

# MATABITCHUAN GENERATING STATION REDEVELOPMENT PROJECT Local Stakeholder Meeting

May 25, 2024



*Electrifying  
life*

# Agenda

- 1) Welcome/ Introductions
- 2) Presentation identifying:
  - a. What's there now, and what is proposed
  - b. Review of environmental work undertaken to date
  - c. Overview of the EA Screening Process
  - d. Identification of potential permits during construction
  - e. OPG requirements for the Constructor
    - i. Site Specific Environmental Management Plan (SSEMP)
    - ii. Site Specific Health and Safety Plan (SSHSP)
- 3) Discuss community concerns so that the Project team can ensure we work collaboratively to address questions and concerns
- 4) Next Steps

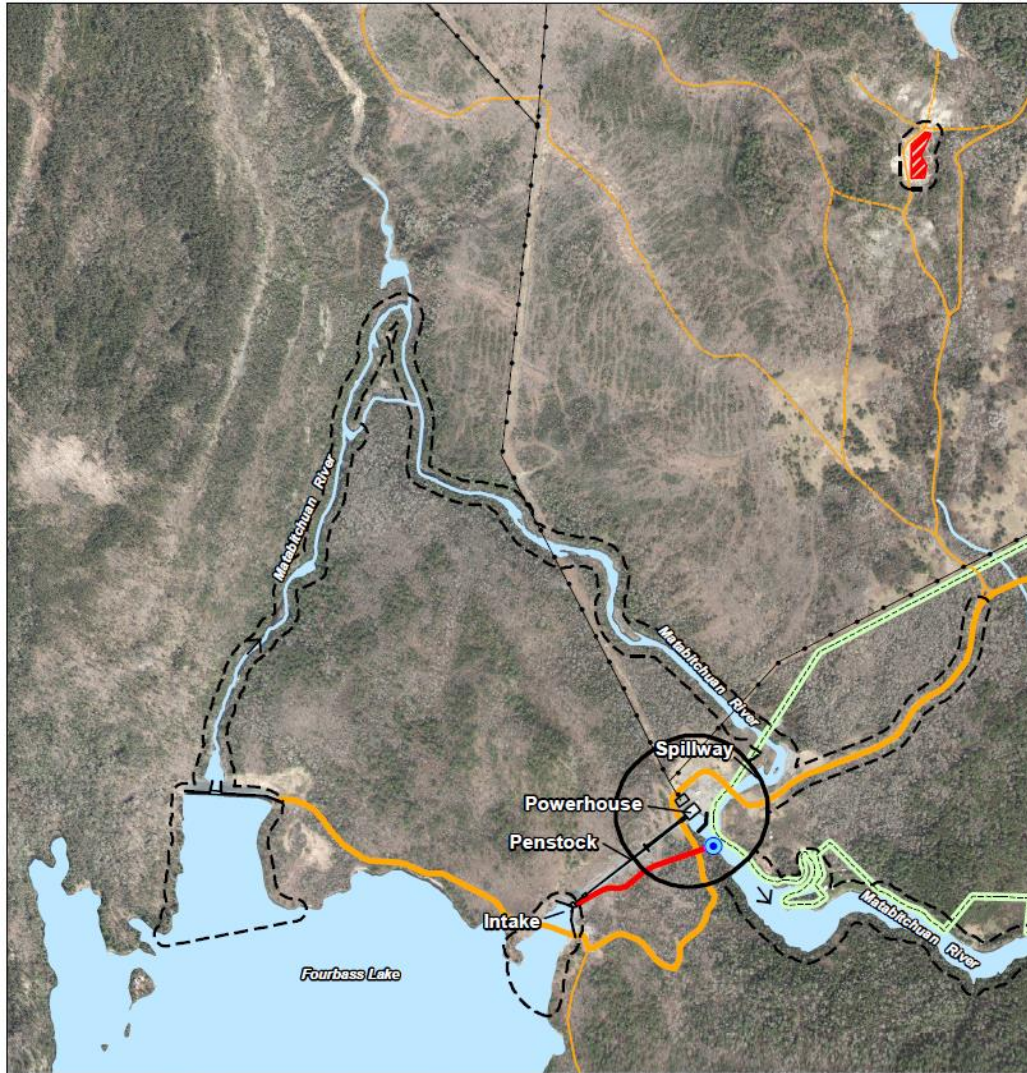


# Meeting Objectives

- Share information with Stakeholders
- Answer questions



# Project Context – Zone of Impact



## Legend

- Utility Line (Hydro)
- River Flow Direction
- Matabitchuan River Conservation Reserve
- Main Access Road
- Secondary Road
- Other Road
- Potential Excavated Soil Storage Area/Potential Laydown Area
- Portage CgGu-6
- Portage Base March 4, 2024
- Primary Zone of Impact
- Secondary Zone of Impact



