligned with roost emergence times (8:30 pm to 10:30 pm) (**Table 5**).

Table 5. Acoustic Monitoring Results*

Detector #	ELC Community	Big Brown Bat	Eastern Red Bat	Hoary Bat	Silver-haired Bat	Eastern Small-footed Myotis	Little Brown Myotis	Myotis Species	Tri-colored Bat	Total
		Number of Calls Recorded								
64	2g	1166		602	323	644	4	454		**3193**
65	2f	3203	19	990	396	170	5969	2478	177	**13402**
69	2c	888	1	709	125	3	290	33		**2049**
70	2d	737	3	405	626	1				**1772**
	Total	**5994**	**23**	**2706**	**1470**	**818**	**6263**	**2965**	**177**	**20416**

*Non-SAR bat files represent auto-identification only and have not been manually reviewed whereas SAR bat files have been manually reviewed to make species determinations.

Table 6. Regulated Bat Species Calls During Roost Emergence Timing in June*

Detector #	Date	Number of Eastern Small-Footed Myotis Calls	Number of Little Brown Myotis Calls
64	6/20/2024		1
	6/26/2024	2	
	6/28/2024	1	
	6/30/2024	1	
65	6/21/2024		1
	6/23/2024		26
	6/24/2024		6
	6/25/2024		4
	6/26/2024		6
	6/27/2024		1
	6/28/2024	1	87
	6/29/2024		51
	6/30/2024		10
69	6/19/2024		1
	6/22/2024		26
	6/23/2024		6
	6/24/2024		2
	6/25/2024	1	4
	6/26/2024		9
	6/27/2024		7
	6/28/2024		34
	6/29/2024		2
	6/30/2024		42

Detector #	Date	Number of Eastern Small-Footed Myotis Calls	Number of Little Brown Myotis Calls
Total		**6**	**326**

*The number of call files does not represent the number of bats as multiple calls can be recorded from a single bat.

The 177 Tri-colored bat calls recorded on detector 65 occurred outside of the roost emergence period and after the June monitoring period; therefore, although there may be potentially suitable roost habitat, the species is likely to be foraging in the area but not using maternity roosts in the vicinity of the monitoring locations.

A total of six (6) Eastern Small-Footed Myotis calls were recorded during roost emergence times over the 12-day monitoring period. These calls were spread across three different monitors, with the most calls occurring on monitor 64 (ELC unit 2g in the western portion of the property). It is unlikely that this species is roosting on the site as its habitat preference for roosting is rocky outcrops, which are absent from the subject properties.

Little Brown Myotis was recorded during roost emergence times (**Table 6**). A total of 326 Little Brown Myotis calls were recorded during roost emergence times over the 12-day monitoring period.

These calls were recorded over 12 separate nights and spread across three different monitors with most calls occurring on monitors 65 (ELC unit 2f) and 69 (ELC unit 2c/5b). On nights with multiple recordings, the calls were recorded within a few minutes of each other suggesting that either one or a few individuals were active in the area and calling repeatedly during this time. Although these calls were spread over two detectors and over 12 separate nights, the elevated level of activity captured on these detectors suggests that the woodlands in the vicinity of these two detectors may provide a maternity roosting function for Little Brown Myotis. Based on the lower number of Little Brown Myotis calls recorded on detector 64 during the roost emergence timing in June, it suggests that ELC unit 2g does not provide maternity roost habitat for Little Brown Myotis but contributes to general habitat.

4. Constraints Assessment

In order to guide the location and layout of the project, a constraints assessment was undertaken to identify sensitive or significant ecological and hydrological features that should be avoided, where possible. While impact avoidance is considered the primary method for environmental protection, it is also recognized that constrained areas cannot always be avoided and that other methods exist that can mitigate potential adverse impacts on the environment.

The constraints assessment took into consideration the significance of the natural heritage features within the subject properties and applicable polices of the Bruce County Official Plan.

4.1 Wetlands

Unevaluated wetlands have been identified by MNRF on the subject properties. Wetland limits on the subject properties were confirmed and delineated during field investigations as illustrated in **Figure 3.** MNRF typically maps wetlands at a high level based on desktop analysis; therefore, it is common that wetland boundaries get verified and refined based on site specific field investigations. Wetlands are generally recognized for their ecological and hydrological functions. The Bruce County Official Plan has policies for the protection of PSW and Locally Significant Wetlands (LSW). The wetlands have not been designated PSW by MNRF, but may qualify as LSW, though no criteria for assessing local significance are provided in the Official Plan. The Bruce County Official Plan states that development that may have a significant impact on LSW may require the preparation of an EIS to ensure that the ecological function of the lands are not negatively impacted.

The Grey Sauble Conservation Authoriy (GSCA) regulates activities that are proposed within or adjacent to natural hazards, including wetlands. Based on the GSCA's regulation, lands within 30 m of wetlands are regulated. For most activities, a permit is required to ensure there will not be impacts on the control of flooding, erosion, or unstable soil.

Wetlands within the subject properties may also be considered potential Significant Wildlife Habitat (SWH), a function which is discussed further in **Section 4.4.**

Generally, new development and infrastructure should be directed away from wetlands, and the application of a buffer to wetlands is a typical mitigation tool that is utilized to protect wetland features and their functions from development and site alteration on adjacent lands.

An appropriate buffer width depends on consideration of the sensitivity of the feature requiring protection and the type/nature of the proposed adjacent land use, as well as consideration of policies that may prescribe buffers of a certain size. The Bruce County Official Plan does not have specific buffer requirements for wetlands. Given that BESS is a relatively passive land use, in Beacon's opinion a 15 m buffer naturalized buffer, in combination with other mitigation measures) is recommended to avoid potential impacts of the proposed BESS facility, as illustrated in **Figure 3**. Other mitigation measures may include a Noise Mitigation Plan to minimize the effects of noise from the facility on wildlife habits that cannot be fully mitigated with buffer. If a wetland feature or buffer cannot be avoided, then additional mitigation or enhancement measures may be required to minimize impacts. Provision of the 15 m buffer to the wetlands will also maintain habitat for turtle nesting and terrestrial crayfish, which were was observed within the existing agricultural field along the north edge of the wetland associated with the Sauble River.

4.2 Woodlands

There are several forest and woodland communities on the subject properties. According to the Bruce County Official Plan, woodlands over 40 ha are considered Significant Woodlands. The woodlands on the subject properties are smaller than 40 ha, thus would not be considered Significant Woodlands.

The majority of the woodlands with the subject properties are treed swamps which also qualify as wetlands. Wetland constraints are summarized in **Section 4.1.** Additionally, the woodlands represent potential SWH (**Section 4.4)** and habitat for endangered species (**Section 4.5**).

As discussed in **Section 4.1**, a 15 m buffer was recommended to the wetlands, which includes the majority of the woodlands (treed swamps) within the subject properties. A 10 m buffer is recommended for other woodland (FOD and CUW) features.

4.3 Watercourses and Fish Habitat

The Sauble River, which crosses the subject properties, is classified by MNRF as coldwater fish habitat.

The two tributaries to the Sauble River have an unknown thermal regime; however, indicators such as the presence of watercress in both tributaries is suggestive a cool or coldwater thermal regime.

A best management practice the for protection of coldwater fish habitat is to provide a 30 m buffer to the edge of the watercourse. This is based on MNRF guidelines (1994) and is consistent with the policies of Bruce County. A 30 m buffer to the watercourses on the subject properties are illustrated in **Figure 3.**

Fish habitat is regulated by DFO under the federal *Fisheries Act*. If the project will result harmful alteration, disruption, or destruction (HADD) of fish habitat, then a Fisheries Act authorization would be required. DFO interprets HADD as any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes of fish. Potential impacts of the project of fish habitat will need to be assessed. If potential impacts cannot be sufficiently mitigated, then a *Fisheries Act* authorization from DFO will be required.

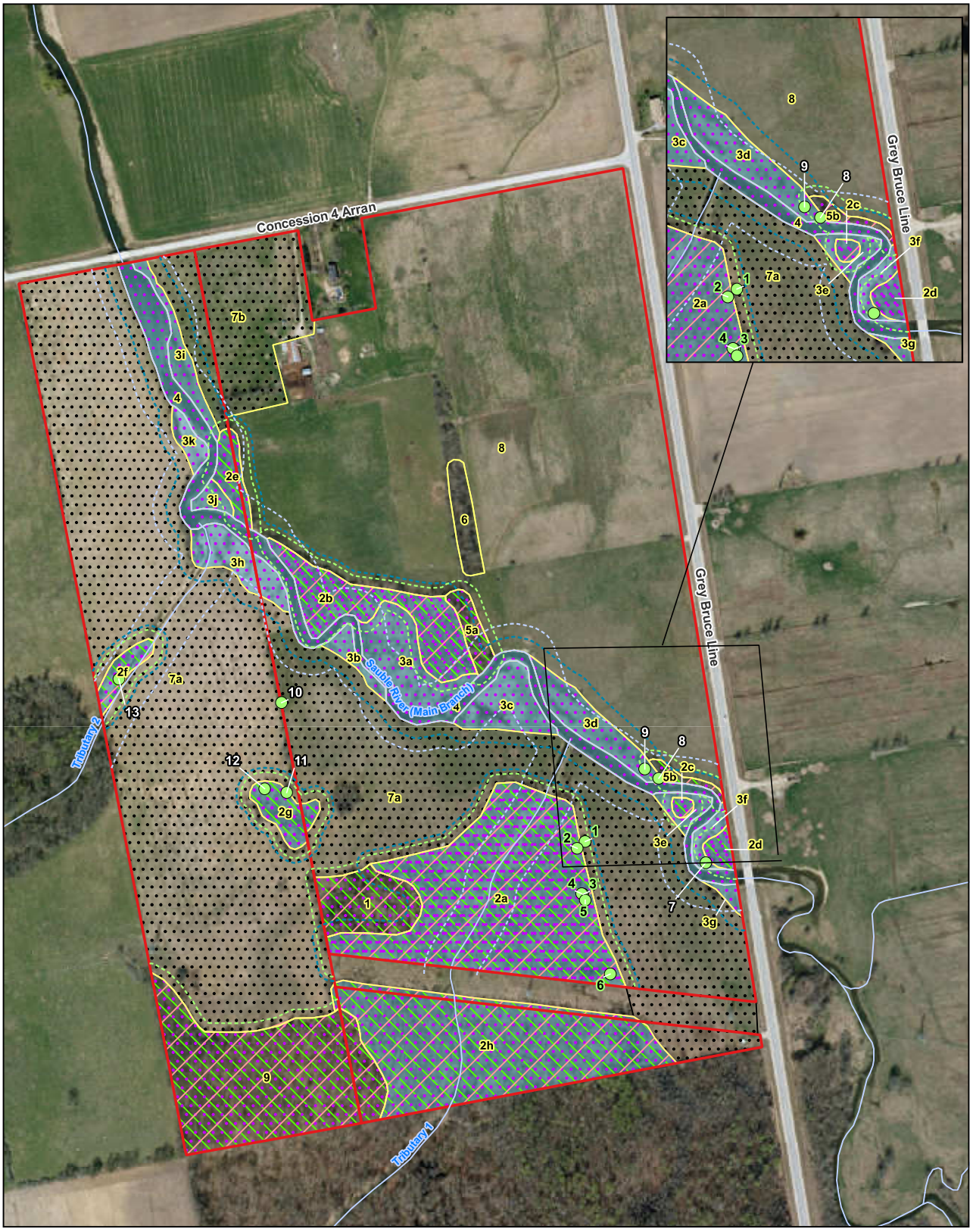
4.4 Significant Wildlife Habitat

According to the *Significant Wildlife Habitat Technical Guidelines* (MNR 2000), there are four main categories of Significant Wildlife Habitat:

- Seasonal Concentration Areas of Animals;
- Rare Vegetation Communities or Specialized Habitat for Wildlife;
- Habitat for Species of Conservation Concern; and
- Animal Movement Corridors.

Within each of these categories, there are multiple types of SWH, each intended to capture a specialized type of habitat that may or may not be captured by other existing feature-based categories (e.g., significant wetlands, significant woodlands). The *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNRF 2015) was used to screen for potential SWH (**Appendix C**). Based on the screening, there is potential for the following types of SWH to occur on the subject properties:

- Bat maternity colonies (forest and treed swamp communities – ELC units 1, 2, and 9);
- Habitat for Species of Conservation Concern;
    - Eastern Wood Pewee (ELC Units 1, 2a, 9);
    - Snapping Turtle (Sauble River and adjacent wetlands – ELC units 3 and 4);
- Turtle Wintering Area (Sauble River, ELC unit 4); and
- Amphibian Breeding Habitat (ELC units 2, 3, 4).



Legend

- Subject Property
- Ecological Communities

Constraints

- Watercourse
- 30 m Watercourse Buffer
- Wetland (Beacon 2024)
- 15 m Wetland Buffer
- Woodland (Beacon 2024)
- 10 m Woodland Buffer
- Cavity Tree Locations
- Potential Signficant Wildlife Habitat
- Eastern Meadowlark Habitat
- Potential Maternity Roost Habitat for Little Brown Myotis

ID	Code	Wetland Communities
3	MAM2-2	Reed-canary Grass Mineral Meadow Marsh
2	SWD2-2	Green Ash Mineral Deciduous Swamp
		Aquatic Communities
4	SAS1-1	Pondweed Submerged Shallow Aquatic (Sauble River)
		Forest Communities
9	FOD5-7	Dry - Fresh Sugar Maple - Black Cherry Deciduous Forest
1	FOD8-1	Fresh - Moist Poplar Deciduous Forest
		Cultural Communities
5	CUW1	Mineral Cultural Woodland
		Other Communities
7	AG (Hay)	Agricultural Hay Crop
8	AG (Row Crop)	Agricultural Row Crop
6	HE	Hedgerow

Natural Heritage Constraints

Figure 3

Tara BESS

BEACON ENVIRONMENTAL

Project: 224130
Last Revised: January 2025

Client: BBA Engineering Ltd.

Prepared by: BD
Checked by: SM

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Potential SWH is associated within the majority of woodlands and wetlands on the subject properties.

It is the policy of Bruce County that no development except for essential municipally owned infrastructure shall be permitted within areas of significant wildlife habitat; therefore, SWH would be considered a high constraint. Note that Beacon has identified potential SWH on the basis of criteria suggested by MNRF. Ultimately, it is the planning authority's responsibility to confirm what constitutes SWH and how it should be protected.

4.5 Endangered and Threatened Species

Threatened and endangered species and their habitats are protected under the ESA. On private lands, the federal *Species at Risk Act* (SARA) also applies to at risk fish and birds. Generally, SARA applies to birds on private lands to the same extent as the Migratory Birds Convention *Act* (MBCA). The MBCA protects the nests, eggs, and young of most bird species, but does apply when birds have left a nest and are not actively rearing their young, and in most situations, SARA applies the same way for at risk birds on non-Federal lands. The exception to this is when a species occupies a "residence". Residence is currently interpreted as something that can be reused for nesting (e.g., a tree cavity, chimney). For birds that occupy such residences (e.g. Chimney Swift), SARA regulates the residence regardless of whether birds are actively nesting. Cavity trees of at-risk woodpecker species may qualify as a residence.

If an activity will result in harm to threatened or endangered species or their habitats, then an ESA authorization (typically a permit) must be obtained from MECP, and in some cases, a SARA permit from DFO or Environment and Climate Change Canada (ECCC).

A screening for habitat of threatened or endangered species is included in **Table 7.** The screening is based on species records within approximately 5 km of the subject properties from various databases and background documents (see **Section 3**). No records of threatened or endangered fish, molluscs, reptiles, or amphibians were identified in this screening. Existing conditions on the property were assessed to determine if suitable habitat for threatened or endangered species is present based on knowledge of the habitat preferences and natural history of the species.

Table 7. Background Review Records of Endangered and Threatened Species in Vicinity of Subject Properties

Species	Status on SARO List*	Status under Species at Risk *Act*	Were Species and/or Habitat Documented during on-site Assessment?
Vascular Plants			
Butternut, *Juglans cinerea*	END	END	Potential habitat exists within the subject properties; however; a targeted search for Butternut was conducted and no Butternut were found to be present within the subject lands.
Black Ash, *Fraxinus nigra*	END	THR	Potential habitat exists with the subject properties; however, a targeted search for Black Ash was conducted within the swamps where potentially suitable habitat is present, and the species was not observed.
Birds			
Bank Swallow, *Riparia riparia*	THR	THR	Small areas of potentially suitable bank habitat present but neither the species nor nest burrows were observed during surveys.
Bobolink, *Dolichonyx oryzivorus*	THR	THR	Pasture lands within the subject properties represent potentially suitable habitat; however, the species was not observed during field investigations
Cerulean Warbler, *Setophaga cerulea*	THR	END	Potentially suitable habitat is present in forested areas, but the species was not recorded during field investigations.
Chimney Swift, *Chaetura pelagica*	THR	THR	Suitable habitat was not identified on the subject properties. These birds typically nest in uncapped vertical chimney columns. No foraging individuals were observed during field investigations
Eastern Meadowlark, *Sturnella magna*	THR	THR	The species was confirmed breeding during field investigations.in suitable habitat (pastures) on the subject properties. See further discussion below.
Mammals			
Endangered Bats	END	END	Suitable maternity roost habitat for endangered bat species is present in the woodland and treed swamp communities. Based on the acoustic monitoring, the property is

Species	Status on SARO List*	Status under Species at Risk *Act*	Were Species and/or Habitat Documented during on-site Assessment?
Little Brown Myotis, *Myotis lucifugus* **Northern Myotis, *Myotis septentrionalis*** **Tri-colored Bat, *Perimyotis subflavus*** **Eastern Small-footed Myotis, *Myotis leibii***			utilized as general habitat for Eastern Small-footed Myotis, Tri-colored Bat, and Little Brown Myotis, and likely maternity roost habitat for Little Brown Myotis. While Eastern Small Footed Myotis and Tri-colored bat are not suspected of roosting in the vicinity of the acoustic monitoring location, potential maternity roost habitat exists in the forests/treed swamps that were not monitored.
Species at Risk in Ontario List (SARO): END – Endangered; THR – Threatened.			

Field surveys confirmed the presence of five threatened or endangered species on the subject properties including:

- Eastern Meadowlark;
- Red-headed Woodpecker;
- Tri-colored Bat;
- Little Brown Myotis; and
- Eastern Small-footed Myotis.

4.5.1 Eastern Meadowlark

Eastern Meadowlark is listed as Threatened under the ESA and receives habitat protection. During field investigations, Eastern Meadowlarks were observed throughout the pastures on the subject properties, as well as on several adjacent properties, with at least five singing males present. While the exact nest locations were not observed, the presence and behaviour of the species in suitable nesting habitat. Beacon takes the conservative position that any species present during the breeding season, in suitable habitat and showing any disposition towards breeding (e.g., song, pair), be considered breeding.

The entire pasture area (ELC unit 7a and 7b) is considered habitat for Eastern Meadowlark. Bobolink was not observed but has the potential to occur in the same areas, as habitat conditions are suitable

Under Ontario Regulation 830/21, removal of Eastern Meadowlark and Bobolink habitat for non-agricultural activities (e.g. development, infrastructure, resource management, etc.) is permitted under a conditional exemption, which requires creating or enhancing an equivalent or greater area of habitat elsewhere (typically within the same ecoregion as the existing habitat) or paying into a species conversation fund administered by the province.

For the latter option, the charge is based on the total area of habitat that is damaged or destroyed and the land value within the municipality (determined by the province).

4.5.2 Red-headed Woodpecker

Records for Red-headed Woodpecker, a provincially and federally listed endangered species, did not come up in the initial background screening. However, it was observed towards the western and southwestern portions of the subject properties and is presumed to be nesting in this area; though the exact nesting site was not confirmed. The patchwork of wooded areas within the subject properties represent potentially suitable habitat.

Red-headed Woodpeckers breed in a range of habitats including woodlands, groves of dead or dying trees, river bottoms, recent clearings, swamps, orchards, parks, farmland, grasslands with scattered trees, forest edges, and roadsides. They typically nest in dead trees or dead parts of live trees and excavate their own nests, but occasionally use natural cavities.

Generally, the woodlands and tree swamps within the subject property represent potentially suitable nesting habitat (ELC units 1, 2 5, and 9). The majority of the woodlands and treed swamps were not surveyed for potential nesting trees; however, based on Beacon's understanding of the potential routes and footprints of the various project components, several areas were reviewed to screen for potentially suitable cavity trees. Based on this survey, 13 cavity trees were identified as potentially suitable. These trees are illustrated in **Figures 2** and **3** and summarized in **Table 8**. Two woodpecker nest holes were identified, but the specific species of woodpecker that made them cannot be identified. The majority of cavities observed were not created by woodpeckers, but rather broken branches (knotholes) or other types of damage. While Redheaded Woodpecker typically excavate their own nests, usage of natural cavities cannot be ruled out without additional surveys.

Red-headed Woodpecker was observed in the western part of the subject properties and is considered to be nesting on or in the vicinity of the subject properties. However, a precise nesting location was not confirmed (it is difficult to locate actual active nest holes). If the potential nesting trees identified in Figure 3 and/or other woodland habitats with the potential for nesting (ELC units 1, 2, 5, and 9) will be removed by the project, then consultation with MECP and ECCC will be required. As nest trees may be considered a "residence" under SARA, ECCC needs to be consulted to ensure compliance with SARA. Further study to confirm actual Red-headed Woodpecker nesting in 2025 will likely be required, unless all possible nesting trees can be protected. Appropriate protection or mitigations measures will depend on the type of activity or site alteration that is proposed in the vicinity of the trees and may include protections zones and/or timing restriction on construction activity if nesting is confirmed.

Table 8. Summary of Cavity Trees

Tree #	Species	# of Cavities	Type	DBH[1] (cm)	Feature Height (m)	Tree Height (m)	Decay Class[2]
1	Trembling Aspen (*Populus tremuloides*)	2	Cavity	34	5-10	10-15	2
2	Trembling Aspen (*Populus tremuloides*)	1	Cavity	33	0-15	10-15	3
3	Trembling Aspen (*Populus tremuloides*)	1	Knot hole	40	5-10	10-15	2
4	Trembling Aspen (*Populus tremuloides*)	1	Woodpecker hole	43	5-10	10-15	2
5	Trembling Aspen (*Populus tremuloides*)	1	Cavity	38	5-10	10-15	2
6	Trembling Aspen (*Populus tremuloides*)	1	Cavity	35	5-10	10-15	2
8	Green Ash (*Fraxinus pennsylvanica*)	2	Cavity, Woodpecker hole	50,50	5-15	15-20	1
9	Green Ash (*Fraxinus pennsylvanica*)	2	Cavity	50	5-15	10-15	3
13	Green Ash (*Fraxinus pennsylvanica*)	1	Cavity	50,30, 30	5-15	10-15	1
7	Green Ash (*Fraxinus pennsylvanica*)	1	Cavity	75	5-10	10-15	1
10	Green Ash (*Fraxinus pennsylvanica*)	1	Cavity	75	10-15	15-20	1
11	Poplar species (*Populus species*)	10	Woodpecker hole	50	10-15	10-15	6
12	Poplar species (*Populus species*)	2	Cavity	45	1-5	10-15	3

[1]Trunk diameter measured at breast height (1.4 m above grade)

[2] 1=Healthy live tree; 2=Declining live tree, 3=Very recently dead tree, 4=Recently dead tree; 5=Older dead tree; 6=Very old dead tree

4.5.3 Endangered Bats

Currently four species of bats are listed as endangered under the ESA, three of which have been identified on the subject properties. These species generally make use of forested areas, including treed swamps, for maternity roosting (raising their young); therefore, the swamp, forest and woodland communities mapped within the subject properties represent potential habitat for these species.

The majority of the woodlands/treed swamps were not surveyed for bats; however, based on Beacon's understanding of the potential routes and footprints of the various project components, acoustic monitoring was conduced in several locations. These locations included ELC units 2c, 2d, 2f, and 2g (**Figure 2**).

As discussed in **Section 3.1.5**, based on the results of acoustic monitoring, the property provides general habitat (e.g. foraging, flyover, etc.) for Tri-colored Bat, Eastern Small-footed Myotis, and Little Brown Myotis. In addition, based on the number and timing of calls, woodlands in the vicinity of detector 65 (ELC Unit 2f) and 69 (ELC units 2c/5b) may provide a maternity roosting function for Little Brown Myotis. The larger woodlands/treed swamps (ELC units 1, 2a, 2b, 5a, 9), which were not surveyed in detail, should also be considered potential maternity roost habitat for endangered bats.

Tree removals from within these areas may have impacts on maternity roost habitat for endangered bats. If such activities cannot be avoided, then consultation with MECP will be required to ensure the project is in compliance with the ESA. In Beacon's experience, if an activity will result in the removal a small number of snag trees but not impair the function of a woodland for supporting bat life processes, then an Overall Benefits Permit may not be required, provided the trees are removed between November 30 and March 31 (outside the active bat roosting period). If, in MECP's opinion, the activity will have adverse effects on maternity roost habitat for endangered bats, then an Overall Benefits Permit would be required. The permit is a legally binding agreement that specifies mitigation measures and beneficial actions (e.g. habitat restoration) that are required to demonstrate a net benefit to the species affected by an activity.

5. Conclusion

This Natural Environment Report summarizes the existing conditions on the subject properties with respect to natural heritage and hydrological features and identifies constraints based on the sensitivity significance, ecological functions of the features and consideration of applicable federal, provincial and municipal policies and regulations to inform the location and layout of the Tara BESS project.

Natural heritage features identified on the subject properties include woodlands, wetlands, fish habitat, potential SWH, and habitat for threatened and endangered species. It is recommended that the BESS project components avoid or minimize impacts on these features and associated buffers. Where impact avoidance is not feasible, then depending on the nature and extent of the disturbance, additional mitigation measures may be required. Project conflicts with habitats of threatened or endangered species will require authorization from the relevant authority in accordance with applicable federal and provincial legislation (ESA, possibly SARA).

Additional constraints associated with natural hazards (e.g. flooding and erosion) are not addressed in this report. It is understood that the proponent is aware of the natural hazard considerations and has a retained an engineering firm to assist in that regard.

The Class EA will require an assessment of impacts on the natural environment and mitigation recommendations to avoid, minimize, or off-set impacts.

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BEACON ENVIRONMENTAL

Appendix A

Vascular Plant Species List

Appendix A

Vascular Plant Species List

Scientific Name	Common Name	Family	Conservation Status	
			Provincial[1]	Local[2]
Acer rubrum	Red Maple	Aceraceae	S5	
Acer saccharum	Sugar Maple	Aceraceae	S5	
Acer x freemanii	(Acer rubrum X Acer saccharinum)	Aceraceae	SNA	
Actaea rubra	Red Baneberry	Ranunculaceae	S5	
Agrimonia gryposepala	Hooked Agrimony	Rosaceae	S5	
Alliaria petiolata	Garlic Mustard	Brassicaceae	SE5	
Allium tricoccum	Wild Leek	Liliaceae	S4	
Ambrosia artemisiifolia	Common Ragweed	Asteraceae	S5	
Amelanchier sp.	Serviceberry species	Rosaceae		
Anemonastrum canadense	Canada Anemone	Ranunculaceae	S5	
Arctium lappa	Great Burdock	Asteraceae	SE5	
Arisaema triphyllum	Jack-in-the-pulpit	Araceae	S5	
Asclepias incarnata	Swamp Milkweed	Apocynaceae	S5	
Asclepias syriaca	Common Milkweed	Apocynaceae	S5	
Bidens cernua	Nodding Beggarticks	Asteraceae	S5	
Bidens connata	Purple-stemmed Beggarticks	Asteraceae	S4?	
Bidens frondosa	Devil's Beggarticks	Asteraceae	S5	
Bromus inermis	Smooth Brome	Poaceae	SE5	
Caltha palustris	Yellow Marsh Marigold	Ranunculaceae	S5	
Carex arctata	Drooping Woodland Sedge	Cyperaceae	S5	
Carex crinita	Fringed Sedge	Cyperaceae	S5	
Carex cristatella	Crested Sedge	Cyperaceae	S5	
Carex deweyana	Dewey's Sedge	Cyperaceae	S5	
Carex gracillima	Graceful Sedge	Cyperaceae	S5	
Carex granularis	Limestone Meadow Sedge	Cyperaceae	S5	
Carex intumescens	Bladder Sedge	Cyperaceae	S5	
Carex lacustris	Lake Sedge	Cyperaceae	S5	
Carex lupulina	Hop Sedge	Cyperaceae	S5	
Carex pallescens	Pale Sedge	Cyperaceae	S4	Rare
Carex pellita	Woolly Sedge	Cyperaceae	S5	
Carex projecta	Necklace Sedge	Cyperaceae	S5	
Carex radiata	Eastern Star Sedge	Cyperaceae	S5	
Carex retrorsa	Retrorse Sedge	Cyperaceae	S5	

Scientific Name	Common Name	Family	Conservation Status	
			Provincial[1]	Local[2]
Carex rosea	Rosy Sedge	Cyperaceae	S5	
Carex spicata	Spiked Sedge	Cyperaceae	SE5	
Carex stipata	Awl-fruited Sedge	Cyperaceae	S5	
Carex stricta	Tussock Sedge	Cyperaceae	S5	
Carex tenera	Tender Sedge	Cyperaceae	S5	
Carex vulpinoidea	Fox Sedge	Cyperaceae	S5	
Carpinus caroliniana	Blue-beech	Betulaceae	S5	
Caulophyllum sp.	Blue Cohosh	Berberidacea		
Centaurea jacea	Brown Knapweed	Asteraceae	SE5	
Chelone glabra	White Turtlehead	Scrophulariaceae	S5	
Cicuta maculata	Spotted Water-hemlock	Apiaceae	S5	
Circaea canadensis	Broad-leaved Enchanter's Nightshade	Onagraceae	S5	
Cirsium arvense	Canada Thistle	Asteraceae	SE5	
Cirsium vulgare	Bull Thistle	Asteraceae	SE5	
Clematis virginiana	Virginia Clematis	Ranunculaceae	S5	
Clinopodium vulgare	Wild Basil	Lamiaceae	S5	
Cornus alternifolia	Alternate-leaved Dogwood	Cornaceae	S5	
Cornus sericea	Red-osier Dogwood	Cornaceae	S5	
Crataegus sp.	Hawthorn species	Rosaceae		
Dactylis glomerata	Orchard Grass	Poaceae	SE5	
Daucus carota	Wild Carrot	Apiaceae	SE5	
Dianthus armeria	Deptford Pink	Caryophyllaceae	SE5	
Dryopteris cristata	Crested Wood Fern	Dryopteridaceae	S5	
Echinocystis lobata	Wild Cucumber	Cucurbitaceae	S5	
Eleocharis sp.	Spikerush species	Cyperaceae		
Elymus virginicus	Virginia Wildrye	Poaceae	S5	
Endotropis alnifolia	Alder-leaved Buckthorn	Rhamnaceae	S5	
Epilobium hirsutum	Hairy Willowherb	Onagraceae	SE5	
Equisetum arvense	Field Horsetail	Equisetaceae	S5	
Eragrostis minor	Little Lovegrass	Poaceae	SE5	
Erigeron annuus	Annual Fleabane	Asteraceae	S5	
Erigeron philadelphicus	Philadelphia Fleabane	Asteraceae	S5	
Erigeron strigosus	Rough Fleabane	Asteraceae	S5	
Eupatorium perfoliatum	Common Boneset	Asteraceae	S5	
Euphorbia maculata	Spotted Spurge	Euphorbiaceae	SE5	
Euthamia graminifolia	Grass-leaved Goldenrod	Asteraceae	S5	
Eutrochium maculatum	Spotted Joe Pye Weed	Asteraceae	S5	
Fragaria vesca	Woodland Strawberry	Rosaceae	S5	

Scientific Name	Common Name	Family	Conservation Status	
			Provincial[1]	Local[2]
Fraxinus americana	White Ash	Oleaceae	S4	
Fraxinus pennsylvanica	Red Ash	Oleaceae	S4	
Galium palustre	Common Marsh Bedstraw	Rubiaceae	S5	
Geranium robertianum	Herb-Robert	Geraniaceae	S5	
Geum urbanum	Wood Avens	Rosaceae	SE3	
Glyceria grandis	Tall Mannagrass	Poaceae	S5	Rare
Glyceria striata	Fowl Mannagrass	Poaceae	S5	
Impatiens capensis	Spotted Jewelweed	Balsaminaceae	S5	
Iris versicolor	Harlequin Blue Flag	Iridaceae	S5	
Juncus dudleyi	Dudley's Rush	Juncaceae	S5	
Juncus effusus	Soft Rush	Juncaceae	S5	
Juncus inflexus	Incurved Rush	Juncaceae	SE1	
Laportea canadensis	Canada Wood Nettle	Urticaceae	S5	
Leonurus cardiaca	Common Motherwort	Lamiaceae	SE5	
Leucanthemum vulgare	Oxeye Daisy	Asteraceae	SE5	
Lobelia cardinalis	Cardinal Flower	Campanulaceae	S5	
Lolium arundinaceum	Tall Ryegrass	Poaceae	SE5	
Lycopus sp.	Horehound species	Lamiaceae		
Lysimachia ciliata	Fringed Yellow Loosestrife	Primulaceae	S5	
Lysimachia thyrsiflora	Tufted Yellow Loosestrife	Primulaceae	S5	
Maianthemum stellatum	Star-flowered False Solomon's Seal	Liliaceae	S5	
Matteuccia struthiopteris	Ostrich Fern	Dryopteridaceae	S5	
Medicago lupulina	Black Medick	Fabaceae	SE5	
Menispermum canadense	Canada Moonseed	Menispermaceae	S4	
Mentha canadensis	Canada Mint	Lamiaceae	S5	
Nasturtium officinale	Watercress	Brassicaceae	SE	
Nuphar variegata	Variegated Pond-lily	Nymphaeaceae	S5	
Onoclea sensibilis	Sensitive Fern	Dryopteridaceae	S5	
Ostrya virginiana	Eastern Hop-hornbeam	Betulaceae	S5	
Oxalis stricta	Upright Yellow Wood-sorrel	Oxalidaceae	S5	
Panicum capillare	Common Panicgrass	Poaceae	S5	
Parthenocissus vitacea	Thicket Creeper	Vitaceae	S5	
Persicaria amphibia	Water Smartweed	Polygonaceae	S5	
Persicaria maculosa	Spotted Lady's-thumb	Polygonaceae	SE5	
Persicaria punctata	Dotted Smartweed	Polygonaceae	S5	
Phalaris arundinacea	Reed Canarygrass	Poaceae	S5	
Phleum pratense	Common Timothy	Poaceae	SE5	
Pilea pumila	Dwarf Clearweed	Urticaceae	S5	

Scientific Name	Common Name	Family	Conservation Status	
			Provincial[1]	Local[2]
Plantago lanceolata	English Plantain	Plantaginaceae	SE5	
Plantago major	Common Plantain	Plantaginaceae	SE5	
Plantago rugelii	Rugel's Plantain	Plantaginaceae	S5	
Poa palustris	Fowl Bluegrass	Poaceae	S5	
Poa pratensis	Kentucky Bluegrass	Poaceae	S5	
Populus balsamifera	Balsam Poplar	Salicaceae	S5	
Populus tremuloides	Trembling Aspen	Salicaceae	S5	
Prunella vulgaris	Common Self-heal	Lamiaceae	S5	
Prunus serotina	Black Cherry	Rosaceae	S5	
Prunus virginiana var. virginiana	Chokecherry	Rosaceae	S5	
Quercus macrocarpa	Bur Oak	Fagaceae	S5	
Ranunculus acris	Common Buttercup	Ranunculaceae	SE5	
Ranunculus caricetorum	Northern Swamp Buttercup	Ranunculaceae	S5	
Rhamnus cathartica	European Buckthorn	Rhamnaceae	SE5	
Ribes americanum	American Black Currant	Grossulariaceae	S5	
Ribes triste	Swamp Red Currant	Grossulariaceae	S5	
Rubus idaeus ssp. strigosus	North American Red Raspberry	Rosaceae	S5	
Rubus pubescens	Dwarf Raspberry	Rosaceae	S5	
Rumex crispus	Curled Dock	Polygonaceae	SE5	
Rumex obtusifolius	Bitter Dock	Polygonaceae	SE5	
Sagittaria latifolia	Broad-leaved Arrowhead	Alismataceae	S5	
Salix eriocephala	Cottony Willow	Salicaceae	S5	
Schoenoplectus tabernaemontani	Soft-stemmed Bulrush	Cyperaceae	S5	
Scirpus atrovirens	Dark-green Bulrush	Cyperaceae	S5	
Scirpus pendulus	Hanging Bulrush	Cyperaceae	S5	
Scutellaria galericulata	Marsh Skullcap	Lamiaceae	S5	
Sisyrinchium montanum	Strict Blue-eyed-grass	Iridaceae	S5	
Sium suave	Common Water-parsnip	Apiaceae	S5	
Smilax herbacea	Herbaceous Carrionflower	Smilacaceae	S4?	
Solanum dulcamara	Bittersweet Nightshade	Solanaceae	SE5	
Solidago altissima	Tall Goldenrod	Asteraceae	S5	
Solidago gigantea	Giant Goldenrod	Asteraceae	S5	
Spiraea alba	White Meadowsweet	Rosaceae	S5	
Spiranthes lucida	Shining Ladies'-tresses	Orchidaceae	S4	Rare
Stellaria longifolia	Long-leaved Starwort	Caryophyllaceae	S5	Rare
Symphyotrichum lanceolatum ssp. lanceolatum	Eastern Panicled Aster	Asteraceae	S5	
Symphyotrichum lateriflorum	Calico Aster	Asteraceae	S5	

Scientific Name	Common Name	Family	Conservation Status	
			Provincial[1]	Local[2]
Symphyotrichum novae-angliae	New England Aster	Asteraceae	S5	
Symphyotrichum pilosum	Old Field Aster	Asteraceae	S5	
Symphyotrichum puniceum	Purple-stemmed Aster	Asteraceae	S5	
Taraxacum officinale	Common Dandelion	Asteraceae	SE5	
Thalictrum pubescens	Tall Meadow-rue	Ranunculaceae	S5	
Tilia americana	Basswood	Tiliaceae	S5	
Toxicodendron radicans var. rydbergii	Western Poison Ivy	Anacardiaceae	S5	
Trifolium pratense	Red Clover	Fabaceae	SE5	
Trifolium repens	White Clover	Fabaceae	SE5	
Trillium erectum	Red Trillium	Liliaceae	S5	
Typha latifolia	Broad-leaved Cattail	Typhaceae	S5	
Ulmus americana	White Elm	Ulmaceae	S5	
Urtica dioica ssp. gracilis	Slender Stinging Nettle	Urticaceae	S5	
Verbascum thapsus	Common Mullein	Scrophulariaceae	SE5	
Verbena hastata	Blue Vervain	Verbenaceae	S5	
Veronica anagallis-aquatica	Water Speedwell	Scrophulariaceae	SE	
Viburnum lentago	Nannyberry	Caprifoliaceae	S5	
Vicia cracca	Tufted Vetch	Fabaceae	SE5	
Viola sp.	Violet species			
Vitis riparia	Riverbank Grape	Vitaceae	S5	

1NHIC S-Rank: S4=Apparently Secure; S5=Secure; SE=Exotic

2Status from the Vascular Plant List for Bruce and Grey Counties (Owen Sound Field Naturalists 2023)

Appendix B

Breeding Bird Species List

Appendix B

Breeding Bird Species List

Common Name	Scientific Name	COSEWIC[1]	COSSARO[2]	S-Rank[3]	Area-sensitive[4]	Number of Pairs
American Crow	*Corvus brachyrhynchos*			S5		4
American Goldfinch	*Spinus tristis*			S5		4
American Kestrel	*Falco sparverius*			S4		1
American Redstart	*Setophaga ruticilla*			S5	A	2
American Robin	*Turdus migratorius*			S5		3
American Woodcock	*Scolopax minor*			S4		1
Baltimore Oriole	*Icterus galbula*			S4		2
Barn Swallow	*Hirundo rustica*	Special Concern	Special Concern	S4		1
Belted Kingfisher	*Ceryle alcyon*			S4		2
Black-capped Chickadee	*Poecile atricapillus*			S5		1
Blue Jay	*Cyanocitta cristata*			S5		2
Blue-gray Gnatcatcher	*Polioptila caerulea*			S4	A	1
Brown Creeper	*Certhia americana*			S5	A	1
Brown Thrasher	*Toxostoma rufum*			S4		1
Brown-headed Cowbird	*Molothrus ater*			S4		3
Canada Goose	*Branta canadensis*			S5		2
Cedar Waxwing	*Bombycilla cedrorum*			S5		3
Chipping Sparrow	*Spizella passerina*			S5		2
Cliff Swallow	*Petrochelidon pyrrhonota*			S4		5
Common Grackle	*Quiscalus quiscula*			S5		6
Common Raven	*Corvus corax*			S5		1
Common Yellowthroat	*Geothlyphis trichas*			S5		4
Downy Woodpecker	*Dryobates pubescens*			S5		1
Eastern Bluebird	*Sialia sialis*			S5		1
Eastern Kingbird	*Tyrannus tyrannus*			S4		3
Eastern Meadowlark	*Sturnella magna*	Threatened	Threatened	S4	A	5

Common Name	Scientific Name	COSEWIC[1]	COSSARO[2]	S-Rank[3]	Area-sensitive[4]	Number of Pairs
Eastern Wood-pewee	*Contopus virens*	Special Concern	Special Concern	S4		5
European Starling	*Sturnus vulgaris*			SE		6
Gray Catbird	*Dumetella carolinensis*			S4		2
Great Blue Heron	*Ardea herodias*			S4		Foraging/Fly-over
Great Crested Flycatcher	*Myiarchus crinitus*			S4		4
Great Egret	*Ardea albus*			S2		Foraging/Fly-over
Hairy Woodpecker	*Dryobates villosus*			S5	A	2
Herring Gull	*Larus argentatus*			S5		Foraging/Fly-over
Horned Lark	*Eremophila alpestris*			S5		1
House Wren	*Troglodytes aedon*			S5		3
Indigo Bunting	*Passerina cyanea*			S4		2
Killdeer	*Charadrius vociferus*			S5		3
Least Flycatcher	*Empidonax minimus*			S4	A	2
Mallard	*Anas platyrhynchos*			S5		1
Mourning Dove	*Zenaida macroura*			S5		1
Mourning Warbler	*Geothlypis philadelphia*			S4		1
Northern Flicker	*Colaptes auratus*			S4		3
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*			S4		1
Ovenbird	*Seiurus aurocapillus*			S4	A	1
Pileated Woodpecker	*Dryocopus pileatus*			S5	A	1
Red-eyed Vireo	*Vireo olivaceus*			S5		3
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Threatened	Endangered	S3		1
Red-winged Blackbird	*Agelaius phoeniceus*			S4		24
Ring-billed Gull	*Larus delawarensis*			S5		Foraging/Fly-over
Rock Pigeon	*Columba livia*			SNA		2
Rose-breasted Grosbeak	*Pheucticus ludovicianus*			S4		1
Savannah Sparrow	*Passerculus sandwichensis*			S4	A	5
Song Sparrow	*Melospiza melodia*			S5		8
Spotted Sandpiper	*Actitis macularia*			S5		1
Swamp Sparrow	*Melospiza georgiana*			S5		1
Turkey Vulture	*Cathartes aura*			S5		1
Warbling Vireo	*Vireo gilvus*			S5		5

Common Name	Scientific Name	COSEWIC[1]	COSSARO[2]	S-Rank[3]	Area-sensitive[4]	Number of Pairs
White-breasted Nuthatch	*Sitta carolinensis*			S5	A	1
Wild Turkey	*Meleagris gallopavo*			S5		1
Willow Flycatcher	*Empidonax traillii*			S5		1
Wood Duck	*Aix sponsa*			S5		1
Yellow Warbler	*Setophaga petechia*			S5		5
Yellow-bellied Sapsucker	*Sphyrapicus varius*			S5	A	1
Yellow-throated Vireo	*Vireo flavifrons*			S4	A	1

[1]Committee on the Status of Endangered Wildlife in Canada

[2]Committee on the Status of Species at Risk in Ontario

[3]Provincial Conservation Status (NHIC): S5=Secure; S4=Apparently Secure

[4]Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide (Appendix G). 151 p plus appendices.

BEACON ENVIRONMENTAL

Appendix C

Significant Wildlife Habitat Assessment

Appendix C

Significant Wildlife Habitat (SWH) Assessment

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
Seasonal Concentration Areas			
1. Waterfowl Stopover and Staging Areas (Terrestrial)			
American Black Duck Wood Duck Mallard Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler	CUM1 CUT1 Plus evidence of annual spring flooding from malt water or run-off within these Ecosites.	*Suitable Habitat* • Fields with sheet water during Spring (mid-March to May) *Suggested Criteria* Studies carried out and verified presence of an annual concentration of any listed species.	Suitable habitat is not present.
2. Waterfowl Stopover and Staging Areas (Aquatic)			
Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	*Suitable Habitat* • Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration; • Sewage treatment ponds and storm water ponds do not qualify as SWH, however a reservoir managed as a large wetland or pond/lake does qualify; and • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). *Suggested Criteria* Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days; • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH; and • Wetland area and shorelines associated with sites identified within the Significant Wildlife Habitat Technical Guide (SWHTG) (MNRF 2000) Appendix K are SWH.	Small areas of suitable habitat are present, but the area of habitat present is insufficient to support the quantity of waterfowl required to qualify as significant.

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
3. Shorebird Migratory Stopover Area			
Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	*Suitable Habitat* • Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats; and • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH. *Suggested Criteria* • Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period); • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant; • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100 m radius area.	Suitable habitat is not present.
4. Raptor Wintering Area			
Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Short-eared Owl Bald Eagle	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM, CUT, CUS, CUW. <u>Bald Eagle:</u> Forest Community Series: FOD, FOM, FOC, SWD, SWM, or SWC on shoreline areas adjacent to large rivers to adjacent to lakes with open water (hunting area).	*Suitable Habitat* • The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors; and • Raptor wintering (hawk/owl) sites need to be > 20 ha with a combination of forest and upland. *Suggested Criteria* Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One of more Bald Eagles or at least 10 individuals and two listed hawk/owl species; and • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area	The suggested combination of field and woodland ecosites is not present. Concentrations of raptors not observed during spring and summer field investigations.

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
5. Bat Hibernacula			
Big Brown Bat Tri-colored Bat	Bat Hibernacula may be in the Ecosites: CCR1 CCR2 CCA1 CCA2	*Suitable Habitat* • Hibernacula may be found in caves, mine shafts, underground foundations and Karsts . *Suggested Criteria* • All sites with confirmed hibernating bats are SWH; and • The area includes 200m radius around the entrance of the hibernaculum for most development types and for wind farms. (Note: buildings are not to be considered SWH)	No suitable habitat.
6. Bat Maternity Colonies			
Big Brown Bat Silver-haired Bat	Maternity Colonies considered for SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	*Suitable Habitat* • Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH); • Maternity colonies located in mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees; • Female bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2; and • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred. *Suggested Criteria* • Maternity colonies with confirmed use by; – >10 Big Brown Bats – >5 Adult Female Silver-haired Bats The area of the habitat includes the entire woodland or the forest stand ELC ecosite or an ecoelement containing the maternity colonies	Potentially suitable habitat associated with forest and treed swamps
7. Turtle Wintering Areas			
Midland Painted Turtle Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles: ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO. Northern Map Turtles: Open Water areas such as deeper rivers, or streams and lakes with	*Suitable Habitat* • For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates; • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen; and • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.	Potentially suitable habitat associated with Sauble River. Snapping Turtles present on subject properties.

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
	current can also be used as over-wintering habitat.	*Suggested Criteria* • Presence of 5 over-wintering Midland Painted Turtles is significant; • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant; and • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH	
8. Reptile Hibernaculum			
Eastern Gartersnake Northern Water Snake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Milksnake Eastern Ribbonsnake Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Tock Barren, Crevice, Cave and Alvar may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and ecosite: FOC1 and FOC3.	*Suitable Habitat* • For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations; • The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying Candidate SWH; • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost; • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover; and • For five-lined Skink, Community Series FOD and FOM, and FOC1 and FOC3 should be considered. They prefer mixed forests with rock outcrop openings with cover rock overlaying granite bedrock with fissures. *Suggested Criteria* Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. Or; individuals of two or more snake spp; and • Congregations of a minimum of five individuals of a snake sp. Or; individuals of two or more snake spp. Near potential hibernacula (e.g., foundation or rocky slope) on sunny warm days in spring.	This type of habitat is difficult to identify and confirm. Eastern Gartersnake observed on subject properties, no evidence of hibernacula observed.
9. Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)			
Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, steep slopes and sand piles. Cliff faces, bridge abutments, silos and barns.	*Suitable Habitat* • Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area; • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such	No suitable habitat.

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
	Habitat found in the following ecosites: CUM1 CLO1 CUT1 CLS1 CUS1 CLT1 BLO1 BLS1 BLT1	as berms, embankments, soil or aggregate stockpiles; and • Does not include a licensed/permitted Mineral Aggregate Operation. *Suggested Criteria* Studies confirming: • Presence of 1 or more nesting sites with 8 or more cliff swallow pairs or 50 Bank Swallow and/or Rough-winged Swallow pairs during the breeding season. A colony identified as SWH will include a 50m radius habitat area from the peripheral nests	
10. Colonially-Nesting Bird Breeding Habitat (Tree/Shrubs)			
Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	*Suitable Habitat* • Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used; and • Most nests in trees are 11 to 15 m from ground, near the top of the tree. *Suggested Criteria* Studies confirming: • Presence of 2 or more active nests of Great Blue Heron or other listed species. The habitat extends from the edge of the colony and a minimum 300m radius or extent of the forest ecosite containing the colony or any island <15.0 ha with a colony is the SWH	Potentially suitable habitat present, but no nests or nesting colonies observed during field investigations.
11. Colonially-Nesting Bird Breeding Habitat (Ground)			
Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island to peninsula (natural or artificial) with a lake or larger river. Close proximity or watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird). MAM1-6 MAS1-3 CUM CUT CUS	*Suitable Habitat* • Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas; and • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. *Suggested Criteria* Studies confirming: • Presence of >25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern; • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant; • Presence of 5 or more pairs for Brewer's Blackbird; and • The edge of the colony and a minimum 150m area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH.	No suitable habitat

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
12. Migratory Butterfly Stopover Areas			
Painted Lady Red Admiral Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class: <u>Field:</u> CUM CUT CUS <u>Forest:</u> FOC FOD COM CUP A candidate site will have a history of butterflies being observed.	*Suitable Habitat* • A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario or Lake Erie; • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south; • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat; and • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest. *Suggested Criteria* Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. ; and • Numbers of butterflies can range from 100-500/day - significant variation can occur between years and multiple years of sampling should occur. MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admirals is to be considered significant	Habitat suitability criteria not met.
13. Landbird Migratory Stopover Areas			
All migratory songbirds	All Ecosites associated with the ELC Community Series; FOC FOM FOD SWC SWM SWD	*Suitable Habitat* • Woodlots >10 ha in size and within 5 km of Lake Ontario and Lake Erie; • If multiple woodlands are located along the shoreline those Woodlands <2 km from Lake Erie or Ontario are more significant; • Sites have a variety of habitats; forest, grassland and wetland complexes; • The largest sites are more significant; and • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Ontario are Candidate SWH.	Habitat suitability criteria not met.

