

The Save Georgian Bay Association
102 Ross Street
Meaford, Ontario
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March 19, 2026

By email to: Nottawasaga@iaac-aeic.gc.ca

CC: MinisterEnergy@ontario.ca
mikeschreiner@gpo.ca
alex.ruff@parl.gc.ca

Terence Hubbard, President
Impact Assessment Agency of Canada
Place Bell Canada
160 Elgin Street, 22nd Floor
Ottawa, Ontario K1A 0H3

**Re: Public Comments on the Initial Project Description — Ontario Pumped Storage Project
Canadian Impact Assessment Registry No. 89803
Proponent: TransCanada Energy Ltd. (TC Energy or TCE)
IPD Prepared by: Stantec Consulting Ltd., Project No. 123515349
IPD Date: February 24, 2026
Comment Period Deadline: April 6, 2026**

Dear President Hubbard,

The Save Georgian Bay Association (SGB) submits these comments on TC Energy's (TCE) Initial Project Description (IPD) for the proposed 1,000 MW open-loop pumped storage hydropower project on the shore of Georgian Bay at the Department of National Defence's (DND) 4th Canadian Division Training Centre (4CDTC) near Meaford, Ontario (Cape Rich area).

This submission is made on behalf of our grass roots volunteer-based organization, incorporated as a non-profit with core membership in Meaford and supporters throughout the Georgian Bay region. SGB has studied this proposal since 2019, when 70 local residents first learned of it, during an August 31, 2019 community meeting in which overwhelming concerns were expressed. We have since conducted extensive research on pumped storage, energy storage and this proposal, hosted dozens of information sessions, gathered over 40,000 petition signatures on Change.org plus 3,500 local signatures, collaborated with allied organizations (Georgian Bay Association, Escarpment Corridor Alliance, Ontario Clean Air Alliance, and others), and engaged municipal officials and Community organizations around the Bay. Nine municipalities around Georgian Bay, including Meaford, have passed resolutions opposing the project or demanding comprehensive, independent impact assessments proving no harm before any advancement.

This submission is a study by Mark Heaton, Symbiosys, for an ecological study conducted for the Save Georgian Bay Association.

Sincerely,

Tom Buck
For the Directors of Save Georgian Bay
SaveGeorgianBay.ca

Summary of Comments from Mark Heaton Ecologist, Symbiosys Corporation.

Potential significant adverse environmental effects of the TC Energy Pumped Storage Project relative to federal assessment procedures:

Potential Impacts on Fish and Fish Habitat

The proposed project's water intake and discharge systems are situated in a unique transition zone of Georgian Bay, characterized by submerged shale terraces known as the "Cape Rich Steps". This area provides critical spawning habitat for Lake Trout and Lake Whitefish, species that rely on clean, silt-free rocky shoals to oxygenate their eggs through the winter. The project may negatively impact these spawning and nursery habitats, particularly concerning for Lake Whitefish, which are already experiencing a "recruitment crisis" in southern Georgian Bay. Furthermore, the installation of vertical inlet and outlet diffusers could create physical conflicts with recreational and commercial fisheries.

Destruction of Habitat for Species at Risk

The project area is located on federal land at the 4th Canadian Division Training Centre (4 CDTC) Meaford, where 33 COSEWIC listed species at risk have been identified over the past 20 years (ICUN Code 1 Extant), including 11 endangered, 9 threatened species and 13 Special Concern. Several of these, such as the Butternut tree, Eastern Meadowlark, Eastern Whip-poor-will, Massasauga and Western Chorus Frog, have documented habitat within the vicinity. Under Section 58 of the federal Species at Risk Act (SARA), such habitat on federal land should be legally protected from destruction. The proposed facility is currently located overtop of three significant natural features: identified wetlands, significant woodlands, and significant wildlife habitat, potentially placing it in direct conflict with the Grey County Natural Heritage System.

Aggravated Migration of Groundwater and Soil Contaminants

Historical and active military training at the site has resulted in documented soil and groundwater contamination that exceeds federal and provincial water quality guidelines. Monitoring between 2020 and 2024 revealed exceedances of dissolved metals—including antimony, arsenic, and zinc—associated with munitions and explosives used in active ranges. Additionally, highly contaminated soil containing selenium and lead exists at specific ranges. A significant concern is the risk that the proposed project activities could "aggravate the migration" of these hazardous substances into local potable water supplies, including private wells and the Municipality of Meaford's Intake Protection Zone.