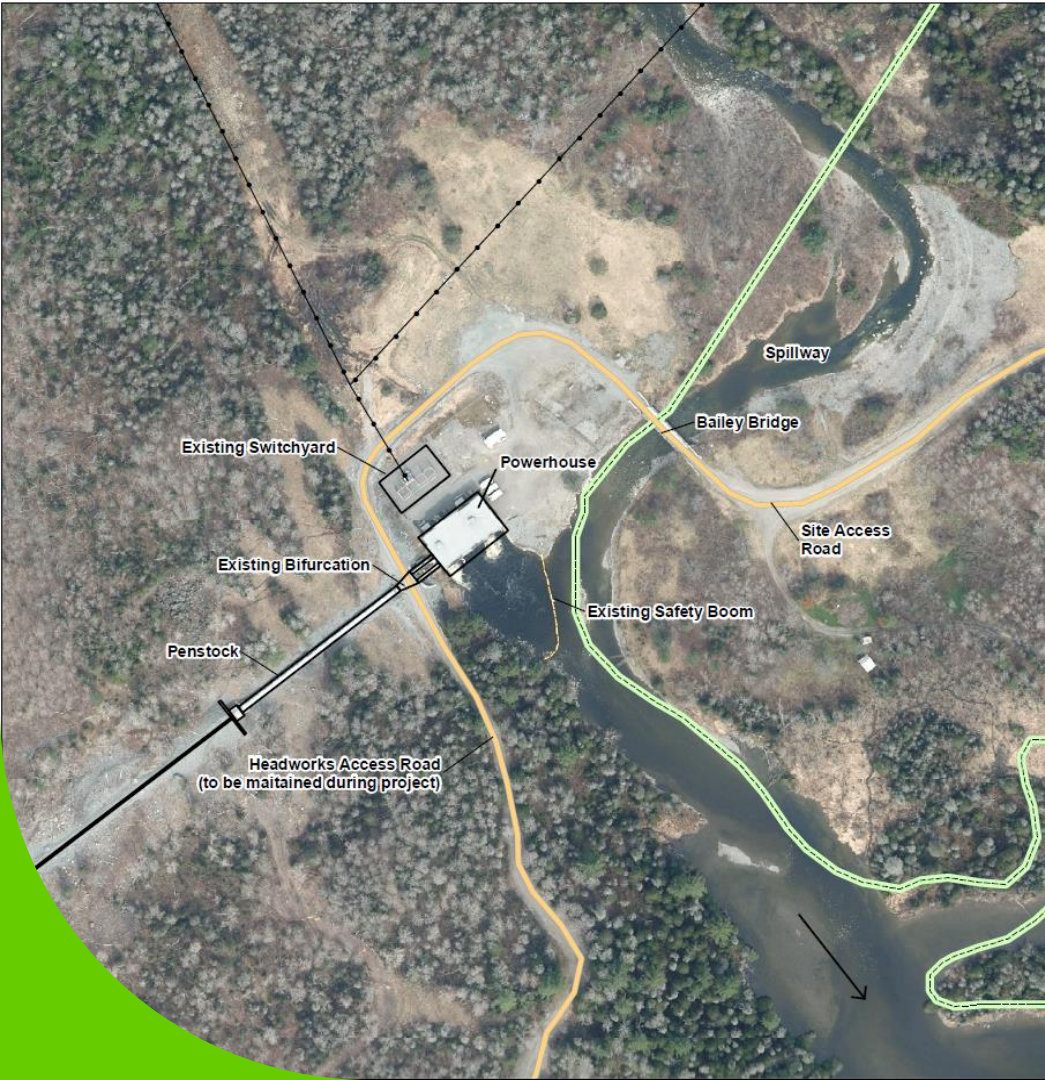
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Project Context  
Zone of Impact

Matabitchuan Generating Station

**ONTARIO**POWER  
GENERATION

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### Legend

- Utility Line (Hydro)
- River Flow Direction
- Matabitchuan River Conservation Reserve
- Site Access Road
- Secondary Road
- Other



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## Project Site Overview

Matabitchuan Generating Station

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# Project Site Overview



## Facility Overview

- Matabitchuan GS is a four turbine/generator unit hydroelectric station put into service in 1910.
- Total combined nameplate capacity of 7.5 MW; however, the station has been operating at a total output capacity of 9.6 to 10.4 MW.
- Station operates at a gross hydraulic head of approx. 95 m and flow rate of 14.8 m<sup>3</sup>/s.
- Powerhouse footprint is approx. 560 m<sup>2</sup> and located 85 m below the intake.
- Penstock is approx. 300 m long consisting of a 1.5 m-diameter section at the intake, leading to a 2.1 m-diameter section (275 m-long), and bifurcates into two 1.5 m-diameter sections entering powerhouse.
- Main control dam is located approx. 750 m west of headworks/intake and consists of a 4-bay stoplog-controlled sluiceway with gravity and rockfill dams on

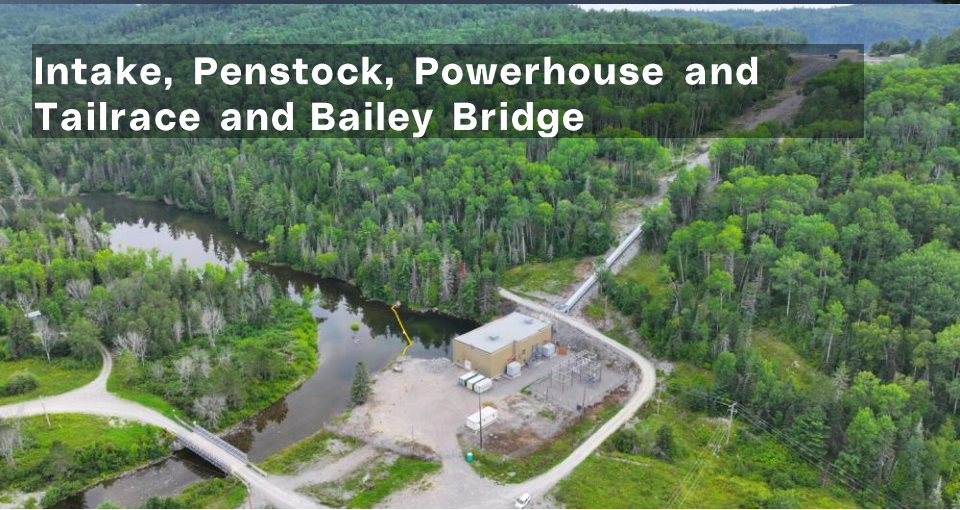
**Headworks and Intake**



**Spillway Looking Downstream**



**Intake, Penstock, Powerhouse and Tailrace and Bailey Bridge**

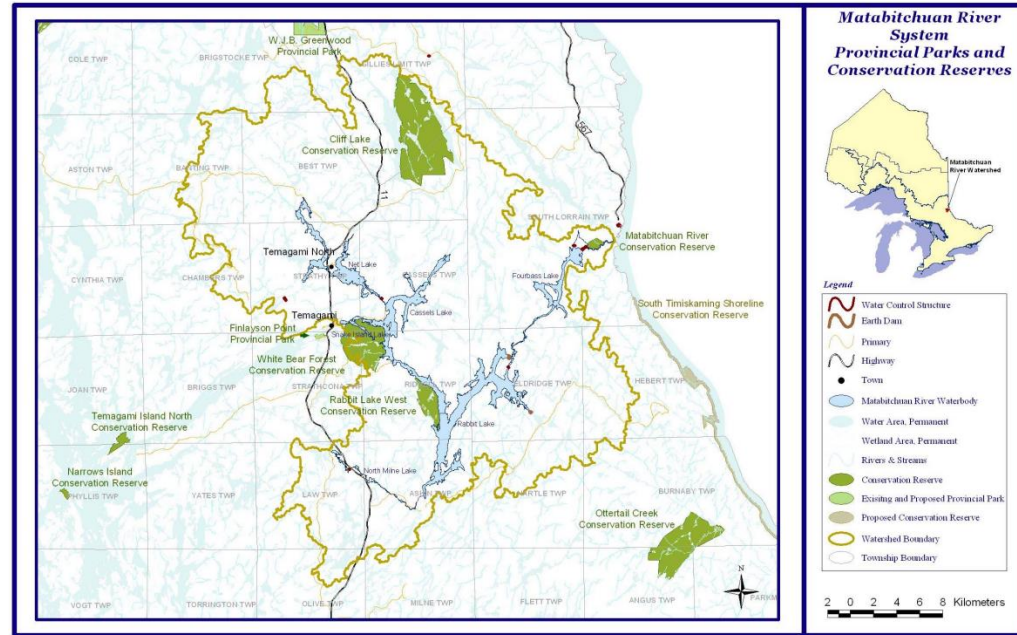


**Powerhouse, Lower Penstocks and Tailrace**



# Matabitchuan River Water Management Plan (2007)

- Operating/Absolute range: 273.20 – 275.33 m.
- Summer band: 275 – 275.33 m from Victoria Day weekend to Thanksgiving weekend.
- For the winter drawdown, Rabbit Lake is drawn down by March 15th, Net Lake by March 21, and Fourbass Lake by April 9.
- There are fisheries constraints from April 15 – June 15 for walleye spawning. A spill log is installed, and the minimum elevation is raised to 274.60 m.