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
		Suggested Criteria Studies confirm: • Use of the woodlot by >200 birds/day and with >35 species with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant	
14. Deer Yarding Areas			
White-tailed Deer	*Note: MNRF to determine this habitat.* ELC Community Series providing a thermal cover component for a deer yard would include: FOD, FOC, SWM and SWC. Or ELC Ecosites: CUP2, CUP3, FOD3 and CUT	*Suitable Habitat* • Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. Deer establish traditional use areas with two areas called Stratum I and Stratum II; • Stratum II covers entire winter yard and is usually in FOD or FOM (or agricultural lands) where browsing can occur. Deer move here in early winter, and will continue to stay here until snow depths reach about 30 cm; and • Stratum I is the core of a deer yard, and is found within the Stratum II, and is critical for deer survival in areas where winter is severe. It is primarily coniferous trees with a canopy cover of at least 60%. *Suggested Criteria* Studies confirm: • Snow depth and temperature or the greatest influence on deer use of winter yards. Snow depths of >40 cm for more than 60 days are minimum criteria for a deer yard to be considered as SWH; and • Deer management is an MNRF responsibility, and they field investigations (by aircraft over a series of winters to establish boundaries of Stratum I and II. Deer yarding areas considered significant will be mapped by MNRF. If SWH is determined for deer wintering area or if a proposed development is within Stratum II yard areas, then movement corridors are to be considered	This type of habitat has not been identified by MNRF on or adjacent to property.
15. Deer Winter Congregation Areas			
White-tailed Deer	All Forested Ecosites with these ELC Community Series: FOC FOM FOD SWC SWM SWD	*Suitable Habitat* • Woodlots >100 ha in size. Woodlots <100 ha may be considered significant based on MNRF studies or assessment; • Deer movement during winter in Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands; • Large woodlots > 100 ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha; and	This type of habitat has not been identified by MNRF on or adjacent to property.

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
	Conifer Plantations much smaller than 50 ha may also be used.	• Woodlots with high densities of deer due to artificial feeding are not significant. *Suggested Criteria* Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF; and • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. If SWH is determined for deer wintering area or if a proposed development is within Stratum II yard areas, then movement corridors are to be considered	
Rare Vegetation Communities			
16. Cliffs and Talus Slopes			
ELC Communities: TAO, TAS, TAT, CLO, CLS, CLT		• A Cliff is vertical to near vertical bedrock >3m in height; • A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris; and • Most cliff and talus slopes occur along the Niagara Escarpment.	Does not occur on the subject properties
17. Sand Barren			
ELC Communities: SBO1, SBS1, BT1		• Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion; • Usually located within other types of natural habitat such as forest or savannah; and • Vegetation can vary from patchy and barren to tree covered but less than 60% . *Suggested Criteria* • A sand barren area >0.5ha in size; • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	Does not occur on the subject properties
18. Alvar			
Field studies identify four of the five Alvar indicator species within ELC communities: ALO1, ALS, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2		• An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil; • The hydrology of alvars is complex, with alternating periods of inundation and drought; • Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant;	Does not occur on the subject properties

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities	Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
	• Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species ; and • Vegetation cover varies from patchy to barren with a less than 60% tree cover. *Suggested Criteria* • An Alvar site > 0.5 ha in size; • Five indicator species specific to alvars within Ecoregion 6E: 1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum; • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics); and • The Alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.	
19. Old Growth Forest		
ELC Communities: FOD FOC FOM SWD SWC SWM	• Old-growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris. *Suggested Criteria* • Woodland area is >30 ha with at least 10 ha of interior habitat; • If dominant trees species of the ecosite are >140 years old, then stand is SWH; • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present); and • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH.	Habitat suitability criteria not met.
20. Savannah		
ELC Communities: TPS1 TPS2 TPW1 TPW2 CUS2	• A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. *Suggested Criteria* • No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH; • Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used; and	Does not occur on the Subject properties

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities	Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
	• Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	
21. Tallgrass Prairie		
ELC Communities: TPO1 TPO2	• A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover; and • In ecoregion 6E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario). *Suggested Criteria* • No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH; • ELC communities TPO1, TPO2; • Field studies confirm one or more of the Prairie indicator species listed in Appendix N in SWHTG (MNRF 2000) should be present. Prairie plant spp. list from Ecoregion 6E should be used; and • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	Does not occur on the Subject properties
22. Other Rare Vegetation Communities		
	• Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG (MNRF 2000); • Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps; • ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in SWHTG (MNRF 2000) Appendix M; and • The MNRF/NHIC will have up to date listing for rare vegetation communities.	Does not occur on the Subject properties
Specialized Habitat for Species		
23. Waterfowl Nesting Area		

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1, MAS2, MAS3 SAS1, SAM1, SAF1 MAM1, MAM2, MAM3, MAM4, MAM5, MAM6 SWT1, SWT2, SWD1, SWD2, SWD3, SWD4 Note: Includes adjacency to Provincially Significant Wetlands	*Suitable Habitat* • A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5 ha) with small wetlands (<0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur; and • Upland areas should be at least 120m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. *Suggested Criteria* Studies confirm: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or presence of 10 or more nesting pairs for listed species including Mallards; and • Any active nesting site of an American Black Duck is considered significant. Wood Ducks and Hooded Mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites	Small numbers of Mallard and Wood Duck observed and likely to be nesting on subject properties. Observed numbers insufficient to qualify as significant.
24. Bald Eagle and Osprey Nesting, Foraging and Perching Habitat			
Osprey Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM, SWC directly adjacent to riparian areas - rivers, lakes, ponds and wetlands.	*Suitable Habitat* • Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water; • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy; and • Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). *Suggested Criteria Studies confirm the use of these nests by:* • One or more active Osprey or Bald Eagle nests in an area; • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH; • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH [ccvii], maintaining undisturbed shorelines with large trees within this area is important; and • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat .	Potentially suitable habitat associated with woodlands/swamps adjacent to the Sauble River. However, Osprey and Bald Eagle were absent during breeding bird surveys, and no stick nests observed.

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
		To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant	
25. Woodland Raptor Nesting Habitat			
Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in: SWC SWM SWD CUP3	*Suitable Habitat* • All natural or conifer plantation woodland/forest stands combined >30ha or with >4 ha of interior habitat; interior habitat determined with a 200 m buffer; • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore island; and • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. *Suggested Criteria* Studies confirm: • Presence of 1 or more active nests from species list is considered significant; • Red-shouldered Hawk and Northern Goshawk – a 400m radius around the nest or 28 ha of suitable habitat is the SWH. (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest); • Barred Owl – a 200m radius around the nest is the SWH; and • Broad-winged Hawk and Coopers Hawk,– a 100m radius around the nest is the SWH. Sharp-Shinned Hawk – a 50m radius around the nest is the SWH	Habitat suitability criteria not met. None of the listed species were observed.

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
26. Turtle Nesting Areas			
Midland Painted Turtle Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100 m) to within the following Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	*Suitable Habitat* • Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals; • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas; • Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH; and • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. *Suggested Criteria* Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles; • One or more Northern Map Turtle or Snapping Turtle nesting; and • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH. Travel routes from wetland to nesting area are to be considered within the SWH	Snapping turtles observed in the Sauble River and adjacent agricultural fields. Exposed mineral soils near the Sauble River within the subject properties are limited to the crop fields north of the river, where several Snapping Turtles were observed nesting. Turtle nests are unlikely to be successful in this active crop field, and the agricultural field is not considered SWH.
27. Seeps and Springs			
Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps and springs are areas where ground water comes to the surface. Often, they are found within headwater areas within forested habitats. Any forested Ecosite within headwater areas of a stream could have seeps/springs.	*Suitable Habitat* • Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system (could contain a seep or spring - areas where ground water comes to the surface); • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species; and • The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat. *Suggested Criteria* Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. The area of an ELC forest ecosite containing the seeps/springs is the SWH	No seeps or springs were observed on the subject properties.

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
28. Amphibian Breeding Habitat (Woodland)			
Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated within these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD Breeding pools within the woodland or the shortest distance from the forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	*Suitable Habitat* • Presence of a wetland, pond, or woodland pool within or adjacent (within 120m) to a woodland (no minimum size); • Some small wetlands may not be mapped and may be important breeding pools for amphibians; and • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. *Suggested Criteria* Studies confirm: Presence of breeding population of 1 or more of the listed salamander species or 2 or more of the listed frog species with at least 20 individuals (adults, juveniles, eggs/larval masses) or 2 or more of the listed frog species with Call Level Codes of 3	Potentially suitable habitat associated with swamp wetlands.
29. Amphibian Breeding Habitat (Wetland)			
Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Classes SW, MA, FE, BO, OA and SA. Typically, these wetland Ecosites will be isolated >120 m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bullfrog) may be adjacent to woodland.	*Suitable Habitat* • Wetlands >500 m2 (about 25 m diameter) supporting high species diversity are significant; • Some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats; • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators; and • Bullfrogs require permanent water bodies with abundant emergent vegetation. *Suggested Criteria* Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog or toad species and with at least 20 individuals (adults, juveniles, eggs/larval masses) or 2 or more of the listed frog species with Call Level Codes of 3. The ELC ecosite wetland area and the shoreline are the SWH	Potentially suitable habitat associated with Sauble River and wetlands.

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
30. Woodland Area-Sensitive Bird Breeding Habitat			
Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	*Suitable Habitat* • Habitats where interior forest breeding birds are breeding; • Typically large mature (>60 yrs old) forest stands or woodlots >30 ha; and • Interior forest habitat is at least 200 m from forest edge habitat. *Suggested Criteria* Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH	Woodlands are less than 30 ha. Yellow-bellied Sapsucker and Ovenbird observed during field investigations and are presumed to be nesting, but 3 species are required to qualify as significant.
Habitat for Species of Conservation Concern			
31. Marsh Bird Breeding Habitat			
American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan Black Tern Yellow Rail	MAM 1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	*Suitable Habitat* • Nesting occurs in wetlands; • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present; and • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. *Suggested Criteria* Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species; • Note: any wetland with breeding of 1 or more Trumpeter Swans, Black Terns or Yellow Rail is SWH; and • Area of the ELC ecosite is the SWH.	Suitable habitat not present.
32. Open Country Bird Breeding Habitat			
Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Short-eared Owl	CUM1 CUM2	*Suitable Habitat* • Large grassland areas (includes natural and cultural fields and meadows) >30 ha; • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years); • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature	Savannah Sparrow was documented on the subject properties associated with the agricultural fields. However, suggested criteria are not met as two of the listed species are required to qualify as significant and agricultural fields do not qualify regardless of the number.

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
		hayfields and pasturelands that are at least 5 years or older; and • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. *Suggested Criteria* Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species; and • A field with 1 or more breeding Short-eared Owls is to be considered SWH. The area of SWH is the contiguous ELC ecosite field areas	
33. Shrub/Early Successional Bird Breeding Habitat			
Indicator Species: Brown Thrasher Clay-coloured Sparrow Common Species: Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher Special Concern: Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	*Suitable Habitat* • Large natural field areas succeeding to shrub and thicket habitats >10ha in size. Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years); • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species; and • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. *Suggested Criteria* Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species; and • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. The area of the SWH is the contiguous ELC ecosite field/thicket area	No suitable habitat.

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities		Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
34. Terrestrial Crayfish			
Chimney or Digger Crayfish (*Fallicambarus fodiens*) Devil Crawfish or Meadow Crayfish (*Cambarus Diogenes*)	MAM1, MAM2, MAM3, MAM4, MAM5, MAM6 MAS1, MAS2, MAS3 SWD, SWT, SWM CUM1 within inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	*Suitable Habitat* • Wet meadow and edges of shallow marshes (no minimum size) identified should be surveyed for terrestrial crayfish; • Constructs burrows in marshes, mudflats, meadows; the ground can't be too moist; • Can often be found far from water; and • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels; usually the soil is not too moist so that the tunnel is well formed. *Suggested Criteria* Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites. Area of ELC Ecosite polygon is the SWH	Observed at corner of agricultural field north of the Sauble River, however, agricultural fields are not candidate SWH.
35. Special Concern and Rare Wildlife Species			
		• All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species; • When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially rare species; and • Linking candidate habitat on the site needs to be completed to ELC Ecosites. *Suggested Criteria* Studies confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable; • Habitat form and function needs to be assessed from the assessment of ELC vegetation types and an area of significant habitat that protects the rare or special concern species identified; • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH; this must be delineated through detailed field studies; and • The habitat needs be easily mapped and cover an important life stage component for a species (e.g. specific nesting habitat or foraging habitat).	Special Concern species observed: • Eastern Wood-pewee • Barn Swallow (foraging only) • Snapping Turtle (Sauble River and adjacent wetlands) Provincially rare species (S3): • Chimney or Digger Crayfish (Fallicambarus fodiens) in agricultural field – not SWH

Wildlife Habitat Category and Associated Species and Ecological Land Classification (ELC) Communities	Provincial Guidance for SWH in Ecoregion 6E*	Application to the Subject Lands and Study Area
Animal Movement Corridors		
36. Amphibian Movement Corridors		
Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	• Amphibian movement corridors should only be identified as SWH where a confirmed or Candidate SWH has been identified by MNRF or the planning authority; • Movement corridors between breeding habitat and summer habitat; • Movement corridors must be considered when amphibian breeding habitat is confirmed as SWH; • Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites; • Corridors should consist of native vegetation, with several layers of vegetation; • Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant; • Corridors should be at least 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps <20 m ; and • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat.	The Sauble River corridor could facilitate movement of amphibians. The property has not been identified as such by MNRF.
37. Deer Movement Corridors		
White-tailed Deer	• Deer movement corridors should only be identified as SWH where a confirmed or Candidate SWH has been identified by MNRF or the planning authority; • Corridors follow riparian areas, woodlots, areas of physical geography (ravines or ridges); • Field Studies must be conducted at the time of year when species are expected to be migrating or moving to and from winter concentration areas; • Corridors that lead deer to wintering habitat should be unbroken by roads or residential areas; and • Corridors should be at least 200 m wide with gaps less than 20 m, and if following a riparian area, there must be at least 15 m of vegetation on both sides of the waterway.	. The property has not been identified as such by MNRF.

Appendix F: Stage 1 Archaeological Resource Assessment

STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Tara BESS Storage Facility, 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

ORIGINAL REPORT

Date: 24 February 2025
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HERITAGE PLANNING
& ARCHAEOLOGY

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RIGHT OF USE

EXECUTIVE SUMMARY

The Executive Summary only provides key points from the report. The reader should examine the complete report including background, results, as well as limitations.

LHC was retained by BBA Engineering Ltd. to prepare a Stage 1 Archaeological Assessment (AA) for the Tara Battery Energy Storage System (Tara BESS) project on 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, now the Municipality of Arran-Elderslie, Bruce County, Ontario (Figure 1). The Stage 1 AA is in support of an Official Plan Amendment application to Bruce County.

The Study Area is an irregularly shaped, 66-hectare lot to the southwest of the intersection of Concession 4 Arran and the Grey-Bruce Line. It is composed of the east half of Lot 35 Concession 4 and three individual parcels of land on Lot 36 Concession 4. The east half of Lot 35 Concession 4 consists of 50-acres of land first issued through a Crown Patent to Charles Thompson in 1889. The 1867 Bruce County Directory however indicates the lot was occupied by a Michael Canton and William Herron prior to the patent. This property has a mixture of cultivated fields, pastureland and woodlot. The Sauble River passes through its northeast corner. The lot subsequently changed hands several times throughout the 20th century. The individual parcels of Lot 36 Concession 4 are the property municipally known as 39 Concession 4 Arran (the largest remaining portion of the original 120 acre Crown lot), which is a rural farmstead with a mixture of cultivated fields, pastureland and woodlot, bisected by the Sauble River; the Hydro One electric transmission line corridor; and the parcel bounded by the Hydro One electric transmission line corridor and the southeast concession border, which is woodlot. Lot 36 Concession 4 consists of 120-acres of land first issued through a Crown Patent to William Broddy in 1872. The 1867 Bruce County Directory however indicates the lot was occupied by a John Noonan prior to the patent. The lot subsequently changed hands frequently until the early 20th century, after which it remained in one family until the 1970s.

The background research determined that the Study Area has high archaeological potential for Indigenous archaeological material based on proximity to water sources for drinking, fishing and travel, and resource-rich environments such as associated wetlands. There is also high potential for historic Euro-Canadian archaeological material associated with the first generation of settlement in Arran Township based on the same proximity to resources, to historic roads, and from the documentary record. The optional property inspection was not conducted for the Stage 1 AA because of inadequate winter weather conditions and therefore no portion of the Study Area is reduced in potential due to factors such as extensive modern disturbance as these could not be visually confirmed.

This assessment has provided the basis for the following recommendations:

- Stage 2 Archaeological Assessment is to be completed for all areas to be impacted by the planned changes identified as having archaeological potential (Figure 13). This includes the final footprint of the BESS facility as well as all areas of impact for access

routes, stockpiling, transmission line construction, floodplain compensation excavations, etc. (Figure 4 and Figure 5).

The Stage 2 AA is to consist of a Pedestrian Survey of all cultivated fields (Section 2.1.1, MCM 2011) and a Test Pit Survey at 5m intervals of all areas that cannot be ploughed (Section 2.1.2, MCM 2011);

- Should deeply buried archaeological materials be encountered during construction, all work will cease, and a professionally licensed archaeologist will be consulted to assess the cultural heritage value and significance of any such archaeological deposits.

It is requested that MCM enter this report into the Ontario Public Register of Archaeological Reports.

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1 INTRODUCTION

1.1 PROJECT CONTEXT

LHC Heritage Planning & Archaeology Inc. (LHC) was retained by BBA Engineering Ltd. to prepare a Stage 1 Archaeological Assessment (AA) for the Tara Battery Energy Storage System (Tara BESS) project on 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, now the Municipality of Arran-Elderslie, Bruce County, Ontario (Figure 1 and Figure 4). The Stage 1 AA is in support of an application to Bruce County for an Official Plan Amendment.

The Stage 1 AA was prepared by Ben Daub, Ruth Macdougall (P359), and Christienne Uchiyama (P376) in compliance with the *Ontario Heritage Act R.S.O. 1990, Chapter O.18* (*OHA*) as per the Ministry of Citizenship and Multiculturalism (MCM) 2011 *Standards and Guidelines for Consultant Archaeologists* (S&Gs). Due to timing constraints for the Stage 1 submission to the planning authorities, the optional property inspection under Standard 1.2 of the S&Gs (MCM 2011) was not undertaken and this is acknowledged in the conclusions and recommendations.

The Study Area is an irregularly shaped, 66-hectare lot to the southwest of the intersection of Concession 4 Arran and the Grey-Bruce Line (Figure 2, Figure 3). It comprises Part Lot 36 Concession 4 , including the property municipally known as 39 Concession 4 Arran, the Hydro One electric transmission line corridor (no civic address) and the portion of the lot south of the hydro corridor (also no civic address), and Part Lot 35 Concession 4 (east half).The geographic Township of Sullivan, now Municipality of Chatsworth, in Grey County is on the opposite side of the Grey-Bruce Line.

The proposed Tara BESS project includes the installation of the battery system with access road and its connection to the existing Hydro One grid (Figure 4). Additional construction impacts include a floodplain compensation plan to offset the encroachment of the BESS and access road into the floodplain. This plan will entail the excavation of between 0.1 and 2.0 m of subsoil on the northern and eastern sides of the Sauble River on Lots 35 and 36, with the topsoil removed, stockpiled, and then replaced to allow agricultural activities to resume. The plan is still in the approval phase with the Grey Sauble Conservation Authority. Figure 5 indicates the proposed areas of impact.

1.2 STAGE 1 ARCHAEOLOGICAL ASSESSMENT OBJECTIVE

The purpose of a Stage 1 AA is to provide information about the land use history and present conditions of the Study Area, to identify registered archaeological sites within or adjacent to the Study Area, to document previous archaeological research along the corridor and to evaluate the Study Area's archaeological potential. This Stage 1 AA involves research into the geography, topography, and history of the Study Area. The study examines previous archaeological fieldwork conducted on or near the property as well as the Study Area's current conditions.

Where archaeological potential is identified by a Stage 1 AA, a Stage 2 AA is recommended. The purpose of a Stage 2 AA is to determine whether the Study Area contains archaeological resources through on-site survey (generally systematic pedestrian survey of ploughed fields or test pit survey).

1.3 METHODOLOGY

The Stage 1 AA has been completed in accordance with the 2011 S&Gs.

Background Research for a Stage 1 AA involves, but is not limited to, reviews of: the geographic context and topographical features of a property; pre-European contact cultural context of the area; post-European settlement land use history and ownership records (e.g., government land records, historical maps, topographic maps, and aerial imagery); and existing registered archaeological sites within a 1 km radius of the Study Area (based on the MCM's Archaeological Sites Database) and previous archaeological fieldwork in the vicinity.

Optional Property Inspection is intended to assess, first-hand, the topographic and geographic context of the property and to identify any features of archaeological potential or modern disturbance. The property inspection may also identify areas that might affect further archaeological assessment strategies (if further work is warranted). The property inspection must be undertaken when weather conditions permit, and visibility is good. The optional property inspection has not been conducted as part of this Stage 1 AA because of inadequate winter weather conditions.

Analysis/Evaluation of archaeological potential is based on evidence collected during background research and current conditions observed during the optional property inspection. The optional property inspection has not been conducted as part of this Stage 1 AA because of inadequate winter weather conditions.

2 HISTORICAL CONTEXT

2.1 INDIGENOUS LAND USE

Southern Ontario became open to settlement following the final retreat of the Laurentide Ice Sheet, which had covered much of the Great Lakes area until 12,000 B.P. The retreat of the glacier produced glacial meltwater ponding, resulting in glacial lakes including Lake Duluth and Lake Algonquin, which comprised the area of an overlarge Lake Superior, Lake Michigan, and Lake Huron. Around 9,500 B.P., the glacier depressed earth's crust to the north of modern-day Lake Superior which resulted in the drainage of the lower Great Lakes. Lake Minong (Superior), Like Chippewa (Michigan), and Lake Stanley (Huron) were present following this drainage, though at a much lower water level than present-day. Lake Superior was largely separated from Lake Michigan and Lake Huron around 2,100 B.P. as ongoing isostatic rebound raised the St. Mary's Rapids (Lakehead Region Conservation Authority n.d.). Glacial Lakes Algonquin (11,000-10,500 BP), Nipissing (5,000 B.P.), and Algoma (3,800-2,500 B.P.) all provided habitable shorelines within Bruce County (Lewis et al 2008, FAC 2024).

It should be noted that historical documentation related to the location and movement of Indigenous peoples in present-day Southern Ontario is based on the documentary record of the experiences and biases of early European explorers, traders, and settlers. This record provides only a brief account of the long and varied occupation and use of the area by various Indigenous groups known, through oral histories and the archaeological record, to have been highly mobile over vast territories which transcend prevailing modern understandings of geographical boundaries.

A summary of the cultural sequence of Southern Ontario is provided in Table 1.

2.1.1 PALAEO PERIOD (11000 – 9500 B.P.)

The earliest human occupation of Southern Ontario dates to 11,000 B.P. These early populations consisted of small groups of hunter gatherers who ranged long distances, relying on caribou and other resources available in spruce dominated forests. Identified as the Paleo Indian period, the lithic assemblages are characterized by lanceolate shaped points with a channel or flute extending from the base. Three "phases" for the Early Paleo period, Gainey, Barnes, and Crowfield, are distinguished by stylistic variations in the fluted points.

Evidence suggests that populations in the latter half of the Paleo period, though still covering large areas, were more restricted in their movements, suggesting that food resources were more readily available. These hunters made smaller non-fluted points produced from a broader range of lithic materials.

Table 1 Pre and Post Contact overview of Southern Ontario

Period	Date (B.P.)	Phases/Complexes	Diagnostic	Subsistence	Rep. Sites
Paleo[1] 11,000-9,500					
Early	11,000 - 10,400	Gainey Barnes Crowfield	Fluted Points; Use of Collingwood and Onondaga Cherts	Highly mobile Hunter-Gatherers	
Late	10,400 - 9,500	Holcombe Hi-Lo Lanceolate Points	Half-moon shaped, thin Thick with slight ear flaring Parallel flaked lanceolate points	Mobile Hunter-Gatherers	Allen Point[7] Gordon Island[8] Thompsons Island[8]
Archaic[2] 9,500 – 2,800 Notched Points; Ground Stone Tools					
Early	9,500 – 8,000	Side-Notched Corner Notched Bifurcate	Haldimand Chert serrated edges Dovetail Points	Hunter-Gatherers within smaller territories	Ottawa South, Bancroft[9]
Middle	8,000 – 4,500	Middle Archaic I Middle Archaic II Laurentian Archaic	Stemmed Points (e.g., Kirk, Stanely); netsinkers; banner stones Otter Creek Side Notched Brewerton Corner Notched;	Evidence of Regional "cultural" trading networks	East Sugar Island Brophy's Point

Period	Date (B.P.)	Phases/Complexes	Diagnostic	Subsistence	Rep. Sites
			Use of Copper; Polished stone tools		
Late	4,500 – 2,800	Narrow Point Broad Point Small Point	Lamoka; Normanskill Points Genesee; Adder Orchard (coarse grain material) Crawford Knoll; Inness; Hind	Upland site locations Glacial Kame Burials	Collins Bay[10] Armstrong Site[11]
Woodland 2,800 – 500 Ceramics Introduced					
Early[3]	2,800-2,400	Meadowood Middlesex	Adena Blades; Grit tempered Cord Impressed ceramics;		York Site Pike Farm[12]
Middle	2,400-1,600	Point Peninsula Sandbanks/Princess Point (Transition)	Conical Based grit tempered ceramics with dentate and pseudo scallop impressions	Hunter-gatherers' seasonal sites concentrated on major waterways	Belle Island[13] Johnson's Point[14] Foster[15]
Late[4]	1,600-400	Early[5] Pickering Algonquin/Ojibway Middle[6] Middleport Algonquin/Ojibway	Paddle and Anvil ceramics with collars. Increased predominance of bone tool tech.	Introduction of horticulture, corn beans and squash	Kingston Outer Station[16] Arbour Ridge[17] Gan 1218

Period	Date (B.P.)	Phases/Complexes	Diagnostic	Subsistence	Rep. Sites
		Late Algonquin/Ojibway Huron St. Lawrence Iroquois			
Contact 400 - 150					
	400	Algonquin	Long Established in Ottawa Valley		Ganneious[19]
	400	French	Champlain 1613		Fort Frontenac
	350	Mississauga	Ojibway settlement of southern Ontario by 1701		
	250	English			

1 (Ellis & Deller 1990); 2 (Ellis et al 1990); 3 (Spence et al. 1990); 4 (Smith 1990); 5 (Williamson 1990); 6 (Dodd et al 1990); 7(Heritage Quest 2000); 8 (Wright 2004); 9 (Fox & Pilon 2015); 10 (Ritchie 1980); 11 (CARF 1988); 12 (Spence 1967); 13 (CARF 1989); 14 (Abacus 2016); 15 (Daechsel 1985); 16 (Heritage Quest 1999); 17 (Adams 2003); 18 (Golder 2016); 19 (Adams 1986).

2.1.2 ARCHAIC PERIOD (9500 – 2800 B.P.)

Although largely arbitrary, the Archaic period is initially distinguished by the appearance of notched projectile points and the use of ground stone utilized in the production of heavy "wood working" tools. At the outset of this period forests were dominated by pine and approached present day conditions of mixed deciduous forests by 5,000 B.P. Water levels in the lower Great Lakes continued to rise through the first half of the Archaic with present day levels reached between 7,000 and 5,000 B.P. Throughout this period populations continued to hunt, gather, and fish.

Within the Early Archaic period three "phases" have been recognized, again distinguished by projectile point types: side notched, corner notched and bifurcate. Serrated edges are unique to projectile points made during the Early Archaic. Evidence suggests that the seasonal

movement of extended family units were becoming increasingly regionalized, encompassing smaller territories as food resources became more abundant.

The Middle Archaic, encompassing several millennia, has been divided into two sub periods, Middle Archaic I and II. It is represented in Eastern Ontario by the Laurentian Archaic exhibiting cultural affinities with contemporaneous populations to the east, including New York State, and Atlantic Canada. Associated with the Middle Archaic I are stemmed points such as Kirk and Stanley along with the introduction of net sinkers and banner stones, the former, offering evidence for the increasing importance of fishing. Middle Archaic II included the production of side and corner notched points (Otter Creek and Brewerton). Laurentian Archaic sites have produced artifacts manufactured from copper originating from the north shore of Lake Superior in addition to ground stone projectile points, gouges, adzes, and plummets (Watson 1982).

Three phases, Narrow Point, Broad Point, and Small Point have been identified for the Late Archaic Period. By this time there is increasing evidence to suggest the further regionalization of populations in Southern Ontario. An example is the increased utilization of local lithic materials including quartz, and other silicates in the projection of projectile points and other tools in Eastern Ontario, contrasting with the almost exclusive use of cherts such as Onondaga, Selkirk, and Kettle Point in Southwestern Ontario.

2.1.3 WOODLAND PERIOD (2800 – 400 B.P.)

The Woodland period is demarcated by the appearance of ceramics. The first ceramics produced in Southern Ontario consisted of thick walled, grit tempered vessels with exterior cord marked impressions, referred to as Vinette 1. Although few Early Woodland occupation sites have been excavated in Southern Ontario, of those that have been investigated, the presence of ceramics was not ubiquitous (Jackson 1980; Parker 1997), suggesting that Early Woodland populations “eased” into the usage of this new technology which did not become fully integrated until the Middle Woodland period.

Two complexes, Middlesex and Meadowood, are recognized as part of the Early Woodland period. The Meadowood is thought to have emerged from the Glacial Kame Burial complex of the Late Archaic. Associated artifacts included polished stone birds, gorgets, pipe bowls, along with other materials. The use of “exotic” cherts for the production of medium to large Ovate shaped blades known as Adena are also a feature of this complex. Medium sized, parallel projectile points with a distinctive side notched and principally manufactured from Onondaga chert are also characteristic of the Early Woodland.

By the Middle Woodland period, circa 2,400 B.P., there was a recognizable increase in the population of Southern Ontario. Several recognized complexes or traditions in Ontario appear at this time indicating the further regionalization of groups within the province. These include Point Peninsula through much of Southeastern and Southcentral Ontario, Saugeen and Couture in Southwestern Ontario and Laurel in Northern Ontario.

Middle Woodland populations continued to hunt, gather, and fish, with smaller extended family units congregating in the late summer and early fall. These populations continue to participate in extensive trade networks. They are distinguished archaeologically by grit tempered, coil manufactured, conical based ceramics with variety of dentate stamp impressions including pseudo scallop shell stamp decoration.

Circa 1,400 B.P. cultigens are introduced into Southern Ontario. In Southwestern Ontario there is a shift in settlement patterns, with the location of permanent and semi-permanent sites in riverine locations (e.g., Grand River valley). There is less evidence for this shift in Eastern Ontario. Across much of the province there appears to be a universal ceramic horizon characterized by the production of fine tempered, globular shaped ceramic vessels with cord wrapped stick impressions along with punctates (circular depressions) and bosses (raised surfaces). Identified as Princess Point, based on the type of site excavated at the western end of Lake Ontario, this transitional period has been distinguished in Eastern Ontario as Sandbanks (Daechsel & Wright 1993).

The Late Woodland period is defined in Southern Ontario by the increased reliance on cultigens and the associated transition to permanent village sites. Three phases identified as Early, Middle and Late Iroquoian/Late Woodland have been distinguished in the literature. These villages consisting of cabins and longhouses were often palisaded. Ceramic vessel forms included larger globular shaped pots, often with collars and later with castellations. While much of Southern Ontario moved towards horticulture and semi-permanent and permanent villages, there remained largely hunting and gathering populations along the Ottawa Valley and in the Georgian Bay regions throughout the Late Woodland period.

2.1.4 CONTACT

While there may have been the appearance of European goods originating from the Basque fishing activities in the 16th century off the coast of Labrador it was not until the beginning of the 17th century that permanent European settlements were established in northeastern North America resulting in rapid changes in Indigenous populations influenced by trade, warfare, and disease. The Huron Wendat who, by the mid-17th century, had occupied areas around Lake Simcoe and along the south end of Georgian Bay, were dispersed by the Iroquois from south of Lake Ontario. The Attawandaron (Neutral), at the west end of Lake Ontario, were similarly displaced by 1650 and the St. Lawrence Iroquois, encountered by Cartier at Hochelaga (Montreal), had completely disappeared by the time of Champlain's arrival to the region at the beginning of the 17th century.

Samuel de Champlain documented his numerous interactions with Indigenous peoples in the Ottawa Valley during visits in 1613 and 1615. At the time, an extensive, complex network of trade existed with various culturally distinct peoples around the Ottawa Valley (Pilon 2005). Early European documentation reveals three Algonquin cultural groups within the Ottawa Valley region: the Matouweskarini, Onontchataronon, and the Weskarini (Heidenreich & Wright 1987). During the same early 17th century period, Jesuit Missionaries Jean de Brébeuf

and Francesco-Giuseppe Bressani, as well as Champlain, wrote that the ”Bruce Peninsula at that time was the home territory of the Algonquin-speaking Odawa” (Fitzgerald in FAC 2023).

European activity in Southern Ontario during the 17th century was principally limited to fur trade. Fort Frontenac was located at the confluence of Lake Ontario and the St. Lawrence River in present day Kingston. By this time, the Iroquois had established seven villages along the north of Lake Ontario including Ganarakas at the present-day site of Port Hope (Adams 1986). In the Niagara Peninsula, the Attawandaron were initially succeeded by the Seneca who controlled the Niagara River. The Odawa and Ojibway allied together against the Iroquois. Early in the 18th century the Ojibway successfully pushed south from Georgian Bay, occupying all Southern Ontario (Schmalz 1987).

Following the defeat of the French in the Seven Years War the British issued a Royal Proclamation in 1763 to administer the territories, including Canada, which had been won. The Proclamation established the Appalachian Mountains as the boundary between the Indian and Colonial lands and in doing so recognized the rights of Indigenous populations to their lands (Calloway 2018). The Royal Proclamation was the basis upon which lands were ceded to the Crown for compensation through treaties and/or land acquisitions. In the area south of Georgian Bay many of these treaties took place in the 19th century, including Treaty 29, the Huron Tract Purchase (1833), Treaty 45 ½, the Saugeen Tract Purchase (1836), Treaty 18, the Nottawasaga Purchase (1818), Treaty 16, the Lake Simcoe Purchase (1815), Treaty 72, the Saugeen Peninsula Treaty (1854), and Treaty 82 (1857).

2.2 INDIGENOUS CONTEXT

2.2.1 SAUGEEN OJIBWAY NATION CONTEXT

The Study Area is located within the Treaty and traditional territory of the Saugeen Ojibway Nation.

The Saugeen Ojibway Nation (SON) includes the Chippewas of Nawash Unceded First Nation and the Chippewas of Saugeen First Nation. SON’s traditional territory (Saukiing Anishnaabekiing) includes all of Bruce and Grey Counties, including the Saugeen Peninsula, and extends south of Goderich (Huron County) and Arthur (Wellington County) and east of Alliston and Collingwood (Simcoe County) (SON 2022).

The Saugeen Ojibway territory remained unceded at the turn of the 19th century, and by the mid-1830s it was the largest such tract in Southern Ontario (Surtees 1994). Ojibway settlements at the mouth of the Saugeen River in present day Southampton and at Newash (Nawash), present day Owen Sound, were documented during that period (FAC 2013, McMullen 1997 in FAC 2024). However, with the continuing expansion of settlement in Southern Ontario pressure was brought to bear on the British Crown to open up the lands south of Georgian Bay (Surtees 1994).

2.2.2 TREATIES

The Study Area is located on land included in the Saugeen Tract Purchase (Treaty 45½). The Saugeen Tract Purchase covered approximately 1.5 million acres of land and was part of the Bond Head Purchases. The treaty was signed on 9 August 1836 in Manitowaning (Government of Ontario 2024).

Additional treaties include the Half-Mile Strip (1851) for a road allowance from Lake Huron to Owen Sound (this includes the northern edge of Arran Township), the Saugeen Peninsula Treaty #72(1854), Newash Village (1857), Colpoy's Bay (1861), Saugeen Fishing Islands (1885), and additional road allowances through Saugeen (1899) (Canada 1891, ATHS 1982, FAC 2024).

The SON territory today consists of the village of Neyashingaming at Cape Croker (Chippewas of Nawash Unceded First Nation) and Saugeen (Chippewas of Saugeen First Nation), Chief's Point on Lake Huron, and hunting grounds in the interior of the Bruce Peninsula (SON Environment Office 2022).

The Saugeen Ojibway Nation continues to be stewards of their traditional territory, with an interest and involvement in a range of development and environmental matters (e.g., land use, resource extraction, energy production, archaeological studies) (SON Environment Office 2022). As a result of this involvement, in 2011, the SON produced their own standards for archaeological work within their traditional territory: *Conducting Archaeology within the Traditional Territory of the Saugeen Ojibway Nation: Process and Standards for Approval Authorities, Development Proponents and Consultant Archaeologists*.

2.3 SURVEY AND EARLY EURO-CANADIAN SETTLEMENT

2.3.1 BRUCE COUNTY HISTORY

Euro-Canadian exploration of what would become Bruce County first occurred in 1844, when the Saugeen River was mapped from Garafraxa Road to its outlet on Lake Huron by Casimir S. Gzowski. The first survey was conducted by Charles Rankin in 1846, when he ran a line from Owen Sound to the mouth of the Saugeen River. Shortly thereafter, between 1847-1848, the first land petitions from Euro-Canadian settlers were filed to the Crown Lands Department; however, land had yet to be opened for settlement. Upper Canada was facing considerable population growth around this time. Between 1842 and 1848, the population grew from 480,055 to 723,332. This growth, in part, prompted plans to allow settlement in the forthcoming Bruce County. On 19 April 1847, an Order-in-Council was passed to open the land for development. Alex Wilkinson, Provincial Land Surveyor, conducted a survey at the order of D. B. Papineau, the Commissioner of Crown Lands. Wilkinson's first survey established the Wawanosh Road, which extended southeast to the Townships of Mornington and Maryborough. Wilkinson then drew a line to Lake Huron, creating the first concessions in the Townships of Huron and Kinloss. Wilkinson was then ordered to survey the eastern shore of

Lake Huron to the extent of two townships. Wilkinson claimed to the Crown Lands Department that the land in the area could continue to be surveyed. This ultimately led to the survey of seventeen additional townships, including eleven in Bruce County, four in Huron County, and two in Perth County (Robertson 1906).

To facilitate settlement in the newly surveyed townships, a colonization road was constructed from Simcoe County to the mouth of the Penetangore River. The first formal Euro-Canadian settlement in Bruce County occurred at the mouth of the Penetangore River in Kincardine (then known as 'Penetangore') in the summer of 1848. The town plot of Kincardine was surveyed in 1849 by A.P. Brough, Provincial Land Surveyor. Huron, Brant, Greenock, and Southampton were also initially settled in the late 1840s. Rapid settlement was likely due to the issuance of free land grants so long as the land patentee cleared twelve acres of land and constructed a dwelling measuring no less than 18' by 12' in the first four years after acquiring the land.

An Act of Parliament on 30 May 1849 formally created the Counties of Huron, Perth, and Bruce. Bruce County was composed of the Townships of Arran, Brant, Bruce, Carrick, Culross, Elderslie, Greenock, Huron, Kincardine, Kinloss, and Saugeen. The area north of the Townships of Arran and Saugeen between Lake Huron and Georgian Bay was also annexed shortly thereafter. At the time, the Counties of Huron, Perth, and Bruce were united.

Surveying of townships was ongoing during the 1850s. Brant and Kincardine were surveyed in 1850; Arran, Elderslie, Huron, Saugeen, the west part of Bruce along with the town plot of Southampton were surveyed in 1851; and the east part of Bruce, Carrick, Culross, Kinloss, and Greenock were surveyed in 1852. On 21 September 1853, a general by-law was passed that organized Bruce County's Townships into the United Townships of Kincardine; Bruce and Kinloss; the Township of Huron; the United Townships of Brant and Carrick; the United Townships of Greenock and Culross; the Township of Saugeen; and, the United Townships of Arran and Elderslie. By 1855, Kincardine and Bruce, Brant and Carrick, Greenock and Culross, and Arran and Elderslie were separated. In addition, the Townships of Amabel and Albermarle and the town plot of Alma were surveyed. In 1856, the Townships of Eastnor and Lindsay, and the town plot of Wiarton and Paisley were surveyed. St. Edmunds was surveyed in 1857 (Robertson 1906).

In 1853, Perth County separated from Bruce and Huron, and in 1856, Bruce and Huron separated. The latter separation was not immediate, largely due to the challenge in establishing a county town in Bruce.

Considerable development occurred in Bruce County during the 1850s. Post offices were opened in Kincardine and Southampton; several colonization roads were built including Durham Road, Elora Road, and Woolwich and Huron Road, along with the construction of local roads; and other municipal works including the establishment of the Division Court were developed. Upper Canada was in a time a general wealth, owing to the Reciprocity Treaty and the Crimean War; however, this was not largely felt in Bruce County due to labour scarcity and cost. Such scarcities led to several colonization road contracts being rescinded.

In 1858, Kincardine was incorporated as the first village in the county. From then on, it was called 'Kincardine' as opposed to 'Penetangore'. It had a population of 837 at the time. Southampton would also be incorporated as a village in 1858. In June of 1858 a railway was opened to Goderich, permitting daily mail delivery to Kincardine. In 1860, the first grammar school in Bruce County was opened in Kincardine. Southampton also attempted to secure a similar grammar school; however, it was not realized.

On 15 September 1865, Walkerton was officially declared Bruce County's county town. On 31 December 1866, the Counties of Bruce and Huron were officially separated by proclamation of the Governor General. In 1868, a post office was opened in Wiarton and electric telegraph first reached Bruce County.

In the 1870s, several settlements were incorporated as villages, including Walkerton in 1871, Tiverton in 1878, and Chesley in 1879 (Robertson 1906). The village of Tara, in Arran Township, was incorporated in 1881 (Miller 1980).

Railway development also reached Bruce County by the 1870s, first with the Wellington, Grey and Bruce Railway (WG&B) which reached Southampton on 7 December 1872. A branch of the WG&B reached Kincardine in 1874. Also in 1874, a branch of the Toronto, Grey and Bruce Railway (TG&B) reached Teeswater. The WG&B was acquired by the Great Western Railway and in 1882, it became part of the Grand Trunk system. Also in 1882, the Stratford & Huron Railway reached Chesley and Wiarton. This railway was also amalgamated with the Grant Trunk system as part of the Grand Trunk, Georgian Bay & Lake Erie Railway. In 1887, the Canadian Pacific Railway, using the Toronto, Grey and Bruce Charter, constructed a new railway spur into Wingham from Teeswater. Several additional railways were also considered during the latter twenty-years of the 19th century, including an electric railway with terminals in Port Perry, Goderich, and Meaford; however, few were constructed.

In 1896, an Act was passed to reduce the number of county councilors. At a meeting on 29 June 1896, the number of councilors was reduced from 44 to 18 – two for each of the county's nine divisions. One of the first major social challenges faced by the newly formed council was the construction of a House of Refuge, an idea raised as early as 1881. Walkerton was selected as the location for this facility, and it opened in January 1900. The county also established a Children's Aid Society to improve the condition of all neglected and dependent children at the turn of the 20th century. In 1903, the County of Bruce General Hospital Trust and Walkerton was completed, with the first patient being accepted on 27 September. At the time, the population in Bruce County was decreasing. The emigration of young people to larger urban centres and cities was one of the main reasons for this (Robertson 1906).

Bruce County's economy is largely supported by the agricultural sector, notably through livestock, cash crops, and fruit and vegetable farming. Commercial power generation – Bruce Power, which first opened in 1960 – is another contributor along with the seasonal tourism industry. In 2021, Bruce County had a population of around 73,400 (Statistics Canada 2023a).

2.3.2 ARRAN TOWNSHIP HISTORY

The first known Euro-Canadian settler in Arran Township was Henry Boyle, who settled before the survey on what would come to be known as Lot 21 Concession A in 1850. Arran Township was surveyed shortly thereafter in the summer of 1851 by Goerge Gould for Charles Rankin, Provincial Land Surveyor. Arran Township was surveyed alongside Elderslie Township and Saugeen Township, along with part of Bruce Township and Huron Township that had not previously been surveyed, in preparation of an anticipated influx of Euro-Canadian Settlers. The northern limit of ArranTownship had been further expanded by a half mile, known as the Half-Mile Strip, after this swath was ceded to the Crown by the Saugeen Ojibway in 1851 (ATHS 1982, Schmalz 1977). The sale of township land officially began on 30 July 1852 and included both the original survey lots and the northern Half-Mile Concession (Robertson 1906, ATHS 1982). Arran Township is historically bordered on the south by Elderslie Township, on the west by Saugeen Township, on the north by the Saugeen Indian Reserve No 29 and by Amabel Township, and on the east by Derby and Sullivan Townships in Grey County, with Keppel Township joining at its northeast corner.

Gould and Richard Berford, who was a member of the surveying team, were among the first to acquire land following the survey. Gould, along with his companion J.W. Linton, settled in Invermay, and Beford, along with his companion John Hamilton, settled in Tara. Both parties were interested in capitalizing on the waterpower provided by the Sauble River. Around sixteen additional settlers also took ownership of land in Arran Township in the early 1850s. Additional settlement was facilitated by the construction of the Saugeen and Owen Sound Road in 1852 and the Elora and Saugeen Road in 1854.

Taxes in Arran Township were first levied in 1853, when a total of £55 6s 9d was collected. That same year, two post offices were opened, including one in Burgoyne called ‘West Arran’ and one in Invermay called ‘Arran’. At the time Invermay, Arkwright, and Tara were the main settlements in the Township. The first of these settlements to be surveyed into village lots was Tara, which was preliminarily surveyed by Richard Berford in 1854. Several additional surveys followed, including in May 1858 (Lot 31-32 Concession 8), November 1858 (Lot 31-32 Concession 9), March 1859 (Lot 30 Concession 8), and November 1860 (Lot 29-30 Concession 8). During this period two stores, a sawmill, a gristmill, a fanning mill, a foundry, and an agriculture implement works had been established. In addition to Tara, Invermay also developed during this period. It was surveyed into village lots in 1855 and by 1857, a small business centre had been formed which included a sawmill and grist mill built and operated by Luke Gardiner. Settlement and development were also happening in other parts of the Township. A new post office in Arkwright, near the centre of the township, was also opened in 1857 (Robertson 1906).

In the heart of the Queen’s Bush, Arran Township had many sawmills within close proximity to each other, the early settlers taking advantage of the streams and rivers to mill their own timber, and their descendants continuing the process well into the 20th century (ATHS 1982).

Between 1853 and 1861, several changes occurred to Arran Township's municipal structure. In 1853, Arran Township was united with Elderslie Township with the two then known as the United Townships of Arran and Elderslie. Arran was selected as the senior township. Richard Berford was elected as the first reeve, Archibald Ray was the clerk, and the councilors were Henry Esplen, William Hunt, Thomas Woodsides, and Edward Sparling. In 1856, Arran Township and Elderslie Township were separated, and in 1857 Arran Township was united with Amabel Township by law for municipal purposes. In 1858, Albermarle Township was united with Arran and Amabel. Albermarle was subsequently removed from the union in 1860. On 1 January 1861, Arran and Amabel were separated, leaving Arran Township as an independent township.

Arran Township's population reached 2,551 by 1861, a significant increase from 1852 when the population was 149. The population increased to 3780 by 1871 followed by a decrease to 3,512 by 1881, 2,913 by 1891, and 2,562 by 1901. Arran Township and Elderslie Township were once again united on 1 January 1999 and are now known as the Municipality of Arran-Elderslie (Robertson 1906). The population of the Municipality of Arran-Elderslie was 6,913 as of 2021 (Statistics Canada 2023b). Its agricultural sector continues to dominate the local economy.

2.4 STUDY AREA SPECIFIC HISTORY

2.4.1 LOT 35 CONCESSION 4 (EAST HALF) HISTORY

Table 2 below included a transcription of relevant Land Registry Abstract Index (LRAI) transactions from the Lot 35 Concession 4's Crown Patent through to the early 20th century. Additional abstracts associated with municipal works (i.e., construction of the hydro corridor) are included through the 20th century.

Table 2. Summary of Land Registry Transactions – Arran Township, Lot 35 Concession 4*

Date	Owner	Comment	Instrument
19 October 1869	Samuel Herron	Crown Patent, 100 acres (west half).	Patent
10 May 1889	Charles Thompson	Crown Patent, 50 acres (east half)	Patent
6 February 1892	Charles Henry Thompson	From Charles Thompson, 50 acres. Registered 2 June	Will 5219
23 March 1892	William A. Gerolamy (mortgage grantee)	From Charles Henry Thompson, 50 acres. Consideration of $726.50. Registered 23 June 1892.	Mortgage 5258

Date	Owner	Comment	Instrument
3 August 1917	Isaac G. Bowles and Harvey M. Merrian, executors of William A. Gerolamy (plaintiffs)	From Charles H. Thomson (defendant)., 50 acres. Registered 4 August 1917. Likely related to previous mortgage.	Cert 9033
21 May 1926	Thomas Dealy	From Isaac G. Bowles and Harvey M. Merrian, executors of William H. Gerolamy, 50 acres. Consideration of $2,200.00. Registered 15 June 1926.	Grant 10198
15 March 1950	[redacted]	From Thomas and Mary M. Dealy, 50 acres. Consideration of $2,150. Registered 21 March 1950.	Grant 12669
12 February 1973	n/a (no change)	Reference plan of part lot & showing Part E ½ being Part 2. Registered 14 March 1973.	Reference Plan 3R-1150
23 June 1975	n/a (no change)	Reference plan of part lot & showing Part 1. Registered 21 July 1975.	Reference Plan 3R-300
[illegible] April 1976	n/a (no change)	Plan of expropriation by Ontario Hydro showing Part 1. Registered 10 April 1976.	Plan 960

* (Land Registry Office 03 (Bruce)).

The first formal mapping showing Lot 35 Concession 4 is C. Rankin's 1851 Plan of Arran (Figure 6). This plan depicts lots and concessions, watercourses and lakes, and indicates the number of acres per lot, with Lot 35 Concession 4 shown as a 100-ac parcel. Rankin's field notes from his 1851 survey, where he is surveying the road allowances and determining lot locations, state the following for the conditions of the 4th Concession road at Lot 35:

> Maple, beech & elm – large timber, at 15°, hem[lock], cedar, beech, and balsam, at 15°54 to 16°44 cross the AuSable flowing northerly, muddy bottom, then flat with timber as before, 20° p0st (Rankin 1851a: 73).

Rankin's 1855 Map of the Counties of Grey and Bruce sets the township within the county perspective. This map does not depict the name of an owner or tenant or any buildings on the property. The property is bordered by a roadway on its northwest side and the Sauble River passes diagonally through the property's northeast corner.

The first people associated with Lot 35 Concession 4 were Michael Canton and William Herron, who appeared as owners of the property in Bruce County's 1867 directory (Rooklidge 1867). Canton and Herron's occupancy predates the Crown Patent for the land, which was issued separately for its east and west halves. The Crown Patent for the west half of the property (listed as 100 acres, likely in error) was issued to Samuel Herron on 19 October 1869 (LRO 03 Arran Twp LRAI [LRO 03] n.d. Lot 35 Con 4 Patent). Herron sold the west 50-ac of the property to Christopher J. Crowe on 27 April 1871 (LRO 03 n.d. Instr. 1335).