Naturally Occurring Uranium and Radiological Risks

Environmental monitoring has identified that uranium is widely present across the 4 CDTC Meaford site at levels frequently exceeding Health Canada's Drinking Water Quality Maximum Acceptable Concentration of 20 µg/L. While evidence suggests this uranium is of natural origin, stemming from the regional shale and limestone bedrock, the concentrations regularly exceed federal aquatic life and provincial standards. The

construction and operation of a large-scale pumped storage facility may disturb these geological formations or alter hydrogeological flow patterns, potentially increasing the mobilization of these naturally occurring radionuclides into the surrounding environment and aquatic habitats.

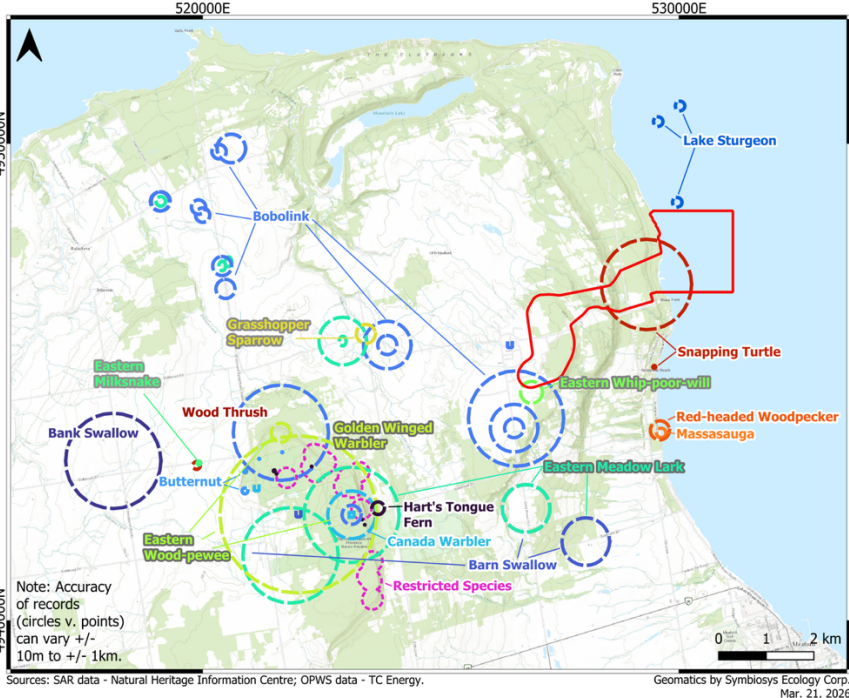
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Piecemealing and Cumulative Effects

The exclusion of proposed electricity transmission infrastructure, contiguous project support facilities off of the base and 4CDTC infrastructure relocations from the current assessment introduces the risk of "piecemealing," a practice that can mask the true scale of a project's environmental footprint. By treating the pumped storage facility and its required transmission lines and building relocations as separate entities, the Initial Project Description fails to account for the **cumulative effects** on the forests, wetlands, species at risk habitats and fish habitats within in a broader landscape. For instance, while the reservoir itself impacts significant woodlands and wildlife habitats, unseen terrestrial transmission corridors would likely require further large-scale clearing of forest and wetlands supporting additional species-at-risk. Should lake-bed transmission lines be contemplated, more aquatic habitats could be impacted than what is currently in scope. Without a holistic evaluation of the proposed facility and its required relocation and servicing infrastructure, the "aggravated migration" of site contaminants—such as metals and energetic materials—could be compounded by additional soil disturbances across a much wider geographic area than currently disclosed.

Ontario Pumped Water Storage Proposal: Species at Risk



- Legend**
- Preliminary Project Boundary
 - Lake Sturgeon
 - American Hart's-tongue Fern
 - Bank Swallow
 - Barn Swallow
 - Bobolink
 - Butternut
 - Canada Warbler
 - Chimney Swift
 - Eastern Meadowlark
 - Eastern Milksnake
 - Eastern Whip-poor-will
 - Eastern Wood-pewee
 - Golden-winged Warbler
 - Grasshopper Sparrow
 - Hart's-tongue Fern
 - Massasauga
 - Red-headed Woodpecker
 - Massasauga
 - Snapping Turtle
 - Wood Thrush
 - Restricted Species
- Basemap: ArcGIS topo