**Re-developed GS will not require changes to the minimum flow or levels requirements set out in the WMP.**

# Dam and Public Safety

Key elements of the Dam Safety Strategy:

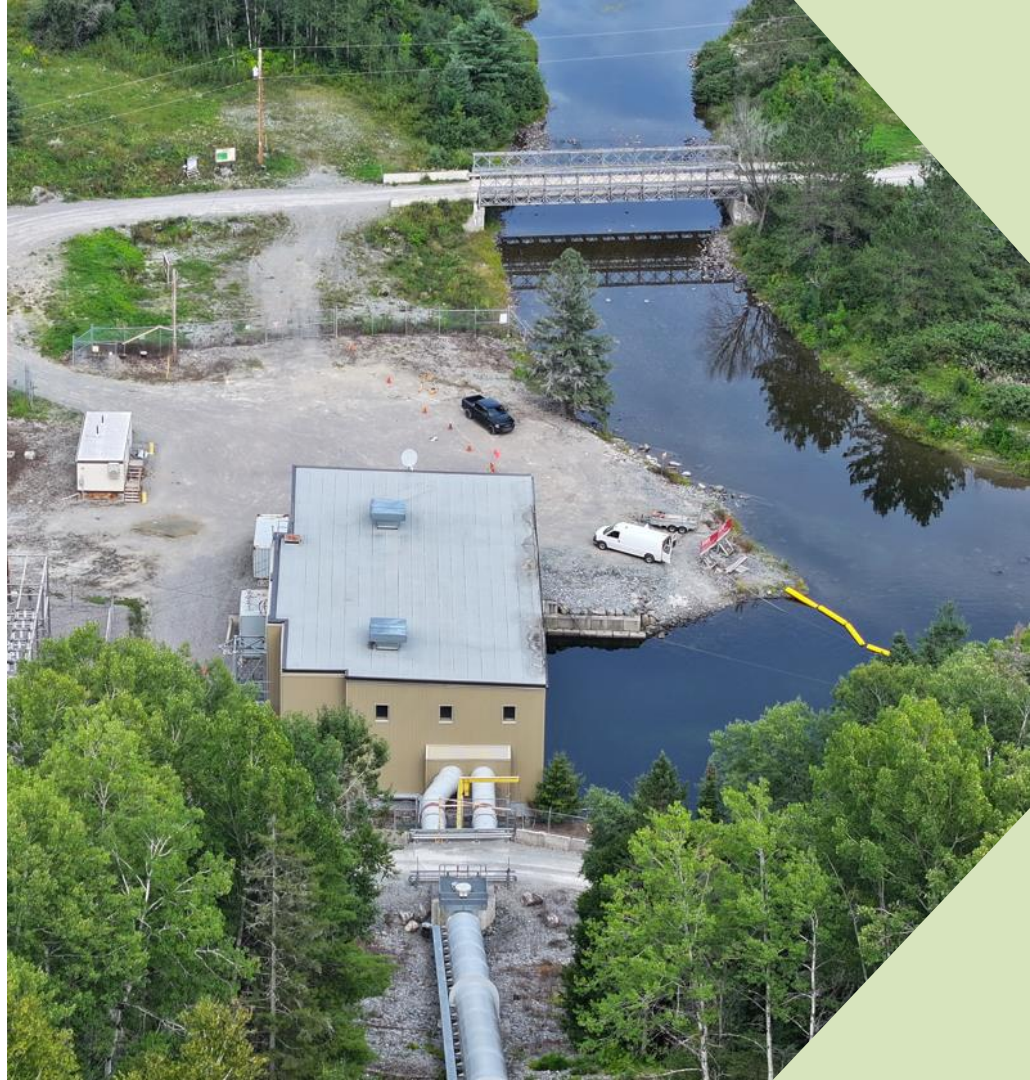
- OPG will not be transferring the responsibility for maintaining Water Management Planning requirements during construction.
- OPG will maintain control of headworks and control dam.
- Bubbler system to be installed at headworks to mitigate ice loading hazards on dam wingwalls.
- Constructor's Responsibilities:
  - Constructor's Emergency Preparedness Response Plan will integrate into OPG's Emergency Preparedness Response Plan.
  - Communication plan and contacts .
  - The Constructor will be responsible for developing and maintaining a Public Safety Management Plan for the duration of the project.

# Matabitchuan Generating Station Redevelopment Project Overview



# Project Rationale & Alternatives

- Initiation Phase Optimization Study (2021) concluded that the Matabitchuan GS will reach end of life in the next five years.
- OPG assessed the following options for life extension of the Matabitchuan GS:
  - Overhaul – reuse as much existing equipment as possible, overhaul existing T/G units, and perform only required improvements where needed.
  - Refurbishment – replace existing T/G units with ‘like for like’ and replacing or upgrading other equipment as required.
  - Redevelopment – build a new powerhouse and replacing T/G units and all other balance-of-plant equipment.