The directory from 1876 identifies Charles J. Crowe and Charles Thompson Sr. as independent freeholders of the property's two halves (Brownell 1876). Christopher J. Crowe's ownership is corroborated in the 1878 Tax Assessment Roll for the Municipality of Arran, which lists him as the owner of the west half of Lot 35 Concession 4 along with William Crowe and James Herron. The 1878 Tax Assessment Roll also corroborates the Thompson family's association with the property, citing that the east half of Lot 35 Concession 4 was owned by John KcKinnon Thompson, Charles Thompson's son. Members of the Thompson family – Charles and Charles Henry – also owned Lot 34 Concession 5 at the time (Family Search n.d.[A]).

The following directory from 1880 only associates Christopher J. Crowe with the property, identifying that he owned 50 acres of the land and was a farmer (Evans 1880). The 1880 Tax Assessment Roll corroborates Crowe's ownership and continues to associate John KcKinnon Thompson with the property (Family Search n.d.[B]). H. Belden & Co.'s map of the Township of Arran from 1880 shows Lot 35 Concession 4 in generally the same condition as C. Rankin's 1855 map. No owner or tenant or buildings are depicted (Figure 7). The Union Publishing Co.'s Farmers' and Business Directory for 1886-1887 identifies John Thompson as the property's freeholder (Union Publishing Co. 1887). Tax Assessment Rolls from 1888 do not list Lot 35 Concession 4. John Thompson and Charles H. Thomson are, however, identified as the owners of the nearby west and east halves of Lot 34 Concession 5 (Family Search n.d.[C]).

The Crown Patent for the east half of the property (listed as 50 acres) was issued to Charles Thompson – likely the same Charles Thompson identified in the 1876 directory – on 10 May 1889 (LRO 03 n.d. Patent). A review of Census records indicates that Charles Thompson was a farmer born in England around 1819 (Library and Archives Canada [LAC] n.d. [A]). Despite his known ownership of the property from LRAI records, Thompson is not associated with the property in the Union Publishing Co.'s Farmers' and Business Directory for 1889 (Union Publishing Co. 1889). In 1891, Thomspon was farmer, aged 69, married to Mary (45) (LAC n.d. [B]). Mary Thompson was Charles Thompson's second wife. His first wife, Catherine, with whom he had several children including David, Charles H., George, Mary Ann, and John M., died in 1884 (Archives of Ontario n.d. [A]; LAC n.d. [A]).

In 1892, Charles Thompson died, and the east half of Lot 35 Concession 4 was willed to his son, Charles Henry Thompson (Archives of Ontario n.d.[B]; LRO 03 n.d. Instr. 5219). Shortly after taking ownership of the property, Thompson acquired a $726.50 mortgage from William A. Gerolamy (LRO 03 n.d. Instr. 5258). Charles Henry Thompson was born to Charles Thompson and Catherine Thompson on 17 June 1848 in Makhanda (formerly Grahamstown),

South Africa (Find a Grave Index n.d.). In 1891, Thompson was a farmer aged 42, married to Mary Ann with five children, Jessie (15), Charles (12), William (10), Catherine (8), and Walter (4) (LAC n.d.[C]). The Union Publishing Co.'s Farmers' and Business Directory for 1892 does not associate either Charles Thompson or Charles Henry Thompson with the property (Union Publishing Co. 1892). The 1894 Tax Assessment Roll confirms that Charles H. Thompson owned the property. At the time, 40-ac had been cleared, and the property was worth $1,100.00 (Family Search n.d.[D]).

Subsequent maps and directories do not associate Charles Henry Thompson with the property, despite his known ownership from LRAI and Tax Assessment records. A map of Arran Township from 1899 depicts 'P. Cunningham' as the owner or tenant of the east half of Lot 35 Concession 4 (ATHS 1982), the Union Publishing Co.'s Farmers' and Business Directory for 1901 identifies Andrew Freeborn as the property's freeholder (Union Publishing Co. 1901), and the Union Publishing Co.'s Farmers' and Business Directory for 1910 identifies Thomas Dolphin as a tenant and John Watson as a freeholder of the property (Union Publishing Co. 1910).

Although not specifically clear how through LRAI records, legal action taken by Isaac G. Bowles and Harvey M. Merrian, executors of William A. Gerolamy (plaintiffs), against Charles H. Thompson and Mary Ann Thompson (defendants) on 3 August 1917 resulted in the former parties' ownership of the property (LRO 03 n.d. Instr. 9033). The property was subsequently sold to Thomas Dealy on 21 May 1926 for $2,200.00 (LRO 03 n.d. Instr. 10198).

A 1938 aerial photograph shows Lot 35 Concession 4 as an undeveloped lot. Most of the property appears to be covered by crops, while the river is surrounded by pasture and a woodlot is located along the southeast property line (Figure 8). On 23 June 1975, a Reference Plan – Plan 3R-1150– was prepared for the property (LRO 03 n.d. Plan 3R-1150). Aeiral imagery and National Topographic System (NTS) maps from throughout the mid- to late 20th century and early 21st century continue to show the property as undeveloped with crop, pasture, and woodlot (Figure 8 and Figure 9).

2.4.2 LOT 36 CONCESSION 4 HISTORY

Table 3 below included a transcription of relevant LRAI transactions from the Lot 36 Concession 4's Crown Patent through to the early 20th century. Additional abstracts associated with municipal works (i.e., construction of the hydro corridor) are included through the 20th century.

Table 3. Summary of Land Registry Transactions – Arran Township, Lot 36 Concession 4*

Date	Owner	Comment	Instrument
28 October 1872	William Broddy	Crown Patent, 120 acres. Registered 19 October 1880.	Patent 3170
5 October 1880	William H. Vernon	From William Broddy et ux., 120 acres. Registered 19 October 1880.	Bargain & Sale 3171
18 November 1887	William F. Betts	From William H. Vernon, 120 acres. Registered 1 December 1887.	Bargain & Sale 4461
15 April 1897	Charles William Speer	From Mary Maria Betts, executrix of William F. Betts, 120 acres. Registered 1 May 1897.	Bargain & Sale 5799
9 August 1897	William Thomson	From Charles William Speer, 120 acres. Registered 12 August 1897.	Bargain & Sale 5873
1 April 1898	Joseph Watson	From William Thomson et ux., 120 acres. Registered 9 April 1898.	Bargain & Sale 5963
1 August 1902	John Watson Jr.	From Joseph Watson et ux., 120 acres. Registered 12 January 1903.	Bargain & Sale 6802
1 April 1907	Daniel G. McMullen	From John Watson Jr. et ux., 120 acres. Consideration of $5,600.00. Registered 16 April 1907.	Bargain & Sale 7644
30 March 1970	[redacted]	From [redacted]. Estate of [redacted].[1] Unidentified acreage. Consideration of $5.00. Registered 4 May 1970.	Grant 76333
8 December 1970	The Municipal Corporation of the Township of Arran	From [redacted], east 10 feet. Consideration of $150.00. Registered 21 December 1970.	Grant 81657
12 February 1973	n/a (no change)	Reference plan showing part of lot being Part 2. Registered 14 March 1973	Reference Plan 3R-300
30 October 1972	The Director, The Veteran's Land Act	From [redacted], lot less east 10 feet. Consideration of $17,703.00. Registered 1 May 1973.	Grant 103305

[1] It is not clear in Land Registry documentation when the property was acquired by Raymond E. McMullen.

Date	Owner	Comment	Instrument
23 June 1975	n/a (no change)	Reference plan of part lot & showing Part 1. Registered 21 July 1975.	Reference Plan 3R-1151
31 [illegible] 1976	n/a (no change)	Plan of expropriation by Ontario Hydro showing Part 1. Registered 10 April 1976.	[illegible] 857
14 December 1976	n/a (no change)	Reference plan of part of lot showing Parts 1, 2, & 3. Registered 16 January 1977.	Reference Plan 3R-1688
7 February 1977	Ontario Hydro	From the Director, the Veteran's Land Act, parts 1, 2, & 3 on Ref. Plan 3R-1688 [illegible] right of way over part 2. Consideration of $1.00. Registered 6 April 1977.	Grant 145348
5 May 1978	n/a (no change)	Reference plan of part of lot, showing part 1. Registered 26 May 1978.	Reference Plan 3R-2152
23 December 2004	n/a (no change)	The Corporation of the County of Bruce. To designate pt lt 36 con 4 as in 81651 as part of Grey-Bruce line and to consent to the transfer of jurisdiction of said highway to the corporation of The County of Bruce. Registered 23 December 2004.	By-Law 32-04

* (Land Registry Office 03 (Bruce)).

2.4.2.1 LOT 36 CONCESSION 4 (LOT/CONCESSION HISTORY)

The first formal mapping showing Lot 36 Concession 4 is C. Rankin's 1851 Plan of Arran (Figure 6). This plan depicts lots and concessions, watercourses and lakes, and indicates the number of acres per lot, with Lot 36 Concession 4 shown as a 120-ac parcel. Rankin's field notes from his 1851 survey, where he is surveying the road allowances and determining lot locations, state the following for the conditions of the 4th Concession road at Lot 36:

> Hem[lock], cedar, maple, elm of (?) large timbers, good soil, at 8° rolling surface, at 12° flat, at 18° cross a neck of swale connecting larger ones on right & left, at 25° the allowance for road between Arran & Derby" (Rankin 1851a: 73).

Due to the survey being the road allowance, the Sauble River is not mentioned under Lot 36 as it crosses the 4th Concession on Lot 35, where Rankin notes "…cross the AuSable flowing northerly, muddy bottom, then flat with timber…" (Rankin 1851a: 73).

Rankin's 1855 Map of the Counties of Grey and Bruce sets the township within the county perspective. This map does not depict the name of an owner or tenant or any buildings on the property. The property is bordered by roadways on its northeast and northwest sides and the Sauble River passes diagonally through the property from its northwest to its southeast corner.

The first person associated with Lot 36 Concession 4 was John Noonan, who appeared as the property's owner in Bruce County's 1867 directory (Rooklidge 1867). Noonan's occupancy predates the Crown Patent for the land, which was issued on 28 October 1872 to William Broddy (LRO 03 n.d. Lot 36 Con 4 Patent). The following directories from 1876 and 1880 identify that Edward Shain, a farmer, leased the entire 120-acre property (Brownell 1876; Evans 1880). On 5 October 1880, Broddy sold the property to William H. Vernon (LRO 03 n.d. Instr. 3171).

A review of the Census records and Tax Assessment Rolls indicate that William Harrison Vernon was a sawmiller and farmer, born in 1853/54, who goes by either W.H. or by Harrison (LAC n.d. [D and H] and Family Search n.d. [E, F and G]). In 1881, Harrison was a young farmer, aged 27, married to Mary (25) with two young children, James Wesley (2) and Jessie E (7 months), who had 30 cleared acres on Lot 36, Concession 4. The 1886-1887 directory identifies Harrison Vernon as the property's freeholder (Union Publishing Co. 1887). The 1889 Tax Assessment Roll lists W.H. Vernon as working at a sawmill on part of Lot 33, Concession 7 Arran, approximately two miles north on the Sauble River, and by 1899 he had been joined in this endeavour by his son, J.W..

H. Belden & Co.'s map of the Township of Arran from 1880 shows Lot 36 Concession 4 in generally the same condition as C. Rankin's 1855 map. No owner or tenant or buildings are depicted (Figure 7). Interestingly, the Grey-Bruce Line road which borders the eastern edge of the Study Area was not completed in a straight line along that section at that time, a jog into neighbouring Sullivan Township for an easier crossing of the Sauble River being indicated jogging east just north of the river crossing the County Line on Lot 36 Concession 4 and rejoining the Line road at Concession 2. The road was straightened to its current alignment between 1880 and 1938 (see Figure 8).

William H. Vernon sold Lot 36, Concession 4 to William Betts, a farmer, on 18 November 1887 (LAC n.d.[E]; LRO 03 n.d. Instr. 4431). Betts' ownership is corroborated in the 1889 and 1892 directories of Bruce County, which identify him as the property's freeholder (Union Publishing Co. 1889). Mary Maria Betts, the executrix of William Betts' will, sold the property to Charles William Speer on 15 April 1897 (LRO 03 n.d. Instr. 5799). Speer's ownership ended on 9 August 1897, when he sold the lot to William Thomson (LRO 03 n.d. 5873). Thomson subsequently sold the property to Joseph Watson, who was a farmer, on 1 April 1898 (LAC n.d.[F]; LRO 03 n.d. Instr. 5963).

Joseph Watson had arrived in Arran Township as a young child with his family in 1856, his parents John and Mary purchasing 400 acres (ATHS 1982). Joseph and his wife Mary later inherited Lot 26 Concession 3, and raised their family including sons John, James and William

(LRO 03, ATHS 1982). Joseph also had an elder brother, John Jr. It is probable, therefore, that the John Watson Jr. noted in subsequent mapping and the land record abstract as the occupant/owner of Lot 36 is either Joseph's brother or son, both of whom were farming in Arran Township in 1901 (LAC n.d.[G] and[I]. A map of Arran Township from 1899 depicts John Watson Jr. as the property owner of Lot 36, Concession 4 (ATHS 1982), and the 1901 directory identifies John Watson Jr. as the property's freeholder (Union Publishing Co. 1901). This does not directly align with land registry abstracts; however, John Watson Jr. did acquire the property on 1 August 1902 (LRO 03 n.d. Instr. 6802).

On 1 August 1907, John Watson Jr. sold the property to Daniel McMullen for $5,600.00 (LRO 03 n.d. Instr. 7644). McMullen's ownership is corroborated in the 1910 directory, which identifies him as the property's freeholder (Union Publishing Co. 1910). The McMullen family retained ownership of the property until the early 1970s.

A 1938 aerial photograph shows Lot 36, Concession 4 with a number of structures including house, barn and outbuildings, fronting Concession 4 (Figure 8). The fields north of the Sauble River appear to be in crops, while south of the river is a mix of pasture and woodlot.

The 1946 NTS map showing the property depicts two buildings, a house and a barn, located near Concession 4 Arran between Grey Bruce Line to the east and the Sauble River to the west. The house is located closer to the road and the barn is more deeply setback to the south of the house (Figure 9). The NTS map from 1952 depicts no major discernable changes to the property (Figure 9). The 1954 aerial photograph (Figure 8) has poor resolution, however it appears that additional structures may be present west of the house, and that some of the southern fields may be in crop instead of pasture.

On 8 December 1970, the east 10 feet of Lot 36 Concession 4 was granted to the Municipal Corporation of the Township of Arran (LRO 03 n.d. Instr. 81657). On 12 February 1973, a Reference Plan – Plan 3R-300 – was prepared for the property (LRO 03 n.d. Plan 3R-300). Despite these alterations to the property, the 1973 NTS map does not depict any major discernable changes (Figure 9). On 30 October 1972 (registered 1 May 1973), the property described as 'lot less E 10 ft…' was granted to the director of the Veteran's Land Act for $17,703.00 (LRO 03 n.d. Instr. 103305).

On 23 June 1975, a second Reference Plan – Plan 3R-1151 – was prepared for the property (LRO 03 n.d. Plan 3R-1151). Shortly thereafter in 1976 (illegible date) Ontario Hydro expropriated an unidentified section of the property (LRO 03 n.d. Instr. 957). On 14 December 1976, a third Reference Plan – Plan 3R-1688 – was prepared (LRO 03 n.d. Plan 3R-1688). An aerial photograph from 1976 shows areas of disturbance around the farmstead location suggestive of demolition activities, and only two structures evident (Figure 8). The hydro corridor is not yet present.

On 7 February 1977, the director of the Veteran's Land Act granted part of the property, described as 'Parts 1, 2 & 3 on Ref. Plan 3R-1688 [illegible] right of way over part 2', to Ontario Hydro (LRO 03 n.d. Instr. 145348). Shortly thereafter, on 1 May 1978, the director of the

Veteran's Land Act granted the remainder of the property to new owners (LRO 03 n.d. Instr. 158691). A topographic map from 1978 depicts no major discernable changes to the property (Figure 9).

The owners of Lot 36 Concession 4 partitioned the property into two separate lots. On 16 May 1978, they sold the smaller section – now known as 37 Concession 4 Arran – to new owners and on 17 May 1978, they sold the larger section – now known as 39 Concession 4 Arran and consisting of the Study Area – to a new owner (LRO 03 n.d. Instr. 158702; Instr. 158705). The majority of the early 20th century farmstead structure locations were within the parcel retained as 39 Concession 4 Arran.

2.4.2.2 39 CONCESSION 4 ARRAN (MUNICIPAL ADDRESS HISTORY)

The ownership of the Study Area at 39 Concession 4 Arran changed several times in the latter three decades of the 20th century. The 1993 NTS map shows an electric transmission line corridor extending across the southern portion of the original Crown lot (Figure 9). The subsequent 2000 NTS map depicts no major discernable changes to the property (Figure 9).

On 23 December 2004, the Corporation of the County of Bruce passed By-law 32-04 'to designate pt lt 36 con 4 as in 81651 as part of Grey-Bruce line and to consent to the transfer of jurisdiction of said highway to the corporation of the County of Bruce' (LRO 03 n.d. Instr. 391462).

The 2006 air photo (Figure 8) showing the property at 39 Concession 4 Arran shows a barn, shed, and five outbuildings that are each accessed from the lot's unpaved driveway. Mature deciduous and/or coniferous trees extend along both sides of the driveway. Much of this lot has been cleared; however, there are large sections densely populated with mature deciduous and coniferous trees. The bank of the Sauble River is particularly populated with trees. The electric transmission line corridor across the southern portion of the Study Area is also visible.

By 2010, the shed on 39 Concession 4 Arran had been demolished (Figure 8). The 2015 and 2020 air photos showing the property show that no major discernable changes were made to the property (Figure 8).

3 ARCHAEOLOGICAL CONTEXT

3.1 EXISTING CONDITIONS

The Study Area is situated within an overall historic landscape that would have been appropriate for resource procurement and habitation by both Indigenous and Euro-Canadian people.

The individual lots comprising the Study Area are generally rural farmland (Figure 2, Figure 3). The east half of Lot 35 Concession 4 is a mixture of cultivated fields, pastureland, and woodlot. The property municipally known as 39 Concession 4 Arran is farmland, bisected on a diagonal by the Sauble River. North of the river are cultivated fields, with farm structures in the northwest fronting Concession 4. South of the river – including the Hydro One electric transmission line corridor and parcel bounded by the Hydro One electric transmission line corridor and the southeast concession border – are open fields (cultivated and/or pasture) and woodlot. The majority of the woodlot is marsh or swamp, and a tributary of the Sauble River flows through it to meet the river within the Study Area (Figure 2). The Study Area is low-lying, relatively level ground on the eastern half of the property, rising up on the western side.

3.2 ENVIRONMENT

The Study Area is located within the Arran Drumlin Field physiographic region of Southern Ontario (Chapman & Putnam 1984 and 2007). The Arran Drumlin Field is a drumlinized till plain that covers much of Arran Township as well as parts of neighbouring Keppel, Amabel and Derby Townships. The drumlin field is a result of glacial action, the drumlins aligned southwest/northeast indicating the direction of the receding ice sheet, as are a handful of eskers in the southeast corner of the region. Occasional till moraines cross east to west and patches of clay plains are present in the lower areas of the region (Chapman & Putnam 2007). The central portion of the Study Area is on an esker while the eastern and western portions are on clay plains (Figure 10). A sand and gravel pit on the same esker north of the Study Area demonstrates current resource extraction activities on these types of landforms. The underlying bedrock is Lower Silurian Guelph Formation, a formation comprised of sandstone, shale, dolostone and siltstone of the (OGS 2011).

The quaternary geology of this area is also a result of the glaciers. The Study Area is primarily within a region of Elma Till with its eastern boundary abutting glaciolacustrine deposits (Figure 11). Elma Till is a sandy silt to silt matrix, moderately stony and calcareous (OGS 2000).

The soils of the Study Area consist of Chesley silty clay loam, Burford loam, muck, and bottom land (Figure 12). Chesley silty clay loam is characterized by topsoil consisting of very dark grey (10YR3/1) silty clay loam that has a firm consistency and is stonefree; over a layer of grey (10YR6/2) silty clay that is mottled, massive, hard, stone free, and very plastic when wet; over a layer of grey (10YR6/2) clay that is mottled, has a blocky structure, is stonefree, and is very plastic when wet. The use of Chesley soils is generally restricted to pasture or some hay crops unless drainage is improved (Hoffman & Richards 1954:45). Burford loam is characterized by

very dark grey (7.5YR3/10) loam topsoil that is granular in structure and has very few stones; over yellowish-brown (10YR5/4) loam that is weakly platy, friable, and with few stones; over dark reddish brown (5YR3/3) clay loam with a nuciform structure, that is sticky and hard; over calcerous, well sorted gravel (Hoffman & Richards 1954:51). Muck is composed of black, well decomposed organic materials over decomposed organic materials with woody residues, over clay, till sand or bedrock (Hoffman & Richards 1954:61). Bottom land is low lying soil along stream courses that are subject to periodic flooding. It is characterized by a dark-coloured surface with glei subsoil. It is often used as pastureland (Hoffman & Richards 1954:62). Well-draining soils were preferred habitation locations for both pre-contact Indigenous and early settlers.

Chert, a siliceous stone, was a primary resource used by pre-contact Indigenous peoples for making tools, and proximity to a chert source increases archaeological potential. The closest known source is an outcropping of Fossil Hill chert of the Amabel Formation approximately 15 kilometres northeast of the Study Area.

Distance to water is considered a primary factor in determining archaeological potential, anything within 300 metres of a water source being considered high potential in the *Standards and* Guidelines (MCM 2011). The Sauble River flows through the middle of the Study Area, and associated swamp/marshland is found along its banks and around two tributaries that flow into it from the south and southwest (Figure 2). Seasonal streams flowing off the esker into the river may also be present (Figure 8). The river rises in the wetlands near Desboro, Grey County, southeast of the Study Area, and meanders northwest to enter Lake Huron at Sauble Beach. It has a broad watershed including much of Arran, Amabel and Keppel Townships. The Sauble River would have provided Indigenous peoples with a resource rich environment hunting and gathering. It was also a source of power for the Euro-Canadian settlers who set up mills on its banks.

The Study Area is within the Great Lakes – St. Lawrence Forest region, comprised primarily of deciduous hardwoods (e.g., maple, oak), with conifers such as pine, cedar and hemlock (MNR 2025). This type of forest provides a diverse array of resources. The vicinity of the Study Area itself was historically a dense forest of mature maple, beech and elm, with cedar and hemlock in the wetter locations (Rankin 1851b).

3.3 REGISTERED ARCHAEOLOGICAL SITES

A review of the Ontario Archaeological Sites Database module indicates that there are no registered archaeological site(s) within a 1-km radius of the Study Area. This result reflects more on the limited number of formal assessments within this vicinity rather than on a lack of archaeological site potential.

3.4 PREVIOUS ARCHAEOLOGICAL ASSESSMENTS

A review of records available within the PastPortal System, managed by the MCM, identified no previous archaeological assessments within or 50 metres adjacent to the Study Area.

Search terms used included: Lot 36, Concession 4, geographic Arran Township, Bruce County; Bruce County, Hydro; Bruce County, Municipality of Arran-Elderslie; Bruce County, geographic Arran Township; Grey County, geographic Sullivan Township; and Grey-Bruce Line.

3.5 CULTURAL HERITAGE RESOURCES

Per Section 1.3 and 1.4 of the S&Gs, property listed on a municipal register or designated under the *Ontario Heritage Act* or that is a federal, provincial, or municipal historic landmark or site, is indicative of archaeological potential. There are no listed or designated properties within 300 m of the Study Area in the Municipality of Arran-Elderslie or the Township of Chatsworth, which includes geographic Sullivan Township, (Grey County).

3.6 CEMETERIES

Early Euro-Canadian settlements, including cemeteries are indicators of archaeological potential (Section 1.3.1 S&Gs). There are no formal cemeteries or known record of burial within or adjacent to the Study Area.

4 FIELD METHODS

The optional property inspection under Standard 1.2 of the S&Gs (MCM 2011) was not included in this study and as a result no fieldwork was undertaken for this Stage 1 AA.

5 ARCHAEOLOGICAL POTENTIAL

The following features or characteristics are indicative of archaeological potential (based on MCM 2011):

- Previously identified archaeological sites within close proximity;
- Water sources, including:
    - Primary water sources (i.e., lakes, rivers, streams, and creeks); ✓
    - Secondary water sources (i.e., intermittent streams and creeks, marshes, swamps, springs); and, ✓
    - Past water sources (i.e., glacial shorelines, relic water courses, former lakes, marshes, or beaches);
- Elevated topography; ✓
- Pockets of well-drained sandy soil;
- Distinctive land formations;
- Access to raw materials or resources; ✓
- Areas of early Euro-Canadian settlement or early historical transportation routes; ✓
- Properties listed on municipal heritage inventories or registers; and,
- Places identified by local historians or oral tradition as being possible archaeological sites.

In instances where there is archeological potential, that potential may have been removed or disturbed by extensive and deep land alterations. Activities causing extensive and deep land alterations might include major landscaping involving grading, building footprints or sewage and infrastructure development. It is possible for disturbances to have removed archaeological potential for part or all of a property.

The Study Area has high archaeological potential due to a number of factors including the Sauble River, its tributaries and wetlands, the proximity to early settlement roads (Concession 4 and the section of the Grey-Bruce Line north of the river), and documented activity within the first generation of Euro-Canadian settlement.

Features indicating archaeological potential are summarized in Table 3.

5.1 PHYSICAL FEATURES OF LOW OR NO ARCHAEOLOGICAL POTENTIAL

The Study Area was evaluated for features indicating that archaeological potential has been removed as described in Section 1.3.2 of the S&Gs. Extensive or major disturbances may include but are not limited to quarrying, major landscaping involving grading below topsoil, building footprints, or sewage and infrastructure development. Minor disturbances such as agricultural cultivation, gardening, minor grading, and landscaping do not necessarily affect archaeological potential. Deeply buried archaeological resources may also be unaffected by

any disturbance and may not be identified through background research or property site inspections.

Aerial images from the last quarter of the 20th century indicate potential extensive disturbance in the vicinity of the farmstead, however this could not be corroborated by a property inspection. Likewise, the marshy woodlot in the southern portion may have reduced potential which would need to be confirmed during the Stage 2 AA.

5.2 PREVIOUS CLEARANCES OR OUTSTANDING WORK

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered or have artifacts removed from them, except by a person holding an archaeological license.

No portions of the Study Area have been subject to previous archaeological assessment.

Table 4. Features of Archaeological Potential

Features and characteristics indicating archaeological potential	Yes	No	Unknown /other
Registered archaeological site(s) within 300m of property		X	
Physical Features			
Potable water/watercourse within 300m of property	X		
Primary water source (e.g., lake, river)	X		
Secondary water source (e.g., stream, swamp, marsh, spring)	X		
Past water source		X	
Distinctive topographical features on property		X	
Pockets of sandy soil in a clay or rocky area on property		X	
Distinctive landforms on property		X	
Cultural Features			
Known burial or cemetery site on or adjacent to property		X	
Food or scarce resource harvest area on property	X		
Indications of early Euro-Canadian settlement within 300m of property	X		
Early historic transportation routes within 100m of property	X		

Features and characteristics indicating archaeological potential	Yes	No	Unknown /other
Property-specific Information			
Property is included on Municipal Register under the *Ontario Heritage Act*		X	
Local knowledge of archaeological potential of property		X	
Recent (post-1960) and extensive ground disturbance			X

6 ANALYSIS & CONCLUSIONS

The background research determined that the Study Area as a whole has high archaeological potential for Indigenous archaeological material based on proximity to water sources for drinking, fishing and travel, and resource-rich environments such as associated wetlands. There is also high potential for historic Euro-Canadian archaeological material associated with the first generation of settlement in Arran Township based on the same proximity to resources and to historic roads (Concession 4 and a portion of the Grey-Bruce Line). Documentary history indicates that Lot 35 Concession 4 may have been inhabited by Michael Canton and William Herron, and Lot 36 Concession 4 may have been inhabited by John Noonan, by the late 1860s despite the patents for these lots being issued in 1889 and 1872, respectively.

There is the possibility of extensive modern disturbance circa 1970s in the vicinity of the farmstead at 39 Concession 4 Arran (Lot 36 Concession 4). Portions of the Hydro One corridor may also exhibit signs of previous disturbance upon inspection. It is also possible that the marshy woodlot in the southern portion of the Study Area and sections along the banks of the Sauble River may be considered permanently wet thereby reducing potential. However, as a property inspection was not completed for this study, the potential for these areas cannot be reduced and, at this juncture, the entire Study Area is considered high potential requiring further assessment (Figure 13).

7 RECOMMENDATIONS

This assessment has provided the basis for the following recommendations:

- Stage 2 Archaeological Assessment is to be completed for all areas to be impacted by the planned changes identified as having archaeological potential (Figure 13). This includes the final footprint of the BESS facility as well as all areas of impact for access routes, stockpiling, transmission line construction, floodplain compensation excavations, etc. (Figure 4 and Figure 5).

  The Stage 2 AA is to consist of a Pedestrian Survey of all cultivated fields (Section 2.1.1, MCM 2011) and a Test Pit Survey at 5m intervals of all areas that cannot be ploughed (Section 2.1.2, MCM 2011);

- Should deeply buried archaeological materials be encountered during construction, all work will cease, and a professionally licensed archaeologist will be consulted to assess the cultural heritage value and significance of any such archaeological deposits.

It is requested that MCM enter this report into the Ontario Public Register of Archaeological Reports.

8 ADVICE ON COMPLIANCE AND LEGISLATION

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*. 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 project area of a development proposal have been addressed to the satisfaction of the Ministry of Citizenship and Multiculturalism, 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* 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 a time as a licensed archaeologist has completed archaeological 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*.

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*. 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*.

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological license.

The *Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33* requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Public and Business Service Delivery.

9 CLOSURE

This report has been prepared for BBA Engineering Ltd. on behalf of Neoen Ontario BESS 1 Inc. Any use of this report by a third party is the responsibility of said third party.

Special risks occur whenever archaeological investigations are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain deeply buried archaeological resources. In the event that unexpected, deeply buried archaeological resources are encountered advice on compliance with legislation outlined in Section 8 should be followed.

In the event that such a discovery should occur, the undersigned will be available to answer any questions you may have.

10 SIGNATURE

Sincerely,

Christienne Uchiyama
Principal, Manager of Heritage Consulting Services
LHC Heritage Planning & Archaeology Inc.

Ruth Macdougall
Senior Archaeologist
LHC Heritage Planning & Archaeology Inc.

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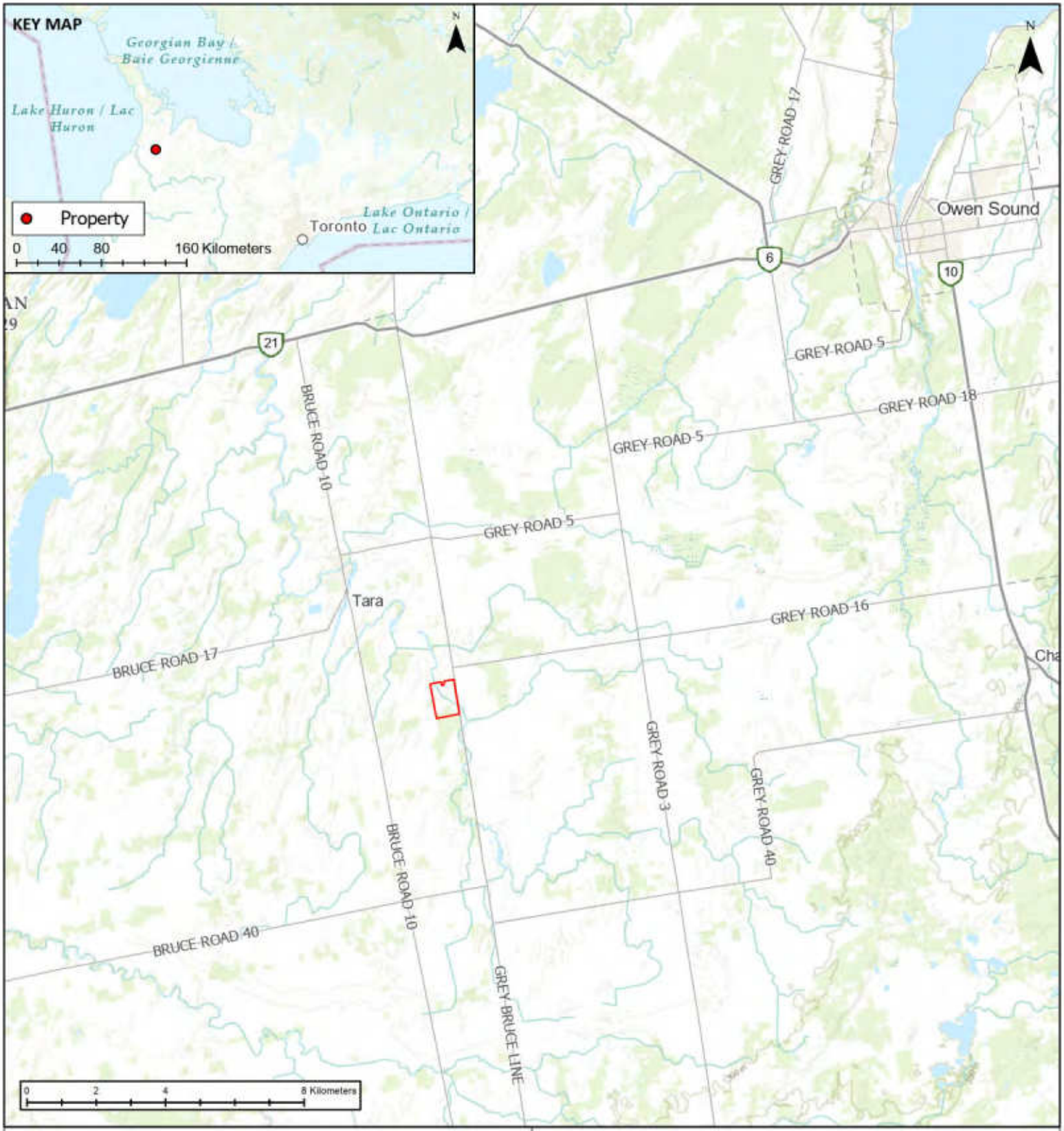
2004 "The Gordan Island North Site and Cultural Settlement Distributions Along the Upper St. Lawrence River Valley." In *A Passion for the Past: Papers in Honour of James F. Pendergast*, edited by James V. Wright and Jean-Luc Pilon, pp. 321–393. University of Ottawa Press, Ottawa.

12 FIGURES



Legend

Study Area

TITLE
Location of the Study Area

CLIENT
BBA Engineering Ltd.

PIF
P359-0144-2025

PROJECT
Stage 1 Archaeological Assessment, Tara BESS Storage Facility, 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

PROJECT NO. LHC0459

NOTE(S) 1. All locations are approximate.
REFERENCE(S) 1. Esri, NASA, NGA, USGS, FEMA, Esri, USGS

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-02-13

FIGURE # 1

Legend

Study Area

NOTE(S) 1. All locations are approximate.
REFERENCE(S)
1. <a href="<LINK>https://www.ontario.ca/page/open-government-licence-ontario</LINK>">Open Government Licence – Ontario; Maxar
2. Ministry of Natural Resources. LIO Topographic Data Cache. ArcGIS Map Service.

TITLE
General Topography of the Study Area

CLIENT	PIF
BBA Engineering Ltd.	P359-0144-2025

PROJECT
Stage 1 Archaeological Assessment, Tara BESS Storage Facility, 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

PROJECT NO. LHC0459

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-02-13

FIGURE # 2

Legend

Study Area

TITLE
Current Conditions of the Study Area

CLIENT	PIF
BBA Engineering Ltd.	P359-0144-2025

PROJECT — PROJECT NO. LHC0459

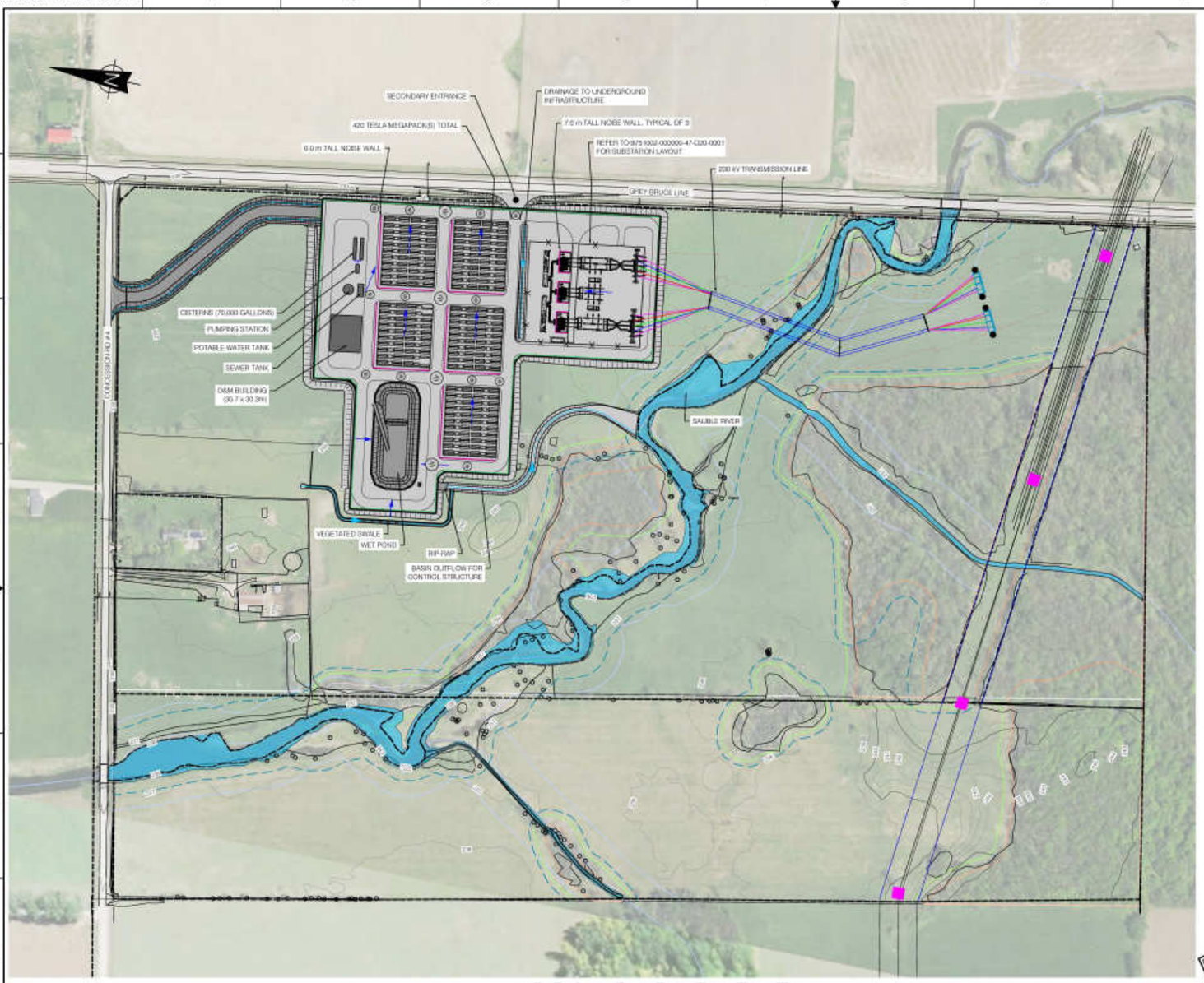
Stage 1 Archaeological Assessment, Tara BESS Storage Facility, 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

NOTE(S) 1. All locations are approximate.
REFERENCE(S) 1. Maxar

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-02-13

FIGURE # 3



NOTES:

1. ALL DIMENSIONS ARE IN METERS (U.N.O.).
2. DATA IS IN NAD83 CSRS, UTM ZONE 17 (METERS) WITH ELEVATIONS REFERRED TO CGVD2013. CONTOURS ARE SHOWN AT 1m (MAJOR) AND 5m (MINOR) INTERVALS.

LEGEND

- EXISTING GRADE CONTOUR (258)
- DITCH FLOW DIRECTION DITCH
- CULVERT
- PROPERTY BOUNDARY (TULLOCH SURVEY)
- BATTERY NOISE WALL (6.0 m TALL)
- SURFACE WATER DRAINAGE
- FENCE
- BATTERY GROUP (4 BATTERIES, 1 TRANSFORMER)
- WETLANDS
- WATERCOURSE BUFFER 30 m
- WETLANDS BUFFER 15 m
- WOODLANDS BUFFER 10 m
- POTENTIAL SIGNIFICANT WILDLIFE HABITAT
- EASTERN MEADOWLARK HABITAT
- POTENTIAL MATERNITY ROOST HABITAT FOR LITTLE BROWN MYOTIS
- CAVITY TREES
- ECOLOGICAL COMMUNITIES
- HYDRO POLE
- HYDRO POLE ANCHOR
- WATERCOURSE
- LIMIT OF FORESTED AREA
- TREES/SHRUBS
- EXISTING FENCE GATE

ZONING COMPARISON CHART

	GENERAL AGRICULTURE (A1) ZONE	REQUIRED	PROVIDED
1	LOT AREA (MINIMUM)	39 Ha	42.05Ha
2	LOT FRONTAGE (MINIMUM)	100m	320m
3	FRONT YARD (MINIMUM)	20m	207m
4	REAR YARD (MINIMUM)	20m	503m
5	EXTERIOR SIDE YARD (MINIMUM)	20m	20m
6	GROUND FLOOR AREA DETACHED DWELLING (MINIMUM)	70m² (GREATER THAN ONE STOREY) 90m² (ONE STOREY)	1082m² (ONE STOREY)
7	MAXIMUM HEIGHT	NOT APPLICABLE	-
8	LOT COVERAGE (MAXIMUM)	15%	21%

SITE STATISTICS DATA

DESCRIPTION	UNITS	QUANTITY
GRAVEL AREA	m2	78209
BERM AREA	m2	5277
CONTROL BUILDING	m2	1414
PUMPING STATION	m2	30
WET POND	m2	4620

FOR COMMENTS
NOT TO BE USED FOR CONSTRUCTION

DRAWING No.	DESCRIPTION	REV	DESCRIPTION	PREPARED BY	CHECKED BY	DATE
	REFERENCE DRAWING(S)		REVISIONS			
8751002-000000-47-D20-0001.dwg	400 MW / 1600 MWh : 230 - 34.5 SUBSTATION PLAN VIEW					
REF_ESRITT NaturalHeritageConstraints_2013d.dwg	NATURAL HERITAGE CONSTRAINTS					
REF_IMAGERY RGN Q8_NO30_0316_210.dwg	IMAGERY FOR REFERENCE ONLY, FROM GLOBAL MAPPER 0.6m ACCURACY					
8751002-6000000-IL-D000-0002	230kV OVERHEAD TRANSMISSION LINE - ROUTING DRAWING LAYOUT					
242669 REV1 (No Signature).dwg	TOPOGRAPHIC SURVEY FROM TULLOCH_2024-10-04_NAD83 (CSRS) UTM ZONE 17 (CONCISE).dwg	AA	FOR COMMENTS	V. BRUNELLE, P.Eng. P.E.O. No. 100017887	M.F. PROULX, P.Eng. P.E.O. No. 100124838	2025-02-20

SEAL:

CLIENT: NEOEN

PROJECT: TARA BESS - 400 MW DETAIL ENGINEERING

TITLE: SITE PLAN GENERAL ARRANGEMENT

DESIGNED BY:	DRAFTED BY:
V. BRUNELLE, P.Eng. P.E.O. No. 100017887	A. CAMPBELL
PREPARED BY:	CHECKED BY:
V. BRUNELLE, P.Eng. P.E.O. No. 100017887	M.F. PROULX, P.Eng. P.E.O. No. 100124838
SCALE: 1:2000	DATE: 2025-02-20

DRAWING No.: 8751002-100000-41-D20-0003 | SHEET: 01 | SIZE: A1 | REV: AA

0 1 2 3 4 5 6 7 8 9 10 cm

C:\BTT\ASSEM_IND_ENGR_Civil\D000_DWGSGN_COURS_SHT\PROGRESS\8751002-100000-41-D20-0003.DWG

TITLE
Development Plan, Proposed Tara BESS Facility

CLIENT
BBA Engineering Ltd.

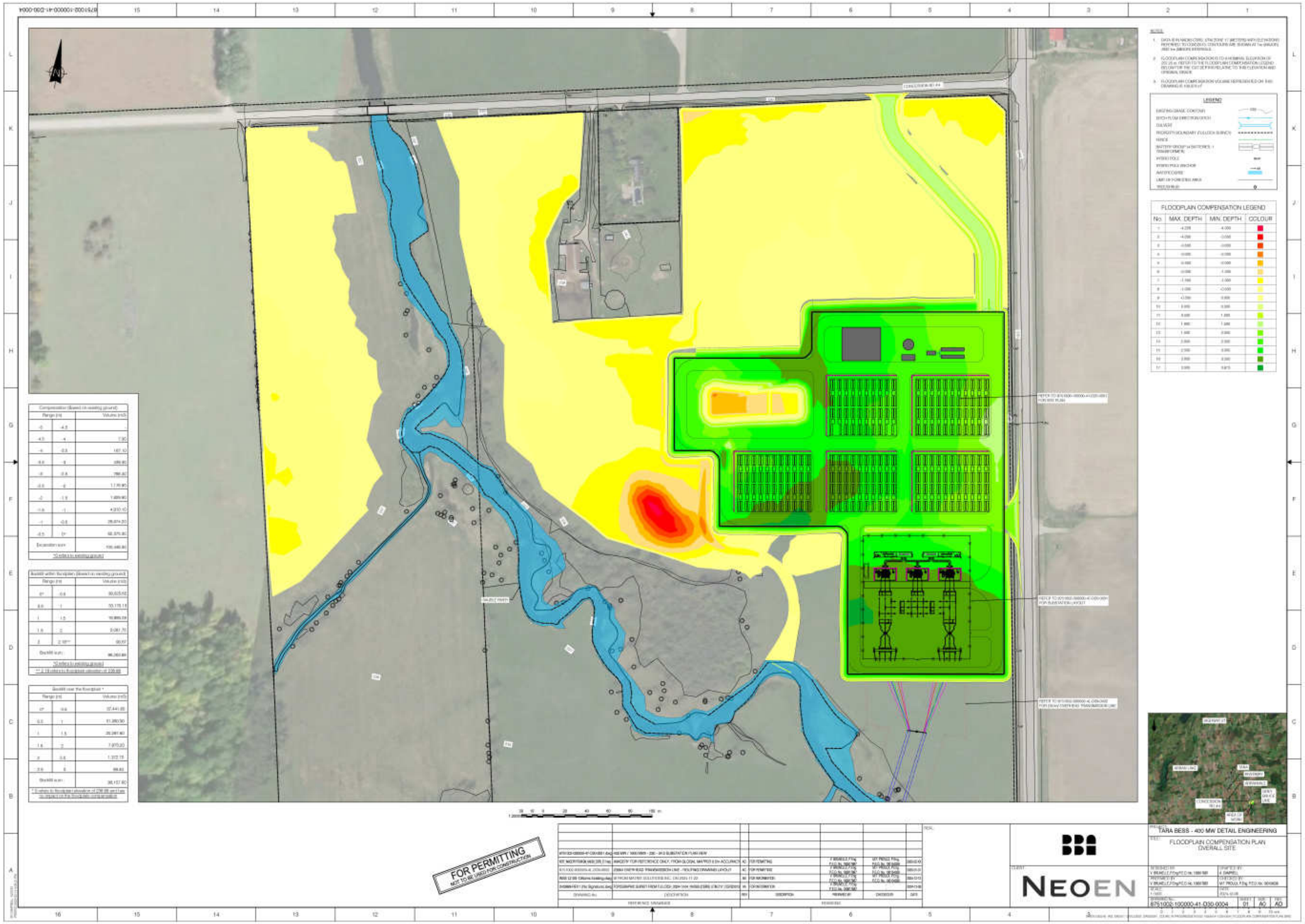
PIF
P359-0144-2025

PROJECT — PROJECT NO. LHC0459
Stage 1 Archaeological Assessment, Tara BESS Storage Facility39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-02-24

FIGURE # 4



TITLE
Development Plan, Proposed Floodplain Compensation

CLIENT
BBA Engineering Ltd.

PIF
P359-0144-2025

PROJECT
PROJECT NO. LHC0459
Stage 1 Archaeological Assessment, Tara BESS Storage Facility39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-02-24

FIGURE # 5

Legend

Study Area

NOTE(S) 1. All locations are approximate.
REFERENCE(S)
Rankin, Charles
1851 Plan of Arran, scale 40 chains per inch, provided by Ministry of Natural Resources, file MNR File 499 A5 Arran.

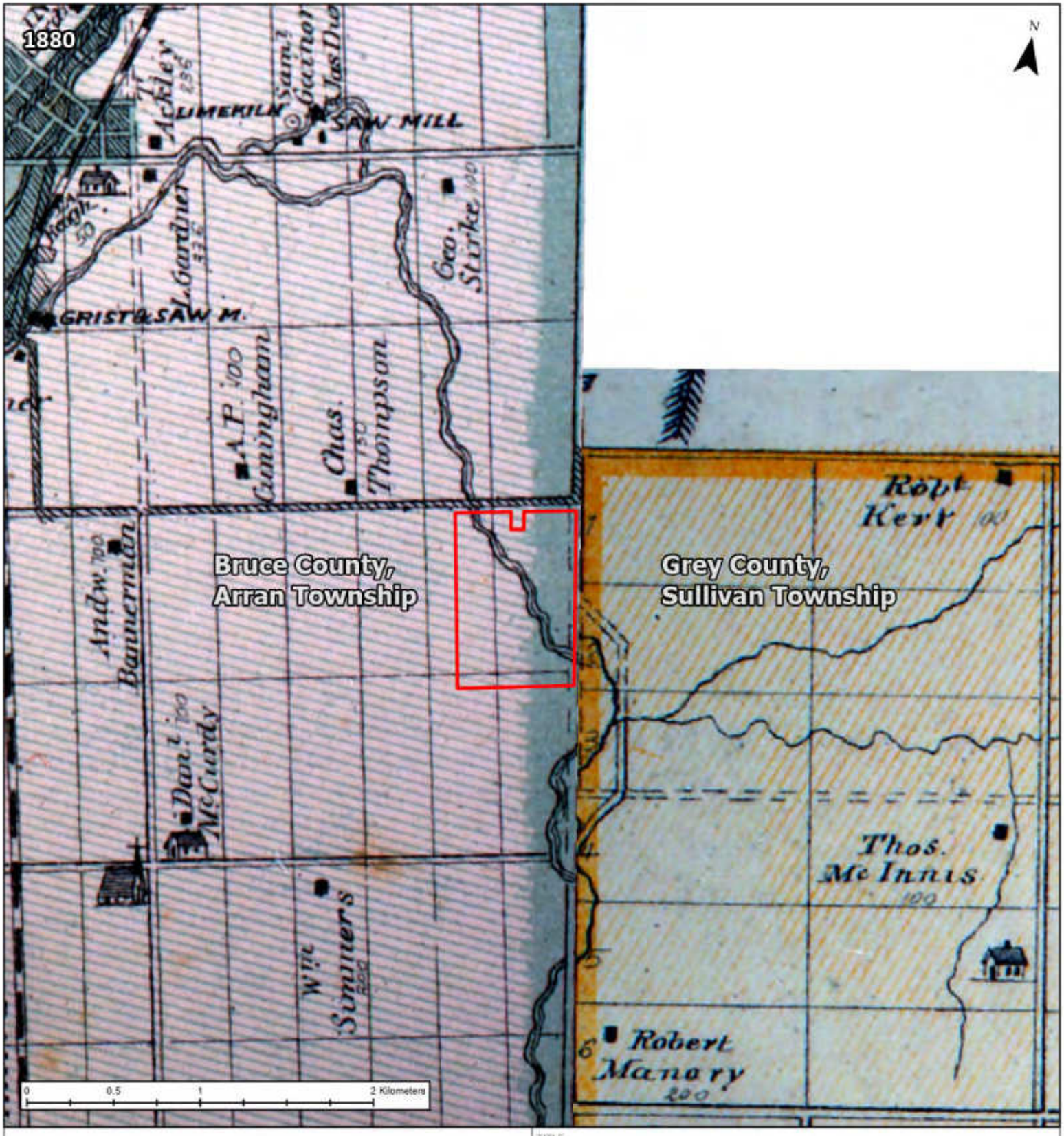
TITLE
Plan of Arran Township, 1851 (Rankin)

CLIENT	PIF
BBA Engineering Ltd.	P359-0144-2025

PROJECT — PROJECT NO. LHC0459
Stage 1 Archaeological Assessment, Tara BESS Storage Facility, 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD	2025-02-18
FIGURE #	6



Legend

Study Area

NOTE(S) 1. All locations are approximate.