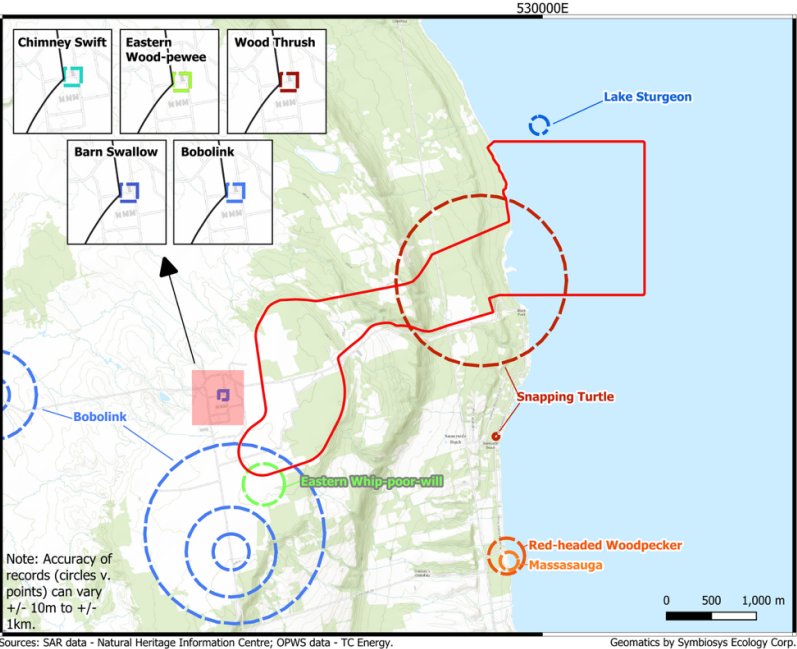
Note: Accuracy of records (circles v. points) can vary +/- 10m to +/- 1km.

Sources: SAR data - Natural Heritage Information Centre; OPWS data - TC Energy.

Geomatics by Symbiosys Ecology Corp. Mar. 21, 2026



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Geomatics by Symbiosys Ecology Corp. Mar. 21, 2026



Ontario Pumped Water Storage Proposal: Natural Heritage



Legend

- ▭ Preliminary Project Boundary
- ▭ Deer Wintering Area
- ▭ Wetland
- ▬ NHS Linkage
- ▭ NHS Core
- ▬ Streams
- ▭ Significant Woodlands
- ▭ Lakes and Streams
- ▭ Federal Land

Basemap: ArcGIS topo



Sources: OPWS data - TC Energy; Lakes & Rivers, ANSI, Sig. Woodlands, NHS Core & Linkage - Grey County; Wetland & Bathymetry - OMNR; Deer Wintering Area - LIO. Geomatics by Symbiosis Ecology Corp. Mar. 21, 2026

Ontario Pumped Water Storage Proposal: Natural Heritage



Legend

- ▭ Preliminary Project Boundary
- ▬ Bathymetry
- ▭ ANSI
- ▭ Deer Wintering Area
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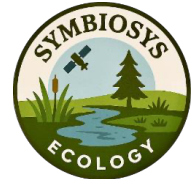


Sources: OPWS data - TC Energy; Lakes & Rivers, ANSI, Sig. Woodlands, NHS Core & Linkage - Grey County; Wetland & Bathymetry - OMNR; Deer Wintering Area - LIO. Geomatics by Symbiosis Ecology Corp. Mar. 21, 2026

Species At Risk (4CDTC Meaford)