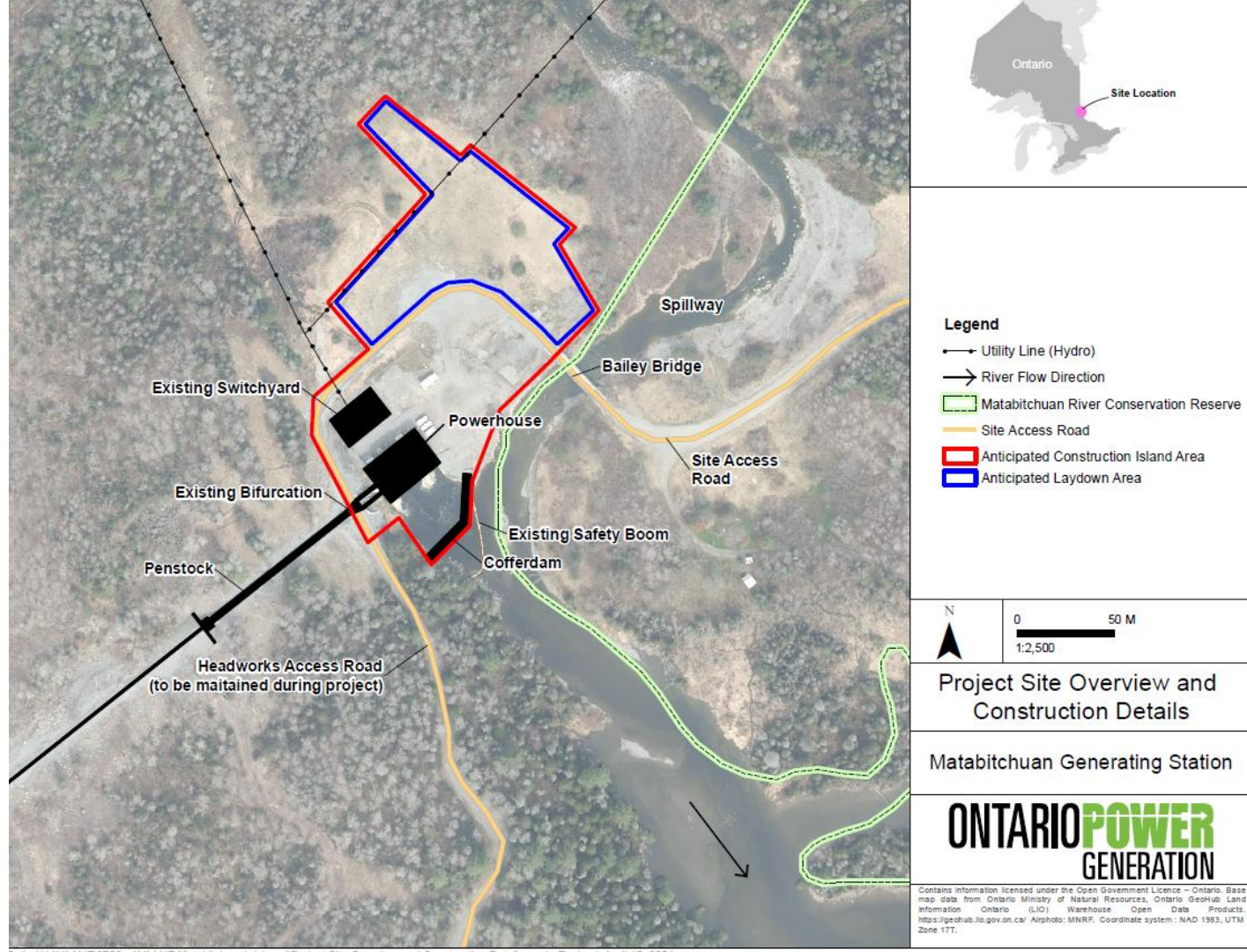


# Key Highlights of the Preferred Alternative

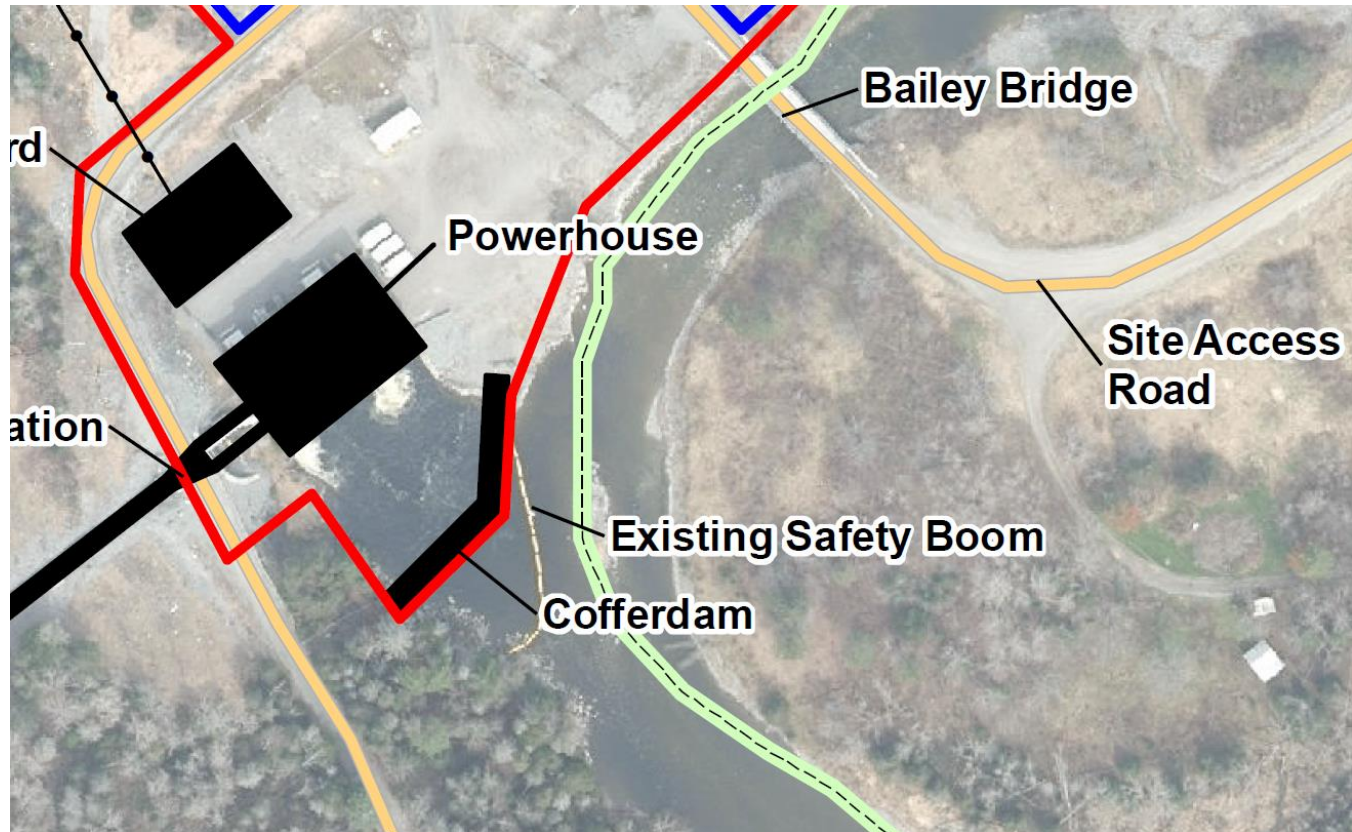
- No changes to the dam and intake are required.
- No change to the WMP (levels and flows).
- 4 T/G units replaced by 2 Francis T/G units.
- Existing powerhouse is demolished and replaced.
- Cofferdam will be constructed in tailrace.