REFERENCE(S)

H. Belden & Co.

1880 Township of Arran, scale 100 chains per inch, The Canadian County Atlas Digital Project, digitized map, <LINK>https://digital.library.mcgill.ca/countyatlas/searchmapframes.php,</LINK> accessed 26 August, 2024.

1880 Township of Sullivan, scale 100 chains per inch, The Canadian County Atlas Digital Project, digitized map, <LINK>https://digital.library.mcgill.ca/countyatlas/searchmapframes.php,</LINK> accessed 10 September, 2024.

TITLE
Arran Township, Bruce County, 1880 (Belden)

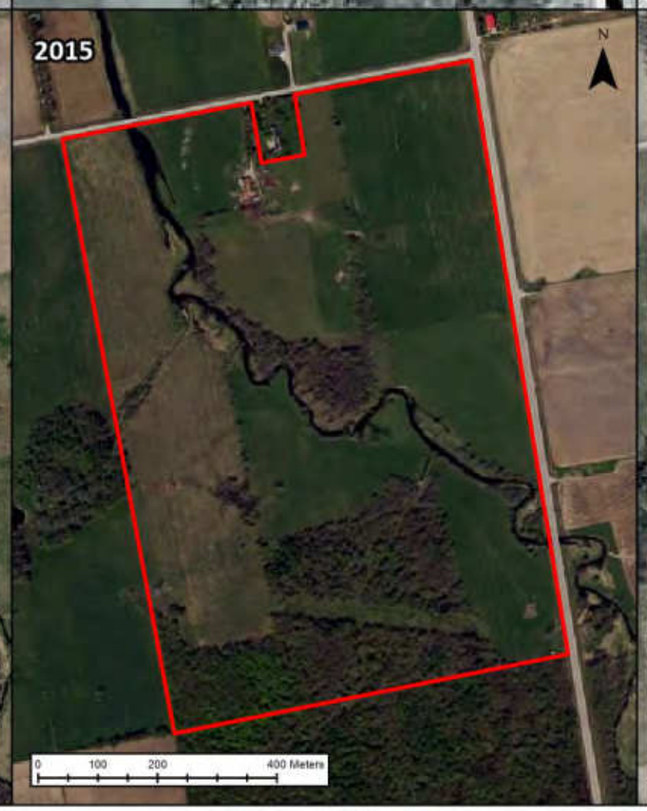
CLIENT	PIF
BBA Engineering Ltd.	P359-0144-2025

PROJECT — PROJECT NO. LHC0459

Stage 1 Archaeological Assessment, Tara BESS Storage Facility, 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD	2025-02-18
FIGURE #	7



Legend

Study Area

TITLE
Historic Aerial Photographs Showing the Study Area

CLIENT	PIF
BBA Engineering Ltd.	P359-0144-2025

PROJECT — PROJECT NO. LHC0459

Stage 1 Archaeological Assessment, Tara BESS Storage Facility, 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

NOTE(S) 1. All locations are approximate.

REFERENCE(S)

Bruce County

2006 2006 Air Photo, Bruce County Maps, base map, https://maps.brucecounty.on.ca/Geocortex/Html5Viewer/index.html?viewer=BruceMaps, accessed 6 September, 2024.

2010 2010 Air Photo, Bruce County Maps, base map, https://maps.brucecounty.on.ca/Geocortex/Html5Viewer/index.html?viewer=BruceMaps, accessed 6 September, 2024.

2015 2015 Air Photo, Bruce County Maps, base map, https://maps.brucecounty.on.ca/Geocortex/Html5Viewer/index.html?viewer=BruceMaps, accessed 6 September, 2024.

2020 2020 Air Photo, Bruce County Maps, base map, https://maps.brucecounty.on.ca/Geocortex/Html5Viewer/index.html?viewer=BruceMaps, accessed 6 September, 2024.

National Air Photo Library

1938 A6007-085, roll A6007 line 22W photo 85, scale 1:20,000.

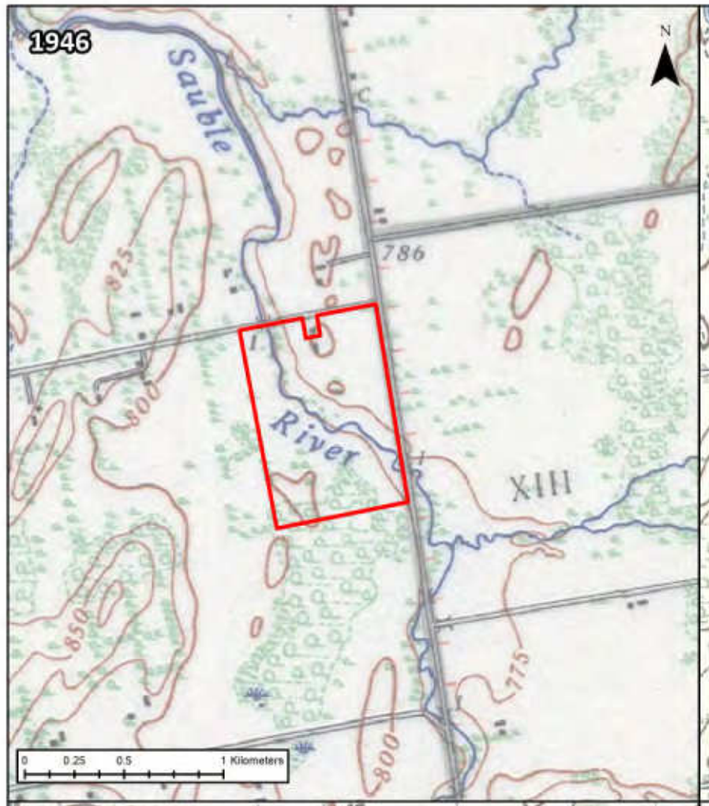
1976 A24340-0125, roll A24340 line 39W photo 125, scale 1:50,000.

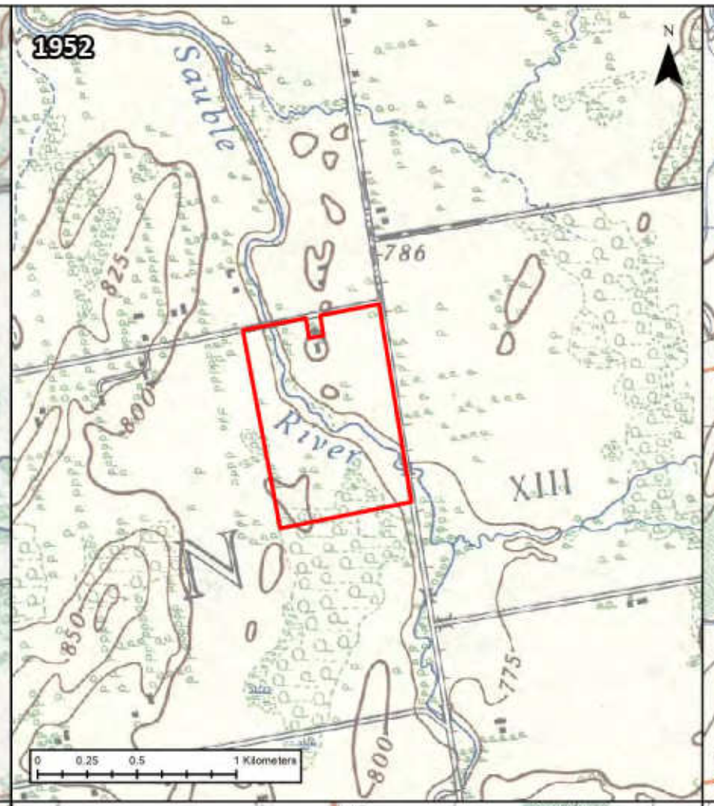
University of Toronto

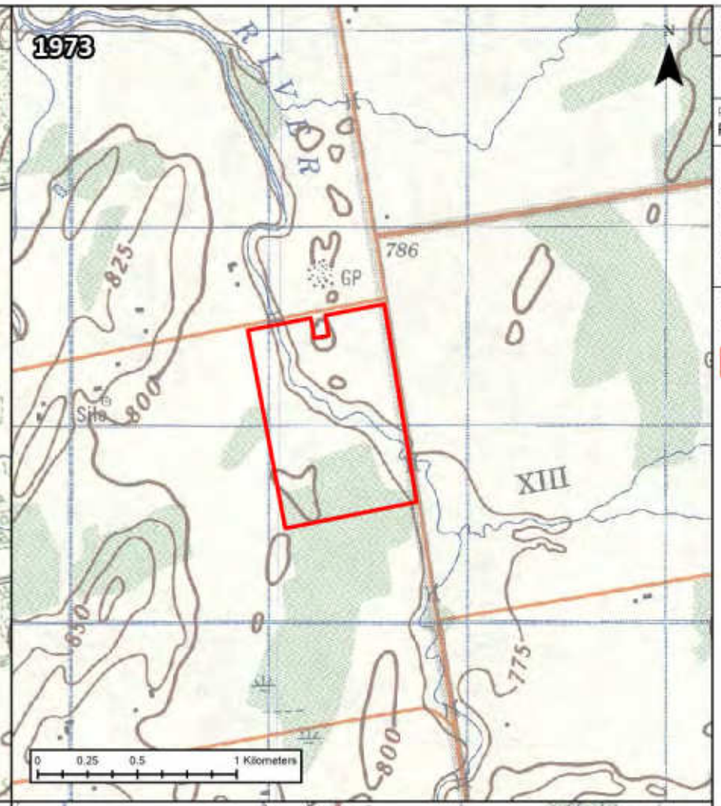
1954 444 811, 1954 Air Photos of Southern Ontario, University of Toronto Libraries, digitized photo, https://mdl.library.utoronto.ca/collections/air-photos/1954-air-photos-southern-ontario/index, accessed 6 September, 2024.

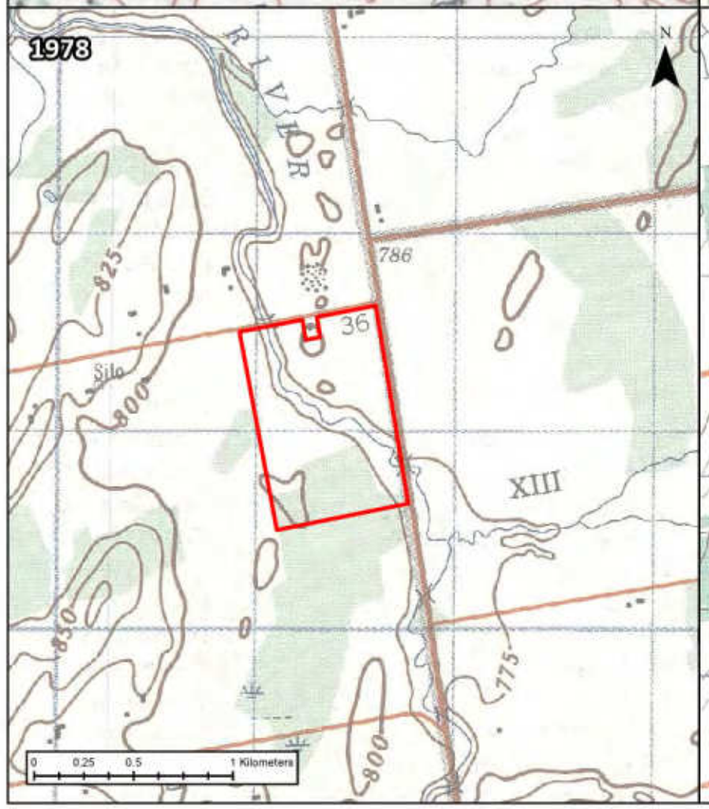
LHC HERITAGE PLANNING & ARCHAEOLOGY

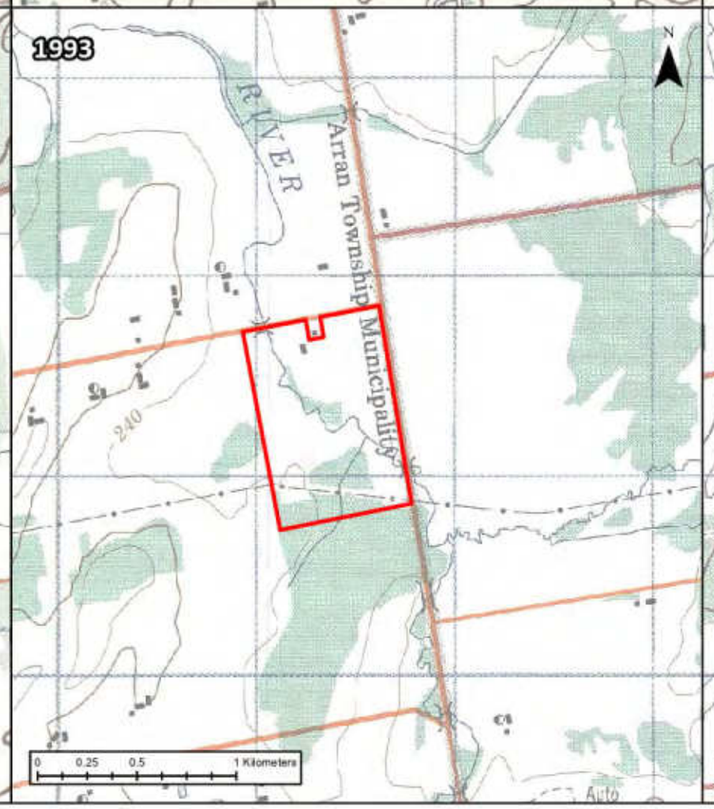
YYYY-MM-DD	2025-02-18
FIGURE #	8

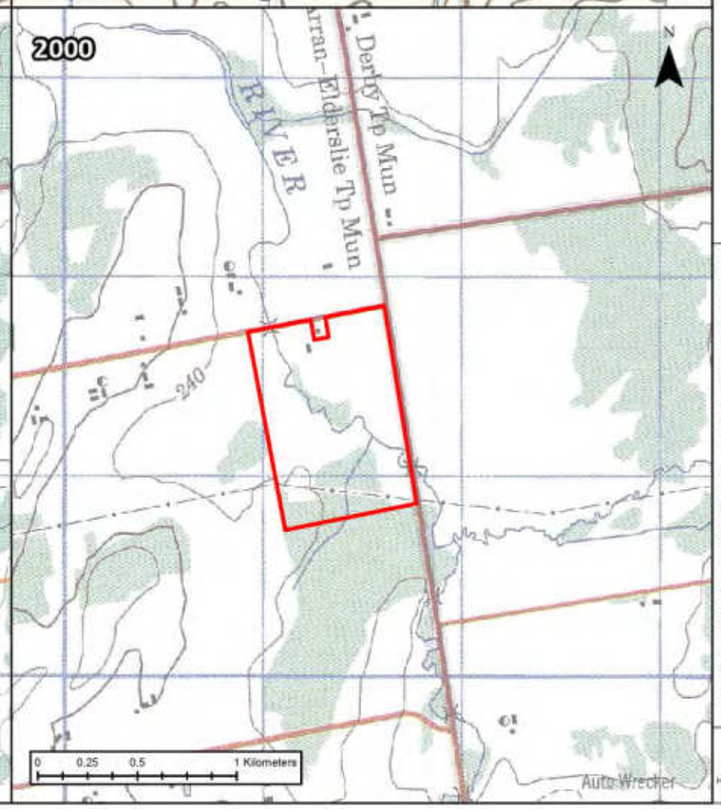












TITLE
Historic Topographic Maps Showing the Study Area

CLIENT
BBA Engineering Ltd.

PIF
P359-0144-2025

PROJECT — PROJECT NO. LHC0459
Stage 1 Archaeological Assessment, Tara BESS Storage Facility39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

Legend

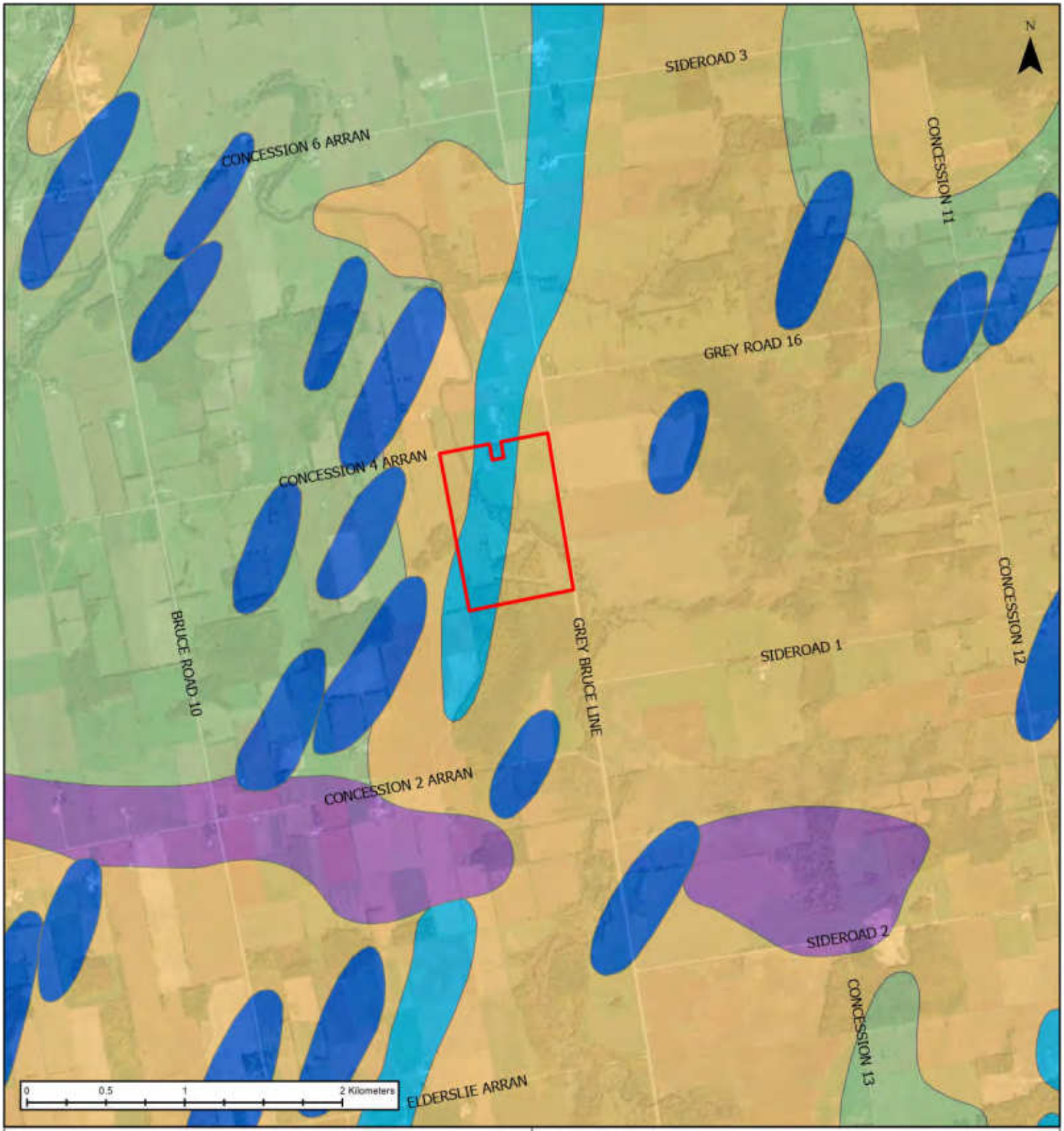
Study Area

NOTE(S) 1. All locations are approximate.
REFERENCE(S)
Department of National Defence
1946 Port Elgin (Ontario), scale 1:63,360, Scholars Geoportal, digitized map, https://geo.scholarsportal.info/#r/details/_uri@=HTDP63360K041A05-A06_1946TIFF&_add:true_nozoom:true, accessed 21 August, 2024.
Natural Resources Canada
1952 Port Elgin, scale 1:50,000, Scholars Geoportal, digitized map, https://geo.scholarsportal.info/#r/details/_uri@=NT55OK041A06_1952ed1ETIFF&_add:true_nozoom:true, accessed 21 August, 2024.
1973 Chelsey (Ontario), scale 1:50,000, Scholars Geoportal, digitized map, https://geo.scholarsportal.info/#r/details/_uri@=NT55OK041A06_1973ed2mceTIFF&_add:true_nozoom:true, accessed 21 August, 2024.
1978 Chelsey (Ontario), scale 1:50,000, Scholars Geoportal, digitized map, https://geo.scholarsportal.info/#r/details/_uri@=NT55OK041A06_1978ed3mceTIFF&_add:true_nozoom:true, accessed 21 August, 2024.
1993 Chelsey (Ontario), scale 1:50,000, Scholars Geoportal, digitized map, https://geo.scholarsportal.info/#r/details/_uri@=NT55OK041A06_1993ed4mceTIFF&_add:true_nozoom:true, accessed 21 August, 2024.
2000 Chelsey (Ontario), scale 1:50,000, Scholars Geoportal, digitized map, https://geo.scholarsportal.info/#r/details/_uri@=NT55OK041A06_2000ed5TIFF&_add:true_nozoom:true, accessed 21 August, 2024.

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-02-18

FIGURE # 9



Legend

- Study Area
- Clay Plains
- Drumlins
- Eskers
- Till Moraines
- Till Plains (Drumlinized)

NOTE(S) 1. All locations are approximate.
REFERENCE(S) 1. Maxar
Chapman, L.J. and Putnam, D.F. 2020. Physiography of Southern Ontario (Ontario Geological Survey), data 288, Download Page, Ministry of Mines, shapefile, https://www.geologyontario.mndm.gov.on.ca/mndmaccess/mndm_dir.asp?type=pub&id=MRD228, accessed July 28, 2021.

TITLE
Physiography of the Study Area

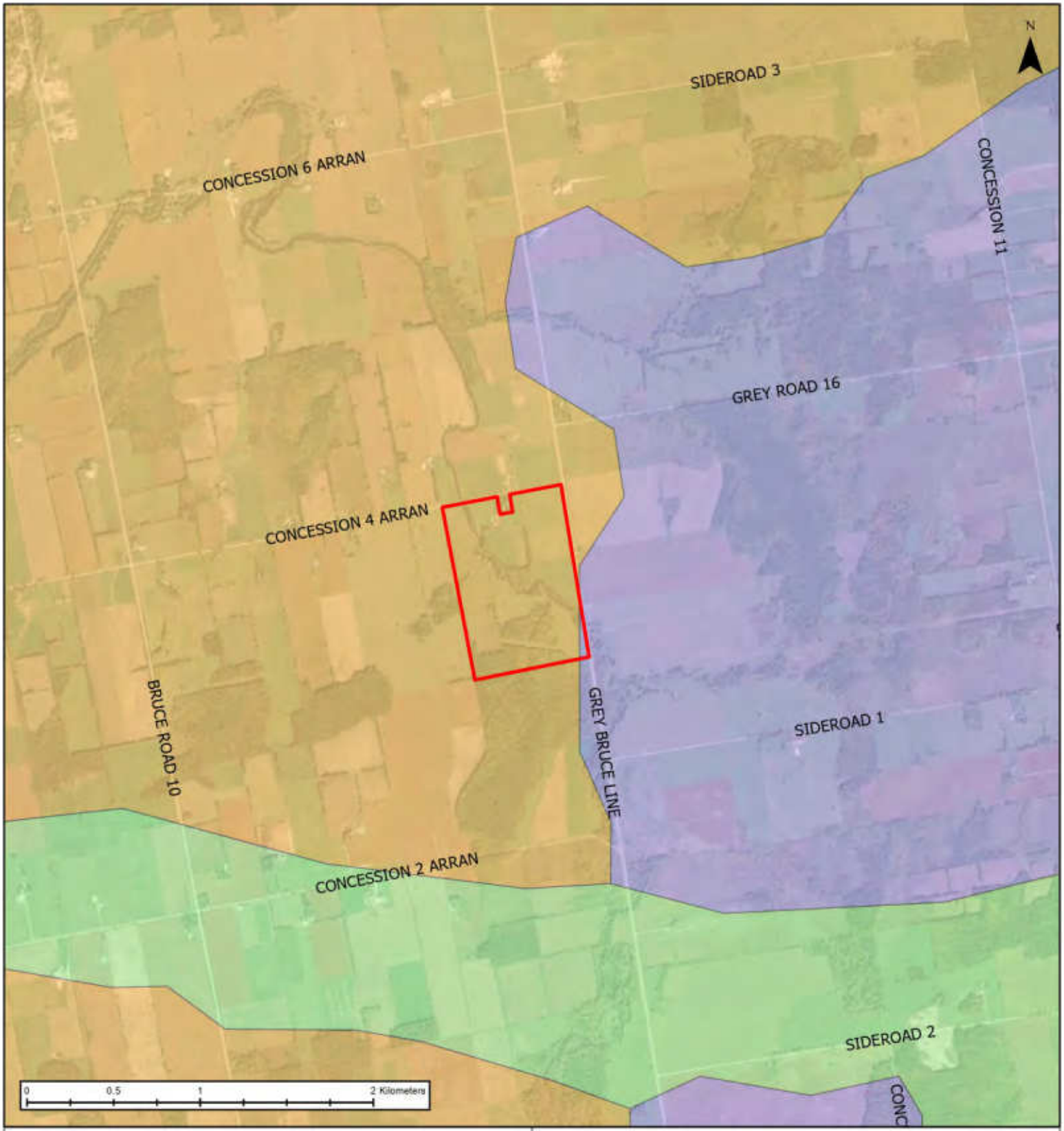
CLIENT	PIF
BBA Engineering Ltd.	P359-0144-2025

PROJECT
Stage 1 Archaeological Assessment, Tara BESS Storage Facility, 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

PROJECT NO. LHC0459

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD	2025-02-18
FIGURE #	10



Legend

- Study Area
- Elma Till
- Glaciolacustrine deposits
- Glaciofluvial ice-contact deposits

NOTE(S) 1. All locations are approximate.
REFERENCE(S) 1. Maxar
Geology Ontario
2000 Quaternary Geology (Seamless Coverage of the Province of Ontario), Geology Ontario", GIS Data, https://www.geologyontario.mines.gov.on.ca/publication/eds014-rev, accessed 24 January, 2025.

TITLE
Quaternary Geology of the Study Area

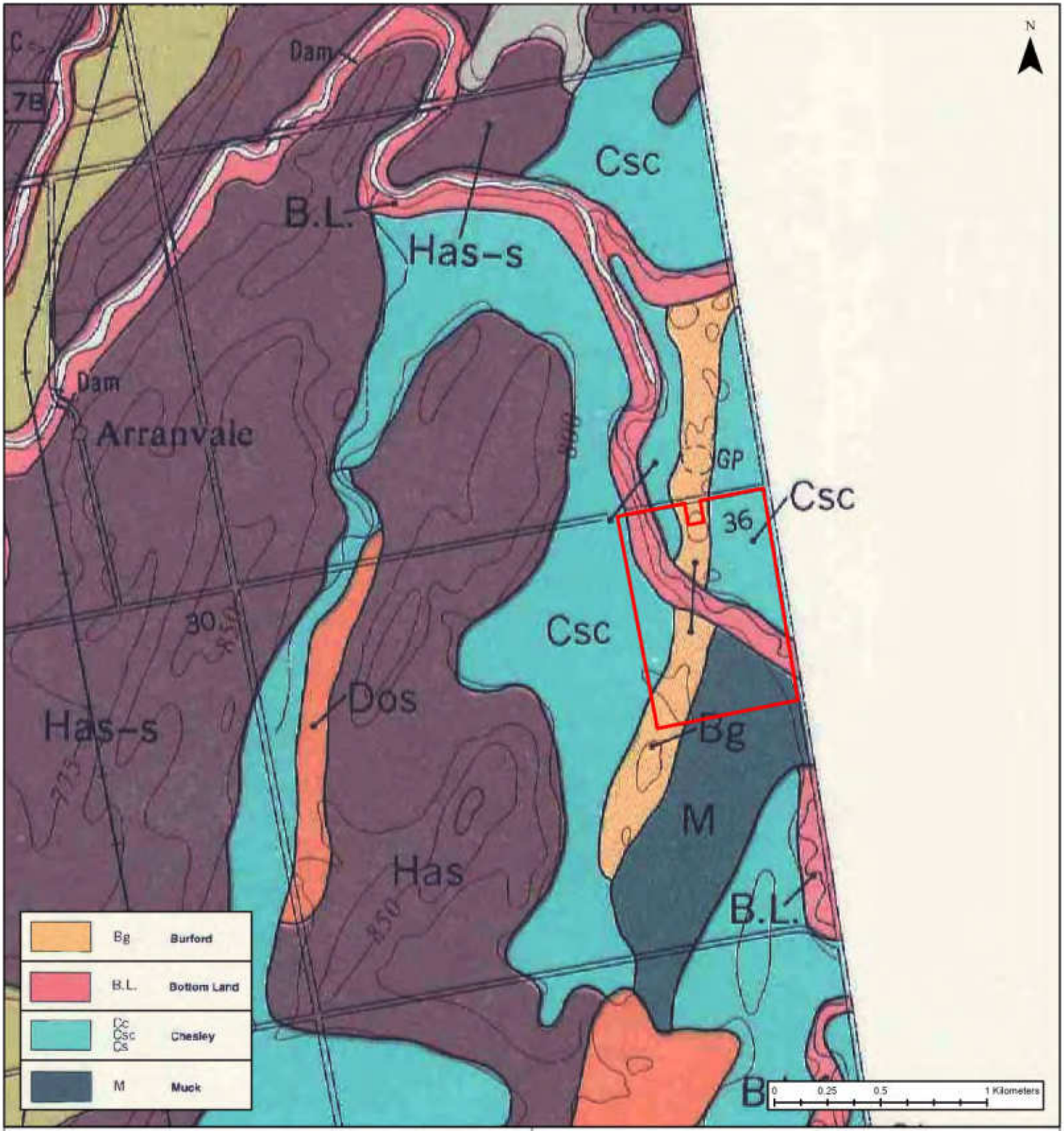
CLIENT	PIF
BBA Engineering Ltd.	P359-0144-2025

PROJECT
Stage 1 Archaeological Assessment, Tara BESS Storage Facility, 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

PROJECT NO. LHC0459

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD	2025-02-18
FIGURE #	11



Legend

Study Area

NOTE(S) 1. All locations are approximate.
REFERENCE(S)
Canada Department of Agriculture and the Ontario Agricultural College
1983 Soils of Bruce County South Sheet Ontario (Soil Survey Report No. 16), scale 1:63,360, Soil Survey of Bruce County, digitized map, https://sis.agr.gc.ca/cansis/publications/surveys/on/on16/index.html, accessed 27 August, 2024.

TITLE
Soils of the Study Area

CLIENT	PIF
BBA Engineering Ltd.	P359-0144-2025

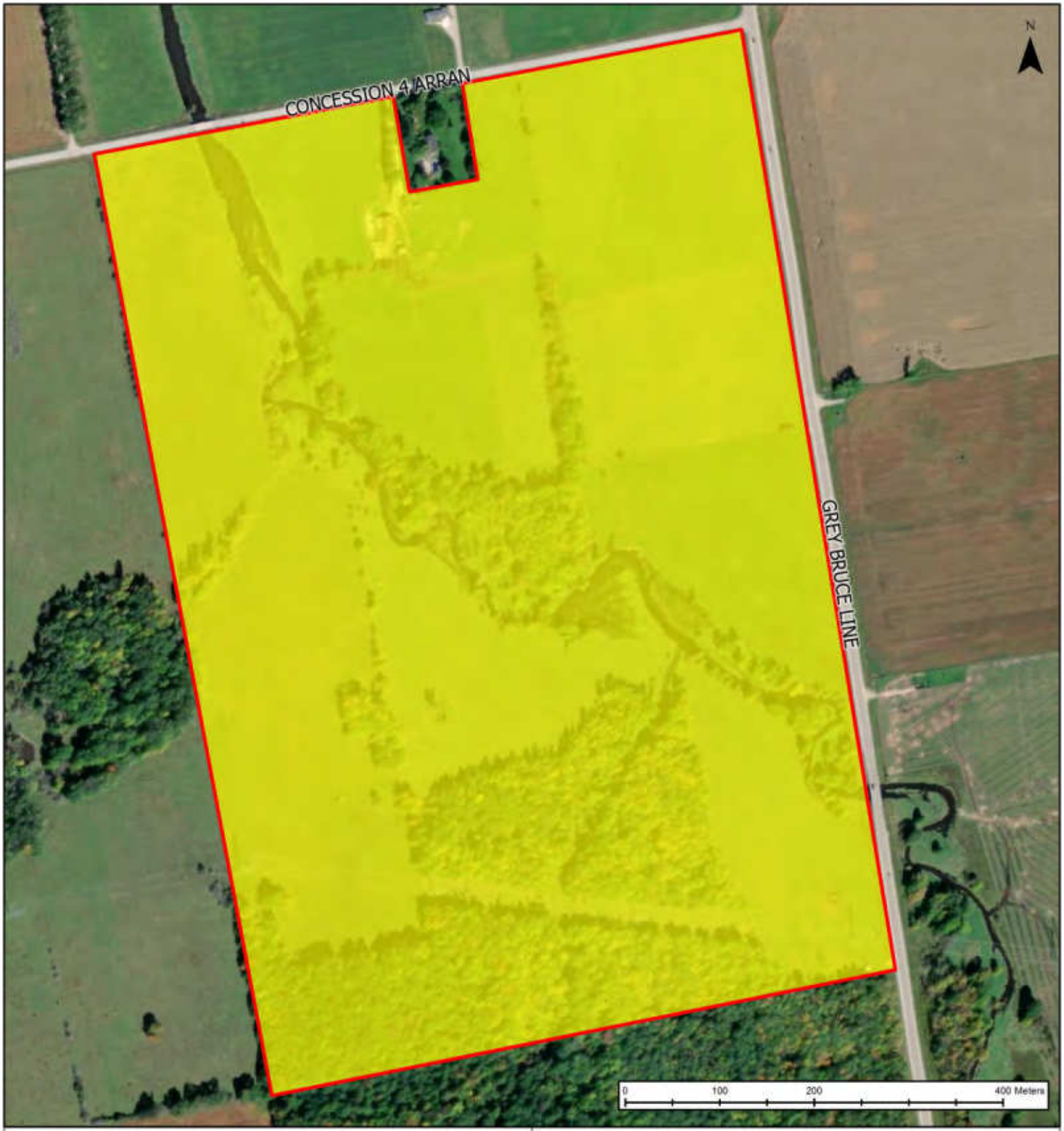
PROJECT
Stage 1 Archaeological Assessment, Tara BESS Storage Facility, 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

PROJECT NO. LHC0459

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-02-18

FIGURE # 12



Legend

- Study Area
- Area of High Archaeological Potential, Further Work Recommended

TITLE
Archaeological Potential of the Study Area

CLIENT	PIF
BBA Engineering Ltd.	P359-0144-2025

PROJECT — PROJECT NO. LHC0459
Stage 1 Archaeological Assessment, Tara BESS Storage Facility, 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

NOTE(S) 1. All locations are approximate.
REFERENCE(S) 1. Maxar

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD	2025-02-18
FIGURE #	13

Appendix G: Built Heritage and Cultural Heritage Landscapes Screening Report

CULTURAL HERITAGE REPORT: EXISTING CONDITIONS AND PRELIMINATY IMPACT ASSESSMENT

Tara BESS, 39 Concession 4 Arran and Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, ON

FINAL REPORT

Date: 30 May 2025
Project #: LHC0459

LHC Heritage Planning & Archaeology Inc.
400-837 Princess Street
Kingston, Ontario K7L 1G8

Phone: (613)507-7817
Toll Free: 1-833-210-7817
Email: info@lhcheritage.com
Web: www.lhcheritage.com

LHC
HERITAGE PLANNING
& ARCHAEOLOGY

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Report prepared for:
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Lead Environmental Project Manager
BBA Engineering Ltd.
1050 103A St. SW
Edmonton, Alberta
T6W 2P6

Report prepared by:
Ben Daub, MA RPP MCIP CAHP-Intern

Graphics prepared by:
Jordan Greene, BA

Reviewed by:
Christienne Uchiyama, MA CAHP
Benjamin Holthof, MPl MMA RPP MCIP CAHP

RIGHT OF USE

The information, recommendations, and opinions expressed in this report are for the sole benefit of BBA Engineering Ltd. on behalf of Neoen Ontario BESS 1 Inc. (the "Proponent"). Any other use of this report by others without permission is prohibited and is without responsibility to LHC Heritage Planning & Archaeology Inc. (LHC). The report, all plans, data, drawings, and other documents as well as all electronic media prepared by LHC are considered its professional work product and shall remain the copyright property of LHC, who authorizes only the Proponent and approved users (including municipal review and approval bodies) to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of Proponents and approved users.

REPORT LIMITATIONS

The qualifications of the heritage consultants who authored this report are provided in Appendix A. All comments regarding the condition of any structures within the Study Area are based on a superficial visual inspection and are not a structural engineering assessment of the buildings unless directly quoted from an engineering report. The findings of this report do not address any structural or physical condition related issues associated with any structures within the Study Area or the condition of any heritage attributes.

Concerning historical research, the authors are fully aware that there may be additional historical information that has not been included. Nevertheless, the information collected, reviewed, and analyzed is sufficient to conduct a screening-level evaluation based on the information collected and professional judgement.

This report reflects the professional opinion of the authors and the requirements of their membership in various professional and licensing bodies.

The review of the policy/legislation was limited to that information directly related to cultural heritage management; it is not a comprehensive planning review.

Soundscapes, cultural identity, and sense of place analysis were not integrated into this report. Archaeological potential has not been assessed as part of this document.

A Stage 1 Archaeological Assessment has been prepared for the Environmental Assessment Study under separate cover.

EXECUTIVE SUMMARY

The Executive Summary only provides key points from the report. The reader should examine the complete report including background, results, as well as limitations.

LHC Heritage Planning & Archaeology Inc. (**LHC**) was retained by BBA Engineering Ltd. on behalf of Neoen Ontario BESS 1 Inc. (the "**Proponent**") to prepare a Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (**Cultural Heritage Report**) for the Tara Battery Energy Storage System (**Tara BESS**) project.

The Tara BESS project includes the development of an energy storage facility with a potential capacity of 400 megawatts. It will occupy approximately 25.42 hectares and be located on four assessment parcels to the southwest of the intersection of Concession 4 Arran and the Grey-Bruce Line on Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, Ontario. The four assessment parcels, which collectively sum to 67.60 hectares, are Assessment Parcel 410349000307100 (east half of Lot 35 Concession 4) and three individual parcels of land on Lot 36 Concession 4 including 39 Concession 4 Arran, Assessment Parcel 410349000104201 (Hydro One electric transmission line corridor), and the parcel bound by the Hydro One electric transmission line corridor and the southeast concession border (part of Assessment Parcel 410349000305200) (the "**Development Lands**"). A 50-metre buffer was added to the Development Lands to capture all properties with known and potential built heritage resources and cultural heritage landscapes that might reasonably be directly affected by project activities. Collectively, this area comprises the **Study Area**.

This Cultural Heritage Report is one of a number of studies being prepared to inform the understanding of existing conditions for Tara BESS project. The purpose of this report is to identify known and potential cultural heritage resources within the Study Area; provide a description of preliminary project-related impacts that may affect those resources; and recommend mitigation measures to lessen or avoid those impacts and inform project planning.

Background research and the site review of the Study Area undertaken as part of this study identified no known built heritage resources or cultural heritage landscapes within the Study Area. No provincial heritage properties; properties owned by the Ontario Heritage Trust (OHT) or properties subject to OHT easements; or municipal heritage properties listed under Section 27 Part IV, designated under Section 29 Part IV, or designated under Section 41 Part V of the *Ontario Heritage Act* are located within the Study Area. However, the properties at 37

Concession 4 Arran and 39 Concession 4 Arran were collectively identified as a potential CHL because they exhibit characteristics of a complete farming landscape.

A preliminary review of potential project-related impacts on the properties at 37 Concession 4 Arran and 39 Concession 4 Arran was undertaken. Based on the preliminary findings of this Cultural Heritage Report, no direct or indirect adverse impacts are anticipated. The Cultural Heritage Report has resulted in the following recommendations:

1. Continued avoidance of the properties' possible heritage attributes. Any revisions to the location or design of the Tara BESS should continue to avoid the attributes.
2. A property-specific CHIA including a formal evaluation based on *Ontario Regulation 9/06* is recommended to be undertaken in the event that continued avoidance is not possible and direct impacts on the house or other likely heritage attributes may occur.

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1 INTRODUCTION

LHC Heritage Planning & Archaeology Inc. (**LHC**) was retained by BBA Engineering Ltd. on behalf of Neoen Ontario BESS 1 Inc. (the "**Proponent**") to prepare a Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (**Cultural Heritage Report**) for the Tara Battery Energy Storage System (**Tara BESS**) project.

The Tara BESS project includes the development of an energy storage facility with a potential capacity of 400 megawatts. It will occupy approximately 25.42 hectares and be located on four assessment parcels to the southwest of the intersection of Concession 4 Arran and the Grey-Bruce Line on Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, Ontario. The four assessment parcels, which collectively sum to 67.60 hectares, are Assessment Parcel 410349000307100 (east half of Lot 35 Concession 4) and three individual parcels of land on Lot 36 Concession 4 including 39 Concession 4 Arran, Assessment Parcel 410349000104201 (Hydro One electric transmission line corridor), and the parcel bound by the Hydro One electric transmission line corridor and the southeast concession border (part of Assessment Parcel 410349000305200) (the "**Development Lands**"). A 50-metre buffer was added to the Development Lands to capture all properties with known and potential built heritage resources and cultural heritage landscapes that might reasonably be directly affected by project activities. Collectively, this area comprises the **Study Area**.

This Cultural Heritage Report is one of a number of studies being prepared to inform the understanding of existing conditions for Tara BESS project. The purpose of this report is to identify known and potential cultural heritage resources in the Study Area; provide a description of preliminary project-related impacts that may affect those resources; and recommend mitigation measures to reduce or avoid those impacts and inform project planning.

1.1 PROJECT DESCRIPTION

The Tara BESS project includes the development of an energy storage facility with a potential capacity of 400 megawatts. The project is located on an irregularly shaped assemblage of four assessment parcels collectively summing to 67.60 hectares to the southwest of the intersection of Concession 4 Arran and the Grey-Bruce Line.

1.2 LOCATION OF THE STUDY AREA

The Study Area is in the Municipality of Arran-Elderslie in Bruce County and the Township of Chatsworth in Grey County. It is approximately 3.0 kilometres (km) southeast of the village of Tara and approximately 14.5km southwest of the City of Owen Sound.

The Study Area comprises the Development Lands plus a 50-metre buffer in all directions. Given the surrounding context (i.e., topography, land use and character) and the nature of the proposed undertaking a 50-metre buffer, around the project location, was determined to be sufficient to capture all properties with known and potential BHRs and CHLs that might reasonably be directly affected by project activities (e.g., alteration, displacement, or removal for construction) or indirectly affected by indirect impacts (e.g., construction vibrations, obstruction of significant views, isolation, or addition of new features that are incompatible with heritage character).

The Development Lands include Assessment Parcel 410349000307100 (east half of Lot 35 Concession 4) and three individual parcels of land on Lot 36 Concession 4 including 39 Concession 4 Arran, Assessment Parcel 410349000104201 (Hydro One electric transmission line corridor), and the parcel bound by a Hydro One electric transmission line corridor and the southeast concession border (part of Assessment Parcel 410349000305200). The Study Area also includes parts of:

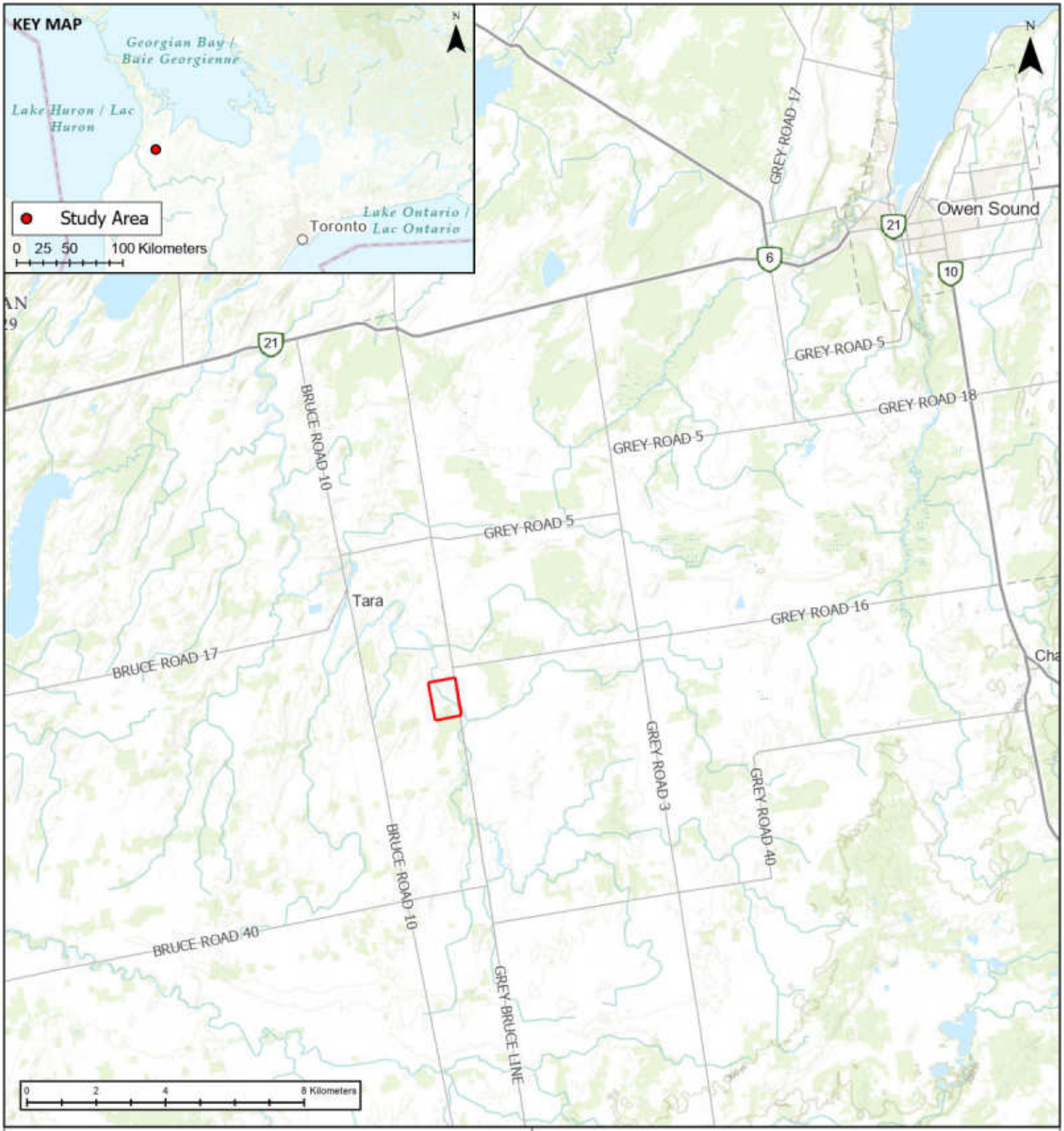
- 37 Concession 4 Arran;
- 32 Concession 4 Arran;
- 74 Concession 4 Arran;
- 016913 Grey-Bruce Line;
- Assessment Parcel 420432000313700;
- 016871 Grey-Bruce Line;
- Assessment Parcel 420432000314000;
- Assessment Parcel 420432000105501;
- Assessment Parcel 420432000314100;
- Assessment Parcel 410349000305200;
- 160 Concession 2 Arran; and,
- 125 Concession 4 Arran.

1.3 DESCRIPTION OF THE STUDY AREA

The Study Area is irregularly shaped and comprised of properties that are used for agriculture, including a combination of cultivated fields, pastureland, and woodlot. Six properties in the Study Area are developed. Farming complexes are most common on developed properties. Building organization, size, setback distances and material composition differ between properties.

1.4 HERITAGE STATUS OF THE STUDY AREA

The Study Area does not include any provincial heritage properties; properties owned by the Ontario Heritage Trust (OHT) or properties subject to OHT easements; or municipal heritage properties listed under Section 27 Part IV, designated under Section 29 Part IV, or designated under Section 41 Part V of the *Ontario Heritage Act*.



Legend

Study Area

NOTE(S) 1. All locations are approximate.
REFERENCE(S) 1. Esri, NASA, NGA, USGS, FEMA, Esri, USGS

TITLE
Location of the Study Area

CLIENT
BBA Engineering Ltd.