Species	COSSARO Status	COSEWIC Status	SARA Schedule 1	In TCE IPD Report	NHIC Records
Butternut	Endangered	Endangered	Endangered	Yes	Yes
Red-headed Woodpecker	Endangered	Endangered	Endangered	No	Yes
American Ginseng	Threatened	Endangered	Endangered	No	Yes
Canada Warbler	Special Concern	Special Concern	Threatened	Yes	Yes
Eastern Wood-pewee	Special Concern	Special Concern	Special Concern	Yes	Yes
Silver Lamprey* (Great Lakes - Upper St. Lawrence population *)	Special Concern	Special Concern	Special Concern	Yes	Yes
Grasshopper Sparrow	Special Concern	Special Concern	Special Concern	Yes	Yes
Barn Swallow	Special Concern	Special Concern	Threatened	Yes	Yes
Bobolink	Threatened	Special Concern	Threatened	Yes	Yes
Eastern Meadowlark	Threatened	Special Concern	Threatened	Yes	Yes
Eastern Milk Snake	NAR	Special Concern	Special Concern	Yes	Yes
Snapping Turtle	Special Concern	Special Concern	Special Concern	No	Yes
American Hart's-tongue Fern	Special Concern	Special Concern	Special Concern	No	Yes
Lake Sturgeon (Great Lakes - Upper St. Lawrence River)	Endangered	Threatened	Not Listed	Yes	Yes
Wood Thrush	Special Concern	Threatened	Threatened	Yes	Yes
Golden-winged Warbler	Threatened	Threatened	Threatened	Yes	Yes
Eastern Whip-poor-will	Special Concern	Threatened	Threatened	Yes	Yes
Bank Swallow	Threatened	Threatened	Threatened	Yes	Yes
Chimney Swift	Threatened	Threatened	Threatened	No	Yes
St. Lawrence population)	Threatened	Threatened	Threatened	No	Yes
Eastern Small Footed Bat	Endangered	Candidate	Not Listed	Yes	No
Little Brown Myotis	Endangered	Endangered	Endangered	Yes	No
Tri-colour Bat	Endangered	Endangered	Endangered	Yes	No
Northern Myotis	Endangered	Endangered	Endangered	Yes	No
Hoary Bat	Endangered	Endangered	Under Review	Yes	No
Eastern Red Bat	Endangered	Endangered	Under Review	Yes	No
Silver Haired Bat	Endangered	Endangered	Under Review	Yes	No
Monarch	Special Concern	Endangered	Endangered	Yes	No
Yellow-banded Bumblebee	Special Concern	Special Concern	Special Concern	Yes	No
Northern Brook Lamprey	Special Concern	Special Concern	Special Concern	Yes	No
Deepwater Sculpin	NAR	Special Concern	Special Concern	Yes	No
Black Ash	Endangered	Threatened	Under Review	Yes	No
Western Chorus Frog	NAR	Threatened	Threatened	Yes	No

* 1987 Record in NHIC dataset



Preliminary Ecological Opinion
by
Mark G. Heaton, Ecologist

for

Save Georgian Bay

PROPOSED ONTARIO PUMPED STORAGE
Municipality of Meaford, Grey County
Proponent: TC Energy Inc.

I am a retired Ministry of Natural Resources and Forestry (“MNR”) Fish and Wildlife Biologist with over 30 years of experience. I now provide ecology consulting services through my family company Symbiosys Ecology Corp.

During my career with MNR, I reviewed planning proposals under the *Endangered Species Act*, *Planning Act*, the *Lakes and Rivers Improvement Act*, *Public Lands Act*, *Fisheries Act*, *Aggregate Resources Act* and the *Environmental Assessment Act*, including the processing and issuance of numerous authorizations under these provincial and federal statutes.

The following documents and references were reviewed in relation to the above noted proposal:

- 1) Grey County Natural Heritage System [Natural Heritage Study](#)
- 2) Grey County Open Data (<https://maps.grey.ca/pages/open-data>)
- 3) Natural Heritage Information Centre Mapping, accessed December 26, 2025 (ANSIs, wetlands, woodlands, species-at-risk and land use designations)
- 4) Evaluation of soil contamination by explosives and metals at the Land Force Central Area Training Centre (LFCA TC) Meaford, Ontario (Phase I), May 2009
- 5) 2020 Groundwater Monitoring and Sampling Report – Range and Training Area (RTA) and Garrison Landfill, Final Report, March 2021
- 6) 2021 Groundwater Monitoring and Sampling Report – Range and Training Area (RTA) and Garrison Landfill, Final Report March 2022,
- 7) Arcadis Groundwater Monitoring and Sampling Report, March 2023
- 8) ESG Munitions Monitoring Plan - Part B – Annual Results Report, March 2024
- 9) Grey and Bruce Counties Groundwater Study Final Report, July 2003
- 10) Survey for Endangered Bats, Meaford Ontario. October 2023
- 11) Hunter GIS Memo: DND/TCE Proposed and Alternative Pumped Storage (Reservoir) Sites at 4 CDTC Base, Meaford, May 2024
- 12) Hunter GIS Figures and Photographs November 2025

Following the review of the above noted information sources, I conclude that there are key site contamination and ecological issues that need to be addressed as part of the

future environmental assessment process for the proposed Ontario Pumped Storage Project.