# Construction Laydown Areas (to be confirmed by the Constructor)



# In-Water Works - Cofferdam



# Project Phases

- Initiation Phase
- Planning Phase
- Definition Phase
- Execution (Construction) Phase
- Project Turnover



# Development Schedule

Estimated Timeline	Milestone
Q1 2024	Draft Project Description
Q2 2024	Regulatory Agency Kick-off Meeting
Q2 2024	Notice of Project Screening
Q2 2024	FEED Phase Complete (30% Designs)
Q2 2024	Start of Project Definition Phase
Q3 2024	50% Designs Complete
Q3 2024	Advise MECP on Screening Status
Q3 2024	Engineering Designs Complete (90% Designs)
Q4 2024	100% Designs Complete
Q1 2025	Final Cost Estimate and Construction Schedule Complete
Q2 2025	Start of Project Execution Phase
Q2 2025	Mobilization of Constructor to Site
Q3 2025	Installation of Cofferdam
Q4 2027	Station Construction Complete
Q1 2028	Station Available for Service
Q4 2028	Project Closure

 **We are here**

# **Environmental Baseline Studies**

- **Aquatic**
- **Terrestrial**
- **Cultural Heritage**
- **Archaeology**
- **Climate Change**



## Aquatic Studies (to date)

- Lake Sturgeon Investigations (MNRF and OPG, 2012 and 2014).
- Habitat Investigations (C. Portt and Associates, 2020).
- Walleye Investigations (C. Portt and Associates, 2023 and 2024).
- Lake Whitefish Investigations (C. Portt and Associates, 2023 and 2024).
- Fish Sampling at the Intake (C. Portt and Associates, 2023).
- No plans to assess water quality or benthics.

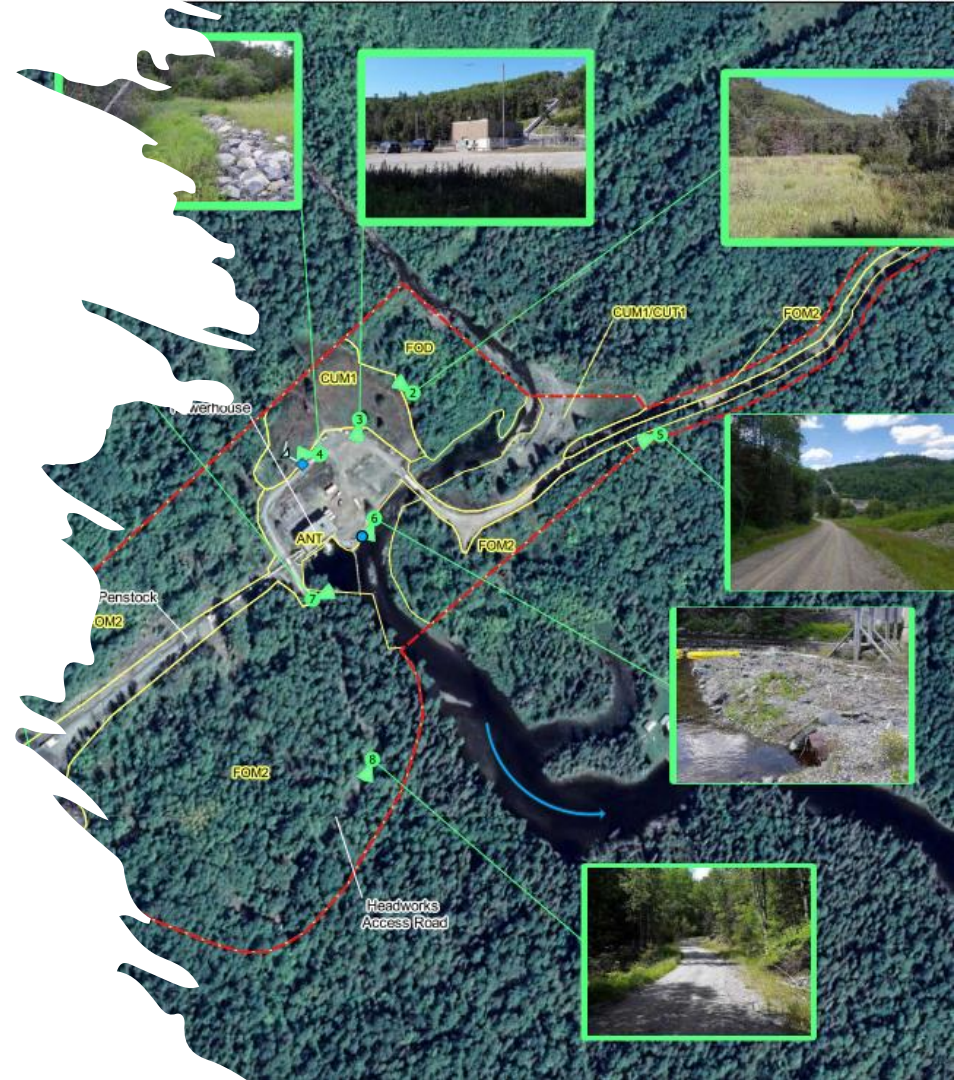


## Fisheries Studies – Key Findings

- 19 fish species were identified via desktop analysis, electrofishing, and individual investigation, around the Matabitchuan GS.
  - None of these species are considered at any degree of risk, or special concern under SAR or SARO.
- No Lake Whitefish were observed in the spill channel in 2022 and 2023.
- Walleye were observed spawning in the lower reach of the spill channel in 2023.
  - An Indigenous fisher also reported that Walleye always spawn in the spill channel.

# Terrestrial Studies

- Site visit (Beacon, 2020).
- Ecological Land Classification (Beacon, 2023).
- Floristic surveys (Beacon, 2023).
- Turtle surveys (Beacon, 2023).
- Breeding bird surveys (Beacon, 2023).
- Eastern Whip-poor-will surveys (Beacon, 2023).
- Acoustic bat surveys (Beacon, 2023).
- Incidental wildlife (Beacon, 2023).