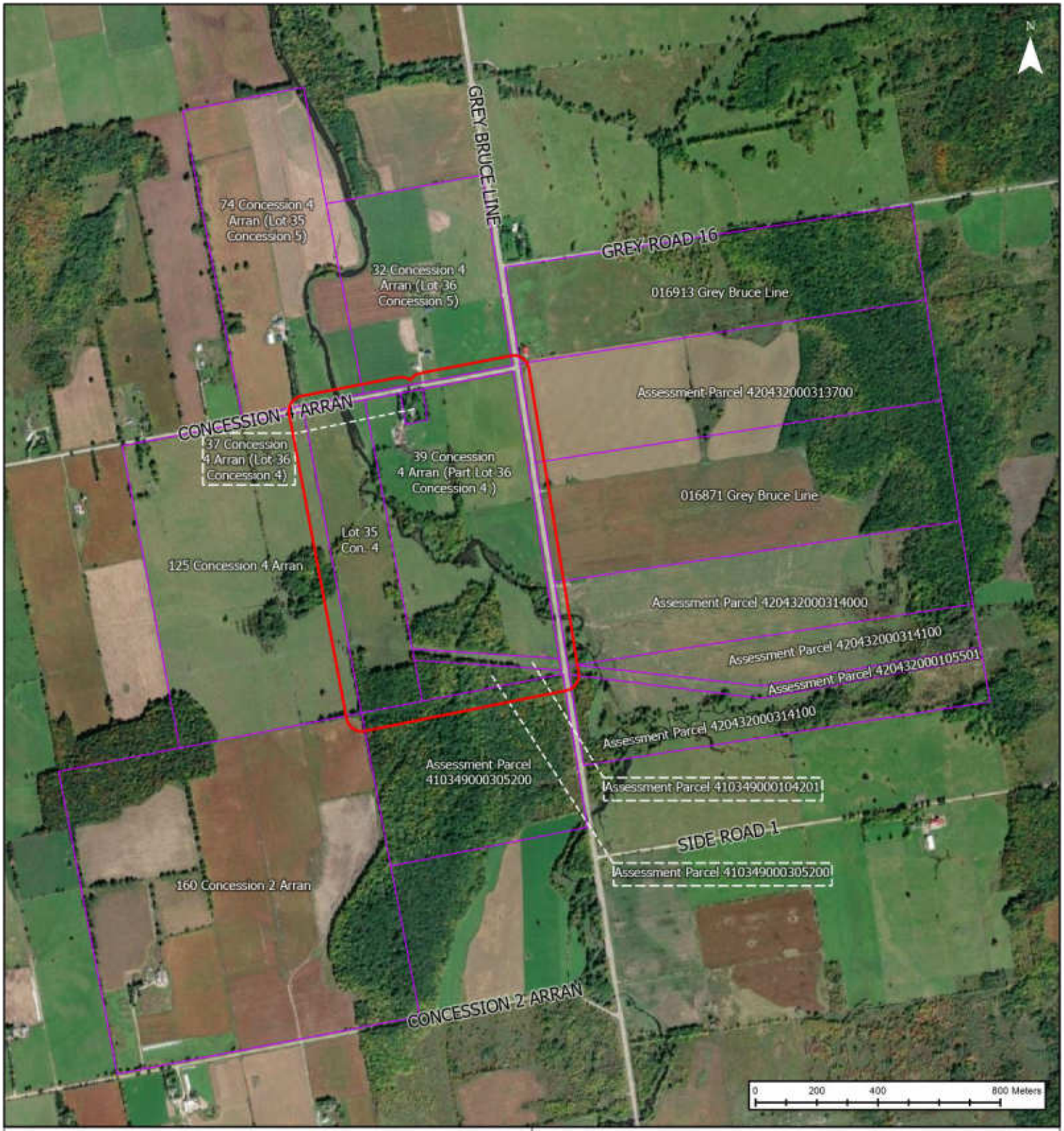
PROJECT
Tara BESS, Part Lot 35 and 36 Concession 4, Municipality of Arran-Elderslie, Bruce County, ON

PROJECT NO. LHC0459

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-05-28

FIGURE # 1



Legend

- Study Area
- Property Parcels

TITLE
Current Conditions of the Study Area

CLIENT
BBA Engineering Ltd.

PROJECT
Tara BESS, Part Lot 35 and 36 Concession 4, Municipality of Arran-Elderslie, Bruce County, ON

PROJECT NO. LHC0459

NOTE(S) 1. All locations are approximate.
REFERENCE(S) 1. Maxar

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-05-28

FIGURE # 2

2 APPROACH AND METHODOLOGY

The purpose of this Cultural Heritage Report is to identify known and potential BHRs and CHLs in the Study Area.

The objectives of this Cultural Heritage Report are to:

1. Outline the existing heritage conditions of the Cultural Heritage Study Area, through:
    a. background research into its historical and heritage planning context;
    b. review of available databases of known built heritage resources and cultural heritage landscapes;
    c. identification of potential built heritage resources and cultural heritage landscapes; and,
    d. a field review to confirm and inventory known and potential built heritage resources and cultural heritage landscapes and existing conditions of the Study Area.

2. Undertake a preliminary impact assessment to:
    a. Identify potential direct and indirect impacts on the inventoried properties; and,
    b. As applicable, identify mitigation measures and next steps to lessen or avoid potential impacts.

2.1 FIELD REVIEW

Field review from the public right-of-way was conducted by Senior Archaeologist, Ruth Macdougall on 27 March 2025. The purpose of the field review is to confirm, document and photograph the general existing conditions of the Study Area and any potential BHRs and CHLs that may be located in it. Unless otherwise attributed all photographs in this Cultural Heritage Report were taken during the field review. A selection of photographs that document the Study Area are included in Section 5.

2.2 IDENTIFICATION OF KNOWN AND POTENTIAL CULTURAL HERITAGE RESOURCES

Known and potential cultural heritage resources include BHRs and CHLs. The *Provincial Planning Statement* (2024) (***PPS***) defines 'Built Heritage Resource' as:

> …a building, structure, monument, installation or any manufactured or constructed part or remnant that contributes to a property's cultural heritage value or interest as identified by a community, including an Indigenous

community.[1]

The *PPS* defines 'Cultural Heritage Landscape' as"

> …a defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Indigenous community. The area may include features such as buildings, structures, spaces, views, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association.[2]

This report considers the Study Area as a potential farm related CHL because it has been agricultural land for so long. This report also considers the Sauble River as a potential standalone CHL or a component of a CHL.

The assessment for this report consisted of data collection, background historic research, review of secondary source material, and field review including the following resources:

- Ontario Heritage Trust Register[3];
- Historic Places Canada's Register; and,
- Parks Canada's Directory of Federal Heritage Designations.

The Ministry of Citizenship and Multiculturalism (MCM), Ontario Heritage Trust (OHT), Bruce County's Planning Department[4], and the Township of Chatsworth Planning Department were contacted to confirm the presence of provincial heritage properties, properties owned by the OHT or properties subject to OHT easements, and municipal heritage properties within the Study Area.

Identification of potential BHRs and CHLs is based on a rolling 40-year rule of thumb. This 40-year rule of thumb is based on guidance from the MCM, in its *Screening for Impact to Built Heritage and Cultural Heritage Landscapes* (2010) checklist. It should be stressed that a date of construction of 40-years does not necessarily indicate cultural heritage value or interest; conversely, properties less than 40-years of age may exhibit cultural heritage value or interest. To identify potential BHRs and CHLs, historic maps, and pre-1985 air photos were reviewed and compared to current aerial imagery.

[1] Province of Ontario, "Provincial Planning Statement," October 2024, https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf, 40.
[2] Province of Ontario, "Provincial Planning Statement," 41.
[3] The Municipality of Arran-Elderslie and Township of Chatsworth do not have publicly accessible municipal heritage registers. The Ontario Heritage Trust Register was used to identify known heritage properties.
[4] Planning activities in the Municipality of Arran-Elderslie are carried out by Bruce County's Planning Department.

2.3 PRELIMINARY IMPACT ASSESSMENT

This Cultural Heritage Report includes a high-level review of the known and potential cultural heritage value or interest and heritage attributes for each of the affected cultural heritage resources (where applicable and where no Statement of Cultural Heritage Value or Interest has previously been prepared). This review considered high-level attributes that could reasonably be affected by the proposed project (e.g., structures and/or landscapes and their major components rather than a detailed list of the features). In cases where a more fulsome property-specific evaluation may be required to further assess potential direct impacts during detailed design, a site-specific Heritage Impact Assessment would be recommended.

To ensure compliance with the *Environmental Assessment Act* and the *Ontario Heritage Act*, identification and assessment of potential project-related adverse impacts are based on the MCM's *Info Sheet #5 Heritage Impact Assessments and Conservation Plans* (2006). This document outlines seven potential negative impacts to be considered with any proposed development or property alteration. The impacts include, but are not limited to:

1. **Destruction** of any part of any significant heritage attribute or features;
2. **Alteration** that is not sympathetic or is incompatible, with the historic fabric and appearance;
3. **Shadows** created that alter the appearance of a heritage attribute or change the viability of a natural feature or planting, such as a garden;
4. **Isolation** of a heritage attribute from its surrounding environment, context, or a significant relationship;
5. **Direct or indirect obstruction** of significant views or vistas within, from, or built and natural features;
6. A **change in land use** such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces; and,
7. **Land disturbances** such as a change in grade that alters soils, drainage patterns that adversely affect an archaeological resource.[5]

If there are historic masonry or stone structures in the Study Area this report will consider the possibility of adverse impacts from vibration. The negative effects of traffic and construction

[5] Ministry of Citizenship and Multiculturalism, "Heritage Impact Assessments and Conservation Plans, Info Sheet #5," in *Heritage Resources in the Land Use Planning Process: Cultural Heritage and Archaeology Policies of the Ontario Provincial Policy Statement* (Queen's Printer for Ontario, 2006).

vibrations on heritage structures has been demonstrated for structures within a 40-metre setback from construction or roadworks. This is, in part, due to the use of masonry and brick as construction materials, but it is also due to an increased number of variables to consider over the longer ages of heritage buildings (e.g., previous damage or repairs).[6]

[6] Randl, C., "Protecting a Historic Structure during Adjacent Construction," Temporary Protection Number 3, Preservation Tech Notes, prepared by the US Department of the Interior National Park Service Cultural Resources. Last modified July 2001. https://www.nps.gov/tps/how-to-preserve/tech-notes/Tech-Notes-Protection03.pdf; Crispino, M., and M. D'Apuzzo, "Measurement and Prediction of Traffic-induced Vibrations in a Heritage Building," Journal of Sound and Vibration 246, no. 2 (2001): 319-335.; Ellis, P., "Effects of Traffic Vibration on Historic Buildings," The Science of the Total Environment 59 (1987): 37-45.; Rainer, J.H., "Effect of Vibrations on Historic Buildings," The Association for Preservation Technology Bulletin XIV, no. 1 (1982): 2-10; Wiss, J.F., "Construction Vibrations; State-of-the-Art." Journal of Geotechnical Engineering Division 107, no. 2 (1981): 167-181.

3 CULTURAL HERITAGE REPORT POLICY CONTEXT

3.1 PROVINCIAL POLICY CONTEXT

In Ontario, cultural heritage is established as a matter of provincial interest directly through the provisions of the *Planning Act*, *PPS*[7], and the *OHA*. Cultural heritage resources are managed under Provincial legislation, policy, regulations, and guidelines. Other provincial legislation applies to cultural heritage indirectly or in specific cases. The *Environmental Assessment Act* and *Environmental Protection Act* use a definition of "environment" that includes cultural heritage resources, and the *Funeral, Burial and Cremation Services Act* addresses historic cemeteries and processes for identifying graves that may be prehistoric or historic. These various acts and the policies and plans under these acts indicate broad support for the protection of cultural heritage by the Province.

3.1.1 PLANNING ACT, R.S.O. 1990, C. P.13

The *Planning Act* is the primary document for municipal and provincial land use planning in Ontario and was most recently revised on 1 January 2025. This Act sets the context for provincial interest in heritage. It states under Part I (2, d):

> The Minister, the council of a municipality, a local board, a planning board and the Municipal Board, in carrying out their responsibilities under this Act, shall have regard to, among other matters, matters of provincial interest such as…the conservation of features of significant architectural, cultural, historical, archaeological or scientific interest.[8]

Details about provincial interest as it relates to land use planning and development in the province are outlined in the *Provincial Planning Statement,* which is used under the authority of Section 3.

3.1.2 PROVINCIAL PLANNING STATEMENT (2024)

The *Provincial Planning Statement* (*PPS*) provides further direction for municipalities regarding provincial requirements. The *PPS* addresses cultural heritage in Section 4.6.[9]

[7] The *Provincial Planning Statement* came into force on 20 October 2024 and replaced the *Provincial Policy Statement* and the *Growth Plan for the Greater Golden Horseshoe*.
[8] Province of Ontario, "Planning Act, R.S.O. 1990, c. P.13," last revised 1 January 2025, accessed 24 March 2025, https://www.ontario.ca/laws/statute/90p13, Part I (2, d).
[9] Province of Ontario, "Provincial Planning Statement," October 2024, accessed 24 March 2025, https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf.

Section 4.6 of the *PPS* articulates provincial policy regarding cultural heritage and archaeology. The subsections state:

4.6.1. Protected heritage property, which may contain built heritage resources or cultural heritage landscapes, shall be conserved.

4.6.2. Planning authorities shall not permit development and site alteration on lands containing archaeological resources or areas of archaeological potential unless the significant archaeological resources have been conserved.

4.6.3. Planning authorities shall not permit development and site alteration on adjacent lands to protected heritage property unless the heritage attributes of the protected heritage property will be conserved.

4.6.4. Planning authorities are encouraged to develop and implement:

a) archaeological management plans for conserving archaeological resources; and

b) proactive strategies for conserving significant built heritage resources and cultural heritage landscapes.

4.6.5. Planning authorities shall engage early with Indigenous communities and ensure their interests are considered when identifying, protecting and managing archaeological resources, built heritage resources and cultural heritage landscapes.[10]

Land use planning decisions made by municipalities, planning boards, the Province, or a commission or agency of the government must be consistent with the *PPS*. The *PPS* makes the consideration of cultural heritage equal to all other considerations in relation to planning and development within the province.

3.1.3 ONTARIO HERITAGE ACT, R.S.O. 1990, C. O.18

The *OHA* (revised on 4 December 2024) enables the provincial government and municipalities with powers to conserve, protect, and preserve the heritage of Ontario. The *OHA* gives municipalities power to identify and conserve individual properties, districts, or landscapes of cultural heritage value or interest.[11] It also requires municipalities to keep a register of

[10] Province of Ontario, "Provincial Planning Statement," 28.
[11] Province of Ontario, "Ontario Heritage Act, R.S.O. 199, c. O.18.," last revised 4 December 2024, 24 March 2025, https://www.ontario.ca/laws/statute/90o18.

properties in the municipality that are of cultural heritage value or interest (Municipal Heritage Register). There are two types of heritage properties under the *OHA*, *Designated* properties and *Listed* properties.

3.2 LOCAL POLICY CONTEXT

3.2.1 COUNTY OF BRUCE OFFICIAL PLAN (1997, CURRENT TO 5 APRIL 2024)

The *County of Bruce Official Plan* (***CBOP***) was adopted by County Council on 20 May 1997, approved by the Minister of Municipal Affairs on 15 September 1998, and Approved by the Ontario Municipal Board on 16 November 1999. A Five Year Review was approved by the Ministry of Municipal Affairs and Housing on 21 June 2010 and the *CBOP* is current to 5 April 2024. The purpose of the *CBOP* is to:

> …establish a policy framework to guide the physical, social and economic development of the County and to protect the natural environment within the County to the year 2021.[12]

Section 4.10, 'Heritage', includes the following four objectives:

> 4.10.1.1: Encourage the conservation of land, buildings and sites of historic, architectural and archaeological value.
>
> 4.10.1.2: County Council encourages the identification, acquisition, restoration and conservation of the historical, cultural, architectural and archaeological assets of the County.
>
> 4.10.1.3: In accordance with the Ontario Heritage Act, the County encourages Local Councils to support the creation of Local Architectural Conservation Advisory Committees to inventory and designate buildings, sites and districts of historical, cultural or architectural merit.
>
> 4.10.1.4: Development on lands containing possible archaeological resources or areas of archaeological potential, should occur in such a manner as to avoid destruction or alteration of these resources. Where this is not possible, the development proponent shall conserve the resources through removal and documentation in accordance with the Ontario Heritage Act.[13]

[12] County of Bruce, "County of Bruce Official Plan," current to 4 April 2024, accessed 12 August 2024, 1. www.brucecounty.on.ca/sites/default/files/county_of_bruce_official_plan_consolidated_aoda_2024-04-04.pdf.
[13] County of Bruce, "County of Bruce Official Plan," 62-63.

3.2.2 COUNTY OF GREY OFFICIAL PLAN (2018, CONSOLIDATED 2024)

The *County of Grey Official Plan* (***CGOP***) was adopted by County Council on 25 October 2018, approved by the Province on 6 June 2019, and most recently consolidated on 9 August 2024. The *CGOP* identifies goals, objectives, and policies to direct growth to 2043.[14] The *CGOP* also applies to the Township of Chatsworth, which does not have a separate Official Plan.

Section 4.5.1.1), 'Our Culture Heritage', includes the following relevant policies:

- Local municipalities are encouraged to develop policies which promote the conservation of heritage resources in land use and development decisions.
- The County and local municipalities must also ensure adequate screening for significant built heritage properties and significant cultural heritage landscapes.
- Development proposals must conserve significant built heritage properties and significant cultural heritage landscapes.
- Development and site alteration may be permitted on adjacent lands to a protected heritage property where proposed development and site alteration has been evaluated through a Heritage Impact Assessment or an archaeological assessment demonstrating that the heritage attributes of the protected heritage property will be conserved.

3.2.3 OFFICIAL PLAN FOR THE URBAN AREAS OF CHESLEY, PAISLEY, TARA/INVERMAY (2004 CONSILIDATED JANUARY 2018)

The *Official Plan for the Urban Areas of Chesley, Paisley, Tara/Invermay* was adopted on 27 September 2004, approved with modifications on 6 January 2005, and most recently consolidated in January 2018. This plan does not apply to the Study Area; however, it provides some relevant guidance on the management and identification of cultural heritage resources in the Municipality of Arran-Elderslie. Section 4.2, 'Heritage Conservation', includes the following policies:

> 4.2.1.b) Within the "Recreation and Open Space" and "Natural Environment & Hazard" designations recognized in this Plan, Council should encourage measures which enhance public appreciation and visibility of interesting

[14] County of Grey, "Recolour Grey: County of Grey Official Plan," last consolidated 9 August 2024, accessed 12 August 2024, 7-8. https://countyofgrey.sharepoint.com/:b:/s/Grey_County_Site/EQpxV2WvCTpBiJJLx0_92ksBzTJnX75efLZVi2m6wcDcWQ?e=mW6fhW.

industrial operations, buildings, structures, or landscapes of historic, archaeological or scenic value;

4.2.2 The significance of the property in illustrating or interpreting the heritage of the property should be judged by the basic criteria of architectural merit and historical association. In general, the property should illustrate effectively the broad architectural, cultural, social, political and economic patterns of the municipality's history or should be associated or identified with events or persons that have shaped that history in a significant way.[15]

[15] Municipality of Arran-Elderslie, “Official Plan for the Urban Areas of Chesley, Paisley, Tara/Invermay,” last consolidated January 2018, accessed 12 August 2024, 49-50. https://brucecounty.on.ca/sites/default/files/file-upload/business/AE%20LOP%20Office%20Cons%20January%202018.2.pdf.

4 EXISTING CULTURAL HERITAGE CONDITIONS

4.1 INDIGENOUS LAND USE

Southern Ontario became open to settlement following the final retreat of the Laurentide Ice Sheet, which had covered much of the Great Lakes area until around 12,000 B.P. The retreat of the glacier produced glacial meltwater ponding, resulting in glacial lakes including Lake Duluth and Lake Algonquin, which comprised the area of an overlarge Lake Superior, Lake Michigan, and Lake Huron. Around 9,500 B.P., the glacier depressed earth's crust to the north of modern-day Lake Superior which resulted in the drainage of the lower Great Lakes. Lake Minong (Superior), Like Chippewa (Michigan), and Lake Stanley (Huron) were present following this drainage, though at a much lower water level than present-day. Lake Superior was largely separated from Lake Michigan and Lake Huron around 2,100 B.P. as ongoing isostatic rebound raised the St. Mary's Rapids. Glacial Lakes Algonquin (11,000-10,500 BP), Nipissing (5,000 B.P.), and Algoma (3,800-2,500 B.P.) all provided habitable shorelines within Bruce County.[16]

It should be noted that much of the historical documentation related to the location and movement of Indigenous peoples in present-day Southern Ontario is based on the documentary record of the experiences and biases of early European explorers, traders, and settlers. This record provides only a brief account of the long and varied occupation and use of the area by various Indigenous groups known, through oral histories and the archaeological record, to have been highly mobile over vast territories which transcend prevailing modern understandings of geographical boundaries.

4.1.1 PALEO PERIOD (11000 – 9500 BCE)

The earliest human occupation of Southern Ontario dates to 11,000 B.P. These early populations consisted of small groups of hunter gatherers who ranged long distances, relying on caribou and other resources available in spruce dominated forests. Identified as the Paleo Indian period, the lithic assemblages are characterized by lanceolate shaped points with a channel or flute extending from the base. Three "phases" for the Early Paleo period, Gainey, Barnes, and Crowfield, are distinguished by stylistic variations in the fluted points.

[16] Fisher Archaeological Consulting, "105 Lansdowne Street, Town of Saugeen Shores, (Southampton), Ontario. Archaeological Stage 1 & 2: Background Study & Assessment, Final Report (Revised). PIF P359-0138-2022," 2024, Report on file at Ontario Ministry of Citizenship and Multiculturalism.
Lakehead Region Conservation Authority, "Glacial Lakes History." n.d., accessed 26 August 2024. https://lakeheadca.com/events-education/geology/glacial-lakes-history-1; Lewis, C.F.M., et al., "Evolution of lakes in the Huron basin: Deglaciation to present." In Aquatic Ecosystem Health and Management, 11 (2):127-136. Copyright C© 2008 AEHMS. ISSN: 1463-4988 print / 1539-4077 online DOI: 10.1080/14634980802095263.

Evidence suggests that populations in the latter half of the Paleo period, though still covering large areas, were more restricted in their movements, suggesting that food resources were more readily available. These hunters made smaller non-fluted points produced from a broader range of lithic materials.

4.1.2 ARCHAIC PERIOS (9500 – 2800 BCE)

Although largely arbitrary, the Archaic period is initially distinguished by the appearance of notched projectile points and the use of ground stone utilized in the production of heavy "wood working" tools. At the outset of this period forests were dominated by pine and approached present day conditions of mixed deciduous forests by 5,000 B.P. Water levels in the lower Great Lakes continued to rise through the first half of the Archaic with present day levels reached between 7,000 and 5,000 B.P. Throughout this period populations continued to hunt, gather, and fish.

Within the Early Archaic period three "phases" have been recognized, again distinguished by projectile point types: side notched, corner notched, and bifurcate. Serrated edges are unique to projectile points made during the Early Archaic. Evidence suggests that the seasonal movement of extended family units were becoming increasingly regionalized, encompassing smaller territories as food resources became more abundant.

The Middle Archaic, encompassing several millennia, has been divided into two sub periods, Middle Archaic I and II. It is represented in Eastern Ontario by the Laurentian Archaic exhibiting cultural affinities with contemporaneous populations to the east, including New York State, and Atlantic Canada. Associated with the Middle Archaic I are stemmed points such as Kirk and Stanley along with the introduction of net sinkers and banner stones, the former, offering evidence for the increasing importance of fishing. Middle Archaic II included the production of side and corner notched points (Otter Creek and Brewerton). Laurentian Archaic sites have produced artifacts manufactured from copper originating from the north shore of Lake Superior in addition to ground stone projectile points, gouges, adzes, and plummets.[17]

Three phases, Narrow Point, Broad Point, and Small Point have been identified for the Late Archaic Period. By this time there is increasing evidence to suggest the further regionalization of populations in Southern Ontario. An example is the increased utilization of local lithic materials including quartz, and other silicates in the projection of projectile points and other

[17] Watson, G., "Prehistoric Peoples of the Rideau Waterway," in Archaeological Historical Symposium: October 2-3, 1982, Rideau Ferry, Ontario, edited by F.C.L. Wyght, pp. 24–55. Lombardy, Ontario.

tools in Eastern Ontario, contrasting with the almost exclusive use of cherts such as Onondaga, Selkirk, and Kettle Point in Southwestern Ontario.

4.1.3 WOODLAND PERIOD (2800 – 400 BCE)

The Woodland period is demarcated by the appearance of ceramics. The first ceramics produced in Southern Ontario consisted of thick walled, grit tempered vessels with exterior cord marked impressions, referred to as Vinette 1. Although few Early Woodland occupation sites have been excavated in Southern Ontario, of those that have been investigated, the presence of ceramics was not ubiquitous,[18] suggesting that Early Woodland populations "eased" into the usage of this new technology which did not become fully integrated until the Middle Woodland period.

Two complexes, Middlesex and Meadowood, are recognized as part of the Early Woodland period. The Meadowood is thought to have emerged from the Glacial Kame Burial complex of the Late Archaic. Associated artifacts included polished stone birds, gorgets, pipe bowls, along with other materials. The use of "exotic" cherts for the production of medium to large Ovate shaped blades known as Adena are also a feature of this complex. Medium sized, parallel projectile points with a distinctive side notched and principally manufactured from Onondaga chert are also characteristic of the Early Woodland.

By the Middle Woodland period, circa 2,400 B.P., there was a recognizable increase in the population of Southern Ontario. Several recognized complexes or traditions in Ontario appear at this time indicating the further regionalization of groups within the province. These include Point Peninsula through much of Southeastern and Southcentral Ontario, Saugeen and Couture in Southwestern Ontario and Laurel in Northern Ontario.

Middle Woodland populations continued to hunt, gather, and fish, with smaller extended family units congregating in the late summer and early fall. These populations continue to participate in extensive trade networks. They are distinguished archaeologically by grit tempered, coil manufactured, conical based ceramics with variety of dentate stamp impressions including pseudo scallop shell stamp decoration.

Circa 1,400 B.P. cultigens are introduced into Southern Ontario. In Southwestern Ontario there is a shift in settlement patterns, with the location of permanent and semi-permanent sites in riverine locations (e.g., Grand River valley). There is less evidence for this shift in Eastern Ontario. Across much of the province there appears to be a universal ceramic horizon

[18] Jackson, L., "Dawson Creek: An Early Woodland Site in South-Central Ontario," Ontario Archaeology 33:12–32; Parker, L.R.B. The Fitzgerald Site: A Non-Meadowood Early Woodland Site in Southwestern Ontario. Canadian Journal of Archaeology 21(2):121–148.

characterized by the production of fine tempered, globular shaped ceramic vessels with cord wrapped stick impressions along with punctates (circular depressions) and bosses (raised surfaces). Identified as Princess Point, based on the type of site excavated at the western end of Lake Ontario, this transitional period has been distinguished in Eastern Ontario as Sandbanks.[19]

The Late Woodland period is defined in Southern Ontario by the increased reliance on cultigens and the associated transition to permanent village sites. Three phases identified as Early, Middle, and Late Iroquoian/Late Woodland have been distinguished in the literature. These villages consisting of cabins and longhouses were often palisaded. Ceramic vessel forms included larger globular shaped pots, often with collars and later with castellations. While much of Southern Ontario moved towards horticulture and semi-permanent and permanent villages, there remained largely hunting and gathering populations along the Ottawa Valley and in the Georgian Bay regions throughout the Late Woodland period.

4.1.4 CONTACT

While there may have been the appearance of European goods originating from the Basque fishing activities in the 16th century off the coast of Labrador it was not until the beginning of the 17th century that permanent European settlements were established in northeastern North America resulting in rapid changes in Indigenous populations influenced by trade, warfare, and disease. The Huron Wendat who, by the mid-17th century, had occupied areas around Lake Simcoe and along the south end of Georgian Bay, were dispersed by the Iroquois from south of Lake Ontario. The Attawandaron (Neutral), at the west end of Lake Ontario, were similarly displaced by 1650 and the St. Lawrence Iroquois, encountered by Cartier at Hochelaga (Montreal), had completely disappeared by the time of Champlain's arrival to the region at the beginning of the 17th century.

Samuel de Champlain documented his numerous interactions with Indigenous peoples in the Ottawa Valley during visits in 1613 and 1615. At the time, an extensive, complex network of trade existed with various culturally distinct peoples around the Ottawa Valley.[20] Early European documentation reveals three Algonquin cultural groups within the Ottawa Valley region: the Matouweskarini, Onontchataronon, and the Weskarini.[21] During the same early 17th

[19] Daechsel, H.J. and Phill Wright, "Continuity and Change: The Sandbanks Tradition of Eastern Ontario," Paper presented at the Annual Ontario Archaeological Symposium, Niagara Falls, Ontario, 1993.
[20] Pilon, J-L., "Ancient History of the Lower Ottawa River Valley," in A Background Study for Nomination of the Ottawa River Under the Canadian Heritage Rivers System, pp. 16–20. Ottawa River Heritage Designation Committee, Ottawa.
[21] Heidenreich, C.E., and J.V. Wright, "Population and Subsistence," in Historical Atlas of Canada Volume I: From the Beginning to 1800, edited by R.C. Harris, University of Toronto Press, Toronto.

century period, Jesuit Missionaries Jean de Brébeuf and Francesco-Giuseppe Bressani, as well as Champlain, wrote that the "Bruce Peninsula at that time was the home territory of the Algonquin-speaking Odawa".[22]

European activity in Southern Ontario during the 17th century was principally limited to fur trade. Fort Frontenac was located at the confluence of Lake Ontario and the St. Lawrence River in present day Kingston. By this time, the Iroquois had established seven villages along the north of Lake Ontario including Ganarakas at the present-day site of Port Hope.[23] In the Niagara Peninsula, the Attawandaron were initially succeeded by the Seneca who controlled the Niagara River. The Odawa and Ojibway allied together against the Iroquois. Early in the 18th century the Ojibway successfully pushed south from Georgian Bay, occupying all Southern Ontario.[24]

Following the defeat of the French in the Seven Years War the British issued a Royal Proclamation in 1763 to administer the territories, including Canada, which had been won. The Proclamation established the Appalachian Mountains as the boundary between the Indian and Colonial lands and in doing so recognized the rights of Indigenous populations to their lands.[25] The Royal Proclamation was the basis upon which lands were ceded to the Crown for compensation through treaties and/or land acquisitions. In the area south of Georgian Bay many of these treaties took place in the 19th century, including Treaty 29, the Huron Tract Purchase (1833), Treaty 45 ½, the Saugeen Tract Purchase (1836), Treaty 18, the Nottawasaga Purchase (1818), Treaty 16, the Lake Simcoe Purchase (1815), Treaty 72, the Saugeen Peninsula Treaty (1854), and Treaty 82 (1857).

[22] Fisher Archaeological Consulting, "Part of Cunningham Road & A Portion of the Cunningham Road Right-of-way, Town of Walkerton, Municipality of Brockton, Bruce County, Ontario. (Part of Cemetery No. 1, Registered Plan 1652; Part of Road Allowance, Registered Plan 38; Historically Part of Lots 29 & 30, Concession 1 North of Durham Road, Geographic Township of Brant, Bruce County). Archaeological Stage 1: Background Study, Stage 2: Assessment & Stage 3: Cemetery Investigation on Part of the Early Settlers' Cemetery (CM-00228) [Anglican Pioneer Cemetery, Cemetery No. 1, Cunningham Farm Cemetery] Land & Stage 3: Monitoring of Construction in the Adjacent Cunningham Road ROW," 2023, Final Report (Original). PIF P359-0135-2022, P359-0137-2022. On file at Ontario Ministry of Citizenship and Multiculturalism.

[23] Adams, N.R., "Iroquois Settlement at Fort Frontenac in the Seventeenth and Early Eighteenth Centuries," Ontario Archaeology 46:5–20.

[24] Schmalz, P.S., "The Ojibwa of Southern Ontario," University of Toronto Press, Toronto.

[25] Calloway, C.G., "The Indian World of George Washington," Oxford University Press, New York.

4.2 INDIGENOUS CONTEXT

4.2.1 SAUGEEN OJIBWAY NATION CONTEXT

The Study Area is located within the Treaty and traditional territory of the Saugeen Ojibway Nation.

The Saugeen Ojibway Nation (SON) includes the Chippewas of Nawash Unceded First Nation and the Chippewas of Saugeen First Nation. SON's traditional territory (Saukiing Anishnaabekiing) includes all of Bruce and Grey Counties, including the Saugeen Peninsula, and extends south of Goderich (Huron County) and Arthur (Wellington County) and east of Alliston and Collingwood (Simcoe County).[26]

The Saugeen Ojibway territory remained unceded at the turn of the 19th century, and by the mid-1830s it was the largest such tract in Southern Ontario.[27] Ojibway settlements at the mouth of the Saugeen River in present day Southampton and at Newash (Nawash), present day Owen Sound, were documented during that period.[28] However, with the continuing expansion of settlement in Southern Ontario pressure was brought to bear on the British Crown to open up the lands south of Georgian Bay.[29]

4.2.2 TREATIES

The Study Area is located on land included in the Saugeen Tract Purchase (Treaty 45½). The Saugeen Tract Purchase covered approximately 1.5 million acres of land and was part of the Bond Head Purchases. The treaty was signed on 9 August 1836 in Manitowaning.[30]

Additional treaties include the Half-Mile Strip (1851) for a road allowance from Lake Huron to Owen Sound (this includes the northern edge of Arran Township), the Saugeen Peninsula

[26] Saugeen Ojibway Nation, "Saugeen Ojibway Nation, Environment Office," accessed 27 February 2025, https://www.saugeenojibwaynation.ca.
[27] Surtees, Robert J., "Land Cessions, 1763-1830," in Aboriginal Ontario. Historical Perspectives on the First Nations. Edited by Edward S. Rogers & Donald B. Smith. Pages 92-121. Toronto: Dundurn Press. Ontario Historical Studies Series for the Government of Ontario, 1994.
[28] Fisher Archaeological Consulting, "Southampton North End Sanitary Sewers Project, Town of Saugeen Shores, Bruce County, Ontario. Southampton – Shore Road Archeology, Limited Stage 3: Testing & Stage 4: Excavation of BdHi-2," 2013, Final Report. PIF P042-223-2010, P042-210-2010. On file at Ontario Ministry of Citizenship and Multiculturalism; McMullen, 1997 in Fisher Archaeological Consulting, "105 Lansdowne Street, Town of Saugeen Shores, (Southampton), Ontario. Archaeological Stage 1 & 2: Background Study & Assessment, Final Report (Revised).
[29] Surtees, Robert J., "Land Cessions, 1763-1830."
[30] Government of Ontario, "Map of Ontario Treaties and Reserves. Saugeen Tract Purchase, Treaty 45 ½," 2024, https://www.ontario.ca/page/map-ontario-treaties-and-reserves#t26.

Treaty #72(1854), Newash Village (1857), Colpoy's Bay (1861), Saugeen Fishing Islands (1885), and additional road allowances through Saugeen (1899).[31]

The SON territory today consists of the village of Neyashingaming at Cape Croker (Chippewas of Nawash Unceded First Nation) and Saugeen (Chippewas of Saugeen First Nation), Chief's Point on Lake Huron, and hunting grounds in the interior of the Bruce Peninsula.[32]

The Saugeen Ojibway Nation continues to be stewards of their traditional territory, with an interest and involvement in a range of development and environmental matters (e.g., land use, resource extraction, energy production, archaeological studies).[33] As a result of this involvement, in 2011, the SON produced their own standards for archaeological work within their traditional territory: *Conducting Archaeology within the Traditional Territory of the Saugeen Ojibway Nation: Process and Standards for Approval Authorities, Development Proponents and Consultant Archaeologists*.

4.3 SURVEY AND EARLY EURO-CANADIAN SETTLEMENT

4.3.1 BRUCE COUNTY HISTORY

Euro-Canadian exploration of what would become Bruce County first occurred in 1844, when the Saugeen River was mapped from Garafraxa Road to its outlet on Lake Huron by Casimir S. Gzowski. Charles Rankin conducted the first survey in 1846, when he ran a line from Owen Sound to the mouth of the Saugeen River. Shortly thereafter, between 1847-1848, the first land petitions from Euro-Canadian settlers were filed to the Crown Lands Department; however, land had yet to be opened for settlement. Upper Canada was facing considerable population growth around this time. Between 1842 and 1848, the population grew from 480,055 to 723,332. This growth, in part, prompted plans to allow settlement in the forthcoming Bruce County. On 19 April 1847, an Order-in-Council was passed to open the land for development. Alex Wilkinson, Provincial Land Surveyor, conducted a survey at the order of D. B. Papineau, the Commissioner of Crown Lands. Wilkinson's first survey established the Wawanosh Road, which extended southeast to the Townships of Mornington and Maryborough. Wilkinson then drew a line to Lake Huron, creating the first concessions in the Townships of Huron and Kinloss. Wilkinson was then ordered to survey the eastern shore of

[31] Arran Township Historical Society, "Reflections of Arran 1852-1982," 1982, Owen Sound, Stan Brown Printers Ltd.; Canada, "Indian Treaties and Surrenders. From 1680 to 1890, in Two Volumes. Volume 1.," 1891, accessed 4 February 2025, https://archive.org/details/indiantreaties0102cana.; Fisher Archaeological Consulting, "105 Lansdowne Street, Town of Saugeen Shores, (Southampton), Ontario. Archaeological Stage 1 & 2: Background Study & Assessment."
[32] Saugeen Ojibway Nation, "Saugeen Ojibway Nation, Environment Office," accessed 5 February 2025, https://www.saugeenojibwaynation.ca.
[33] Saugeen Ojibway Nation, "Saugeen Ojibway Nation, Environment Office."

Lake Huron to the extent of two townships. Wilkinson claimed to the Crown Lands Department that the land in the area could continue to be surveyed. This ultimately led to the survey of seventeen additional townships, including eleven in Bruce County, four in Huron County, and two in Perth County.[34]

To facilitate settlement in the newly surveyed townships, a colonization road was constructed from Simcoe County to the mouth of the Penetangore River. The first formal Euro-Canadian settlement in Bruce County occurred at the mouth of the Penetangore River in Kincardine (then known as 'Penetangore') in the summer of 1848. The town plot of Kincardine was surveyed in 1849 by A.P. Brough, Provincial Land Surveyor. Huron, Brant, Greenock, and Southampton were also initially settled in the late 1840s.[35] Rapid settlement was likely due to the issuance of free land grants so long as the land patentee cleared twelve acres of land and constructed a dwelling measuring no less than 18' by 12' in the first four years after acquiring the land.[36]

An Act of Parliament on 30 May 1849 formally created the Counties of Huron, Perth, and Bruce. Bruce County was composed of the Townships of Arran, Brant, Bruce, Carrick, Culross, Elderslie, Greenock, Huron, Kincardine, Kinloss, and Saugeen. The area north of the Townships of Arran and Saugeen between Lake Huron and Georgian Bay was also annexed shortly thereafter. At the time, the Counties of Huron, Perth, and Bruce were united.[37]

Surveying of townships was ongoing during the 1850s. Brant and Kincardine were surveyed in 1850; Arran, Elderslie, Huron, Saugeen, the west part of Bruce along with the town plot of Southampton were surveyed in 1851; and the east part of Bruce, Carrick, Culross, Kinloss, and Greenock were surveyed in 1852.[38] On 21 September 1853, a general by-law was passed that organized Bruce County's Townships into the United Townships of Kincardine; Bruce and Kinloss; the Township of Huron; the United Townships of Brant and Carrick; the United Townships of Greenock and Culross; the Township of Saugeen; and, the United Townships of Arran and Elderslie. By 1855, Kincardine and Bruce, Brant and Carrick, Greenock and Culross, and Arran and Elderslie were separated. In addition, the Townships of Amabel and Albermarle

[34] Robertson, N., "The History of the County of Bruce and of the minor municipalities therein, Province of Ontario, Canada," (Toronto: William Briggs, 1906), accessed 26 August 2024, 13. Courtesy of Local Histories Collection, Libraries and Cultural Resources Digital Collections, University of Calgary.
[35] Robertson, 15.
[36] Robertson, 531.
[37] Robertson, 39.
[38] Robertson, 16.

and the town plot of Alma were surveyed. In 1856, the Townships of Eastnor and Lindsay, and the town plot of Wiarton and Paisley were surveyed. St. Edmunds was surveyed in 1857.[39]

In 1853, Perth County separated from Bruce and Huron, and in 1856, Bruce and Huron separated. The latter separation was not immediate, largely due to the challenge in establishing a county town in Bruce.[40]

Considerable development occurred in Bruce County during the 1850s. Post offices were opened in Kincardine and Southampton; several colonization roads were built including Durham Road, Elora Road, and Woolwich and Huron Road, along with the construction of local roads; and other municipal works including the establishment of the Division Court were developed. Upper Canada was in a time a general wealth, owing to the Reciprocity Treaty and the Crimean War; however, this was not largely felt in Bruce County due to labour scarcity and cost. Such scarcities led to several colonization road contracts being rescinded.[41]

In 1858, Kincardine was incorporated as the first village in the county. From then on, it was called 'Kincardine' as opposed to 'Penetangore'. It had a population of 837 at the time. Southampton would also be incorporated as a village in 1858. In June of 1858 a railway was opened to Goderich, permitting daily mail delivery to Kincardine. In 1860, the first grammar school in Bruce County was opened in Kincardine. Southampton also attempted to secure a similar grammar school; however, it was not realized.[42]

On 15 September 1865, Walkerton was officially declared Bruce County's county town.[43] On 31 December 1866, the Counties of Bruce and Huron were officially separated by proclamation of the Governor General.[44] In 1868, a post office was opened in Wiarton and electric telegraph first reached Bruce County.[45]

In the 1870s, several settlements were incorporated as villages, including Walkerton in 1871, Tiverton in 1878, and Chesley in 1879.[46] The village of Tara, in Arran Township, was incorporated in 1881.[47]

[39] Robertson, 16.
[40] Robertson, 46.
[41] Robertson, 70.
[42] Robertson, 92.
[43] Robertson, 101.
[44] Robertson, 104.
[45] Robertson, 204.
[46] Robertson, 330; 377.
[47] Robertson, 302; Miller, B.A, "Tara before 1981. Published by Bruce A. Miller. 1980.

Railway development also reached Bruce County by the 1870s, first with the Wellington, Grey and Bruce Railway (WG&B) which reached Southampton on 7 December 1872.[48] A branch of the WG&B reached Kincardine in 1874.[49] Also in 1874, a branch of the Toronto, Grey and Bruce Railway (TG&B) reached Teeswater.[50] The WG&B was acquired by the Great Western Railway and in 1882, it became part of the Grand Trunk system. Also in 1882, the Stratford & Huron Railway reached Chesley and Wiarton. This railway was also amalgamated with the Grant Trunk system as part of the Grand Trunk, Georgian Bay & Lake Erie Railway.[51] In 1887, the Canadian Pacific Railway, using the Toronto, Grey and Bruce Charter, constructed a new railway spur into Wingham from Teeswater.[52] Several additional railways were also considered during the latter twenty-years of the 19th century, including an electric railway with terminals in Port Perry, Goderich, and Meaford; however, few were constructed.

In 1896, an Act was passed to reduce the number of county councilors. At a meeting on 29 June 1896, the number of councilors was reduced from 44 to 18 – two for each of the county's nine divisions.[53] One of the first major social challenges faced by the newly formed council was the construction of a House of Refuge, an idea raised as early as 1881. Walkerton was selected as the location for this facility, and it opened in January 1900. The county also established a Children's Aid Society to improve the condition of all neglected and dependent children at the turn of the 20th century.[54] In 1903, the County of Bruce General Hospital Trust and Walkerton was completed, with the first patient being accepted on 27 September.[55] At the time, the population in Bruce County was decreasing. The emigration of young people to larger urban centres and cities was one of the main reasons for this.

Bruce County's economy is largely supported by the agricultural sector, notably through livestock, cash crops, and fruit and vegetable farming. Commercial power generation – Bruce Power, which first opened in 1960 – is another contributor along with the seasonal tourism industry. In 2021, Bruce County had a population of around 73,400.[56]

[48] Robertson, 115.
[49] Robertson, 117.
[50] Robertson, 118.
[51] Robertson, 225-226.
[52] Robertson, 462.
[53] Robertson, 142.
[54] Robertson, 147.
[55] Robertson, 155-156.
[56] Statistics Canada, "Census Profile, 2021 Census of Population. Bruce, County (CTY), Ontario [Census division]," last modified February 1, 2023, accessed 23 August 2024. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E.

4.3.2 ARRAN TOWNSHIP HISTORY

The first known Euro-Canadian settler in Arran Township was Henry Boyle, who settled before the survey on what would come to be known as Lot 21 Concession A in 1850.[57] Arran Township was surveyed shortly thereafter in the summer of 1851 by Goerge Gould for Charles Rankin, Provincial Land Surveyor.[58] Arran Township was surveyed alongside Elderslie Township and Saugeen Township, along with part of Bruce Township and Huron Township that had not previously been surveyed, in preparation of an anticipated influx of Euro-Canadian Settlers. The northern limit of Arran Township had been further expanded by a half mile, known as the Half-Mile Strip, after this swath was ceded to the Crown by the Saugeen Ojibway in 1851.[59] The sale of township land officially began on 30 July 1852 and included both the original survey lots and the northern Half-Mile Concession.[60] Arran Township is historically bordered on the south by Elderslie Township, on the west by Saugeen Township, on the north by the Saugeen Indian Reserve No 29 and by Amabel Township, and on the east by Derby and Sullivan Townships in Grey County, with Keppel Township joining at its northeast corner.

Gould and Richard Berford, who was a member of the surveying team, were among the first to acquire land following the survey. Gould, along with his companion J.W. Linton, settled in Invermay, and Beford, along with his companion John Hamilton, settled in Tara. Both parties were interested in capitalizing on the waterpower provided by the Sauble River. Around sixteen additional settlers also took ownership of land in Arran Township in the early 1850s. Construction of the Saugeen and Owen Sound Road in 1852 and the Elora and Saugeen Road in 1854 facilitated settlement in the area.[61]

Taxes in Arran Township were first levied in 1853, when a total of £55 6s 9d was collected.[62] That same year, two post offices were opened, including one in Burgoyne called ‘West Arran’ and one in Invermay called ‘Arran’. At the time Invermay, Arkwright, and Tara were the main settlements in the Township. The first of these settlements to be surveyed into village lots was Tara, which was preliminarily surveyed by Richard Berford in 1854. Several additional surveys followed, including in May 1858 (Lot 31-32 Concession 8), November 1858 (Lot 31-32 Concession 9), March 1859 (Lot 30 Concession 8), and November 1860 (Lot 29-30 Concession 8). During this period two stores, a sawmill, a gristmill, a fanning mill, a foundry, and an agriculture implement works had been established. In addition to Tara, Invermay also

[57] Robertson, 265.
[58] Robertson, 51.
[59] Arran Township Historical Society, “Reflections of Arran 1852-1982.”; Schmalz, “The Ojibwa of Southern Ontario.”
[60] Arran Township Historical Society, “Reflections of Arran 1852-1982.”; Robertson, 262.
[61] Robertson, 266-268.
[62] Robertson, 270.

developed during this period. It was surveyed into village lots in 1855 and by 1857, a small business centre had been formed which included a sawmill and grist mill built and operated by Luke Gardiner. Settlement and development were also happening in other parts of the Township. A new post office in Arkwright, near the centre of the township, was also opened in 1857.[63]

In the heart of the Queen's Bush, Arran Township had many sawmills within close proximity to each other, the early settlers taking advantage of the streams and rivers to mill their own timber, and their descendants continuing the process well into the 20th century.[64]

Between 1853 and 1861, several changes occurred to Arran Township's municipal structure. In 1853, Arran Township was united with Elderslie Township with the two then known as the United Townships of Arran and Elderslie. Arran was selected as the senior township. Richard Berford was elected as the first reeve, Archibald Ray was the clerk, and the councilors were Henry Esplen, William Hunt, Thomas Woodsides, and Edward Sparling. In 1856, Arran Township and Elderslie Township were separated, and in 1857 Arran Township was united with Amabel Township by law for municipal purposes. In 1858, Albermarle Township was united with Arran and Amabel. Albermarle was subsequently removed from the union in 1860. On 1 January 1861, Arran and Amabel were separated, leaving Arran Township as an independent township.[65]

Arran Township's population reached 2,551 by 1861, a significant increase from 1852 when the population was 149. The population increased to 3780 by 1871 followed by a decrease to 3,512 by 1881, 2,913 by 1891, and 2,562 by 1901. Arran Township and Elderslie Township were once again united on 1 January 1999 and are now known as the Municipality of Arran-Elderslie (Robertson 1906). The population of the Municipality of Arran-Elderslie was 6,913 as of 2021.[66] Its agricultural sector continues to dominate the local economy.

4.4 STUDY AREA

4.4.1 HISTORY OF LOT 35 CONCESSION 4 (EAST HALF)

The first formal mapping showing Lot 35 Concession 4 is C. Rankin's 1851 Plan of Arran (Figure 3). This plan depicts lots and concessions, watercourses and lakes, and indicates the number of acres per lot, with Lot 35 Concession 4 shown as a 100-ac parcel. Rankin's field notes from

[63] Robertson, 271-273.
[64] Arran Township Historical Society, "Reflections of Arran 1852-1982."
[65] Robertson, 270-272.
[66] Statistics Canada, "Census Profile, 2021 Census of Population. Arran-Elderslie, Municipality (MU), Ontario [Census subdivision]," last modified February 1, 2023, accessed 23 August 2024. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E.

his 1851 survey, where he is surveying the road allowances and determining lot locations, state the following for the conditions of the 4th Concession road at Lot 35:

> Maple, beech & elm – large timber, at 15°, hem[lock], cedar, beech, and balsam, at 15°54 to 16°44 cross the AuSable flowing northerly, muddy bottom, then flat with timber as before, 20° post.[67]

Rankin's 1855 Map of the Counties of Grey and Bruce sets the township within the county perspective. This map does not depict the name of an owner or tenant or any buildings on the property. The property is bordered by a roadway on its northwest side and the Sauble River passes diagonally through the property's northeast corner.

The first people associated with Lot 35 Concession 4 were Michael Canton and William Herron, who appeared as owners of the property in Bruce County's 1867 directory.[68] Canton and Herron's occupancy predates the Crown Patent for the land, which was issued separately for its east and west halves. The Crown Patent for the west half of the property (listed as 100 acres, likely in error) was issued to Samuel Herron on 19 October 1869.[69] Herron sold the west 50-acres of the property to Christopher J. Crowe on 27 April 1871.[70]

The directory from 1876 identifies Charles J. Crowe and Charles Thompson Sr. as independent freeholders of the property's two halves.[71] Christopher J. Crowe's ownership is corroborated in the 1878 Tax Assessment Roll for the Municipality of Arran, which lists him as the owner of the west half of Lot 35 Concession 4 along with William Crowe and James Herron. The 1878 Tax Assessment Roll also corroborates the Thompson family's association with the property, citing that the east half of Lot 35 Concession 4 was owned by John KcKinnon Thompson, Charles Thompson's son. Members of the Thompson family – Charles and Charles Henry – also owned Lot 34 Concession 5 at the time.[72]

The following directory from 1880 only associates Christopher J. Crowe with the property, identifying that he owned 50 acres of the land and was a farmer.[73]. The 1880 Tax Assessment

[67] Rankin, C., "A33, Field Notes of Arran, 1851," Ministry of Natural Resources File No. FNB 28., 73.
[68] Rooklidge, J.W., "Directory of the County of Bruce, Canada West," (Montreal, Printed by John Lovell, St. Nicholas Street, 1867). https://www.canadiana.ca/view/oocihm.
[69] Land Registry Office 03 (Bruce) [LRO 03], "Abstract/Parcel Register Book. BRUCE (03), ARRAN, Book 34. CONCESSION 3 TO 4," n.d., instrument no: patent.
[70] LRO 03, instrument no: 1335.
[71] Brownell, J.H., "Directory for the county of Bruce, Ontario, Canada, 1876," (Kincardine: Printed by Crabbe & Brownell, 1876). https://www.canadiana.ca/view/oocihm.8_01166_1.
[72] Family Search, "Arran, Bruce, Ontario, Canada records," n.d., Tax Assessment Rolls 1878, Image Group No: 008200465. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSLG-JS3Y-N?view=index : Feb 13, 2025, image 18 of 566.
[73] Evans, W.W., "Bruce County Business Directory, 1880," n.p. https://digitalcollections.ucalgary.ca/archive/-Gazetteer-and-directory-of-Bruce-County--2R3BF1FJDWGTU.html.