# Terrestrial Studies - Key Findings

- Site is a combination of anthropogenic, marsh, woodland, meadow and thicket habitats.
- Total of 152 vascular plant species identified:
  - Woodland Pinedrops (S3 provincially) located outside of the study area in adjacent conservation reserve.
- No turtle species detected via basking surveys.
- No Eastern Whip-poor-will detected via acoustic surveys.
- Total of 51 breeding bird species recorded.
- Three endangered bat species recorded via acoustic surveys. These species are likely



## Physical Environment

- The surficial geology of the area consists of till deposits, exposed bedrock, clay, silty glaciolacustrine deposits with bedrock composed of sedimentary rock-like conglomerate, siltstone and sandstone.
- Groundwater was observed approximately 1 m below the ground surface, which was approximately 1.3 m higher than the tailrace water level.
- Soils and/or groundwater with contaminant concentrations exceeding the applicable MECP Site Condition Standards will be managed and disposed in accordance with provincial regulations.

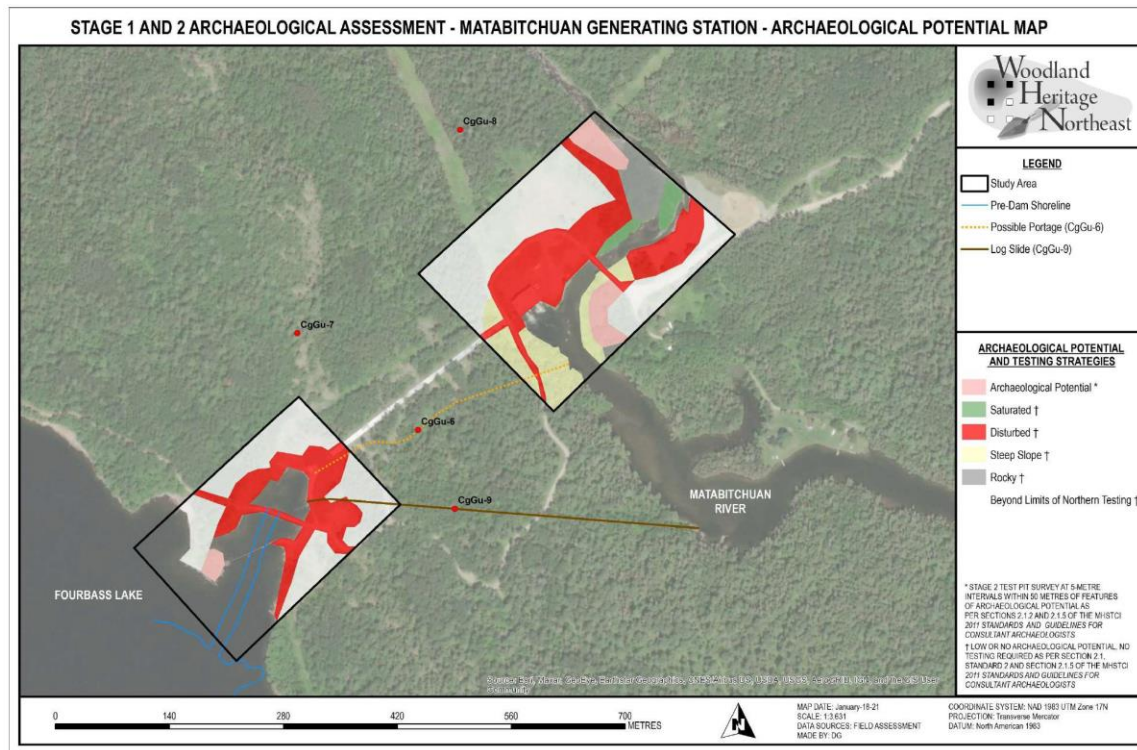


# Cultural Heritage Studies

- Cultural Heritage Research Report and Cultural Heritage Evaluation Report completed.
  - The GS is recognized as a Provincial Heritage Property under section 9/06 of the *Ontario Heritage Act*.
  - Does not meet criteria for provincial significance under section 10/06 of the *Ontario Heritage Act*.
- The property is locally significant, not provincially significant.
  - The report has been reviewed by the OPG Corporate Heritage Committee and the results have been shared with the Ministry of Citizenship and Multiculturalism.
  - Heritage Impact Assessment will likely be required.

# Archaeology Studies

- Stage 1 and 2 Archaeological Assessment (Woodland Heritage, 2021):
  - Stage 1 found that there were two registered archaeological sites inside the study area (a log slide and a portage).
  - Other areas of potential in the Fourbass Lake area and Matabitchuan River were tested during the Stage 2 survey and no archaeological items were located.
- The Stage 1 concluded that all other lands within the study area were of low archaeological potential.
- Report submitted to the Ministry of Citizenship and Multiculturalism.
- Marine archaeology was ruled out based



# Portage Routes and Hiking Trails

- No work is planned at the intake, so it is believed that portage routes will be protected, as they are located outside of the construction island.
- Ottawa Temiskaming Highland Trail boundary has been identified and will not be encroached.



## Legend

- +— Utility Line (Hydro)
- - - Matabitchuan River Conservation Reserve
- Main Access
- Secondary Road
- Other Road/Trail
- ▨ Potential Excavated Soil Storage Area/Potential Laydown Area
- Historic Portage Route
- Historic Portage Trail Head
- Ottawa Temiskaming Highland Trail (Main Path)
- - - Ottawa Temiskaming Highland Trail (Secondary Path)



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## Project Context Portage Routes and Trails

Matabitchuan Generating Station

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## Protected Areas

- There are no provincial parks, ANSIs, ESAs or provincially significant wetlands located within the zone of impact.
- The project is located outside of the Matabitchuan River Conservation Reserve. No project activities will occur within this reserve.
- There will be no impact to protected areas.

An aerial photograph showing a concrete dam structure across a river. The river flows from the background towards the dam. The surrounding landscape is densely forested with green trees. The sky is overcast. The image is used as a background for the slide, with a green decorative shape in the top right corner.

# Climate Change

- The Matabitchuan Redevelopment Project will utilize OPG's Climate Change Resilience Guide in the design process.
- Identify climate vulnerabilities and build resiliency considerations into the design.
- Explore implications of climate change scenarios on equipment for design consideration.
- Indigenous-driven workshops will be organized with Matachewan First Nation, Temagami First Nation and Timiskaming First Nation to gather insights on how Indigenous Knowledge and community input can be integrated into the Project.
- A separate workshop will be offered to Métis Regional Council 3 and Temiskaming Métis Community Council.

An aerial photograph of a river. On the left, a large body of water flows. In the center, a concrete dam with several spillways is visible. To the right of the dam, the river continues, bordered by a gravel bar and a dense forest of green trees. The sky is bright and hazy.