Roll corroborates Crowe's ownership and continues to associate John KcKinnon Thompson with the property.[74] H. Belden & Co.'s map of the Township of Arran from 1880 shows Lot 35 Concession 4 in generally the same condition as C. Rankin's 1855 map. No owner or tenant or buildings are depicted (Figure 3). The Union Publishing Co.'s Farmers' and Business Directory for 1886-1887 identifies John Thompson as the property's freeholder.[75] Tax Assessment Rolls from 1888 do not list Lot 35 Concession 4. John Thompson and Charles H. Thomson are, however, identified as the owners of the nearby west and east halves of Lot 34 Concession 5.[76]

The Crown Patent for the east half of the property (listed as 50 acres) was issued to Charles Thompson – likely the same Charles Thompson identified in the 1876 directory – on 10 May 1889.[77] A review of Census records indicates that Charles Thompson was a farmer born in England around 1819.[78] Despite his known ownership of the property from LRAI records, Thompson is not associated with the property in the Union Publishing Co.'s Farmers' and Business Directory for 1889.[79] In 1891, Thomspon was a farmer, aged 69, married to Mary (45).[80] Mary Thompson was Charles Thompson's second wife. His first wife, Catherine, with whom he had several children including David, Charles H., George, Mary Ann, and John M., died in 1884.[81]

In 1892, Charles Thompson died, and the east half of Lot 35 Concession 4 was willed to his son, Charles Henry Thompson.[82]. Shortly after taking ownership of the property, Thompson acquired a $726.50 mortgage from William A. Gerolamy.[83] Charles Henry Thompson was born

[74] Family Search, "Arran, Bruce, Ontario, Canada records," n.d., Tax Assessment Rolls 1880, Image Group No: 008200465. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSLG-JS3K-W?view=index : Feb 13, 2025, image 66 of 566.
[75] Union Publishing Co., "Farmers' and Business Directory for the Counties of Bruce, Grey & Huron, 1886-1887" (Ingersoll: Printed at the Chronicle and Canadian Dairyman Office, Thames Street, 1886).
[76] Family Search, "Arran, Bruce, Ontario, Canada records," n.d., Tax Assessment Rolls 1888, Image Group No: 008200465. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSLG-JS3Q-9?view=index : Feb 13, 2025, image 202 of 566.
[77] LRO 03, instrument no: patent.
[78] Library and Archives Canada, "Census of Canada, 1871," n.d., Item ID No: 41704683. http://central.bac-lac.gc.ca/.redirect?app=census&id=41704683&lang=eng.
[79] Union Publishing Co., "Farmers' and Business Directory for the Counties of Bruce, Grey & Huron, 1889" (Ingersoll: Printed by C.R. Patience, Book and Directory Printer, King Street, 1889).
[80] Library and Archives Canada, "Census of Canada, 1891," n.d., Item ID No: 25087509. http://central.bac-lac.gc.ca/.redirect?app=census&id=25087509&lang=eng.
[81] Archives of Ontario, "Registrations of Deaths, 1869-1942 (MS 935, reels 1-694)," n.d., accessed via Ancestry.ca. https://www.ancestry.ca/search/collections/8946/records/924153?tid=&pid=&queryId=79494261-fa5e-45d8-a034-8ddaac89267e&_phsrc=Cyd40&_phstart=successSource.; Library and Archives Canada, "Census of Canada, 1871," n.d.[A].
[82] Archives of Ontario, "Registrations of Deaths, 1869-1942 (MS 935, reels 1-694)," n.d., accessed via Ancestry.ca. https://www.ancestry.ca/search/collections/8946/records/1771261.; LRO 03, instrument no: 5219.
[83] LRO 03, instrument no: 5258.

to Charles Thompson and Catherine Thompson on 17 June 1848 in Makhanda (formerly Grahamstown), South Africa.[84] In 1891, Thompson was a farmer aged 42, married to Mary Ann with five children, Jessie (15), Charles (12), William (10), Catherine (8), and Walter (4).[85] The Union Publishing Co.'s Farmers' and Business Directory for 1892 does not associate either Charles Thompson or Charles Henry Thompson with the property.[86] The 1894 Tax Assessment Roll confirms that Charles H. Thompson owned the property. At the time, 40-acres had been cleared, and the property was worth $1,100.00.[87]

Subsequent maps and directories do not associate Charles Henry Thompson with the property, despite his known ownership from LRAI and Tax Assessment records. A map of Arran Township from 1899 depicts 'P. Cunningham' as the owner or tenant of the east half of Lot 35 Concession 4.[88] The Union Publishing Co.'s Farmers' and Business Directory for 1901 identifies Andrew Freeborn as the property's freeholder, and the Union Publishing Co.'s Farmers' and Business Directory for 1910 identifies Thomas Dolphin as a tenant and John Watson as a freeholder of the property.[89]

Although not specifically clear how through LRAI records, legal action taken by Isaac G. Bowles and Harvey M. Merrian, executors of William A. Gerolamy (plaintiffs), against Charles H. Thompson and Mary Ann Thompson (defendants) on 3 August 1917 resulted in the former parties' ownership of the property.[90] The property was subsequently sold to Thomas Dealy on 21 May 1926 for $2,200.00.[91]

A 1938 aerial photograph shows Lot 35 Concession 4 as an undeveloped lot. Most of the property appears to be covered by crops, while the river is surrounded by pasture and a woodlot is located along the southeast property line (Figure 4). On 23 June 1975, a Reference

[84] Find a Grave Index, "Charles Henry Thompson," n.d., 1600s-Current. Accessed via Ancestry.ca. https://www.ancestry.ca/search/collections/60527/records/3015038?tid=23255770&pid=27565182147&ssrc=pt.
[85] Library and Archives Canada, "Census of Canada, 1891," n.d., item ID No: 25086931. http://central.bac-lac.gc.ca/.redirect?app=census&id=25086931&lang=eng.
[86] Union Publishing Co., "Farmers' and Business Directory for the Counties of Bruce, Grey & Huron," (Ingersoll, 1892).
[87] Family Search, "Arran, Bruce, Ontario, Canada records," n.d., Tax Assessment Rolls 1894, Image Group No: 008200465. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSLG-JS3B-T?view=index : Feb 13, 2025, image 316 of 566;.
[88] Arran Township Historical Society, "Reflections of Arran 1852-1982," 1982, Owen Sound, Stan Brown Printers Ltd.
[89] Union Publishing Co., "Farmers' and Business Directory for the Counties of Bruce, Grey & Simcoe for 1901," (Ingersoll, 1901). https://archive.org/details/unionpublishingc12uniouoft/page/n3/mode/2up?view=theater.; Union Publishing Co., "Farmers' and Business Directory for the Counties of Bruce, Grey & Simcoe, Vo. XVI, 1910," (Ingersoll, 1910). https://archive.org/details/unionpublishingc16uniouoft/page/n3/mode/2up?view=theater.
[90] LRO 03, instrument no: 9033.
[91] LRO 03, instrument no: 10198.

Plan – Plan 3R-1150– was prepared for the property.[92] Aerial imagery and National Topographic System maps from throughout the mid- to late 20th century and early 21st century continue to show the property as agricultural with crop, pasture, and woodlot (Figure 4 and Figure 5).

4.4.2 HISTORY OF LOT 36 CONCESSION 4

The first formal mapping showing Lot 36 Concession 4 is C. Rankin's 1851 Plan of Arran (Figure 3). This plan depicts lots and concessions, watercourses and lakes, and indicates the number of acres per lot, with Lot 36 Concession 4 shown as a 120-acre parcel. Rankin's field notes from his 1851 survey, where he is surveying the road allowances and determining lot locations, state the following for the conditions of the 4th Concession road at Lot 36:

> Hem[lock], cedar, maple, elm of (?) large timbers, good soil, at 8° rolling surface, at 12° flat, at 18° cross a neck of swale connecting larger ones on right & left, at 25° the allowance for road between Arran & Derby.[93]

Due to the survey being the road allowance, the Sauble River is not mentioned under Lot 36 as it crosses the 4th Concession on Lot 35, where Rankin notes "…cross the AuSable flowing northerly, muddy bottom, then flat with timber…".[94]

Rankin's 1855 Map of the Counties of Grey and Bruce sets the township within the county perspective. This map does not depict the name of an owner or tenant or any buildings on the property. The property is bordered by roadways on its northeast and northwest sides and the Sauble River passes diagonally through the property from its northwest to its southeast corner.

The first person associated with Lot 36 Concession 4 was John Noonan, who appeared as the property's owner in Bruce County's 1867 directory.[95] Noonan's occupancy predates the Crown Patent for the land, which was issued on 28 October 1872 to William Broddy.[96] The following

[92] LRO 03, instrument no: Plan 3R-1150.
[93] Rankin, C., "A33, Field Notes of Arran, 1851," 73.
[94] Rankin, C., "A33, Field Notes of Arran, 1851," 73.
[95] Rooklidge, J.W., "Directory of the County of Bruce, Canada West," (Montreal, Printed by John Lovell, St. Nicholas Street, 1867). https://www.canadiana.ca/view/oocihm.12776.
[96] LRO 03, instrument no: patent.

directories from 1876 and 1880 identify that Edward Shain, a farmer, leased the entire 120-acre property.[97] On 5 October 1880, Broddy sold the property to William H. Vernon.[98]

A review of the Census records and Tax Assessment Rolls indicate that William Harrison Vernon was a sawmiller and farmer, born in 1853/54, who goes by either W.H. or by Harrison.[99] In 1881, Harrison was a young farmer, aged 27, married to Mary (25) with two young children, James Wesley (2) and Jessie E (7 months), who had 30 cleared acres on Lot 36, Concession 4. The 1886-1887 directory identifies Harrison Vernon as the property's freeholder.[100] The 1889 Tax Assessment Roll lists W.H. Vernon as working at a sawmill on part of Lot 33, Concession 7 Arran, approximately two miles north on the Sauble River, and by 1899 he had been joined in this endeavour by his son, J.W.[101]

H. Belden & Co.'s map of the Township of Arran from 1880 shows Lot 36 Concession 4 in generally the same condition as C. Rankin's 1855 map. No owner or tenant or buildings are depicted (Figure 3). Interestingly, the Grey-Bruce Line road which borders the eastern edge of the Study Area was not completed in a straight line along that section at that time, a jog into neighbouring Sullivan Township for an easier crossing of the Sauble River being indicated jogging east just north of the river crossing the County Line on Lot 36 Concession 4 and rejoining the Line road at Concession 2. The road was straightened to its current alignment between 1880 and 1938 (see Figure 4).

William H. Vernon sold the property to William Betts, a farmer, on 18 November 1887.[102] Betts' ownership is corroborated in the 1889 and 1892 directories of Bruce County, which identify him as the property's freeholder.[103] Mary Maria Betts, the executrix of William Betts' will, sold

[97] Brownell, J.H., "Directory for the county of Bruce, Ontario, Canada, 1876," (Kincardine: Printed by Crabbe & Brownell, 1876). https://www.canadiana.ca/view/oocihm.8_01166_1; William. W. Evans, "Bruce County Business Directory, 1880," n.p. https://digitalcollections.ucalgary.ca/archive/-Gazetteer-and-directory-of-Bruce-County--2R3BF1FJDWGTU.html.
[98] LRO 03, instrument no: 3171.
[99] Library and Archives Canada, "Census of Canada, 1891," n.d., item ID No: 25087229. http://central.bac-lac.gc.ca/.redirect?app=census&id=25087229&lang=eng.; Library and Archives Canada, "Census of Canada, 1881," n.d.[H], item ID No: 20566943. https://recherche-collection-search.bac-lac.gc.ca/eng/Home/Record?app=census&IdNumber=20566943&ecopy=e008205192.
[100] Union Publishing Co., "Farmers' and Business Directory for the Counties of Bruce, Grey & Huron, 1886-1887."
[101] Family Search, "Arran, Bruce, Ontario, Canada records," n.d., Tax Assessment Rolls 1889, Image Group No: 008200465. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSLG-JSSY-7?view=index : Feb 3, 2025, image 252 of 566;.; Family Search, "Arran, Bruce, Ontario, Canada records," n.d., Tax Assessment Rolls 1899, Image Group No: 08200465. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSLG-JS3Q-D?view=index : Feb 3, 2025, image 541 of 566;.
[102] Library and Archives Canada, "Census of Canada, 1891." Item ID No: 25086941, accessed 22 August 2024. http://central.bac-lac.gc.ca/.redirect?app=census&id=25087229&lang=eng; LRO 03, instrument no: 4461.
[103] Union Publishing Co., "Farmers' and Business Directory for the Counties of Bruce, Grey & Huron, 1889" (Ingersoll: Printed by C.R. Patience, Book and Directory Printer, King Street, 1889).

the property to Charles William Speer on 15 April 1897.[104] Speer's ownership ended on 9 August 1897, when he sold the lot to William Thomson.[105] Thomson subsequently sold the property to Joseph Watson, who was a farmer, on 1 April 1898.[106]

Joseph Watson had arrived in Arran Township as a young child with his family in 1856, his parents John and Mary purchasing 400 acres.[107] Joseph and his wife Mary later inherited Lot 26 Concession 3, and raised their family including sons John, James and William. [108]Joseph also had an elder brother, John Jr. It is probable, therefore, that the John Watson Jr. noted in subsequent mapping and the land record abstract as the occupant/owner of Lot 36 is either Joseph's brother or son, both of whom were farming in Arran Township in 1901.[109] A map of Arran Township from 1899 depicts John Watson Jr. as the property owner of Lot 36, Concession 4[110], and the 1901 directory identifies John Watson Jr. as the property's freeholder.[111] This does not directly align with land registry abstracts; however, John Watson Jr. did acquire the property on 1 August 1902.[112]

On 1 August 1907, John Watson Jr. sold the property to Daniel McMullen for $5,600.00.[113] McMullen's ownership is corroborated in the 1910 directory, which identifies him as the property's freeholder.[114] The McMullen family retained ownership of the property until the early 1970s.

https://www.canadiana.ca/view/oocihm.8_01388_2; Union Publishing Co., "Farmers' and Business Directory for the Counties of Bruce, Grey & Huron for 1892" (Ingersoll, 1892). https://www.canadiana.ca/view/oocihm.8_01388_3.

[104] LRO 03, instrument no: 5799.

[105] LRO 03, instrument no: 5873.

[106] Library and Archives Canada, "Census of Canada, 1901," Item ID No: 37045368, accessed 22 August 2024. http://central.bac-lac.gc.ca/.redirect?app=census&id=37045368&lang=eng; LRO 03, instrument no: 5963.

[107] Arran Township Historical Society, "Reflections of Arran 1852-1982."

[108] Arran Township Historical Society, "Reflections of Arran 1852-1982."

[109] Library and Archives Canada, "Census of Canada, 1901," n.d.[G], item ID No: 37045235. http://central.bac-lac.gc.ca/.redirect?app=census&id=37045235&lang=eng.; Library and Archives Canada, "Census of Canada, 1901," n.d., item ID No: 37045234. https://recherche-collection-search.bac-lac.gc.ca/eng/Home/Record?app=census&IdNumber=37045234&ecopy=z000053929.

[110] Arran Township Historical Society, "Reflections of Arran 1852-1982."

[111] Union Publishing Co., "Farmers' and Business Directory for the Counties of Bruce, Grey & Simcoe for 1901," (Ingersoll, 1901). https://archive.org/details/unionpublishingc12uniouoft/page/n3/mode/2up?view=theater.

[112] LRO 03, instrument no: 6802.

[113] LRO 03, instrument no: 7644.

[114] Union Publishing Co., "Farmers' and Business Directory for the Counties of Bruce, Grey & Simcoe, Vo. XVI, 1910," (Ingersoll, 1910). https://archive.org/details/unionpublishingc16uniouoft/page/n3/mode/2up?view=theater.

A 1938 aerial photograph shows Lot 36, Concession 4 with a number of structures including house, barn and outbuildings, fronting Concession 4 (Figure 4). The fields north of the Sauble River appear to be in crops, while south of the river is a mix of pasture and woodlot.

A 1946 topographic map showing the property depicts two buildings, a house and a barn, located near Concession 4 Arran between Grey-Bruce Line to the east and the Sauble River to the west. The house is located closer to the road and the barn is more deeply setback to the south of the house (Figure 5). A topographic map from 1952 depicts no major discernable changes to the property (Figure 5). The 1954 aerial photograph (Figure 4) has poor resolution, however it appears that additional structures may be present west of the house, and that some of the southern fields may be in crop instead of pasture.

On 8 December 1970, the east 10 feet of Lot 36 Concession 4 was granted to the Municipal Corporation of the Township of Arran.[115] On 12 February 1973, a Reference Plan – Plan 3R-300 – was prepared for the property.[116] Despite these alterations to the property, the 1973 topographic map does not depict any major discernable changes (Figure 5). On 30 October 1972 (registered 1 May 1973), the property described as 'lot less E 10 ft…' was granted to the director of the Veteran's Land Act for $17,703.00.[117]

On 23 June 1975, a second Reference Plan – Plan 3R-1151 – was prepared for the property.[118] Shortly thereafter in 1976 (illegible date) Ontario Hydro expropriated an unidentified section of the property.[119] On 14 December 1976, a third Reference Plan – Plan 3R-1688 – was prepared.[120] An aerial photograph from 1976 shows areas of disturbance around the farmstead location suggestive of demolition activities, and only two structures evident (Figure 4). The hydro corridor is not yet present.

On 7 February 1977, the director of the Veteran's Land Act granted part of the property, described as 'Parts 1, 2 & 3 on Ref. Plan 3R-1688 [illegible] right of way over part 2', to Ontario Hydro.[121] Shortly thereafter, on 1 May 1978, the director of the Veteran's Land Act granted the remainder of the property to new owners.[122] A topographic map from 1978 depicts no major discernable changes to the property (Figure 5).

[115] LRO 03, instrument no: 81657.
[116] LRO 03, instrument no: Plan 3R-300.
[117] LRO 03, instrument no: 103305.
[118] LRO 03, instrument no: Plan 3R-1151.
[119] LRO 03, instrument no: 957.
[120] LRO 03, instrument no: Plan 3R-1688.
[121] LRO 03, instrument no: 145384.
[122] LRO 03, instrument no: 158691.

The owners of Lot 36 Concession 4 partitioned the property into two separate lots. On 16 May 1978, they sold the smaller section – now known as 37 Concession 4 Arran – to new owners and on 17 May 1978, they sold the larger section – now known as 39 Concession 4 Arran – to a new owner.[123] The majority of the early 20th century farmstead structures (including the barn and other outbuilding) were within the parcel retained as 39 Concession 4 Arran while the house is on the partitioned section (37 Concession 4 Arran).

4.4.2.1 39 CONCESSION 4 ARRAN (MUNICIPAL ADDRESS HISTORY)

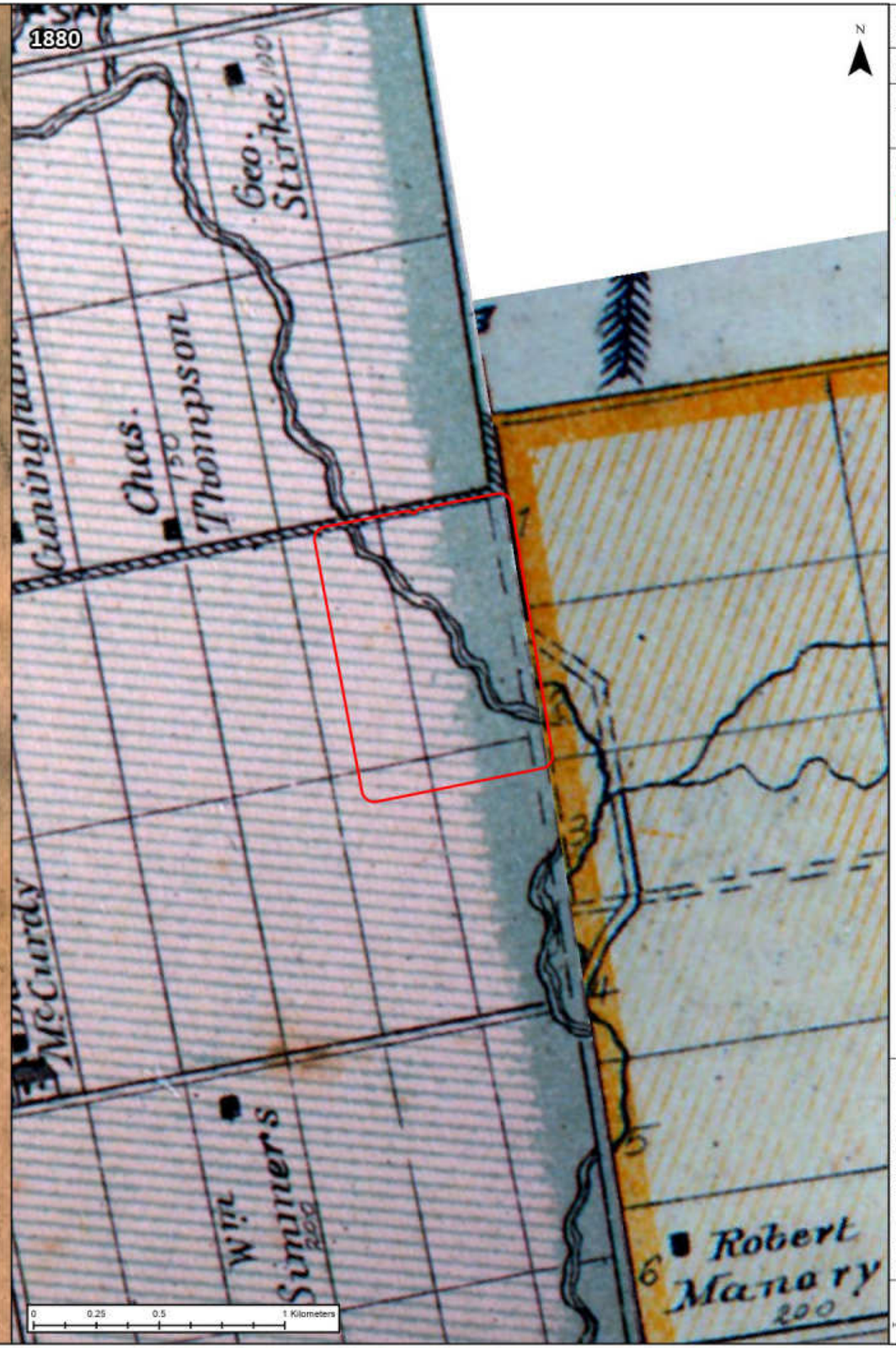
The ownership of the property at 39 Concession 4 Arran changed several times in the latter three decades of the 20th century. The 1993 topographic map shows an electric transmission line corridor extending across the southern portion of the original Crown lot (Figure 5). The subsequent 2000 topographic map depicts no major discernable changes to the property (Figure 5).

On 23 December 2004, the Corporation of the County of Bruce passed By-law 32-04 ‘to designate pt lt 36 con 4 as in 81651 as part of Grey-Bruce Line and to consent to the transfer of jurisdiction of said highway to the corporation of the County of Bruce’.[124]

The 2006 air photo (Figure 4) showing the property at 39 Concession 4 Arran shows a barn, shed, and five outbuildings that are each accessed from the lot’s unpaved driveway. Mature deciduous and/or coniferous trees extend along both sides of the driveway. Much of this lot has been cleared; however, there are large sections densely populated with mature deciduous and coniferous trees. The bank of the Sauble River is particularly populated with trees. The electric transmission line corridor across the southern portion of the Study Area is also visible.

By 2010, the shed on the west side of the unpaved driveway to the north of the barn on 39 Concession 4 Arran had been demolished (Figure 4). The 2015 and 2020 air photos showing the property show that no major discernable changes were made to the property (Figure 4).

[123] LRO 03, instrument no: 158707; LRO 03, instrument no: 158705.
[124] LRO 03, instrument no: 391462.



TITLE
1851 and 1880 Historic Map Showing the Property

CLIENT
BBA Engineering Ltd.

PROJECT — PROJECT NO. LHC0459
Tara BESS, Part Lot 35 and 36 Concession 4, Municipality of Arran-Elderslie, Bruce County, ON

Legend

Study Area

NOTE(S) 1. All locations are approximate.
REFERENCE(S)

H. Belden & Co. 1880 Township of Arran, scale 100 chains per inch, The Canadian County Atlas Digital Project, digitized map, <LINK>https://digital.library.mcgill.ca/countyatlas/searchmapframes.php,</LINK> accessed 26 August, 2024.
1880 Township of Sullivan, scale 100 chains per inch, The Canadian County Atlas Digital Project, digitized map, <LINK>https://digital.library.mcgill.ca/countyatlas/searchmapframes.php,</LINK> accessed 10 September, 2024.

Rankin, Charles. 1851 Plan of Arran, scale 40 chains per inch.

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-05-28

FIGURE # 3

Legend

Study Area

TITLE
1938, 1954, 1976, 2006, 2010, 2015, and 2020 Aerial Photographs Showing the Study Area

CLIENT
BBA Engineering Ltd.

PROJECT
Tara BESS, Part Lot 35 and 36 Concession 4, Municipality of Arran-Elderslie, Bruce County, ON

PROJECT NO. LHC0459

NOTE(S) 1. All locations are approximate.

REFERENCE(S)

Bruce County

2006 2006 Air Photo, Bruce County Maps, base map, https://maps.brucecounty.on.ca/Geocortex/HtmlSViewer/index.html?viewer=BruceMaps, accessed 6 September, 2024.

2010 2010 Air Photo, Bruce County Maps, base map, https://maps.brucecounty.on.ca/Geocortex/HtmlSViewer/index.html?viewer=BruceMaps, accessed 6 September, 2024.

2015 2015 Air Photo, Bruce County Maps, base map, https://maps.brucecounty.on.ca/Geocortex/HtmlSViewer/index.html?viewer=BruceMaps, accessed 6 September, 2024.

2020 2020 Air Photo, Bruce County Maps, base map, https://maps.brucecounty.on.ca/Geocortex/HtmlSViewer/index.html?viewer=BruceMaps, accessed 6 September, 2024.

National Air Photo Library

1938 A6007-085, roll A6007 line 22W photo 85, scale 1:20,000.

1976 A24340-0125, roll A24340 line 39W photo 125, scale 1:50,000.

University of Toronto

1954 444 811, 1954 Air Photos of Southern Ontario, University of Toronto Libraries, digitized photo, https://mdl.library.utoronto.ca/collections/air-photos/1954-air-photos-southern-ontario/index, accessed 6 September, 2024.

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-05-28

FIGURE # 4

1946

1993

2000

TITLE
1946, 1993, and 2000 Topographic Maps Showing the Study Area

CLIENT
BBA Engineering Ltd.

PROJECT
Tara BESS, Part Lot 35 and 36 Concession 4, Municipality of Arran-Elderslie, Bruce County, ON

PROJECT NO. LHC0459

Legend

Study Area

NOTE(S) 1. All locations are approximate.

REFERENCE(S)

Department of National Defence
1946 Port Elgin (Ontario), scale 1:63,360, Scholars Geoportal, digitized map, https://geo.scholarsportal.info/#r/details/_uri@=HTDP63360K041A05-A06_1946TIFF&_add:true_nozoom:true, accessed 21 August, 2024.

Natural Resources Canada
1993 Chelsey (Ontario), scale 1:50,000, Scholars Geoportal, digitized map, https://geo.scholarsportal.info/#r/details/_uri@=NTS50K041A06_1993ed4mceTIFF&_add:true_nozoom:true, accessed 21 August, 2024.
2000 Chelsey (Ontario), scale 1:50,000, Scholars Geoportal, digitized map, https://geo.scholarsportal.info/#r/details/_uri@=NTS50K041A06_2000ed5TIFF&_add:true_nozoom:true, accessed 21 August, 2024.

LHC HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-05-28

FIGURE # 5

4.4.3 MID-19TH CENTURY TO PRESENT DAY IN MAPPING AND IMAGERY

Several historic maps, topographic maps, and aerial photographs were consulted to understand the 19th to 21st century built context, natural context, and morphology of the Study Area. A summary of morphological change in the Study Area is provided in Table 1. This table emphasizes the built and natural physical characteristics of the Study Area. Only physical characteristics of the space within the Study Area are considered.

While historic maps and topographic maps can provide a great deal of information about the land use history of a property or Study Area, there are some limitations. Not all features of interest were surveyed to the same degree of accuracy or included on the maps. Furthermore, subscribers to historical atlases were given preference in terms of the degree of detail included for their property.

Table 1. Morphological Change in the Study Area

Data and Data Medium (Figure)	Morphological Change
1851 Historic Map of Bruce County (Figure 3)	• Lot and concession configuration, acreage, and the Sauble River are depicted for Arran Township. • The Sauble River is on Lot 35 Concession 5, Lot 35 and Lot 36 Concession 4, and Lot 36 Concession 3.
1880 Historic Map of Bruce County and 1880 Historic Map of Grey County (Figure 3)	• Lot and concession configuration, ownership/tenancy, and the Sauble River are depicted for Arran Township, Bruce County and Sullivan Township, Grey County. • No owner/tenant or development is depicted for any of the lot and concession parcels in the Study Area. • Concession 4 Arran and Grey-Bruce Line – which curved around the Sauble River on Lot 2 and 3 Concession 13 in Sullivan Township – are depicted.
1938 Air Photo (Figure 4)	• All properties in the Study Area appear to have had an agricultural land use. • One building is present on 39 Concession 4 Arran. • One building is present on 37 Concession 4 Arran. • Two buildings are present on 32 Concession 4 Arran. • Two buildings are present on 74 Concession 4 Arran. • One building is present on Assessment Parcel 420432000313700.

Data and Data Medium (Figure)	Morphological Change
1946 Topographic Map (Figure 5)	• Two buildings are depicted on 160 Concession 2 Arran. • The building on Assessment Parcel 420432000313700 is not depicted.
1973 Topographic Map (Figure 5)	• The two buildings on 32 Concession 4 Arran are no longer depicted. A gravel pit is in the approximate location of the former buildings.
1976 Air Photo (Figure 4)	• A new building replaced the previously observed building on 39 Concession 4 Arran. • The buildings on 32 Concession 4 Arran are no longer present – corroborating the 1973 topographic map. • A farming complex is present on 160 Concession 2 Arran. • Two buildings are present on 125 Concession 4 Arran – corroborating the 1946 topographic map.
1993 Topographic Map (Figure 5)	• One building is depicted on 32 Concession 4 Arran. • The electric transmission line corridor that travels east-west through Lot 35 and 36 Concession 4 in Arran Township and Lot 2 and Lot 3 Concession 13 in Sullivan Township is depicted.
2006 Air Photo (Figure 4)	• A new building is present to the north of the barn on 39 Concession 4 Arran. • One building is present on 016913 Grey-Bruce Line. • Two small buildings were built on Assessment Parcel 420432000313800. • All buildings on 125 Concession 4 Arran had been demolished.
2010 Air Photo (Figure 4)	• The building to the north of the barn on 39 Concession 4 Arran was removed.
2015 Air Photo (Figure 4)	• Two new buildings were built on 32 Concession 4 Arran. • A new outbuilding with an arched roof was built on 74 Concession 4 Arran.

Data and Data Medium (Figure)	Morphological Change
2020 Air Photo (Figure 4)	• No discernable changes were made.

4.5 HISTORY AND CONFIGURATION OF FARMING LANDSCAPES

In general, the arrangement of farm landscapes in Ontario was the result of local township surveys and other practical considerations. The landscape and built environment developed from cultural norms, demand for certain agricultural products at the time, topography, accessible water, wind and weather patterns, available labour, and technology.

Early Euro-Canadian settlers generally started by clearing land and growing various grains, peas, corn, squash and common vegetables.[125] Over time they often added fruit orchards and some livestock such as oxen, pigs, sheep and chickens.[126] Early farmers rarely had surplus, but any surplus they had was generally sold to the government.[127] As farms became established in the early nineteenth century wheat became a dominant crop for sale.[128] Politics and broader geopolitical changes and challenges, including the Reciprocity Agreement and the Crimean War, as well as increased settlement and advances in transportation led to an increasingly diverse and lucrative agricultural sector.[129] Farms were able to produce and sell a wider variety of grains, livestock, butter, and wool. In the 1860s factory cheese production developed in the Province.[130] In the late nineteenth century and throughout the twentieth century agriculture continued to develop and grow to include market gardening, vegetable and fruit farms, tobacco, dairy, beef, and pork.[131]

Farming complexes were generally setback from, but oriented towards public roads and centred approximately halfway between their respective side property lines. This siting buffered the complex buildings from dust and promoted privacy.[132] Barns were often set back

[125] Jones, R.L., "History of Agriculture in Ontario 1613-1880," (University of Toronto Press, Toronto, ON, 1946), p. 22.
[126] Jones, R.L., p.22-23.
[127] Jones, R.L., p.23.
[128] Dick, L. and Jeff Taylor, "History of Agriculture to the Second World War," The Canadian Encyclopedia, online, last edited 5 March 2024, https://www.thecanadianencyclopedia.ca/en/article/history-of-agriculture.
[129] Dick, L. and Jeff Taylor.
[130] Dick, L. and Jeff Taylor.
[131] Dick, L. and Jeff Taylor.
[132] McIlwraith, T.F., "Looking for Old Ontario: Two Centuries of Landscape Change," (University of Toronto Press, Toronto, ON, 1999), p. 24; Wendy Shearer Landscape Architect Limited, "Cultural Landscape Assessment Central Pickering: Seaton Lands," pdf, 2005, p. 9.

100-200 metres from the road and approximately halfway between the side boundaries.[133] Access to water was a critical factor in the site and arrangement of farms. Access to surface streams was important on early farms but over time as land clearance and cultivation affected the streams access to groundwater through wells shaped the arrangement of farms.[134] Complexes of farm buildings were generally on well drained land and in many cases were located on glacial till and gravel areas. They were also often at a high point with the ground sloping away from the buildings.[135]

Throughout the 19th century buildings were added to farms as required. However, by the late 19th century farms began to be designed with large well laid out, efficient, barns with integrated stables or livestock pens. It was considered more efficient to build or rebuild a single large barn instead of clustering several smaller buildings around the site.[136] Mechanization led to new buildings being added to farms to accommodate equipment needs. Scientific research and technological improvements in grain, milk and silage storage also led to new structures and adaptations to farm structures.

The arrangement of buildings generally included an attractive house in front with utilitarian buildings in behind.[137] A large barn as an impressive structure would be a distance behind the house because it was liable to catch fire.[138] Straight lines of planted trees would often serve as a wind break and lightning rods.[139] In some cases, buildings used for livestock or associated with unpleasant smells would be set well away from and downwind of the house; however, this was not always the case.[140] The house generally faced the road and was close enough that a long front yard formed the foreground of the house.[141] The front yard generally included open lawn with shrubs and trees.[142] A large front lawn may have been a more formal setting with flower gardens and shrubs while the area behind the house would serve as a summer kitchen and domestic work space.[143] The side yards would have vegetable gardens, ornamental display gardens and work areas for domestic activities.[144] Pasture and vegetable fields would be located close to the complex of buildings with crop fields further out. Hay fields and woodlots would generally be the furthest from the complex of buildings.

[133] McIlwraith, T.F., p. 241.
[134] McIlwraith, T.F., p. 242.
[135] McIlwraith, T.F., p. 242; Shearer, p. 9.
[136] McIlwraith, T.F., p. 181
[137] McIlwraith, T.F., p. 243.
[138] McIlwraith, T.F., p. 244.
[139] McIlwraith, T.F., p. 244.
[140] McIlwraith, T.F., p. 245.
[141] Wendy Shearer Landscape Architect Limited, p. 10.
[142] Wendy Shearer Landscape Architect Limited, p. 10.
[143] McIlwraith, T.F., p. 242-244.
[144] Wendy Shearer Landscape Architect Limited, p. 10.

5 EXISTING CONDITIONS OF THE STUDY AREA

5.1 SURROUNDING CONTEXT

The Study Area is in the Municipality of Arran-Elderslie in Bruce County and the Township of Chatsworth in Grey County. It is approximately 3.0 kilometres (km) southeast of the village of Tara and approximately 14.5km southwest of the City of Owen Sound.

The topography of the Study Area and its surrounding context is relatively flat with some gentle hills interspersed throughout. Hills are particularly present to the west of the Study Area and along the banks of the Sauble River. Local vegetation in the Study Area typically comprises some arrangement of mature deciduous and/or coniferous trees and tall grass. Mature trees are commonly situated along property lines, driveways, and around houses. Large groupings of trees – woodlots – are also present on certain properties in the area. Mature trees, along with tall grass and brush also commonly line the banks of the Sauble River. Roads in the area generally have tall grass along their edges. Houses on the properties in the area typically have a manicured lawn and other landscaping features including bushes, shrubs, and gardens with perennial flowers.

The Study Area is surrounded by properties that are used for agriculture, including a combination of cultivated fields, pastureland, and woodlot. Developed properties in the area are typically occupied by farming complexes. Building organization, size, setback distances and material composition differ between properties.

5.2 STUDY AREA

The project is located on an irregularly shaped assemblage of four assessment parcels collectively summing to 67.60 hectares to the southwest of the intersection of Concession 4 Arran and the Grey-Bruce Line (Figure 2). It is composed of Assessment Parcel 410349000307100 (east half of Lot 35 Concession 4) and three individual parcels of land on Lot 36 Concession 4. The individual parcels of Lot 36 Concession 4 are the property municipally known as 39 Concession 4 Arran, Assessment Parcel 410349000104201 (Hydro One electric transmission line corridor), and the parcel bound by a Hydro One electric transmission line corridor and the southeast concession border (part of Assessment Parcel 410349000305200).

In addition to the four properties that comprise the Development Lands, the Study Area also includes six property parcels in the Township of Arran-Elderslie, Bruce County and six property parcels in the Township of Chatsworth, Grey County. Two roads, Concession 4 Arran and Grey-Bruce Line.

Concession 4 Arran is a municipal road east-west between Grey-Bruce Line to the east and Bruce Road 3 to the west. It has one eastbound and one westbound road and an asphalt driving surface.

Grey-Bruce Line is a county road/line maintained by Bruce County that travels north-south between Bruce County to the west and Grey County to the east. It provides access between Highway 21 to the north and the junction of Bruce Road 10 and Grey Road 25 to the south. In the Study Area, it has one northbound and one southbound lane, asphalt driving surface, and graveled shoulder. Wood electrical poles extend along the west side of the road.

In addition to the four properties that comprise the Development Lands, the Study Area includes parts of:

- The following properties to the northwest of the Development Lands:
    - 37 Concession 4 Arran;
    - 32 Concession 4 Arran; and,
    - 74 Concession 4 Arran.
- The following properties to the northeast of the Development Lands:
    - 016913 Grey-Bruce Line;
    - Assessment Parcel 420432000313700;
    - 016871 Grey-Bruce Line;
    - Assessment Parcel 420432000314000;
    - Assessment Parcel 420432000105501 (Hydro One electric transmission line corridor); and,
    - Assessment Parcel 420432000314100.
- The following properties to the southeast of the Development Lands:
    - Assessment Parcel 410349000305200 (also part of Development Lands); and,
    - 160 Concession 2 Arran.
- The following property to the southwest of the Development Lands:
    - 125 Concession 4 Arran.

Each of the individual properties that are in the Study Area are individually described in the following subsections.

5.2.1 ASSESSMENT PARCEL 410349000307100

Assessment Parcel 410349000307100 comprises the east half of Lot 35 Concession 4 in the Township of Arran-Elderslie. It is a rectangular lot of 20.23-hectares on the southeast side of Concession 4 Arran. The property has an agricultural observed land composed of cultivated fields, pastureland, and woodlot. The Sauble River travels through its northeast corner and a Hydro One electric transmission line corridor travels through the south part of the lot. One transmission tower is on the property (Photo 1).

Photo 1. View southeast from Concession 4 Arran showing Assessment Parcel 410349000307100

5.2.2 39 CONCESSION 4 ARRAN

The property at 39 Concession 4 Arran comprises the north part of Lot 36 Concession 4 in the Township of Arran-Elderslie. It is an irregularly shaped lot of 45.78-hectares to the southwest of the intersection of Concession 4 Arran and Grey-Bruce Line. The property has an agricultural observed land composed of farmland (Photo 2 through Photo 4). It is occupied by a barn and three open sheds. The Sauble River bisects the property, traveling northwest-southeast (Photo 5).

A gravel driveway connected to Concession 4 Arran provides access to the property and it leads to the barn. The barn has a rectangular plan with side wing addition on its southwest elevation and is one storey. The main barn is clad in metal siding and has a low gable roof clad in metal. The side wing addition is clad in board and batten siding and it has a shed roof that matches the shape and angle of the main barn's roof. All three open sheds are wood frames and have metal roofs. The north shed and east shed have shed roofs and the south shed has a gable roof. Dense vegetation on the property is common along the driveway and the bank of the Sauble River.

Photo 2. View southeast from Concession 4 Arran showing the property at 39 Concession 4 Arran

Photo 3. View southwest from Concession 4 Arran showing the property at 39 Concession 4 Arran

Photo 4. View northwest from Grey-Bruce Line showing the property at 39 Concession 4 Arran

Photo 5. View southwest from Grey-Bruce Line showing the Sauble River on 39 Concession 4 Arran

5.2.3 ASSESSMENT PARCEL 410349000104201 (ELECTRIC TRANSMISSION LINE CORRIDOR)

Assessment Parcel 410349000104201 comprises the south part of Lot 36 Concession 4 in the Township of Arran-Elderslie. This lot is part of a Hydro One electric transmission line corridor (Photo 6). It is a rectangular lot of approximately 1.79-hectares to the south of 39 Concession 4 Arran. It is covered with low-lying grass. A tributary to the Sauble River passes through the lot. Three transmission towers are on the property. A gravel driveway connected to Grey-Bruce Line provides access.

Photo 6. View northwest from Grey-Bruce Line showing the Hydro One electric transmission line corridor on Assessment Parcel 410349000104201

5.2.4 PART ASSESSMENT PARCEL 410349000305200

Assessment Parcel 410349000305200 comprises the south part of Lot 36 Concession 4 and the north part of Lot 35 and 36 Concession 3 in the Township of Arran-Elderslie. It is an irregularly shaped lot of 30.76-hectares on the southwest side of Grey-Bruce Line. The property has an agricultural observed land use composed of pastureland and woodlot. A tributary to the Sauble River passes through the lot. A board and batten shed is located in the lot's eastmost corner (Photo 7).

Photo 7. View southwest from Grey-Bruce Line showing the north part of Assessment Parcel 410349000305200

5.2.5 37 CONCESSION 4 ARRAN

The property at 37 Concession 4 Arran comprises part of Lot 36 Concession 4 in the Township of Arran-Elderslie. It is a rectangular lot of 0.76-hectares located on the southeast side of Concession 4 Arran and bordered by 39 Concession 4 Arran on its northeast, southeast, and southwest sides. The property has a residential observed land use and is occupied by a house and outbuilding.

A gravel driveway connected to Concession 4 Arran provides access to the property and it leads to the house and outbuilding. The house has a rectangular plan and is two storeys. It is clad in red brick and has a side gable roof (Photo 8). The outbuilding was not observed. Dense rows of mature deciduous and coniferous trees are present on all property lines and along the southwest side of the driveway. Additional mature deciduous and coniferous are present in the property's front, side, and back yards.

Photo 8. View southeast from Concession 4 Arran showing the property at 37 Concession 4 Arran

5.2.6 32 CONCESSION 4 ARRAN

The property at 32 Concession 4 Arran comprises the south and part of the north part of Lot 36 Concession 5 in the Township of Arran-Elderslie. It is an irregularly shaped lot of 33.40-hectares on the northwest side of Concession 4 Arran. It has a residential and agricultural observed land use and is occupied by a house and two outbuildings. Cultivated fields and pastureland comprise most of the property (Photo 9).

A gravel driveway connected to Concession 4 Arran provides access to the property and it leads to all three buildings on the property. The building closest to Concession 4 Arran is the house. The house has a rectangular plan and is one storey. It is clad in grey brick and has a low hip roof. Both outbuildings have rectangular plans and are one storey. They are clad in red metal siding and have low gable roofs clad in metal. Vegetation on the property is sparse and include rows of juvenile deciduous and coniferous trees to the south of the house, two mature deciduous trees near the outbuildings, and small groupings of mature deciduous and/or coniferous trees on the bank of the Sauble River.

Photo 9. View northwest from Concession 4 Arran showing the property at 32 Concession 4 Arran

5.2.7 74 CONCESSION 4 ARRAN

The property at 74 Concession 4 Arran comprises Lot 35 Concession 5 in the Township of Arran-Elderslie. It is a rectangular lot of 39.60-hectares on the northwest side of Concession 4 Arran. It has a residential and agricultural observed land use and is occupied by a house, barn, and two outbuildings. Cultivated fields comprise most of the property (Photo 10).

A gravel driveway connected to Concession 4 Arran provides access to the property and it leads to all four buildings. The building closest to Concession 4 Arran is the house. The house has a rectangular plan and is two storeys. A rectangular, one storey side wing addition connects to the house's northeast elevation. The house and side wing addition have low gable roofs. Their external cladding material could not be ascertained. The barn is the northmost building on the property. It has a rectangular plan, is clad in vertical board siding, has a medium gable roof, and a side wing addition on its southwest elevation. The eastmost outbuilding has a rectangular plan, is one storey, and has a low gable roof. The westmost outbuilding has a rectangular plan, is one storey, and has an arched roof. Dense rows of

mature deciduous and coniferous trees are present on the northeast, northwest, and southwest property lines and around the house.

Photo 10. View northwest from Concession 4 Arran showing the property at 74 Concession 4 Arran

5.2.8 016913 GREY-BRUCE LINE

The Property at 016913 Grey-Bruce Line comprises the north part of Lot 1 Concession 13 in the Township of Chatsworth. It is a rectangular lot of approximately 41.38-hectares on the northeast side of Grey-Bruce Line. It has a residential observed land use and is occupied by a house. Open fields and woodlot comprise most of the property.

A gravel driveway connected to Grey-Bruce Line provides access to the property and it leads to the house. The house has a rectangular plan and is one storey. It is clad in board and batten siding and has a low gable roof. A dense row of mature deciduous and coniferous trees is present on the northwest property line and around immediately to the northwest, southwest, and southeast of the house.

5.2.9 ASSESSMENT PARCEL 420432000313700

Assessment Parcel 420432000313700 comprises the middle part of Lot 1 Concession 13 in the Township of Chatsworth. It is a rectangular lot of approximately 44.89-hectares on the northeast side of Grey-Bruce Line. It has an agricultural observed land use and is comprised mainly of cultivated fields and woodlot. A gravel and dirt driveway connected to Grey-Bruce Line provides access. Two small wood structures with metal roofs occupy the property.

5.2.10 016871 GREY-BRUCE LINE

The property at 016871 Grey-Bruce Line comprises the south part of Lot 1 Concession 13 and the north part of Lot 2 Concession 13 in the Township of Chatsworth. It is a rectangular lot of approximately 52.64-hectares on the northeast side of Grey-Bruce Line. It has an agricultural observed land use and is comprised mainly of cultivated fields, pastureland, and woodlot (Photo 11). A gravel driveway connected to Grey-Bruce Line provides access. The property is undeveloped.

Photo 11. View northeast from Grey-Bruce Line showing the property at 016871 Grey-Bruce Line

5.2.11 ASSESSMENT PARCEL 420432000314000

Assessment Parcel 420432000314000 comprises the middle part of Lot 2 Concession 13 in the Township of Chatsworth. It is a rectangular lot of approximately 36.71-hectares on the northeast side of Grey-Bruce Line. It has an agricultural observed land use and is comprised mainly of cultivated fields and woodlot (Photo 12). The Sauble River travels through the southwest side of the property. A gravel and dirt driveway connected to Grey-Bruce Line provides access. The property is undeveloped.

Photo 12. View southeast from Grey-Bruce Line showing Assessment Parcel 420432000314000

5.2.12 ASSESSMENT PARCEL 420432000105501 (ELECTRIC TRANSMISSION LINE CORRIDOR)

Assessment Parcel 420432000105501 comprises the southwest corner of Lot 2 Concession 13 and part of Lot 3 Concession 13 in the Township of Chatsworth. This lot is part of the Hydro One electric transmission line corridor. It is an irregularly shaped lot of approximately 4.98-hectares on the northeast side of Grey-Bruce Line. It is surrounded by cultivated fields. Five transmission towers are on the property. The Sauble River travels through the southwest side of the property.

5.2.13 ASSESSMENT PARCEL 420432000314100

Assessment Parcel 420432000314100 comprises part of the north part of Lot 3 Concession 13 in the Township of Chatsworth. It is an irregularly shaped lot of approximately 23.01-hectares on the northeast side of Grey-Bruce Line. It has an agricultural observed land use and is comprised mainly of cultivated fields and woodlot. The Sauble River travels through the southwest side of the property. The property is undeveloped.

5.2.14 160 CONCESSION 2 ARRAN

The property at 160 Concession 2 Arran comprises Lot 33, Lot 34, and the west half of Lot 35 Concession 3 in the Township of Arran-Elderslie. It is a rectangular lot of 101.17 ha on the northwest side of Concession 2 Arran. It has a residential and agricultural observed land use and is occupied by a house, barn, and outbuilding. Cultivated fields comprise most of the property.

A gravel driveway connected to Concession 4 Arran provides access to the property and it leads to all three buildings. The building closest to Concession 2 Arran is the house. The house has a rectangular plan and a rectangular rear wing addition on its northwest elevation. The house has a hip roof, and the addition has a gable roof. Their external cladding materials could not be ascertained. The outbuilding is northeast of the house. It has a rectangular plan and a metal gable roof. The barn is northeast of the outbuilding. The barn is composed of a main, central section with four additions and a silo. Dense rows of mature deciduous and coniferous trees are common along property lines and between different sections of cultivated areas on the property.

5.2.15 125 CONCESSION 4 ARRAN

The Property at 125 Concession 4 Arran comprises Lot 34 and the west half of Lot 35 in the Township of Arran-Elderslie. It is a rectangular property of 60.70 ha on the southeast side of Concession 4 Arran. It has an agricultural observed land use and is comprised mainly of open fields and woodlot. gravel and dirt driveway connected to Grey-Bruce Line provides access. The property is undeveloped.

6 IDENTIFICATION AND ANALYSIS OF KNOWN AND POTENTIAL CULTURAL HERITAGE RESOURCES

6.1 REVIEW OF MUNICIPAL, PROVINCIAL, AND FEDERAL HERITAGE REGISTERS

As described in Section 2.2, this assessment included a review of the Ontario Heritage Trust's Register, Historic Places Canada's Register, and Parks Canada's Directory of Federal Heritage Designations.

No BHRs or CHLs were identified during this review.

6.2 AGENCY DATA REQUESTS

Agency data requests were sent to the MCM, OHT, Bruce County's planning department (who carry out planning activities on behalf of the Municipality of Arran-Elderslie), and the Township of Chatsworth's planning department to confirm the presence of municipal and/or provincial cultural heritage resources. Table 2 identifies agency data request contacts and notes.

Table 2. Agency Data Request Agencies and Notes

Agency	Notes
MCM	Correspondence from the MCM on 9 April 2025 confirmed that no properties in the Study Area have been designated by the Minister and that there are no provincial heritage properties within or adjacent to the Study Area.
OHT	Correspondence from the MCM on 11 April 2025 confirmed that no properties in or adjacent to the Study Area are subject to a Trust easement, are under Trust ownership, or have a provincial plaque.
Bruce County	Correspondence from the Clerk at the Municipality of Arran-Elderslie on 27 May 2025 confirmed that there are no properties listed under Section 27 Part IV, designated under Section 29 Part IV, or designated under Section 41 Part V of the *Ontario Heritage Act* in the Study Area.
Township of Chatsworth	Correspondence from the CAO Clerk at the Township of Chatsworth on 28 May 2025 confirmed that there are no properties listed under Section 27 Part IV, designated under Section 29 Part IV, or designated under Section 41 Part V of the *Ontario Heritage Act* in the Study Area.

6.3 ENGAGEMENT

Indigenous Engagement is ongoing for the Tara BESS Project. It is recommended that this Cultural Heritage Report be shared with SON. Any cultural heritage resources or concerns identified through the Indigenous Engagement process for the project may require revisions to this report.

6.4 FINDINGS

As described in Section 2.2, the initial identification of known cultural heritage resources was based on existing registers/databases of cultural heritage resources and identification of potential cultural heritage resources was based on a rolling 40-year rule of thumb. Property history research, topographic maps, aerial photographs and satellite images were used to determine if a structure in the Study Area appears to meet the 40-year age. Additionally, emphasis was placed on complete farming landscapes and the Sauble River as possible CHLs.

No known cultural heritage resources were identified. The properties at 37 Concession 4 Arran and 39 Concession 4 Arran were collectively identified as a potential CHL because they exhibit characteristics of a complete farming landscape.

The properties at 74 Concession 4 Arran and 160 Concession 2 Arran were also identified as potential CHLs for being complete farming landscapes; however, only small sections of these properties are in the Study Area. Any possible characteristics or attributes that identify these properties as complete farming landscapes are not present in the Study Area. They were therefore screened out for the purposes of this Cultural Heritage Report.

6.4.1 37 CONCESSION 4 ARRAN AND 39 CONCESSION 4 ARRAN

Collectively, the properties at 37 Concession 4 Arran and 39 Concession 4 Arran comprise a complete farming landscape, as described in Section 4.5. Historically, these lots comprised one property parcel – Lot 36 Concession 4 – until May 1978 when they were sold as separate parcels (see Section 4.4.2).

A complex of buildings, including a house (37 Concession 4 Arran), barn, and several outbuildings (37 Concession 4 Arran), compose the built aspect of the landscape. The complex is setback from the road, situated atop a small hill, and located adjacent to the Sauble River. The house is the closest building to the road and is setback approximately 45.0 metres from its right-of-way. The barn is setback approximately 120 metres from the road and 75 metres from the house. The outbuildings are located near the barn. The house and barn are accessed by straight driveways lined with mature trees. Additional mature trees are found

on the property line of 37 Concession 4 Arran and the house has a manicured front lawn. To the south (rear) of the built complex is a pasture and woodlot.

6.4.1.1 *ONTARIO REGULATION 9/06* EVALUATION

The Study Area has not previously been evaluated. A preliminary evaluation against *O. Reg. 9/06* has been prepared for the purpose of understanding the cultural heritage value or interest sufficiently to assess potential impacts. This includes preliminary identification of heritage attributes for the potential CHL (Table 3).

Table 3. Preliminary *Ontario Regulation 9/06* Evaluation for 37 and 39 Concession 4 Arran

Criterion	Criterion Met	Justification
1. The property has design value or physical value because it is a rare, unique, representative or early example of a style, type, expression, material or construction method.	**N**	This criterion is **not met**. None of the buildings on 37 Concession 4 Arran or 39 Concession 4 Arran are a rare, unique, representative or early example of a style, type, expression, material or construction method (see Section 4.4.2, 5.2.2, and 5.2.5).
2. The property has design value or physical value because it displays a high degree of craftsmanship or artistic merit.	**N**	This criterion is **not met**. None of the buildings on 37 Concession 4 Arran or 39 Concession 4 Arran display a high degree of craftsmanship or artistic merit at a greater than normal quality or at an intensity well above industry standard. There is no evidence to suggest that this criterion is met (see Section 5.2.2 and 5.2.5).
3. The property has design value or physical value because it demonstrates a high degree of technical or scientific achievement.	**N**	This criterion is **not met**. None of the buildings on 37 Concession 4 Arran or 39 Concession 4 Arran demonstrate a high degree of technical or scientific achievement. There is no evidence to suggest that the any of the buildings were constructed with a higher degree of technical or scientific achievement than a standard building at the

Criterion	Criterion Met	Justification
		time (see Section 5.2.2 and 5.2.5).
4. The property has historical value or associative value because it has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community.	**N**	This criterion is **not met**. None of the buildings on 37 Concession 4 Arran or 39 Concession 4 Arran have a direct association with theme, event, belief, person, activity, organization, or institution that is important to a community. Historically, the property operated as a farm. This use has continued on 39 Concession 4 Arran. This general function is typical for the area. There is no evidence to suggest that this criterion is met (see Section 4.4.2, 5.2.2, and 5.2.5).
5. The property has historical value or associative value because it yields, or has the potential to yield, information that contributes to an understanding of a community or culture.	**N**	This criterion is **not met**. The properties at 37 Concession 4 Arran or 39 Concession 4 Arran do not yield or have the potential to yield information that contributes to an understanding of a community or culture. The agricultural use of the area is well known and understood. There is no evidence to suggest that this criterion is met (see Section 4.4.2, 5.2.2, and 5.2.5).
6. The property has historical value or associative value because it demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.	**N**	This criterion is **not met**. The properties at 37 Concession 4 Arran or 39 Concession 4 Arran do not demonstrate or reflect the work or ideas of an architect, artist, builder, designer, or theorist who is significant to a community. No specific parties associated with the building's design or construction were identified. There is no evidence to suggest that this criterion is met (see Section 4.4.2, 5.2.2, and 5.2.5).
7. The property has contextual	**Y**	This criterion is **met**. The properties at 37

Criterion	Criterion Met	Justification
value because it is important in defining, maintaining or supporting the character of an area.		Concession 4 Arran or 39 Concession 4 Arran have contextual value because they are important in maintaining the character of an area. The area has historically been composed of farmsteads and farming landscapes. Collectively, the properties' historic and ongoing use are consistent with this general character. The organization of the properties' collective farming complex is also consistent with others in the immediate vicinity and help to support the character of the area (see Section 4.3.2, 4.4.2, 5.1, 5.2.2, and 5.2.5).
8. The property has contextual value because it is physically, functionally, visually or historically linked to its surroundings.	**Y**	This criterion is **met**. The properties at 37 Concession 4 Arran or 39 Concession 4 Arran have contextual value because they are functionally linked to the Sauble River. Access to water was of primary concern when siting farms and farming complexes. The properties' proximity to the Sauble River therefore suggests a functional link to its historical farming use (see Section 4.4.2, and 4.5).
9. The property has contextual value because it is a landmark.	**N**	This criterion is **not met**. The properties at 37 Concession 4 Arran or 39 Concession 4 Arran do constitute landmarks, which is defined by the MCM as being: "…a recognizable natural or human-made feature used for a point of reference that helps orienting in a familiar or unfamiliar environment; it may mark an event or development; it

Criterion	Criterion Met	Justification
		may be conspicuous."[145] There is no evidence to suggest that this criterion is met (see Section 4.4.2, 5.2.2, and 5.2.5).

6.4.1.2 SUMMARY OF PRELIMINARY EVALUATION

The preliminary evaluation found that the properties at 37 Concession 4 Arran and 39 Concession 4 Arran meet criteria 7 and 8 of *O. Reg. 9/06* for their contextual value. A preliminary list of heritage attributes has been prepared to sufficiently to assess potential impacts.

6.4.1.3 PRELIMINARY LIST OF HERITAGE ATTRIBUTES

Heritage attributes that may illustrate the cultural heritage value or interest of the properties at 37 Concession 4 Arran or 39 Concession 4 Arran are its:

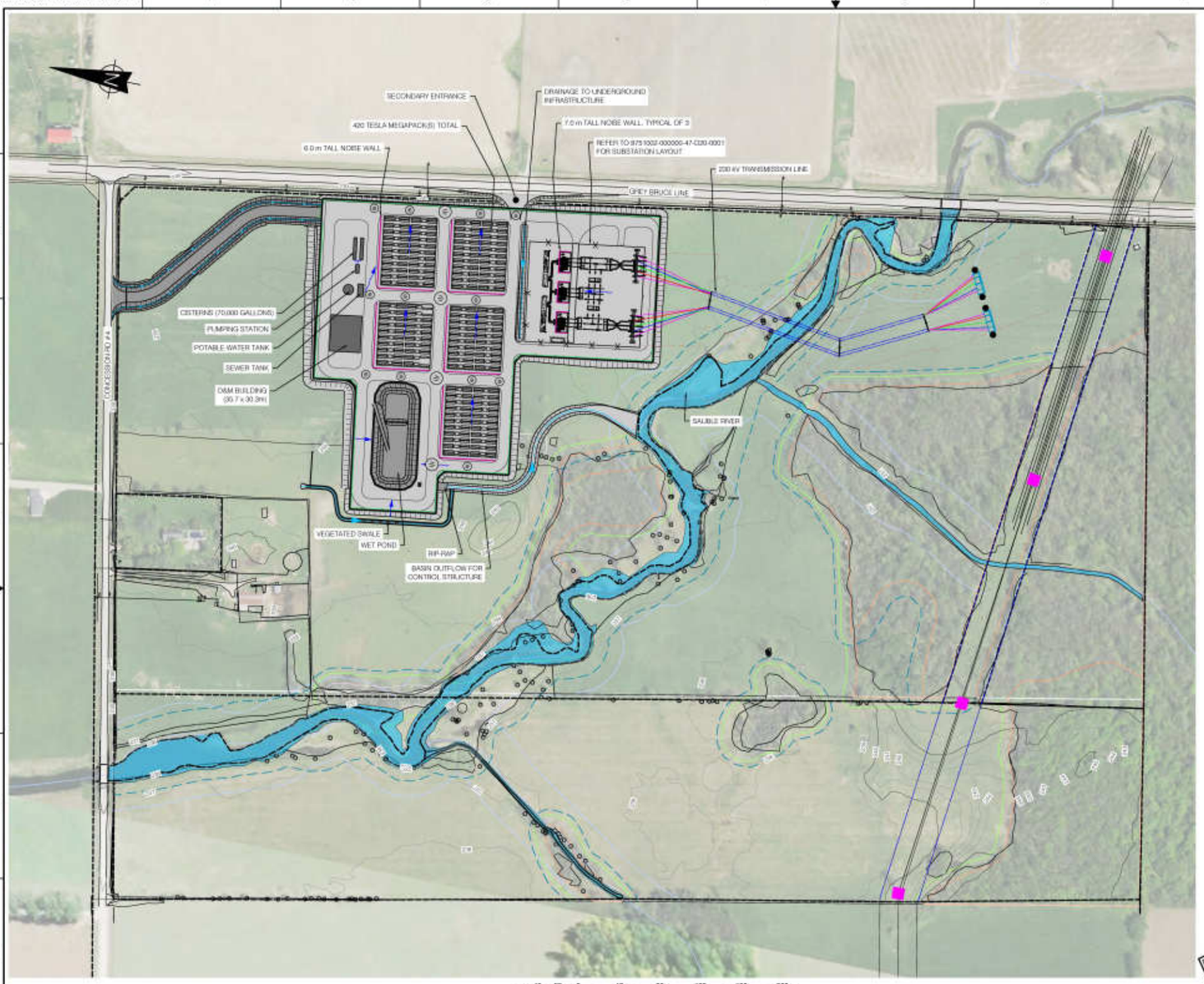
- The buildings on the properties and their siting, including their setbacks and proximity to the Sauble River;
- The location of the house atop a hill;
- Spatial organization of the buildings on the properties, including the house on 37 Concession 4 Arran's foremost position and the barn and outbuildings on 39 Concession 4 Arran's rearmost position; and,
- Straight driveways lined with mature trees.

[145] Ministry of Citizenship & Multiculturalism, "Standards & Guidelines for Conservation of Provincial Heritage properties, Heritage Identification & Evaluation Process," last updated 1 September 2014, accessed 23 August 2024.

7 PRELIMINARY IMPACT ASSESSMENT

The preliminary impact assessment, located in Table 4, follows guidance from the MCM's *Info Sheet #5 Heritage Impact Assessments and Conservation Plans*, as described in Section 2.2. Potential impacts and mitigation measures are identified.

Table 4 incudes a preliminary impact assessment for the properties at 37 Concession 4 Arran and 39 Concession 4 Arran. This preliminary impact assessment considers potential adverse impacts from the proposed Tara BESS.



NOTES:

1. ALL DIMENSIONS ARE IN METERS (U.N.O.).
2. DATA IS IN NAD83 CSRS, UTM ZONE 17 (METERS) WITH ELEVATIONS REFERRED TO CGVD2013. CONTOURS ARE SHOWN AT 1m (MAJOR) AND 5m (MINOR) INTERVALS.

LEGEND

- EXISTING GRADE CONTOUR
- DITCH FLOW DIRECTION DITCH
- CULVERT
- PROPERTY BOUNDARY (TULLOCH SURVEY)
- BATTERY NOISE WALL (6.0 m TALL)
- SURFACE WATER DRAINAGE
- FENCE
- BATTERY GROUP (4 BATTERIES, 1 TRANSFORMER)
- WETLANDS
- WATERCOURSE BUFFER 30 m
- WETLANDS BUFFER 15 m
- WOODLANDS BUFFER 10 m
- POTENTIAL SIGNIFICANT WILDLIFE HABITAT
- EASTERN MEADOWLARK HABITAT
- POTENTIAL MATERNITY ROOST HABITAT FOR LITTLE BROWN MYOTIS
- CAVITY TREES
- ECOLOGICAL COMMUNITIES
- HYDRO POLE
- HYDRO POLE ANCHOR
- WATERCOURSE
- LIMIT OF FORESTED AREA
- TREES/SHRUBS
- EXISTING FENCE GATE

ZONING COMPARISON CHART

	GENERAL AGRICULTURE (A1) ZONE	REQUIRED	PROVIDED
1	LOT AREA (MINIMUM)	39 Ha	42.05Ha
2	LOT FRONTAGE (MINIMUM)	100m	320m
3	FRONT YARD (MINIMUM)	20m	207m
4	REAR YARD (MINIMUM)	20m	503m
5	EXTERIOR SIDE YARD (MINIMUM)	20m	20m
6	GROUND FLOOR AREA DETACHED DWELLING (MINIMUM)	70m² (GREATER THAN ONE STOREY) 90m² (ONE STOREY)	1082m² (ONE STOREY)
7	MAXIMUM HEIGHT	NOT APPLICABLE	-
8	LOT COVERAGE (MAXIMUM)	15%	21%

SITE STATISTICS DATA

DESCRIPTION	UNITS	QUANTITY
GRAVEL AREA	m2	78209
BERM AREA	m2	5277
CONTROL BUILDING	m2	1414
PUMPING STATION	m2	30
WET POND	m2	4620

FOR COMMENTS
NOT TO BE USED FOR CONSTRUCTION

DRAWING No.	DESCRIPTION	REV	DESCRIPTION	PREPARED BY	CHECKED BY	DATE
	REFERENCE DRAWING(S)		REVISIONS			
8751002-000000-47-D20-0001.dwg	400 MW / 1600 MWh : 230 - 34.5 SUBSTATION PLAN VIEW					
REF_EBATT NaturalHeritageConstraints_2013.dwg	NATURAL HERITAGE CONSTRAINTS					
REF_IMAGERY RGN Qtr_MOSE_CRS_2.0.dwg	IMAGERY FOR REFERENCE ONLY, FROM GLOBAL MAPPER 0.6m ACCURACY					
8751002-6000000-xL-D000-0002	230kV OVERHEAD TRANSMISSION LINE - ROUTING DRAWING LAYOUT					
242669 REV1 (No Signature).dwg	TOPOGRAPHIC SURVEY FROM TULLOCH_2024-10-04_NAD83 (CSRS) UTM ZONE 17 (CONCISE).dwg	AA	FOR COMMENTS	V. BRUNELLE, P.Eng. P.E.O. No. 100017887	M.F. PROULX, P.Eng P.E.O. No. 100134838	2025-02-20

SEAL:

CLIENT: NEOEN

PROJECT: TARA BESS - 400 MW DETAIL ENGINEERING

TITLE: SITE PLAN GENERAL ARRANGEMENT

DESIGNED BY:	DRAFTED BY:
V. BRUNELLE, P.Eng. P.E.O. No. 100017887	A. CAMPBELL
PREPARED BY:	CHECKED BY:
V. BRUNELLE, P.Eng. P.E.O. No. 100017887	M.F. PROULX, P.Eng. P.E.O. No. 100134838
SCALE: 1:2000	DATE: 2025-02-20

DRAWING No.: 8751002-100000-41-D20-0003 | SHEET: 01 | SIZE: A1 | REV: AA

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BY JARCE_SIMON
PRINTED 2025-02-20 AT 10:30:14

TITLE
Development Plan, Proposed Tara BESS Facility

CLIENT
BBA Engineering Ltd.

PIF

PROJECT PROJECT NO. LHC0459
Tara BESS, Part Lot 35 and 36 Concession 4, Municipality of Arran-Elderslie, Bruce County, ON

HERITAGE PLANNING & ARCHAEOLOGY

YYYY-MM-DD 2025-02-24

FIGURE # 6

Table 4. Potential Impacts and Mitigation Measures

CHR#	CHR Title	Current Recognition	Potential Impacts	Mitigation Measures
CHR-1	37 & 39 Concession 4 Arran	n/a – potential CHL	The Tara BESS area is contained within the Study Area along the east property line of 39 Concession 4 Arran. The closest possible heritage attributes – the spatial organization of the buildings on the properties (house on 37 Concession 4 Arran) – is approximately 275-metres from the proposed project. Direct impacts from destruction or alteration are not anticipated. Likewise, indirect impacts from shadows, isolation, direct or indirect obstruction, changes in land use, or land disturbances are not anticipated.	Continued avoidance of the properties' possible heritage attributes. Any revisions to the location or design of the Tara BESS should continue to avoid the attributes. A property-specific CHIA including a formal evaluation based on *Ontario Regulation 9/06* is recommended to be undertaken as part of any future plans that could have direct impacts on the CHL.

8 FINDINGS AND RECOMMENDATIONS

LHC was retained by BBA Engineering Ltd. on behalf of Neoen Ontario BESS 1 Inc. to prepare a Cultural Heritage Report for the Tara BESS project.

The Tara BESS project includes the development of an energy storage facility with a potential capacity of 400 megawatts. It will occupy approximately 25.42 hectares and be located on four assessment parcels to the southwest of the intersection of Concession 4 Arran and the Grey-Bruce Line on Part Lots 35 and 36 Concession 4, Geographic Township of Arran, Municipality of Arran-Elderslie, Bruce County, Ontario. The four assessment parcels, which collectively sum to 67.60 hectares, are Assessment Parcel 410349000307100 (east half of Lot 35 Concession 4) and three individual parcels of land on Lot 36 Concession 4 including 39 Concession 4 Arran, Assessment Parcel 410349000104201 (Hydro One electric transmission line corridor), and the parcel bound by the Hydro One electric transmission line corridor and the southeast concession border (part of Assessment Parcel 410349000305200) (the "Development Lands"). A 50-metre buffer was added to the Development Lands to capture all properties with known and potential built heritage resources and cultural heritage landscapes that might reasonably be directly affected by project activities. Collectively, this area comprises the Study Area.

This Cultural Heritage Report is one of a number of studies being prepared to inform the understanding of existing conditions for Tara BESS project. The purpose of this report is to identify known and potential cultural heritage resources within the Study Area; provide a description of preliminary project-related impacts that may affect those resources; and recommend mitigation measures to lessen or avoid those impacts and inform project planning.

Background research and the site review of the Study Area undertaken as part of this study identified no known built heritage resources or cultural heritage landscapes within the Study Area. No provincial heritage properties; properties owned by the Ontario Heritage Trust (OHT) or properties subject to OHT easements; or municipal heritage properties listed under Section 27 Part IV, designated under Section 29 Part IV, or designated under Section 41 Part V of the *Ontario Heritage Act* are located within the Study Area. However, the properties at 37 Concession 4 Arran and 39 Concession 4 Arran were collectively identified as a potential CHL because they exhibit characteristics of a complete farming landscape.

A preliminary review of potential project-related impacts on the properties at 37 Concession 4 Arran and 39 Concession 4 Arran was undertaken. Based on the preliminary findings of this Cultural Heritage Report, no direct or indirect adverse impacts are anticipated. The Cultural Heritage Report has resulted in the following recommendations:

1. Continued avoidance of the properties' possible heritage attributes. Any revisions to the location or design of the Tara BESS should continue to avoid the attributes.
2. A property-specific CHIA including a formal evaluation based on *Ontario Regulation 9/06* is recommended to be undertaken in the event that continued avoidance is not possible and direct impacts on the house or other likely heritage attributes may occur.

9 SIGNATURES

Sincerely,

Ben Daub, MA RPP MCIP CAHP-Intern
Intermediate Heritage Planner

Christienne Uchiyama, MA, CAHP
Principal, Manager Heritage Consulting Services

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Appendix A Qualifications

Ben Daub, MA (Plan) CAHP Intern – Heritage Planner

Ben Daub is a heritage planner with LHC. He holds a Bachelor of Applied Technology in Architecture – Project and Facility Management from Conestoga College and a Master of Arts in Planning from the University of Waterloo. His master's thesis analyzed the relationship between urban intensification and the ongoing management of built heritage resources using both qualitative and quantitative methods. During his academic career, Ben gained a detailed understanding of the built environment through exposure to architectural, engineering, and urban planning processes. His understanding of the built environment ranges from building specific materials and methods to large scale planning initiatives.

Ben has been the primary or contributing author of over 45 technical cultural heritage reports with LHC. He has worked on Heritage Impact Assessments, Cultural Heritage Evaluation Reports, Environmental Assessments, Heritage Conservation District Studies, and Municipal Heritage Register Reviews. He has worked with properties with cultural heritage value recognized at the municipal, regional, provincial, and federal levels and has prepared reports for urban, suburban, and rural sites.

In addition to his work at LHC, Ben instructs the Urban and Community Planning course in Conestoga College's Architecture – Project and Facility Management degree program and has presented his master's thesis research to ICOMOS Canada. Ben is an intern member of the Canadian Association of Heritage Professionals and a candidate member with the Ontario Professional Planners Institute.

Christienne Uchiyama, MA CAHP - Principal LHC

Christienne Uchiyama MA CAHP is Principal and Manager of Heritage Consulting Services with LHC. She is a Heritage Consultant and Professional Archaeologist (P376) with more than two decades of experience working on cultural heritage aspects of planning and development projects. She is currently Past President of the Board of Directors of the Canadian Association of Heritage Professionals and received her MA in Heritage Conservation from Carleton University School of Canadian Studies. Her thesis examined the identification and assessment of impacts on cultural heritage resources in the context of Environmental Assessment.

Chris has provided archaeological and heritage conservation advice, support and expertise as a member of numerous multi-disciplinary project teams for projects across Ontario, including such major projects as: all phases of archaeological assessment at the Canadian War Museum

site at LeBreton Flats, Ottawa; renewable energy projects; natural gas pipeline routes; railway lines; hydro powerline corridors; and highway/road realignments. She has completed more than 300 cultural heritage technical reports for development proposals at all levels of government, including cultural heritage evaluation reports, heritage impact assessments, and archaeological licence reports and has a great deal of experience undertaking peer reviews. Her specialties include the development of Cultural Heritage Evaluation Reports, under both O. Reg. 9/06 and 10/06, and Heritage Impact Assessments.

Benjamin Holthof, MPl MMA RPP MCIP CAHP – Senior Heritage Planner

Ben Holthof is a heritage consultant, planner and marine archaeologist with experience working in heritage consulting, archaeology and not-for-profit museum sectors. He holds a Master of Urban and Regional Planning degree from Queens University; a Master of Maritime Archaeology degree from Flinders University of South Australia; a Bachelor of Arts degree in Archaeology from Wilfrid Laurier University; and a certificate in Museum Management and Curatorship from Fleming College.

Ben has consulting experience in heritage planning, cultural heritage screening, evaluation, heritage impact assessment, cultural strategic planning, cultural heritage policy review, historic research and interpretive planning. He has been a project manager for heritage consulting projects including archaeological management plans and heritage conservation district studies. Ben has also provided heritage planning support to municipalities including work on heritage permit applications, work with municipal heritage committees, along with review and advice on municipal cultural heritage policy and process. His work has involved a wide range of cultural heritage resources including on cultural landscapes, institutional, industrial, commercial, and residential sites as well as infrastructure such as wharves, bridges and dams. Ben was previously a Cultural Heritage Specialist with Golder Associates Ltd. from 2014-2020.

Ben is experienced in museum and archive collections management, policy development, exhibit development and public interpretation. He has written museum policy, strategic plans, interpretive plans and disaster management plans. He has been curator at the Marine Museum of the Great Lakes at Kingston, the Billy Bishop Home and Museum, and the Owen Sound Marine and Rail Museum. These sites are in historic buildings and he is knowledgeable with extensive collections that include large artifacts including, ships, boats, railway cars, and large artifacts in unique conditions with specialized conservation concerns.

Ben is also a maritime archaeologist having worked on terrestrial and underwater sites in Ontario and Australia. He has an Applied Research archaeology license from the Government

of Ontario (R1062). He is a professional member of the Canadian Association of Heritage Professionals (CAHP).

Jordan Greene, BA (Hons) – Mapping Technician

Jordan Greene, BA joined LHC as a mapping technician following the completion of her undergraduate degree. In addition to completing her B.A. in Geography at Queen's University, Jordan also completed certificates in Geographic Information Science and Urban Planning Studies. During her work with LHC Jordan has been able to transition her academic training into professional experience and has deepened her understanding of the applications of GIS in the fields of heritage planning and archaeology. Jordan has contributed to over 100 technical studies and has completed mapping for projects including, but not limited to, cultural heritage assessments and evaluations, archaeological assessments, environmental assessments, hearings, and conservation studies. In addition to GIS work she has completed for studies Jordan has begun developing interactive maps and online tools that contribute to LHC's internal data management. In 2021 Jordan began acting as the health and safety representative for LHC.

Appendix B Screening Checklist

Table 5. Screening Checklist Notes for Built Heritage Resources and Cultural Heritage Landscapes in the Study Area

Screening Question	Yes	No	Notes
1) Is there a pre-approved screening checklist, methodology or process in place?		✓	No pre-approved screening checklist, methodology, or process is in place for the Study Area.
2) Has the property (Study Area) been evaluated before and found not to be of cultural heritage value?		✓	No previous evaluations for the Study Area were identified.
3) Is the Study Area:			
a) identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value?		✓	The Ontario Heritage Trust Register, Historic Places Canada Register, Parks Canada Directory of Federal Heritage Designations, and municipal heritage registers were reviewed. No BHRs or CHLs were identified during this review. Agency data requests to confirm the presence of properties protected under the *Ontario Heritage Act* have been issued. No responses have been received.
b) a National Historic Site (or part of)?		✓	The Study Area is not in or part of a National Historic Site. Reviewed directories online at: https://www.historicplaces.ca/en/pages/about-apropos.aspx and https://www.pc.gc.ca/en/culture/dfhd

Screening Question	Yes	No	Notes
c) designated under the Heritage Railways Stations Protection Act?		✓	The Study Area does not include a heritage railway station. Reviewed directories online at: https://www.historicplaces.ca/en/pages/about-apropos.aspx and https://www.pc.gc.ca/en/culture/dfhd
d) designated under the Heritage Lighthouse Protection Act?		✓	The Study Area does not include a heritage lighthouse. Reviewed directories online at: https://www.historicplaces.ca/en/pages/about-apropos.aspx and https://www.pc.gc.ca/en/culture/dfhd
e) identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?		✓	The Study Area does not include any Federal Heritage Buildings. Reviewed directories online at: https://www.historicplaces.ca/en/pages/about-apropos.aspx and https://www.pc.gc.ca/en/culture/dfhd
f) located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?		✓	The Study Area is not located in a UNESCO World Heritage Site. Reviewed list of Canadian World Heritage Sites at: https://www.pc.gc.ca/en/culture/spm-whs
4) Does the Study Area contain a parcel of land that:			
a) is the subject of a municipal, provincial or federal commemorative or		✓	The Study Area is not the subject of a municipal, provincial, or federal commemorative or interpretive plaque.

Screening Question	Yes	No	Notes
interpretive plaque?			Reviewed: Plaque Database maintained by the Ontario Heritage Trust https://www.heritagetrust.on.ca/online-plaque-guide
b) has or is adjacent to a known burial site and/or cemetery?		✓	Study Area does not contain and is not adjacent to a known burial site and/or cemetery. Reviewed: https://portal.thebao.ca/public-register/, https://www.findagrave.com/cemetery-browse/Canada/Ontario/Grey-County/Sullivan-Township?id=city_549904, https://www.findagrave.com/cemetery-browse/Canada/Ontario/Bruce-County/Arran-Township?id=city_548746, https://www.findagrave.com/cemetery-browse/Canada/Ontario/Bruce-County/Arran-Elderslie?id=city_425128, https://www.arran-elderslie.ca/en/living-here/cemeteries.aspx#Inactive-Cemeteries, https://chatsworth.ca/government/cemeteries/.
c) is in a Canadian Heritage River watershed?		✓	The Study Area is not in a Canadian Heritage River watershed. Reviewed: https://chrs.ca/en/rivers
d) contains buildings or structures that are 40 or more years old?	✓		Two buildings in the Study Area exceed 40-years of age, including those on: • 37 Concession Road 4 Arran; and, • 39 Concession Road 4 Arran. Aerial images and topographic maps indicate that development in the Study Area began prior to 1938.

Screening Question	Yes	No	Notes
5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the Study 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?		✓	No information was found to indicate that the Study Area is considered a landmark, or that it contains structures or sites that are important in defining the character of their areas.
b) has a special association with a community, person or historical event?		✓	No information was found to indicate that the Study Area has special associations with a community, person or historical event.
c) contains or is part of a cultural landscape?		✓	No information was found to indicate that the Study Area is part of a cultural landscape.

Appendix C Agency Data Requests

Correspondence from the MCM, OHT, Bruce County's planning department, and the Township of Chatsworth's planning department has not yet been received.

Ben Daub

From: Nito, Mariana (MCM) [redacted]
Sent: April 9, 2025 10:11 AM
To: Ben Daub
Cc: Registrar (MCM)
Subject: Re: Request for Information: Tara BESS MCEA
Attachments: Figure 1.pdf

MCM File 0023150 – Tara BESS Storage Facility

Hi Ben,

Thanks for your response to our inquiry.

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 Resources 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*: We don't have any records of a provincial heritage property 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.

Regarding other protected heritage properties (e.g., designated under Part IV or V of the OHA; easement properties) and provincial plaques within or adjacent to the study area, you should contact the Ontario Heritage Trust, Provincial Heritage Registrar at registrar@heritagetrust.on.ca and the municipal planner.

MCM would appreciate if any technical cultural heritage studies (e.g., Cultural Heritage Report, Heritage Impact Assessment) be sent for our review as part of the environmental assessment process.

I hope this helps. Feel free to reach out if you have any questions.

Kind regards,
Mariana

Mariana Kimie Nito (she/her)
Heritage Advisor | Heritage Operations Branch/Citizenship, Inclusion and Heritage Division
Ministry of Citizenship and Multiculturalism | Ontario Public Service
[redacted]

Ontario

Taking pride in strengthening Ontario, its places and its people

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From: Ben Daub [redacted]
Sent: April 8, 2025 2:49 PM
To: Nito, Mariana (MCM) [redacted]
Cc: Registrar (MCM) <Registrar@ontario.ca>
Subject: RE: Request for Information: Tara BESS MCEA

Good afternoon Mariana,

This project is being undertaken under the Municipal Class EA process.

Thank you,
Ben

From: Nito, Mariana (MCM) [redacted]
Sent: April 7, 2025 10:11 AM
To: Ben Daub [redacted]
Cc: Registrar (MCM) <Registrar@ontario.ca>
Subject: Re: Request for Information: Tara BESS MCEA

Good morning Ben.

Could you please provide background information regarding the legislative trigger for this project?

Thanks in advance.

Kind regards,
Mariana.

Mariana Kimie Nito (she/her)
Heritage Advisor | Heritage Operations Branch/Citizenship, Inclusion and Heritage Division
Ministry of Citizenship and Multiculturalism | Ontario Public Service
[redacted]

Ontario

Taking pride in strengthening Ontario, its places and its people

From: Ben Daub <bdaub@lhcheritage.com>
Sent: April 3, 2025 4:42 PM
To: Registrar (MCM) <Registrar@ontario.ca>
Subject: Request for Information: Tara BESS MCEA

Good afternoon,

LHC is preparing a Cultural Heritage Report: Existing Conditions and Preliminary Impacts for the Tara Battery Energy Storage System (BESS) in the Municipality of Arran-Elderslie in Bruce County. I am writing to confirm whether the Ministry is aware of any provincial heritage properties within the study area.

The MCEA is being prepared to guide the development of a new BESS facility with a potential capacity of 400 megawatts. The project is located on part Lot 35 and 36 Concession 4 in the Municipality of Arran-Elderslie in Bruce County. The study area is identified in Figure 1 (see attached).

Thank you in advance,
Ben

Ben Daub, MA (Plan), CAHP Intern (he/him) **| Heritage Planner**
LHC Heritage Planning & Archaeology Inc.
5200 Yonge Street, 2nd Floor, North York ON M2N 5P6
Office: 613-507-7817 [redacted] www.lhcheritage.com
Kingston – Toronto – Ottawa

Ben Daub

From: Courtney Kovacich [redacted]
Sent: April 11, 2025 5:46 PM
To: Ben Daub
Cc: Samuel Bayefsky
Subject: RE: Request for Information: Tara BESS MCEA

Hello Corals,

We have reviewed our records in relation to the study area in the Municipality of Arran-Elderslie and can confirm that it does not contain (nor is it adjacent to) any properties subject to a Trust easement or Trust ownership, or a provincial plaque.

As described in Section 23 of the Ontario Heritage Act, the Trust holds and maintains the provincial Register (the "OHA Register") of properties that have been designated by municipalities under sections 29 and 41 of the Act, as well as properties designated under the Act by the Minister. We have reviewed the OHA Register and do not have a record of any designated properties within the study area. Please note that the Trust relies on municipalities sharing information on designations and cannot guarantee the completeness of the information contained in the OHA Register. We always advise researchers to confirm the heritage status of a property directly with the clerk for the municipality.

Under Section 27 of the Act, the clerk of a municipality is required to maintain a local register of all designated properties. Section 27 also states that municipalities may keep a register of property that has not been designated, but that the municipality has determined to be of cultural heritage value or interest. These are often referred to as "listed" properties. These non-designated heritage properties are not reflected in the OHA Register.

If you have any follow-up questions, please let me know.

Sincerely,

Courtney

Courtney Kovacich (she/her)
Provincial Heritage Registrar
Ontario Heritage Trust
[redacted]
ONTARIO HERITAGE TRUST
FIDUCIE DU PATRIMOINE ONTARIEN

From: Ben Daub [redacted]
Sent: Thursday, April 3, 2025 4:43 PM
To: registrar <registrar@heritagetrust.on.ca>
Subject: Request for Information: Tara BESS MCEA

CAUTION: External mail. Do not click on links or open attachments unless you recognize the sender and know the content.

Good afternoon,

LHC is preparing a Cultural Heritage Report: Existing Conditions and Preliminary Impacts for the Tara Battery Energy Storage System (BESS) in the Municipality of Arran-Elderslie in Bruce County. I am enquiring to confirm whether the OHT has any properties or easements within the project's study area. According to our research, there are no properties listed under Section 27 Part IV, designated under Section 29 Part IV, or designated under Section 41 Part V of the *Ontario Heritage Act* in the study area.

The MCEA is being prepared to guide the development of a new BESS facility with a potential capacity of 400 megawatts. The project is located on part Lot 35 and 36 Concession 4 in the Municipality of Arran-Elderslie in Bruce County. The study area is identified in Figure 1 (see attached).

Thank you in advance,
Ben

Ben Daub, MA (Plan), CAHP Intern (he/him) **| Heritage Planner**
LHC Heritage Planning & Archaeology Inc.
5200 Yonge Street, 2nd Floor, North York ON M2N 5P6
Office: 613-507-7817 | [redacted] www.lhcheritage.com
Kingston – Toronto – Ottawa

Ben Daub

From: Christine Fraser-McDonald [redacted]
Sent: May 27, 2025 3:02 PM
To: Ben Daub
Subject: Re: Request for Information: Tara BESS MCEA

Hi.

To my knowledge there are none.

Christine Fraser-McDonald
Clerk

519-270-4922
[redacted]
www.arran-elderslie.ca
1925 Bruce Road 10, Box 70
Chesley, ON N0G 1L0

MUNICIPALITY OF
ARRAN-ELDERSLIE
Allenford Chesley Paisley Tara

From: Ben Daub [redacted]
Sent: May 27, 2025 2:26 PM
To: Christine Fraser-McDonald [redacted]
Subject: RE: Request for Information: Tara BESS MCEA

Hi Christine,

I am quickly following up on my email below. Let me know if there are any properties listed or designated under the *Ontario Heritage Act* in the study area.

Thank you!
Ben

From: Bruce County Planning - Peninsula Hub <bcplwi@brucecounty.on.ca>
Sent: April 7, 2025 2:17 PM
To: Ben Daub [redacted]
Cc: Christine Fraser-McDonald [redacted]
Subject: FW: Request for Information: Tara BESS MCEA

Good Afternoon:

Thank you for your email, which was redirected to the Peninsula Hub for review and response.

I have copied the Clerk of the Municipality of Arran-Elderslie, Christine Fraser-McDonald, to confirm (and/or direct to the appropriate Heritage Committee) that there are no properties listed under Section 27 Part IV, designated under Section 29 Part IV, or designated under Section 41 Part V of the *Ontario Heritage Act* in the study area.

Yours truly,
Lori Mansfield

From: Ben Daub [redacted]
Sent: Thursday, April 3, 2025 4:43 PM
To: Bruce County Planning - Inland Hub <bcplwa@brucecounty.on.ca>
Subject: Request for Information: Tara BESS MCEA

> You don't often get email from bdaub@lhcheritage.com. Learn why this is important

** [**CAUTION**]: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.
Good afternoon,

LHC is preparing a Cultural Heritage Report: Existing Conditions and Preliminary Impacts for the Tara Battery Energy Storage System (BESS) in the Municipality of Arran-Elderslie in Bruce County. I am enquiring to confirm whether Bruce County and/or the Municipality of Arran-Elderslie has any listed cultural heritage properties, designated cultural heritage properties, or cultural heritage landscapes within the study area. According to our research, there are no properties listed under Section 27 Part IV, designated under Section 29 Part IV, or designated under Section 41 Part V of the *Ontario Heritage Act* in the study area.

The MCEA is being prepared to guide the development of a new BESS facility with a potential capacity of 400 megawatts. The project is located on part Lot 35 and 36 Concession 4 in the Municipality of Arran-Elderslie in Bruce County. The study area is identified in Figure 1 (see attached).

Thank you in advance,
Ben

Ben Daub, MA (Plan), CAHP Intern (he/him) | **Heritage Planner**
LHC Heritage Planning & Archaeology Inc.
5200 Yonge Street, 2nd Floor, North York ON M2N 5P6
Office: 613-507-7817 | [redacted] www.lhcheritage.com
Kingston – Toronto – Ottawa

Ben Daub

From: Patty Sinnamon [redacted]
Sent: May 28, 2025 8:21 AM
To: Ben Daub
Subject: RE: Request for Information: Tara BESS MCEA

Good morning Ben,
We are not aware of any Heritage Act designations in the study area.
Best,

Patty Sinnamon, Dipl.M.M.
CAO Clerk
Township of Chatsworth
316837 Highway 6
Chatsworth, ON N0H 1G0
Email: [redacted]

From: Ben Daub [redacted]
Sent: May 27, 2025 2:26 PM
To: Patty Sinnamon [redacted]
Subject: RE: Request for Information: Tara BESS MCEA

Hi Patty,

I am quickly following up on my email below. Let me know if there are any properties listed or designated under the *Ontario Heritage Act* in the study area.

Thank you!
Ben

From: Ron Davidson [redacted]
Sent: April 7, 2025 2:01 PM
To: Ben Daub [redacted] Patty Sinnamon [redacted]
Subject: Re: Request for Information: Tara BESS MCEA

Ben, hi. I'll let Patty, our CAO, answer that question.

Ron

From: Ben Daub [redacted]
Sent: Thursday, April 3, 2025 4:42 PM
To: Ron Davidson [redacted]
Subject: Request for Information: Tara BESS MCEA

Good afternoon Ron,

LHC is preparing a Cultural Heritage Report: Existing Conditions and Preliminary Impacts for the Tara Battery Energy Storage System (BESS) in the Municipality of Arran-Elderslie in Bruce County. Part of the cultural heritage study area for the project includes properties in the Township of Chatsworth. I am enquiring to confirm whether the Township of Chatsworth has any listed cultural heritage properties, designated cultural heritage properties, or cultural heritage landscapes within the study area. According to our research, there are no properties listed under Section 27 Part IV, designated under Section 29 Part IV, or designated under Section 41 Part V of the *Ontario Heritage Act* in the study area.

The MCEA is being prepared to guide the development of a new BESS facility with a potential capacity of 400 megawatts. The project is located on part Lot 35 and 36 Concession 4 in the Municipality of Arran-Elderslie in Bruce County. The study area is identified in Figure 1 (see attached).

Thank you in advance,

Ben

Ben Daub, MA, RPP, MCIP, CAHP Intern (he/him) **| Intermediate Heritage Planner**

LHC Heritage Planning & Archaeology Inc.

5200 Yonge Street, 2nd Floor, North York ON M2N 5P6

Office: 613-507-7817 | [redacted] www.lhcheritage.com

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Appendix H: ECA Application for the Stormwater Management System

Ontario

Ministry of the Environment, Conservation and Parks

Environmental Compliance Approval Application

Table of Contents

Ontario

Ministry of the Environment, Conservation and Parks

Environmental Compliance Approval Application

General Information and Instructions

General Information

Information requested in this form is collected under the authority of the *Environmental Protection Act* (EPA), *Ontario Water Resources Act* (OWRA) and Environmental Bill of Rights (EBR), and will be used to evaluate applications for Environmental Compliance Approvals (ECAs) issued under Part II.1 of the EPA. This application form should not be used for mobile PCB destruction facilities.

For all questions related to preparing or submitting this form or about the Ministry's collection of information related to applying for an ECA, contact:

Client Services and Permissions Branch
135 St. Clair Ave. West, 1st Floor
Toronto Ontario M4V 1P5
Telephone outside Toronto 1-800-461-6290 or in Toronto 416-314-8001.

The Ministry offers environmental permissions services online, and we strongly encourage online submissions for ECA applications. You can apply, track application progress and complete payments online. For more information on setting up an account so that you can apply online please visit: https://www.ontario.ca/page/environmental-compliance-approval

Instructions for submitting your ECA application:

1. Applicants are responsible for ensuring that they complete the most recent application form (available in PDF format) available at https://www.ontario.ca/page/environmental-compliance-approval. For information about required supporting documentation and technical requirements, you may contact the Client Services and Permissions Branch (the address and phone number are provided in the General Information on this page). As well, you can get this information from your local District Office of the Ministry of the Environment, Conservation and Parks, and online at the link above.
2. A complete application consists of:
   - a completed and signed application form;
   - all required supporting documents and technical requirements identified in:
     i. this form,
     ii. Ministry guidance, the Applications for Environmental Compliance Approvals regulation (Ontario Regulation 255/11),
     iii. and payment of the application fee (in Canadian funds) by certified cheque or money order made payable to the Minister of Finance, or credit card payment (for payments up to $10,000).

     The Ministry may return or refuse incomplete applications to the applicant. The Director may require additional information of any application initially accepted as complete.
3. How to submit:
   - No payment required – email the application form and supporting documents to ECA.Submission@ontario.ca
   - Payment required – see Section 8 for instructions

   Do not mail a paper copy of the application submission to our branch
4. For Waste Disposal Sites the applicant must also send a copy of the application without the fee to the Clerk's office of the local municipality (both upper and lower tier) in which the facility/proposed facility is located unless the application is for a revocation or an amendment that is environmentally insignificant or the applicant is a municipality. **Do not** send any payment information to the municipality.

Information contained in this application form (excluding Section 8, payment information) is not considered confidential and will be made available to the public upon request. Information submitted as supporting information may be claimed as confidential under Section 6.10 of this application form but will be subject to the *Freedom of Information and Protection of Privacy Act* (FIPPA) and the *Environmental Bill of Rights* (EBR). If you do not claim confidentiality at the time of submitting the information, the Ministry may make the information available to the public without further notice to the applicant.

It is an offence under the EPA and OWRA to provide false or misleading information in this application and/or accompanying documents.

Complete the sections as shown below.

- Section 1: Applicant Information
- Section 2: Project Information
- Section 3: Regulatory Requirements
- Section 4: Site Information
- Section 5: Facility Information
- Section 6: Supporting Documentation and Technical Requirements
- Section 7: Authorization
- Section 8: Payment Information

Fields marked with an asterisk (*) are mandatory.

1. Applicant Information

1.1 Applicant Information

Applicant Type *

☑ Corporation ☐ Individual ☐ Federal Government ☐ Municipal Government

☐ Partnership ☐ Provincial Government ☐ Sole Proprietor

☐ Other (specify)

Applicant Name (Legal name of individual or organization as evidenced by legal documents) *

Neoen Ontario BESS 1 Inc.

☑ Select if Business Name same as Applicant Name

Business Name *

Neoen Ontario BESS 1 Inc.

Business Number *	Business Website Address
732937602	https://tarabattery.ca/

Primary North American Industry Classification System (NAICS) Code *

The NAICS Code is a six-digit code that represents your business at this facility or site.

Do not enter the Canadian Standard Industrial Classification (CSIC), United States SIC (USSIC) or International SIC (ISIC) Codes.

For Industrial Sewage Works projects you should provide the NAICS Code for the type of facility the Sewage Works will service, not simply the NAICS Code for "Sewage Works".

The NAICS Codes are published by Statistics Canada; a full list can be found at: www.statcan.gc.ca.

221121

Other NAICS Code

Separate list attached?

☐ Yes ☑ No

Business Activity Description

Battery Energy Storage System - transmission system

✓ Completion Status (1.1 Applicant Information)

1.2 Applicant Physical Address

Provide the location of your administration, corporate or head office (business office).

Enter a civic address. Do not provide a P.O. Box number. Provide a survey address only if you do not have a civic address. Provide only one type of survey address: either lot and concession numbers, or part and reference plan numbers. If you provide a survey address, list the Geographic Township in the "Municipality/ Unorganized Township" field.

If your business office is represented by more than one adjacent addresses, the civic or survey address should represent the physical location of your front door or main entrance.

Provide a geo reference of two points on the property if this is also your site address.

Example of a civic address: 2 AnyStreet Ave. W., Unit 302

Examples of a survey address: Lot 2, Concession 3 or Part 2, Reference Plan 1234

Address Type? *

☑ Civic Address ☐ Survey Address

Civic Address

Unit Number	Street Number *	Street Name *
319	150	King Street W

Survey Address

Enter Lot and Concession or Part and Reference Plan

Lot	Concession	Part	Reference Plan

Municipality/Unorganized Township *	County/District
Toronto	

Province/State *	Country *	Postal/Zip Code *
Ontario	Canada	M5H 1J9

Telephone Number *	Fax Number	Mobile Number	Email Address *
647-455-0877 ext.			mario.deaguero@neoen.com

Geo Reference

Description of location	Map Datum	Zone	Accuracy Estimate	Geo-Referencing Method	UTM Easting	UTM Northing
Southwest corner of property	NAD83	17	30	map estimate	630,269.91	4,834,023.63
Physical location of front door or main entrance	NAD83	17	30	map estimate	630,284.37	4,834,040.40

✓ Completion Status (1.2 Applicant Physical Address)

1.3 Applicant Mailing Address

☑ Select if same as Physical Address

Unit Number	Street Number *	Street Name *
319	150	King Street W

Delivery Designator	Delivery Identifier	Postal Station

Municipality/Unorganized Township *	County/District
Toronto	

Province/State *		Country *	Postal/Zip Code *
Ontario		Canada	M5H 1J9

Telephone Number *	Fax Number	Mobile Number	Email Address *
647-455-0877 ext.			mario.deaguero@neoen.com

✓ Completion Status (1.3 Applicant Mailing Address)

Fields marked with an asterisk (*) are mandatory.

2. Project Information

2.1 Project Name and Description

Project Name *

Tara BESS Project

Project Description Executive Summary *

Neoen Ontario BESS 1 Inc. proposes to develop the Tara Battery Energy Storage System (Tara BESS), a 400 megawatt (MW), four-hour duration battery facility capable of storing and dispatching up to 1,600 megawatt-hours (MWh) of electricity. The project is located on Lot 39, Concession 4, in the Municipality of Arran-Elderslie, Bruce County, approximately 5 km southeast of the Village of Tara. The facility is being developed to support Ontario's electricity system by enhancing grid stability and flexibility.

The BESS will use lithium-iron phosphate (LFP) batteries housed in pre-engineered containerized units. It will include associated infrastructure such as inverters, medium-voltage transformers, a 230 kV collector substation, and a dedicated double-circuit transmission line that will interconnect the project to Hydro One's 230 kV transmission line (B27S/B28S), located approximately 400 m to the south.

To manage stormwater and ensure protection of the surrounding environment, the project includes a stormwater management system composed of vegetated ditches, storm sewers, an oil-water separator, and a detention wet pond. The wet pond is designed to retain runoff from a 100-year storm event and discharge treated water to the Sauble River via a naturalized channel. An emergency response and monitoring plan will ensure the ongoing performance of this system. The site lies within the 100-year floodplain, and a 14.19-hectare floodplain compensation area will be created to maintain flood storage capacity.

The project will cover approximately 8.69 hectares for the BESS facility and substation. Construction is expected to begin in 2026, with commissioning targeted for 2027. The facility is designed for a 20-year operational life, with options for future repowering or decommissioning.

Supplemental Application Information (select information button for required information for this field) *

In this section you can provide other information relevant to your application.

This section replaces the cover letter that used to be required.

Information you should provide includes: the proposed start date of your operation; any pre-application consultations with the Ministry; who receives copies of your application (for example, ministry district offices, municipalities).

Tara BESS has a forecasted in-service date in 2027 with construction start expected in Spring, 2026.

A pre-application consultation request was made in March 2025; and a meeting between Neoen, and MECP was completed on May 7, 2025.

Copies of the ECA application will be sent to:
- Arran-Elderslie municipal office
- Saugeen Nation band office
- Bruce County public library, Tara branch
- Owen Sound MECP District office

✓ Completion Status (2.1 Project Name and Description)

2.2 Application Type

Type *

- [x] New ECA
- [ ] Technical Amendment to existing ECA (including extending the cessation or expiry date of an existing ECA that is not expired)
- [ ] Revocation of existing ECA
- [ ] Administrative amendment to existing ECA
- [ ] Application for renewal of operational flexibility or limited operational flexibility
- [ ] Consolidation of existing ECAs

Is this application for the addition of a new project type to the site or a new municipal waste category/class code to the waste management systems or a new sewage facility type?