# Environmental Summary

- No changes are proposed to the Matabitchuan River WMP's levels or flows.
- Fisheries impacts will be addressed through Best Management Practices (BMPs) and conditions set out in the construction and operations Authorizations, should they be required.
- If tree clearing is required, it will be done outside of bat active season and the bird nesting season.
- Any soils containing contaminant concentrations in excess of regulatory standards for industrial land uses will be isolated and disposed of at a registered facility.
- Construction BMPs outlined in OWA's BMP Guide for the Mitigation of Impacts of Waterpower Facility Construction (2012) will be implemented during construction.
- An Erosion and Sediment Control Plan will be developed and implemented to include the BMPs outlined in OWA

An aerial photograph of a large, dark lake surrounded by a dense green forest. In the background, a small building is visible on a hill. The sky is overcast. A bright green curved shape is in the bottom left corner.

# **Environmental Assessment & Permitting**

# Environmental Planning

- Waterpower facilities in Ontario are subject to the *Environmental Assessment Act (EA Act)*.
- The *EA Act* recognizes the Ontario Waterpower Association (OWA) Class EA for Waterpower Projects (February 2024) as the planning process that guides the assessment of potential effects of a waterpower project on the environment.
- The OWA Class EA for Waterpower Projects allows projects with small, short term and localized effects that can be addressed through other legislative mechanisms to be screened.

Projects that meet the following criteria qualify for the Class EA Screening process:

- Projects that are associated with existing water management infrastructure, such as a dam, a weir, or a lock. The existing water management infrastructure may be retrofitted or refurbished/upgraded (as defined in Appendix A of the Class EA).
- Limit any increase in the footprint of the water management infrastructure to 25% or less.



## **Class Environmental Assessment for Waterpower Projects**

February 2024 – Tenth Edition

Prepared by:  
Ontario Waterpower Association

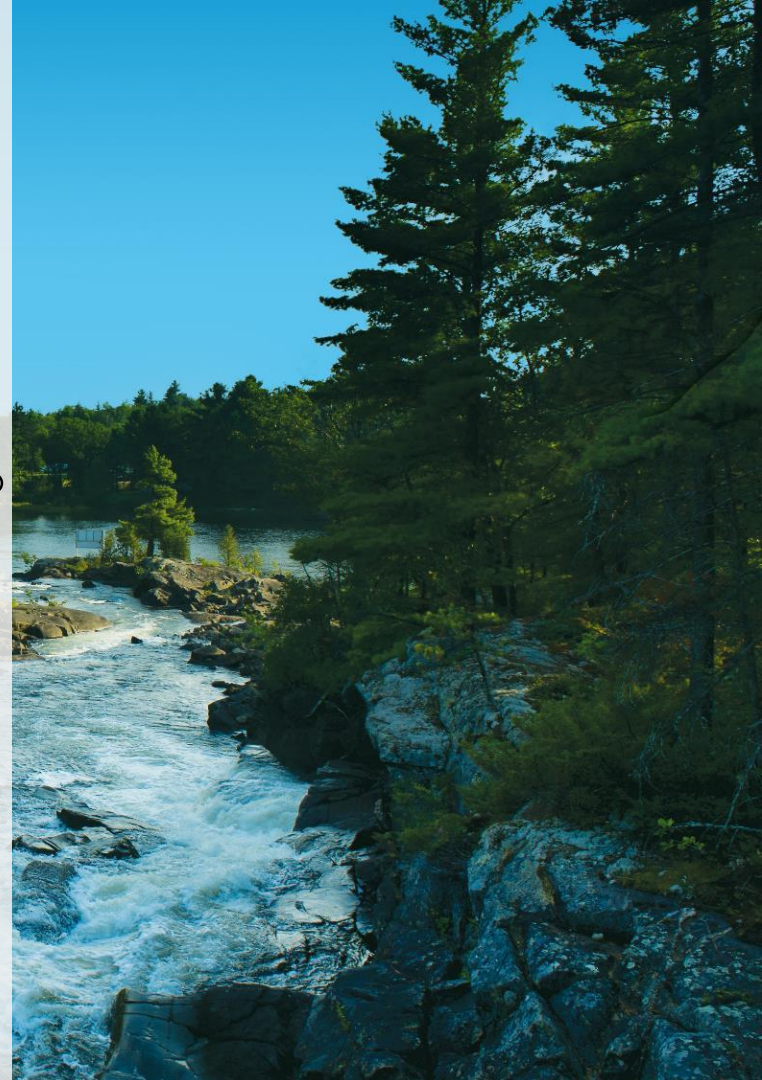
# Environmental Screening Criteria List

The following screening criteria in accordance with the OWA Class EA, will be used to determine if the Project is exempt from the *EA Act*. It should be noted that each of the following questions must be answered in the negative after considering BMP and mitigation measures, for the screening process to be considered successful.

1. Will there be a change in the water management regime, including a significant change to water flow, inundated area, or historical mean monthly maximum water level?
2. Will contaminants be released into the immediate environment, and cause an exceedance of regulatory thresholds?
3. Will there be any negative effects on provincially designated endangered species or their habitats?
4. Will there be any negative effects on protected areas, such as areas of natural and scientific interest, environmentally sensitive areas, or provincially significant wetlands?
5. Will there be a considerable increase in sedimentation or erosion on or off-site?
6. Will there be any negative effects on known or potential built heritage resources or cultural heritage landscapes?
7. Will there be any negative effects on archeological resources or areas of archeological potential?

# Environmental Permitting

- Numerous permits and approvals will be required for construction and operations.
- OPG has hired Independent Environmental Consultants (IEC) to provide environmental consulting support services for all aspects of permitting up to the construction phase including:
  - Baseline studies and other field work to support permitting.
  - Indigenous, public and agency engagement support.
  - Preparation of an Environmental Screening Report as part of the OWA Class EA for Waterpower Projects.



# Public Engagement

- A Public Engagement Plan has been developed for the project.
- OPG has developed a project website and will consider other public consultation options if there is interest.
- All stakeholders who express interest will be engaged.
- The Project Team met with the SAC in October 2023.

# OPG Requirements for the Contractor

- Site Specific Environmental Management Plan (SSEMP)
  - Erosion and sediment management control plan
  - Spills management plan
  - Communications plan
  - Traffic Management Plan
  - MECP Noise By-law
- Site Specific Health and Safety Plan (SSHSP)

# Discussion & Next Steps

# Thank you!

Should you have questions or require further information, please contact:

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# Lake Whitefish

- Investigated by C. Portt and Associates in 2022 and 2023.
- Lake Whitefish were seen spawning downstream of the tailrace for three nights in a row in 2022.
- In 2023, the flows were higher, and no Lake Whitefish were seen spawning.
  - However, one was spotted close to the river's surface.
  - The odour of spawning was detected near a potential spawning shoal (close to where spawning was observed in 2022).
- No Whitefish were detected in the spill channel in 2022 and 2023.
  - The habitat appeared to be too fast, shallow, and turbulent for spawning.