- [ ] Yes
- [ ] No

Is this application for Transfer of Review? *

- [ ] Yes
- [x] No

✓ Completion Status (2.2 Application Type)

2.3 Project Type

Project Type (Select all that apply) *	Operational Flexibility?	Pilot Project?
[ ] Air - Stationary	[ ]	[ ]
[ ] Air - Mobile	[ ]	[ ]
[ ] Noise	[ ]	[ ]
[ ] Vibration	[ ]	[ ]
[ ] Waste Disposal Site - Landfill site	N/A	[ ]
[ ] Waste Disposal Site - Transfer site	[ ]	[ ]
[ ] Waste Disposal Site - Processing site	[ ]	[ ]
[ ] Waste Disposal Site - Composting site	[ ]	[ ]
[ ] Waste Disposal Site - Thermal Treatment site	[ ]	[ ]
[ ] Waste Disposal Site - Hauled Sewage Disposal Site	N/A	[ ]
[ ] Waste Disposal Site - Processed Organic Waste (Biosolids) Land Application Site	N/A	[ ]
[x] Sewage - Industrial	[ ]	[ ]
[ ] Sewage - Municipal	[ ]	[ ]
[ ] Sewage - Private	[ ]	[ ]
[ ] Waste Management System - General Waste Management System	N/A	[ ]
[ ] Waste Management System - Hauled Sewage (Septage)	N/A	[ ]
[ ] Waste Management System - Processed Organic Waste for transport to an agricultural or non-agricultural site for storage or land application	N/A	[ ]
[ ] Waste Management System - Mobile Waste Processing	N/A	[ ]
[ ] Cleanup of contaminated sites - Mobile	N/A	[ ]
[ ] Cleanup of contaminated sites - Site specific	N/A	[ ]

✓ Completion Status (2.3 Project Type)

2.4 Approval Information

Reason for Application / Application initiated by *

- [x] Applicant
- [ ] Condition of existing approval
- [ ] Inspection Report (attach copy)
- [ ] ECA Review Notice from Director (EPA s20.4)
- [ ] Other (specify)
- [ ] S. 20.18 Order (attach copy)
- [ ] Provincial Officer Order (attach copy)
- [ ] Extend the cessation date or expiry date of an existing ECA
- [ ] ECA Review Required by Regulation (EPA s20.4)

Current Environmental Compliance Approvals that may be changed or amended by this application: [x] N/A

Environmental Compliance Approval Number	Date of Issuance (yyyy/mm/dd)	Cessation/Expiry Date (yyyy/mm/dd)

Separate list attached?

[ ] Yes [ ] No

Other proposed Environmental Compliance Approvals related to this project: [x] N/A

Project Type	Ministry Reference Number (if applicable)	Have Submitted	Have not Submitted
		[ ]	[ ]

Separate list attached?

[ ] Yes [ ] No

✓ Completion Status (2.4 Approval Information)

2.5 Other Approval/Permits for Facility

List all other instruments (approvals or permits) issued by the Ministry of the Environment, Conservation and Parks or applied for under the *Environmental Protection Act*, *Environmental Assessment Act*, *Ontario Water Resources Act* and *Safe Drinking Water Act, 2002* and any Environmental Activity and Sector Registrations that are relevant to this application. [ ] N/A

Instrument Type	Instrument Number/ Application Reference Number	Approval or Application Date (yyyy/mm/dd)	Cessation/Expiry Date (yyyy/mm/dd)
Class EA	Pending		
EASR for Noise	Pending		

Separate list attached?

[ ] Yes [x] No

List all other instruments (approvals or permits) issued by an agency, municipality or another ministry that are relevant to this application. [ ] N/A

Issuing Agency	Approval or Permit Name	Approval or Permit Number	Issued Date (yyyy/mm/dd)
Grey Sauble Conservation Authority	Permit (O Reg 41/24)	Pending	
Bruce County	Official Plan Amendment	Pending	
Arran-Elderslie Municipality	Zoning by-law Amendment	Pending	
Arran-Elderslie Municipality	Site Plan approval	Pending	
Arran-Elderslie Municipality	Building permit	Pending	

Separate list attached?

[ ] Yes [x] No

✓ Completion Status (2.5 Other Approval/Permits for Facility)

2.6 Technical Contacts

Technical Contact 1

Area of Responsibility (Select all that apply) *

☐ Air ☐ Noise/Vibration ☑ Sewage ☐ Waste

Name of Technical Contact

Last Name *	First Name *
Brunelle	Vincent

Company *
BBA Engineering Ltd.

Address Information

☐ Select if same as Applicant Mailing Address

Civic Address

Unit Number	Street Number *	Street Name *
300	2020	Blvd Robert-Bourassa

Delivery Designator	Delivery Identifier	Postal Station

Municipality/Unorganized Township *	County/District
Montreal	

Province/State *	Country *	Postal/Zip Code *
Quebec	Canada	H3A2A5

Telephone Number *	Fax Number	Mobile Number	Email Address *
438-365-3246 ext.			vincent.brunelle@bba.ca

✓ Completion Status (2.6 Technical Contacts)

Fields marked with an asterisk (*) are mandatory.

3. Regulatory Requirements

3.1 Environmental Bill of Rights (EBR) Requirements

Is this an application for a classified instrument identified in Section 5 of O. Reg. 681/94, under the Environmental Bill of Rights, 1993 (EBR)? *

☑ Yes ☐ No

If yes, an exception to the requirement to post a proposal notice on the Environmental Registry may apply. These exceptions are set out in the EBR. If you believe an exception may apply to your proposal, please identify which circumstance may be applicable and provide the appropriate supporting information. The information you provide is for background purposes; the Ministry will evaluate the information and determine whether an exception does in fact apply. *

☐ This proposal has been considered in a substantially equivalent process of public participation. (EBR, 1993, s.30.). Please provide a description of any processes of public participation that you engaged in, that were substantially equivalent to the process required under the EBR, in respect of the environmentally significant aspects of the ECA application, including:

- The type of public participation
- How, where and when the process of public participation was conducted
- The number of participants
- The type of comments received
- Actions you took as a result of the comments
- Whether ministry staff were involved in the process

Please also include documentation verifying the process of public participation.

Was the public participation process carried out in fulfillment of the requirements related to an approval under the *Planning Act*?

☐ Yes ☐ No

If yes, was the *Planning Act* approval related to a plan of subdivision?

☐ Yes ☐ No

☐ This proposal is for an emergency situation. (EBR, 1993, s. 29.). Please provide details about why a delay that would result from posting a proposal for the ECA on the Environmental Registry would result in (a) danger to the health or safety of any person; (b) harm or serious risk of harm to the environment; or (c) injury or damage or serious risk of injury or damage to any property

☐ This proposal is for an amendment to or revocation of an existing Environmental Compliance Approval that is not environmentally significant. (EBR, 1993, s. 22 (3).) Please provide details about why the effect of the amendment or revocation on the environment is insignificant.

☑ This proposal has been subject to or exempted from Environmental Assessment Act (EAA) Requirements or considered in a decision of a tribunal. (EBR, 1993, s. 32.) Please provide a description of why the ECA would be a step toward implementing an undertaking or other project that is (a) subject to, or exempted from, a decision made under the EAA; or (b) approved by a decision made by a tribunal after affording an opportunity for public participation.

☐ Check here if you do not believe any of the above circumstances apply to your proposal.

✓ Completion Status (3.1 Environmental Bill of Rights (EBR) Requirements)

3.2 *Environmental Assessment Act* (EAA) Requirements

If you indicate this proposal has been subject to, or exempted from, EAA Requirements, provide proof the proposal has met the EAA Requirements or has been exempted.

For more information on environmental assessment requirements please visit https://www.ontario.ca/page/environmental-assessments.

Is the proposed undertaking subject to the requirements of the EAA? *

☑ Yes ☐ No

If yes, please select one of the following: *

☑ The proposed undertaking has fulfilled the requirements of the EAA through the completion of a Class EA process

Name of Class EA * Class EA for transmission facilities

Schedule/Group/Category (if applicable) * n/a

If applicable, please submit a copy of the proof of completion (for example, Notice of Completion).

Was a section 16 order (previously named a Part II Order), under the EAA requested, considered (e.g. Notice of Proposed Order) and/or made on/for the undertaking? *

☐ Yes ☑ No

If yes, please submit a copy of the relevant documentation.

☐ The proposed undertaking has fulfilled all of the requirements for the EAA through:

Select all that apply:

☐ completion of an Environmental Screening Process pursuant to O. Reg. 101/07 of the EAA

☐ completion of an Environmental Screening Process pursuant to O. Reg. 116/01 of the EAA

Was the undertaking subject of an elevation request(s)?

☐ Yes ☐ No

If yes, please submit a copy of the Director's decision letter. If an appeal was made to the Director's decision, please also submit a copy of the Minister's decision letter.

☐ completion of an Environmental Screening Process pursuant to O. Reg. 231/08 of the EAA

Was the undertaking subject of an objection(s)?

☐ Yes ☐ No

If yes, please submit a copy of the Minister's decision letter.

☐ The proposed undertaking has fulfilled the requirements of the EAA through the completion of an individual Environmental Assessment.

Please submit a copy of the signed Notice of Approval.

Was the undertaking exempted from the requirements of the EAA? *

☐ Yes ☑ No

The proposed undertaking has fulfilled the requirements of the EAA through an exemption provided under:

Select one of the following

☐ Section _____ of Ontario Regulation No. _____ or

☐ Declaration/Exemption Order Number _____

If Regulation, Declaration Order or Exemption Order does not refer directly to this undertaking, please provide supporting documentation to explain why it applies to this facility

✓ Completion Status (3.2 *Environmental Assessment Act* (EAA) Requirements)

3.3 Consultation/Notification

Indigenous Consultation:

Is the proposed project/activity on Crown land or does/would it alter access to Crown land? *	☐ Yes	☑ No
Is the proposed project/activity in an open or forested area where hunting, trapping or plant gathering could occur? *	☐ Yes	☑ No
Does the proposed project/activity involve the clearing of forested land? *	☐ Yes	☑ No
Could the proposed project/activity impact a water body (e.g., direct discharge) or alter access to a water body? *	☑ Yes	☐ No
Could the proposed project/activity impact cultural heritage or archaeological resources, or access to them? *	☑ Yes	☐ No
Is the proposed project/activity adjacent or close to a First Nation Reserve? *	☐ Yes	☑ No
Is the applicant aware of any concerns from Indigenous communities about this proposed project/activity? *	☐ Yes	☑ No
Were there conditions placed, or direction provided, in another (or previous) permit or approval for consultation in relation to this project/activity? *	☐ Yes	☑ No
Based on the online Guide to Applying for an Environmental Compliance Approval, or direction provided by the Ministry or another agency, are Indigenous consultation activities likely required as part of this application process? *	☑ Yes	☐ No

If Yes to the question above, please describe the consultation/notification activities undertaken for this application or as part of another process (e.g., EAA) in relation to the proposed project/activity, including a summary of the notification/ consultation, First Nation and Métis communities contacted, key issues raised and how they were addressed, any changes to the project as a result of these activities, and any planned consultation/notification activities in the future. *

The Ministry of Energy and Electrification identified the following Indigenous communities as Rightsholders:

Saugeen First Nation and Chippewas of Nawash Unceded First Nation, collectively represented by the Saugeen Ojibway Nation (SON)

Georgian Bay Historic Métis Community, part of Métis Nation of Ontario – Region 7, represented by the Georgian Bay Traditional Territory Consultation Committee (GBTTCC)

Key activities included:

- A virtual kickoff meeting with GBTTCC (Oct 2, 2024)

- Follow-up consultation meeting with GBTTCC (Feb 14, 2025), discussing BESS technology, safety, environmental topics, and potential benefits

- Email and document sharing with SON, including project updates, archaeology reports, and open house materials (e.g., Mar 18 and 25, 2025)

- Offer to host SON-specific open house

- Meeting with SON was scheduled for Nov 20, 2024 but cancelled by SON

Issues raised by Indigenous groups included:

- Interest in recycling, local jobs, and supplier opportunities

- Questions on safety and emergency response

Please attach supporting documents (e.g., record of consultation, delegation letter and/or direction provided by the Crown, materials provided to communities, meeting notes and agendas, correspondence with communities as appropriate).

If the applicant has determined that consultation with First Nation and Métis communities is not likely required for the proposed project/activity, please provide a rationale why:

Other Consultation/Notification: Show Information

Has the applicant had a ministry pre-application consultation in relation to the proposed project? *

☑ Yes ☐ No

If this application is for a waste disposal site (including for a Hauled Sewage Disposal Site), have the neighbour notification requirements been completed?

☐ Yes ☐ No

If yes, please attach a Public Consultation/Notification Report that includes the notice and list of recipients.

If no, please select the reason for not undertaking neighbour notification:

☐ Application is for an administrative amendment

☐ other , please explain

Are there any other consultation/notification activities that have been undertaken to fulfill requirements by other legislation or through voluntary efforts? *

☑ Yes ☐ No

If yes, please: *

1. describe the consultation/notification activities below; and
2. attach documents describing each of these consultation\notification activities, any changes to the project as a result of these activities and any planned consultation/notification activities in the future.

Municipal and Agency Consultation
Neoen has engaged with multiple local and provincial stakeholders, including:

- Municipality of Arran-Elderslie, Township of Chatsworth, Bruce County, and Grey County

- Grey Sauble Conservation Authority (GSCA)

- Ministry of Environment, Conservation and Parks (MECP) – pre-consultation meeting held Nov 27, 2024

- Hydro One, the interconnection partner

Key concerns raised by local governments included:

- Floodplain and stormwater management

- Emergency response planning (fire safety)

- Visual impacts and land use/zoning

Neoen established the Tara BESS Working Group in February 2025 to address priority topics with municipal and agency partners. Meetings focused on:

- Stormwater & floodplain (Feb 28, 2025)

- Fire safety and emergency planning (Mar 14, 2025)

- Traffic management and decommissioning (Mar 28, 2025)

Public and Community Engagement
Neoen implemented a comprehensive public consultation plan including:

- Public notices, flyers, and local bulletin postings

- A project website (www.tarabattery.ca) with FAQs and feedback forms

- Two open houses (Nov 2, 2023 and Jan 21, 2025)

- Door-to-door canvassing, direct calls, and digital advertising

- Presentations to municipal councils (Arran-Elderslie, Bruce County, and Chatsworth)

Concerns raised by residents included:

- Fire risk and insurance impacts

- Visual impacts and property value

- Suitability of location within floodplain

Neoen revised the BESS site layout in response to specific feedback (e.g., moving the layout south to mitigate visual concerns of nearby property owners).

✓ Completion Status (3.3 Consultation/Notification)

Fields marked with an asterisk (*) are mandatory.

4. Site Information

4.1 Site Address or Storage Location

Will the vehicles or equipment be stored at more than one location?

☐ Yes ☐ No

(If yes, please enter all vehicle or equipment storage locations below and attach separate list, as necessary.)

☐ Select if same as Applicant Physical Address

Address Type? *

☐ Civic Address ☑ Survey Address

Primary Civic Address

Unit Number	Street Number	Street Name

Additional Civic Addresses

Unit Number	Street Number	Street Name

Separate list attached?

☐ Yes ☐ No

Primary Survey Address

Enter Lot and Concession or Part and Reference Plan *

Lot *	Concession *	Part	Reference Plan
36	4		

Additional Survey Address

Enter Lot and Concession or Part and Reference Plan

Lot	Concession	Part	Reference Plan
35	4		

Separate list attached?

☐ Yes ☐ No

Municipality/Unorganized Township *	County/District	
Arran-Elderslie	Bruce	
Province/State *	**Country ***	**Postal/Zip Code ***
Ontario	Canada	N0G1L0

Non-address Information (includes any additional information to clarify the physical location)

Geo Reference (required)

☐ Select if same as Applicant Physical Geo Reference

Description of location	Map Datum *	Zone *	Accuracy Estimate *	Geo-Referencing Method *	UTM Easting *	UTM Northing *
Southwest corner of property	NAD83	17	30 m	map estimate	491,339.29	4,920,757.62
Physical location of front door or main entrance	NAD83	17	30 m	map estimate	491,232.63	4,921,765.48

✓ Completion Status (4.1 Site Address or Storage Location)

4.2 Site or Storage Location Information

Site Name *

Tara BESS

Days and Hours of Operation *	Ministry of the Environment District Office *
Monday to Sunday, 24 hours	Owen Sound Area Office

Is the site (property) that is the subject of this application owned by the applicant? *

☐ Yes ☑ No

If no, please include the owner's name, address and a signed document indicating that the applicant has the authority to install and operate the proposed activity, or store vehicles or equipment on the land.

Is the applicant the operating authority of the site that is the subject of this application? *

☑ Yes ☐ No

If no, please include the operating authority name, address and phone number.

Is the site located in an area of development control as defined by the *Niagara Escarpment Planning and Development Act* (NEPDA)? *

☐ Yes ☑ No

If yes, please attach a copy of the NEPDA permit for proposed activity.

Is the site within an area covered by the Oak Ridges Moraine Conservation Plan? *

☐ Yes ☑ No

If yes, please attach proof of municipal planning approval for the proposed activity/work (for example, zoning by-law, letter from municipality, etc.).

✓ Completion Status (4.2 Site or Storage Location Information)

4.3 Site Zoning and Classification ☐ N/A

Current Land Use *	Official Plan Designation *	Current Zoning (Please attach zoning map, if available.) *
crop, pasture, remnant landcover	Agriculture; Hazard	A1 - Agriculture; EP - Environmental Protection

Adjacent Land Use (select all that apply) *

☐ Industrial ☑ Agricultural ☐ Commercial ☐ Recreational ☐ Residential

☑ Other (specify) * remant landcover, transportation, electric transmission

Adjacent Land Zoning *

A1 - Agriculture; EP - Environmental Protection

Does the current zoning permit the proposed activity? *

☐ Yes ☑ No

Does the applicant have correspondence from the municipality to confirm that the current zoning of the property permits the proposed use? *

☐ Yes ☑ No If yes, please attach correspondence from the municipality.

Does the official plan designation support the proposed activity? *

☐ Yes ☑ No

✓ Completion Status (4.3 Site Zoning and Classification)

4.4 Point of Entry into Ontario ☐ N/A

(for waste management system vehicles that are stored at an address outside of Ontario)

City in closest proximity to the point of entry

Description of Point of Entry

✓ Completion Status (4.4 Point of Entry into Ontario)

4.5 Source Protection/Drinking Water Threats (sewage or waste disposal site applications only) ☐ N/A

Check the source protection area(s) where the activity is/will be located *

☐ Ausable Bayfield	☐ Cataraqui Region	☐ Catfish Creek
☐ Central Lake Ontario	☐ Credit Valley	☐ Crowe Valley
☐ Essex	☐ Ganaraska	☐ Grand River
☑ Grey Sauble	☐ Halton	☐ Hamilton
☐ Kawartha-Haliburton	☐ Kettle Creek	☐ Long Point
☐ Lakehead	☐ Lake Simcoe and Couchiching/Black River	☐ Lower Trent
☐ Lower Thames Valley	☐ Maitland Valley	☐ Mattagami
☐ Mississippi Valley	☐ Niagara	☐ North Bay Mattawa
☐ Northern Bruce Peninsula	☐ Nottawasaga Valley	☐ Rideau Valley
☐ Raisin Region	☐ South Nation	☐ Saugeen Valley
☐ Sault Ste. Marie	☐ Severn Sound	☐ Sudbury
☐ St. Clair Region	☐ Toronto and Region	☐ Otonabee-Peterborough
☐ Outside a source protection area	☐ Quinte	☐ Upper Thames River

Is the proposed activity located or planned to be located in a vulnerable area identified in a local assessment report source protection plan under the *Clean Water Act, 2006*? *

☑ Yes ☐ No

If yes, what is/are the vulnerable area(s)/zone(s)? *

☐ Wellhead Protection Areas ☐ Surface Water Intake Protection Zones ☑ Highly Vulnerable Aquifers

☑ Significant Groundwater Recharge Areas ☐ Issue Contributing Areas

Is the activity being applied for identified as a significant drinking water threat in the assessment report for the local source protection area? *

☐ Yes ☑ No

✓ Completion Status (4.5 Source Protection/Drinking Water Threats)

4.6 Receiver of Effluent Discharge (sewage applications only) ☐ N/A

Intermediate Receiver Name *

On site wet pond

Watershed Name *

Tara Creek - Sauble River Watershed (Quarternary)

Type of Receiver *

☑ Surface Water ☐ Groundwater ☐ Other (specify)

Has the facility received local Conservation Authority clearance? (for stormwater management facility discharging to the natural environment) *

☐ Yes ☑ No

If yes, please include a copy of the Conservation Authority clearance.

Final Receivers ☐ N/A

If the proposed activity will discharge sewage to any of the following critical receivers, please identify the receiver(s): *

☐ Lake Simcoe ☐ Rideau River ☐ Detroit River

☐ Great Lakes ☐ Rouge River ☐ Bay of Quinte

☑ Other (specify) * Sauble River

Is the receiver a Policy 2 receiver? *

☐ Yes ☑ No

Does the applicant have a Policy 2 deviation approval from the directors?

☐ Yes ☐ No

If yes, please attach a copy of the Director's approval.

✓ Completion Status (4.6 Receiver of Effluent Discharge)

4.7 Site Physical and Distance Parameters (Hauled Sewage Disposal Site and Processed Organic Waste Land Application Site applications only) ☐ N/A

Total Site Area (hectares)	Total Usable Area (hectares)

Soil T-Time

What is the estimated soil T-time within the usable area of the site based on field percolation tests or equivalent method? (e.g. grain size analyses). Use the check boxes below for your answer (more than one box can be checked) and provide a copy of the soil evaluation/analysis along with this application.

☐ T-time < 1 minute per cm ☐ T-time > 1 minute per cm and < 50 minutes per cm ☐ T-time > 50 minutes per cm

Soil Permeability

Provide an estimate of the soil permeability within the usable area of the site based on field percolation tests or equivalent method (e.g. grain size analyses). Use the check boxes below for your answer (more than one box can be checked) and provide a copy of the soil evaluation/ analysis along with this application.

☐ Slow ☐ Moderate ☐ Moderately Rapid ☐ Rapid

Average Slope

Provide an estimate of the slope of the land within the usable area of the site. Use the check boxes below for your answer (more than one box can be checked).

☐ 0-3% (Flat) ☐ 3-6% (Gentle Slope) ☐ 6-9% (Moderate Slope) ☐ >9% (Steep Slope)

Is the land within the usable area tile drained?

☐ Yes ☐ No

Distance to Sensitive Features

Please identify whether the distance from the edge of any portion of the site where hauled sewage or processed organic waste will be spread/stored or where hauled sewage will otherwise be deposited (e.g. in a dewatering trench, lagoon, storage) or land applied is:

Within 30 metres of the closest public roadway?

☐ Yes ☐ No

Within 200 metres of the closest surface water body?

☐ Yes ☐ No

Within 90 metres of the closest house on-site?

☐ Yes ☐ No ☐ N/A

Within 90 metres of the closest house off-site?

☐ Yes ☐ No

Within 450 metres of the closest residential area (i.e. cluster of 3 or more houses)?

☐ Yes ☐ No

Within 450 metres of the closest commercial, recreational or institutional use, and locations at which people regularly congregate?

☐ Yes ☐ No

Distance to Local Treatment Facilities

Is there a private or municipal sewage treatment plant that accepts hauled sewage located within 50km of this site?

☐ Yes ☐ No ☐ N/A

Is there any other type of private or municipal facility (e.g. biodigester) that accepts and treats hauled sewage located within 50km of this site?

☐ Yes ☐ No ☐ N/A

✓ Completion Status (4.7 Site Physical and Distance Parameters)

Fields marked with an asterisk (*) are mandatory.

5. Facility Information

5.1 Air

5.2 Noise

5.2.1 Noise Assessment

There are different ways of fulfilling noise assessment requirements.

If you indicated in Section 2.3 of the Application Form that your application project type involves "Noise", the default requirement is for you to include an Acoustic Assessment Report (AAR) unless your proposed activity is eligible for a type of screening or Abbreviated Acoustic Assessment Report (A-AAR) and that screening or the A-AAR shows compliance with applicable noise limits.

Has an Acoustic Assessment Report (AAR) been completed in relation to the proposed project/activity?

☐ Yes ☐ No

If yes, please attach the Acoustic Assessment Report

Does the AAR show that applicable limits are met?

☐ Yes ☐ No

If no, please attach the Acoustic Assessment Report including the Noise Abatement Action Plan

If no, is the application eligible for Primary or Secondary Noise Screening?

☐ Yes ☐ No

Note that if the proposed activity is not eligible for either of the screenings, an AAR must be submitted.

If yes, is the proposed activity eligible for the Primary Noise Screening?

☐ Yes ☐ No

If yes, is the actual separation distance between the facility and the nearest noise sensitive point of reception (POR) greater than the minimum required separation distance calculated from the Primary Noise Screening?

☐ Yes ☐ No

If yes, please attach the Primary Noise Screening form and supporting documentation.
Note that if the Primary Noise Screening is not successful then the applicant may attempt to proceed with the Secondary Noise Screening.

If no, does the Secondary Noise Screening Form show that the applicable sound level limits are met?

☐ Yes ☐ No

If yes, please attach the Secondary Noise Screening Form and supporting documentation.
Note that if meeting the applicable sound level limits cannot be demonstrated, then an AAR must be submitted.

✓ Completion Status (5.2.1 Noise Assessment)

5.2.2 Equipment Subject to Noise Review

Description	Number of Pieces of Equipment
☐ Arc Furnaces	
☐ Asphalt Plants	
☐ Blow-down Devices	
☐ Co-Generation Facilities	
☐ Crushing Operations	
☐ Flares	
☐ Gas Turbines	
☐ Pressure Blowers or Large Induced Draft Fans (flow rate > 47 m^3/second or static pressure > 1.25 kilopascals)	
☐ Any other equipment not listed above that has not previously been reviewed by the Director in connection with an application for an Environmental Compliance Approval with respect to the facility	
☐ Any other equipment not listed above that is identical to equipment for which a noise assessment was previously reviewed by the Director in connection with an application for an Environmental Compliance Approval with respect to the facility	

✓ Completion Status (5.2.2 Equipment Subject to Noise Review)

✓ Completion Status (5.2 Noise)

5.3 Sewage Works Show Information

5.3.1 Facility Type - Sewage Works

Select the type of facility that is the subject of the application (select all that apply). *

☐ Sewage Treatment Plant (STP) ☑ Stormwater Management Facility

For the following, the applicant must complete and attach the relevant sections of the pipe data form:

☐ Storm Sewers ☐ Ditches ☐ Combined Sewers

☐ Force mains ☐ Sanitary Sewers ☐ Pumping Station

Does the pumping station pump directly to a sewage treatment plant?

☐ Yes ☐ No

(If yes, please attach the hydrogeological assessment.)

Sewage Treatment Plant Details

☐ Primary ☐ Secondary ☐ Tertiary

☐ Receives septage ☐ Constructed/Engineered Wetlands ☐ On-site system

☐ Lagoons (check all that apply below)

☐ Septage ☐ Municipal ☐ Other (specify) _____

Facility Type

☐ Municipal or private facility

Category: ☐ New ☐ 1 ☐ 2 ☐ 3 ☐ 4

Please indicate the maximum design capacity of the municipal or private sewage treatment plant:

☐ ≤ 4,500 m^3/day ☐ > 4,500 m^3/day

☐ Facility for the treatment of leachate

Category: ☐ New ☐ 1 ☐ 2 ☐ 3 ☐ 4

☐ Facility for the treatment of industrial process wastewater

Category: ☐ New ☐ 1 ☐ 2 ☐ 3 ☐ 4

☐ Facility for the disposal of non-contact cooling water

☐ Subsurface disposal

Please indicate the design capacity of the subsurface disposal:

☐ ≤ 15m³/day ☐ > 15 m³/day and < 50 m³/day ☐ > 50 m³/day

Stormwater Management Facility Details

Category: * ☑ New ☐ 1 ☐ 2 ☐ 3 ☐ 4

Pond Type *

☑ Wet Pond ☐ Dry Pond ☐ Other (specify) _____

What is the drainage area (in hectares) associated with the proposed activity? * 7.15

Does the applicant own all, or part of the drainage area? *

☐ Applicant owns all of the drainage area

☐ Applicant owns part of the drainage area

☑ Applicant does not own the drainage area

For the drainage area land that the applicant does not own, does the applicant have an agreement with the owner(s) of the drainage area? *

☑ Yes ☐ No

What is the predominant type of land use in the drainage area? *

☑ Rural or Agricultural ☐ Commercial or Industrial ☐ Residential

Is a Hydrogeological Assessment required? *

☐ Yes ☑ No

(If yes, please attach the hydrogeological assessment.)

Is a review of effluent criteria assessment for stormwater management, cooling water or soil remediation facilities required? *

☐ Yes ☑ No

(If yes, please attach the final effluent criteria accepted by the Regional Office of the Ministry.)

Is a review of effluent criteria assessment for municipal or private sewage, industrial process wastewater or leachate treatment plant required? *

☐ Yes ☑ No

(If yes, please attach the final effluent criteria accepted by the Regional Office of the Ministry.)

Note: The Hydrogeological Assessment, effluent criteria, and surface water assessment must be discussed and prepared with the Ministry's regional technical support section during a pre-application meeting(s) and consultation(s) with the Ministry. A proof of concurrence from technical support must be included as part of the ECA application package.

✓ Completion Status (5.3.1 Facility Type - Sewage Works)

5.3.2 Servicing

The works will provide sewage servicing for (select all that apply): *

☐ Residential

Residential Type

☐ Subdivision ☐ Condominium ☐ Institutional

☐ Other (specify) _____

Is there a Municipal Responsibility Agreement in place?

☐ Yes ☐ No ☐ N/A

(If yes, please attach a copy of the Municipal Responsibility Agreement.)

☐ Commercial

Commercial Type

☐ Hotel, Motel, Inn ☐ Campground, Park ☐ Rental Cabins

☐ Resort ☐ Shopping Malls ☐ Restaurant

☐ Highway Service Station/Gas Bars ☐ Other (specify) _____

☑ Industrial

Describe * Battery Energy Storage System and substation

✓ Completion Status (5.3.2 Servicing)

5.3.3 Sewage Servicing for Waste Disposal/Landfill Sites

Does/Will the sewage treatment facility receive waste disposal/landfill site leachate? *

☐ Yes ☑ No

If yes, please identify the site(s) below.

Name of Site Contributing Leachate	Environmental Compliance Approval Number	Volume of Leachate (m^3)
1.		

✓ Completion Status (5.3.3 Sewage Servicing for Waste Disposal/Landfill Sites)

✓ Completion Status (5.3 Sewage Works)

5.4 Waste Disposal Site (Including a Hauled Sewage Disposal Site or a Processed Organic Waste (Biosolids) Land Application Site)

5.5 Waste Management Systems (Except Mobile Waste Processing)

5.6 Waste Management System - Mobile Waste Processing

5.7 Cleanup of Contaminated Sites

6. Supporting Documentation and Technical Requirements

6.1 General

Note**: Information contained in this application form (excluding Section 8, payment information) is not considered confidential and will be made available to the public upon request. If the applicant is of the view that any part of the supporting information to this application is confidential on the grounds that such information constitutes a trade secret or scientific, technical, commercial, financial or labour relations information, please make this known in the table below by selecting the appropriate checkbox and providing the explanation for confidentiality in Section 6.10. The Ministry may request a redacted copy of this document for public viewing. Although the applicant may identify the supporting information as confidential, the information is subject to the FIPPA and EBR. If you do not claim confidentiality at the time of submitting the information (i.e. select the appropriate checkbox in the table below), the Ministry may make the information available to the public without further notice to the applicant.

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential/ Not Suitable for Public Viewing
Proof of legal name	Required	☑ Yes ☐ No		☐
Enhanced EBR description	N/A	☐ Yes ☐ No		☐
Provincial Officer Notice	N/A	☐ Yes ☐ No		☐
Inspection Report	N/A	☐ Yes ☐ No		☐
Detailed project and process description	Required	☑ Yes ☐ No		☐
Pre-application Consultation Record	Required	☑ Yes ☐ No		☐
Legal Survey(s)	Optional	☐ Yes ☑ No	legal boundaries included on site plans	☐
Site Plan(s)	Required	☑ Yes ☐ No		☐
Scaled area location plan(s) with geo-referencing points identified	Required	☑ Yes ☐ No		☐
Documentation in support of EBR Exception	N/A	☐ Yes ☐ No		☐
Proof of Compliance with EAA Requirements	Required	☑ Yes ☐ No		☐
Proof of Consultation/Notification	Required	☑ Yes ☐ No		☐
Financial Assurance Estimate	Optional	☐ Yes ☑ No	As per ECA application guide, financial assurance estimate not required for industrial stormwater works	☐
Name, address and consent of land/ site owner for the installation and operation of the proposed activity or storage location of equipment or vehicle	Required	☑ Yes ☐ No		☐
Name, address and phone number of the Operating Authority	N/A	☐ Yes ☐ No		☐
Copy of NEPDA Permit	N/A	☐ Yes ☐ No		☐
Copy/Proof of Municipal Planning Approval (ORMCA, general)	N/A	☐ Yes ☐ No		☐
Municipal Zoning Confirmation Letter	N/A	☐ Yes ☐ No		☐
Zoning map	Required	☑ Yes ☐ No		☐
Conservation Authority Clearance	N/A	☐ Yes ☐ No		☐
Director's approval for Policy 2 Deviation	N/A	☐ Yes ☐ No		☐
Application Fee	Required	☑ Yes ☐ No		☐

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential/ Not Suitable for Public Viewing
Other (please describe) none	Optional	☐ Yes ☑ No	nothing additional to provide	☐

✓ Completion Status (6.1 General)

6.2 Air

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential/ Not Suitable for Public Viewing
Emission Summary and Dispersion Modelling (ESDM) Report prepared in accordance with s. 22 and of O. Reg. 419/05 (including signed checklist)	N/A	☐ Yes ☐ No		☐
Electronic copy of the Dispersion Modelling input and output files prepared in accordance with s. 26 of O. Reg. 419/05	N/A	☐ Yes ☐ No		☐
Supporting Information for a Maximum Ground Level Concentration Acceptability Request for Compounds with no Ministry POI Limit - Supplement to Application for Approval, EPA S. 9	N/A	☐ Yes ☐ No		☐
Copies of forms requesting O. Reg. 419/05 instruments and supporting documentation	N/A	☐ Yes ☐ No		☐
Other (please describe)	Optional	☐ Yes ☐ No		☐

✓ Completion Status (6.2 Air)

6.3 Noise and Vibration

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential/ Not Suitable for Public Viewing
Primary Noise Screening		☐ Yes ☐ No		☐
Secondary Noise Screening	N/A	☐ Yes ☐ No		☐
Acoustic Assessment Report including signed checklist (AAR)	N/A	☐ Yes ☐ No		☐
Vibration Assessment Report	N/A	☐ Yes ☐ No		☐
Noise Abatement Action Plan	N/A	☐ Yes ☐ No		☐
Other (please describe)	N/A	☐ Yes ☐ No		☐

✓ Completion Status (6.3 Noise and Vibration)

6.4 Sewage Works

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential/ Not Suitable for Public Viewing
Signed Municipal Responsibility Agreement	N/A	☐ Yes ☐ No		☐
Detailed description of the proposed activities/works	N/A	☐ Yes ☐ No		☐
Notice of Completion for the Environmental Study Report (ESR)	Optional	☑ Yes ☐ No		☐
Design Brief	Required	☐ Yes ☑ No	As per ECA application guide, SWM Report sufficient	☐
Preliminary Engineering Report	Optional	☐ Yes ☑ No	As per ECA application guide, SWM Report sufficient	☐
Final Plans	N/A	☐ Yes ☐ No		☐
Engineering Drawings and Specifications	Required	☑ Yes ☐ No		☐
Sewage quantity and quality characteristics	Required	☑ Yes ☐ No		☐
Stormwater Management Report	Required	☑ Yes ☐ No		☐
Stormwater Management Plan	Required	☐ Yes ☑ No	Integrated into SWM Report	☐
Hydrogeological Assessment with proof of concurrence from the Ministry's Regional technical support section	N/A	☐ Yes ☐ No		☐
Environmental Impact Analysis	Optional	☑ Yes ☐ No		☐
Final effluent criteria accepted with proof of concurrence from the Ministry's Regional Technical Support Section	N/A	☐ Yes ☐ No		☐
Sewage Works Operational Flexibility Requirements - Engineer's Report	N/A	☐ Yes ☐ No		☐
Sewage Works Operational Flexibility Requirements - Declarations	N/A	☐ Yes ☐ No		☐
Pipe Design Data Form	N/A	☐ Yes ☐ No		☐
Other (please describe)	Optional	☐ Yes ☐ No		☐

✓ Completion Status (6.4 Sewage)

6.5 Waste Disposal Sites

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential/ Not Suitable for Public Viewing
Design and Operations Report	N/A	☐ Yes ☐ No		☐
Stormwater Management Report	Optional	☐ Yes ☐ No		☐

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential/ Not Suitable for Public Viewing
Hydrogeological Assessment with proof of concurrence from the Ministry's Regional technical support section	N/A	☐ Yes ☐ No		☐
Assessment of Physical and Water Use Conditions	Optional	☐ Yes ☐ No		☐
Waste Operational Flexibility Requirements - Engineer's Report	N/A	☐ Yes ☐ No		☐
Waste Operational Flexibility Requirements - Declarations	N/A	☐ Yes ☐ No		☐
Copy of notification to adjacent landowners	N/A	☐ Yes ☐ No		☐
Other (please describe)	Optional	☐ Yes ☐ No		☐
Hauled Sewage Disposal Sites - Additional Supporting Documentation				
Soil Evaluation / Analysis	N/A	☐ Yes ☐ No		☐
Local Groundwater Conditions Report (e.g. well water records, data to support inferred groundwater flow, groundwater monitoring data, hydrogeological assessment with proof of concurrence from the Ministry's regional technical support section)	N/A	☐ Yes ☐ No		☐
Surface Water Assessment Report (e.g. surface water monitoring data, description of aquatic habitat, surface water users, existing stressors, description of proposed measures to minimize risks)	N/A	☐ Yes ☐ No		☐
Map showing location of the site in relation to local features	N/A	☐ Yes ☐ No		☐
Processed Organic Waste (Biosolids) Land Application Sites - Additional Supporting Documentation				
Soil Evaluation / Analysis	N/A	☐ Yes ☐ No		☐
Processed Organic Waste Analysis	N/A	☐ Yes ☐ No		☐
Overview of Beneficial Use and Risk Management Measures	N/A	☐ Yes ☐ No		☐
Map showing location of the site in relation to local features	N/A	☐ Yes ☐ No		☐

✓ Completion Status (6.5 Waste Disposal Sites)

6.6 Waste Management Systems

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential/ Not Suitable for Public Viewing
Proof of vehicle and/or equipment ownerships	N/A	☐ Yes ☐ No		☐
Complete Fleet List (list of all vehicles, trailers and equipment used)	N/A	☐ Yes ☐ No		☐

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential/ Not Suitable for Public Viewing
Copy of the Liability Insurance for all vehicles for which insurance is required	N/A	☐ Yes ☐ No		☐
Copy of the storage tank design	N/A	☐ Yes ☐ No		☐
Copy of commercial vessel licence	N/A	☐ Yes ☐ No		☐
Description of the physical location where the vehicles transporting biomedical waste are being disinfected	Optional	☐ Yes ☐ No		☐
Drivers Training Manual (for PCB/ Biomedical Waste)	Optional	☐ Yes ☐ No		☐
A copy of the applicant's Operation Plan including detailed packaging and biomedical waste handling methods	Optional	☐ Yes ☐ No		☐
Contingency and Emergency Procedures Plan (for PCB/ Biomedical Waste/Hauled Sewage (Septage))	Optional	☐ Yes ☐ No		☐
Other (please describe)	Optional	☐ Yes ☐ No		☐

✓ Completion Status (6.6 Waste Management Systems)

6.7 Mobile Waste Processing ☐ N/A

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential/ Not Suitable for Public Viewing
Design and Operations Report - Mobile Waste Processing of General Waste	N/A	☐ Yes ☐ No		☐
Design and Operations Report - Mobile Waste Processing of Liquid Waste	N/A	☐ Yes ☐ No		☐
Other (please describe)	Optional	☐ Yes ☐ No		☐

✓ Completion Status (6.7 Mobile Waste Processing)

6.8 Cleanup of Contaminated Sites ☐ N/A

Attachment	Required, Optional or N/A	Attached?	If no, provide explanation, (include referenced attachment if more space is required for rationale)	Confidential/ Not Suitable for Public Viewing
Design Report for Cleanup of Contaminated Sites	N/A	☐ Yes ☐ No		☐
Other (please describe)	Optional	☐ Yes ☐ No		☐

✓ Completion Status (6.8 Cleanup of Contaminated Sites)

6.9 Other Attachments ☐ N/A

Title	Reference	Confidential/ Not Suitable for Public Viewing
		☐

Is there an attachment of an additional list of attachments?

☐ Yes ☐ No

If there is not enough space to list all of the attachments included in this application package, please include an additional listing of these attachments.

✓ Completion Status (6.9 Other Attachments)

6.10 Confidentiality / Not Suitable for Public Viewing

Note** Although the applicant may identify the supporting information as confidential, the information is subject to the FIPPA and EBR.

For each attachment selected in tables 6.1 to 6.9 as having confidential information, provide an explanation for confidentiality / why the attachment(s), or information within the attachment(s) is not suitable for public viewing.

Please provide a redacted copy of this document(s) that can be used for public viewing.

Attachment containing confidential information (i.e. Name of document)	Explanation for Confidentiality	Redacted Copy Attached?	Explanation is Confidential/Not Suitable for Public Viewing
		☐ Yes ☐ No	☐

✓ Completion Status (6.10 Confidentiality / Not Suitable for Public Viewing)

Attachments

File Name	Size (MB)	Selected File
		☐
Total		

Please note: The collection of personal information in this application is necessary to administer the Ministry's approvals program, which is authorized pursuant to the *Environmental Protection Act* and the *Ontario Water Resources Act*. The personal information collected in this application will be used to administer the program, including for the purposes of the Ministry's compliance and enforcement activities under the aforementioned acts, and for the purposes of making information in respect of Environmental Compliance Approvals available to the public with the exception of payment information. Questions about the collection of the information can be directed to a Client Service Representative, Client Services and Permissions Branch, 135 St. Clair Avenue West, 1st Floor, Toronto ON M4V 1P5; Telephone outside Toronto 1-800-461-6290 or in Toronto 416-314-8001 or Fax 416-314-8452.

7. Authorization

7.1 Statement of the Applicant

I am authorized to prepare and submit this application and to make this certification. I have reviewed the complete application and I have made all inquiries that are necessary to declare to the best of my knowledge, information and belief:

- The information contained in this application is complete and accurate.
- The Technical Contact(s) identified in this application has/have been authorized to prepare certain technical material, and act on behalf of the applicant to discuss this application with the Ministry of the Environment, Conservation and Parks and to provide additional information about this application to the Ministry on request.
- The information provided to the Technical Contact(s) in relation to this application is complete and accurate.

☑ By checking this each of the undersigned acknowledge that in providing their name on the applicable line below in electronic form will constitute a signature for the purposes of the *Electronic Commerce Act, 2000*, S.O. 2000, c. 17. *

Name of Signing Authority (Please print) *
Mario de Aguero

Title *
Project Manager

Telephone Number	ext.	Mobile Number	Fax Number
647-455-0877			

Email Address
mario.deaguero@neoen.com

Signature (hard copy submission must be signed)	Date (yyyy/mm/dd) *

✗ Completion Status (7.1 Statement of the Applicant)

7.2 Statement of the Municipality ☑ N/A

I, the undersigned hereby declare on behalf of the Municipality, that the Municipality has no objection to the construction of the works in the Municipality.

☐ By checking this each of the undersigned acknowledge that in providing their name on the applicable line below in electronic form will constitute a signature for the purposes of the *Electronic Commerce Act, 2000*, S.O. 2000, c. 17.

Name (Please print)

Title	Name of Municipality

Signature (hard copy submission must be signed)	Date (yyyy/mm/dd)

✓ Completion Status (7.2 Statement of the Municipality)

7.3 Statement of Technical Contacts

Technical Contact 1

I have been authorized by the applicant to prepare the technical materials for the area(s) of responsibility identified in section 2.6 that are included in the application. I have reviewed those technical materials and I have made all inquiries that are necessary to declare to the best of my knowledge, information and belief:

- The technical materials contained in this application in respect of the area(s) of responsibility identified in section 2.6 are complete and accurate.
- I have the relevant education and experience necessary to provide this certification.

☑ By checking this each of the undersigned acknowledge that in providing their name on the applicable line below in electronic form will constitute a signature for the purposes of the *Electronic Commerce Act, 2000*, S.O. 2000, c. 17. *

Name of Technical Contact (Please print) *	
Vincent Brunelle	
Signature (hard copy submission must be signed)	Date (yyyy/mm/dd) *

✗ Completion Status (7.3 Statement of Technical Contacts)

8. Payment Information - Application for an Environmental Compliance Approval

Payment Options *

The information collected in this section of the form is considered confidential and will only be used to process the application fee. All fees should be paid in Canadian funds.

☐ **Pay online** (under $10,000)

- Ensure the application form is complete before paying your application fee online.
- The application form and supporting documents (attached in Section 6) will be automatically emailed (up to 13 MB of data) to the Client Services and Permissions Branch after payment has been confirmed.
- If your submission is greater than 13 MB, do not attach the supporting documents, send us a link to download your files by emailing ECA.submission@ontario.ca.

☐ **Credit card payment by mail** (address below) **or facsimile** at 416-314-8452 (under $10,000)

Type of Credit Card ☐ VISA ☐ MasterCard	Credit Card Number	Expiry Date (mm/yy)

Name on Credit Card (please print)

Credit Card Holder's Company Name

Card Holder's Signature	Date (yyyy/mm/dd)

- Email the application package to ECA.submission@ontario.ca. Wait for the Ministry to provide the reference number, then complete the Application Summary Page below (include the reference number), and mail or fax it to the Client Services and permissions Branch.
- To protect credit card information, do not submit this page containing payment information via e-mail. **Applications containing credit card information that are submitted via e-mail will not be processed and will be destroyed.**

☐ **Certified cheque** (payable to the Minister of Finance)

☐ **Money order** (payable to the Minister of Finance)

If payment by **certified cheque or money order**, email the application package to ECA.submission@ontario.ca.
Wait for the Ministry to provide the reference number, then complete the Application Summary Page below (include the reference number), staple the cheque / money order to the page, and mail it to the Client Services and Permissions Branch.

Mailing Address

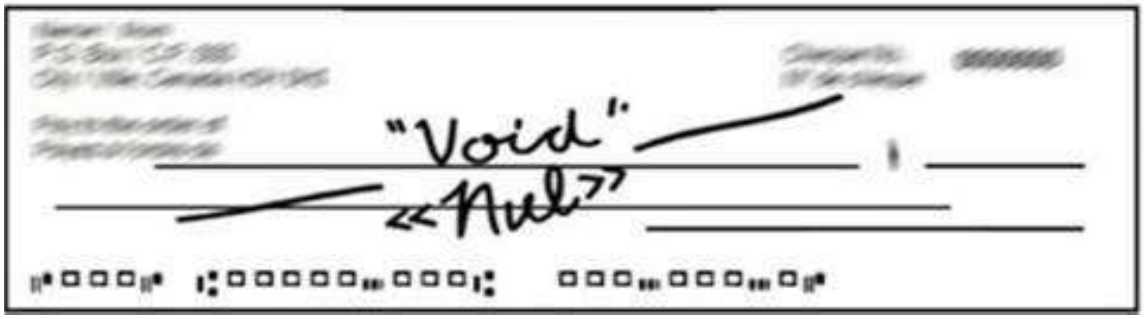
Client Services and Permissions Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Ave W, 1st Floor
Toronto ON M4V 1P5

If this form has been completed by hand, the fee calculations must be completed and attached separately. The supplemental fee calculations do not need to be included if this form has been completed electronically.

If this form has been completed electronically, the fees for this application have been calculated based on the information provided. The Ministry may require additional information during the review of the application that could impact the total fee required.

✗ Completion Status (8 Payment Information)

If paying by certified cheque or money order, please attach it here.


"Void"
"Null"

Application Summary

Reference Number	Payment Received ($)	Date (yyyy/mm/dd)	Initials

Applicant Name
Neoen Ontario BESS 1 Inc.

Project Name
Tara BESS Project

Project Description Executive Summary
Neoen Ontario BESS 1 Inc. proposes to develop the Tara Battery Energy Storage System (Tara BESS), a 400 megawatt (MW), four-hour duration battery facility capable of storing and dispatching up to 1,600 megawatt-hours (MWh) of electricity. The project is located on Lot 39, Concession 4, in the Municipality of Arran-Elderslie, Bruce County, approximately 5 km southeast of the Village of Tara. The facility is being developed to support Ontario's electricity system by enhancing grid stability and flexibility.

The BESS will use lithium-iron phosphate (LFP) batteries housed in pre-engineered containerized units. It will include associated infrastructure such as inverters, medium-voltage transformers, a 230 kV collector substation, and a dedicated double-circuit transmission line that will interconnect the project to Hydro One's 230 kV transmission line (B27S/B28S), located approximately 400 m to the south.

To manage stormwater and ensure protection of the surrounding environment, the project includes a stormwater management system composed of vegetated ditches, storm sewers, an oil-water separator, and a detention wet pond. The wet pond is designed to retain runoff from a 100-year storm event and discharge treated water to the Sauble River via a naturalized channel. An emergency response and monitoring plan will ensure the ongoing performance of this system. The site lies within the 100-year floodplain, and a 14.19-hectare floodplain compensation area will be created to maintain flood storage capacity.

The project will cover approximately 8.69 hectares for the BESS facility and substation. Construction is expected to begin in 2026, with commissioning targeted for 2027. The facility is designed for a 20-year operational life, with options for future repowering or decommissioning.

Supplemental Application Information
Tara BESS has a forecasted in-service date in 2027 with construction start expected in Spring, 2026.

A pre-application consultation request was made in March 2025; and a meeting between Neoen, and MECP was completed on May 7, 2025.

Copies of the ECA application will be sent to:
- Arran-Elderslie municipal office
- Saugeen Nation band office
- Bruce County public library, Tara branch
- Owen Sound MECP District office

Application Status

Section	Completed?			
1. Application Information	☑	Yes	☐	No
2. Project Information	☑	Yes	☐	No
3. Regulatory Requirements	☑	Yes	☐	No
4. Site Information	☑	Yes	☐	No
5. Facility Information	☑	Yes	☐	No
6. Supporting Documentation	☑	Yes	☐	No
7. Authorization	☐	Yes	☒	No
8. Payment Information	☐	Yes	☒	No

Fee Summary

Activity	Amount ($)
Administrative Processing	$200.00
Review of EPA s. 9 activities	$0.00
Review of EPA s. 27 activities	$0.00
Review of OWRA s. 53 activities	$2,000.00
Total Fee	$2,200.00

The Ministry may request additional fees upon review of this application.
If this form is submitted in print version only and the smart calculation feature is not used, please attach the fee calculation separately.