# Walleye

- Investigated by C. Portt and Associates in 2023.
- Walleye spawning will be investigated again in 2024.
- Walleye was observed in spawning behaviour in the spill channel for two consecutive nights.
- An Indigenous fisher had indicated that he has been fishing Walleye upstream from the road bridge every spring for approximately 12 years and confirmed Walleye spawn in the spill channel.



# Anticipated Permits and Approvals - DFO

## Construction:

- DFO Authorization to Construct will/could be required based on habitat loss from the construction of a new powerhouse, the installation of a cofferdam, and the shifting of the powerhouse.
  - Permanent habitat loss = 109 m<sup>2</sup>
  - Temporary habitat loss = 416 m<sup>2</sup>
- The Project will follow DFO Blasting guidelines, if blasting is required.
- The Crown is responsible for the Duty to Consult with Indigenous communities, OPG will carry out the procedural aspects to consult Indigenous communities.

## Commissioning:

- OPG will discuss commissioning requirements with DFO during agency consultation.

## Operations:

- DFO Authorization to Operate will be required to address fish mortality during operations.

# Anticipated Permits and Approval - ECCC/CWS and Transport Canada

## Construction:

- Compliance with the Migratory Birds Convention Act (ECCC/CWS):
  - Letter of Advice from ECCC has been received.
  - Vegetation removal/clearing timing windows will be followed.
- Review and clearance - *Navigable Waters Act* (TC):
  - Cofferdam.
  - No changes to existing approved boom at tailrace or boom at intake.

## Operations:

- Not applicable.

# Anticipated Permits and Approvals - MECP

## Construction:

- ECA - Industrial Sewage Works – *Ontario Water Resources Act* – settling ponds, dewatering
- Onsite and Excess Soil Management – *Environmental Protection Act* – O.Reg 406/19

## Operations:

- Stormwater Management Plan - *Ontario Water Resources Act* – impermeable surfaces
- ECA – Oil Water Separator - *Ontario Water Resources Act*

# Anticipated Permits and Approvals - MNRF

## Construction:

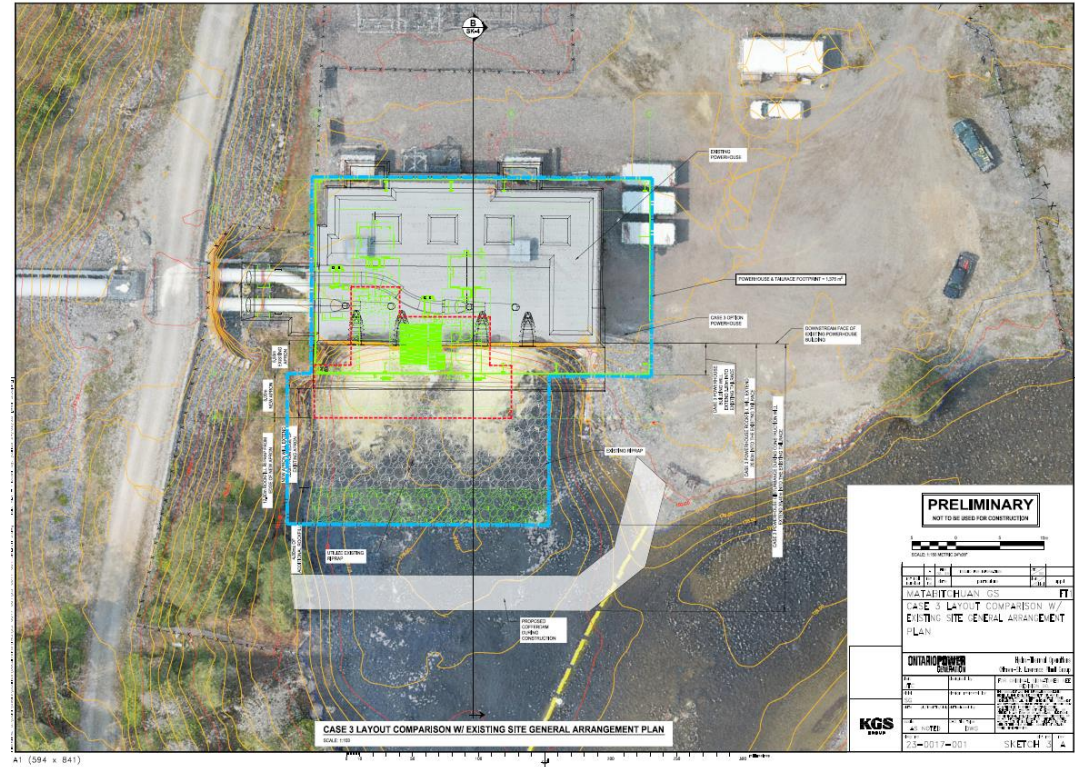
- Plans and Specifications Approval (Section 16) – *Lakes and Rivers Improvement Act*.
- Scientific Fish Collection Permit – *Fish and Wildlife Conservation Act*.
- Work Permit for In-Water Work or Shoreline Alteration – *Public Lands Act*.
- In-Water Works Approval – *Public Lands Act*.

## Operations:

- Administrative amendment to the WMP (change in nameplate capacity) – *Lakes and Rivers Improvement Act*.

# Powerhouse Design Alternatives

- Three preliminary powerhouse layout designs were considered for the redevelopment alternative.
- Case 3 is the preferred option primarily due to environmental, engineering and geotechnical reasons.
- In terms of aquatic, Case 3 results in reduced loss of aquatic habitat and less in-water work.
- The engineering rationale for Case 3 includes smaller building footprint, less dewatering, optimizes the limited laydown area, less structural design and materials and less foundation work.



# Dam and Public Safety

- OPG has a program in place to ensure Dam and Public Safety is addressed during construction – DS-Pro-15 Dam Safety Guidelines for Projects.
- A key objective of the Strategy Document is to prepare the project for success with consideration of dam safety, public safety, and emergency preparedness components throughout the Project Lifecycle.
- The Strategy Document will;
  - Identify relevant regulatory approvals.
  - Highlight design issues, and hazards.
  - Assist in maintaining compliance with internal governance.
  - Include emergency Preparedness and Response Plans, site specific Public Safety Management Plans, and Operation, Maintenance and Surveillance procedures during both the project execution and post construction.
  - Include practical considerations such as; site access, communication and notification protocols, temporary structures, or commissioning.