Summary of Groundwater and Soil Sampling Exceedances (2020–2024)

Well sampling events at the 4th Canadian Division Training Centre (4 CDTC) Meaford exceeded federal and provincial water quality guidelines for drinking water and aquatic life between 2020 and 2024. Highlighted are well stations exceeding natural background levels and identification of likely causes.

Overview of Regulatory Framework

Groundwater results were evaluated against the following criteria:

- Federal: Health Canada Drinking Water Quality Guidelines (GCDWQ - MAC/AO), ECCC Federal Interim Groundwater Quality Guidelines (FIGQG), and CCME Canadian Environmental Quality Guidelines (CEQG) for the Protection of Aquatic Life and Agriculture.
- Provincial: Ontario Site Condition Standards (SCS) (O. Reg. 153/04).
- Site-Specific: Tolerance Limits (Background Levels) established by the National Institute for Scientific Research (INRS) in 2012 to distinguish between natural mineralogy and anthropogenic impacts.

Summary of Exceedance Events (2020–2024)

General Findings:

Across all monitoring years, exceedances were primarily limited to dissolved metals and certain general chemistry parameters (Nitrate, Sulphate, Nitrite). Organics—including BTEX, PHCs, PAHs, and PFAS—consistently remained below applicable guidelines or laboratory detection limits. Energetic compounds and perchlorate were also not detected above criteria during any event.

Annual Exceedance Summary

- 2020: 53 of 64 wells sampled exceeded at least one criterion for dissolved metals, including arsenic, boron, iron, manganese, and sodium.
- 2021: 33 of 45 wells sampled showed exceedances for similar metal parameters.
- 2022: 38 of 44 wells sampled exceeded federal, provincial, or site-specific criteria for dissolved metals.
- 2023 & 2024: Results remained consistent with historical data. Notable transboundary exceedances (PMO 1) included Nitrate, Sulphate, Boron, Iron, Lithium, Manganese, and Sodium.

Wells Exceeding Natural Background Levels

While many wells exceeded drinking water or aquatic life guidelines, the majority of these concentrations are consistent with natural background levels (Tolerance Limits) for the Meaford area. Table 1 highlights specific well stations that frequently exceeded these site-specific tolerance limits:

Well Station	Parameters Exceeding Background (Tolerance Limits)	Likely Cause of Exceedance
GW025, GW043, GW147	Antimony, Arsenic, Barium, Boron, Copper, Iron, Manganese, Sodium, Zinc	Likely anthropogenic impact from training activities (munitions constituents) due to proximity to active ranges.
GW052, GW053, GW058	Arsenic, Barium, Iron, Manganese, Sodium	Mix of geology and potential historical deposition in training areas
GW068, GW114	Nitrite (Increasing trends observed)	Possible degradation of propellants or energetic materials in the subsurface
GW081	pH (Below AO), Antimony, Boron, Cobalt, Copper	Influence from the former Garrison Landfill or historical sewage lagoon activities
GW232 (replaced GW030)	Boron, Sodium, Strontium (Significantly higher than previous well)	Potential impact from well installation or localized mineralized zone in deep bedrock

Table 1: Well stations that frequently exceeded these site-specific tolerance limits

Identification of Likely Causes

Natural Geological Conditions (Most Common):

The majority of metal exceedances (e.g., Iron, Manganese, Boron) are attributed to the native Elma Till and shale/limestone bedrock. These elements are naturally elevated in the region's groundwater and often do not reflect contamination from training activities.

Military Training Activities (Munitions Constituents):

Exceedances of Antimony, Arsenic, and Zinc at specific range-adjacent wells (e.g., GW025, GW043) are likely linked to the release of metals from ammunition and explosives (MC) used during training.

Historical Site Use:

Wells near the Garrison Landfill and sewage lagoon (e.g., GW081) reflect legacy impacts from waste management activities, though organic contaminants are currently absent.

Nitrate/Nitrite (Apeldoorn Range):

Elevated Nitrates, particularly at the Apeldoorn range, were previously identified as a concern due to propellant residues.

Contaminated Soils

The 2009 report “*Evaluation of soil contamination by explosives and metals at the Land Force Central Area Training Centre (LFCA TC) Meaford, Ontario (Phase I)*” detected parameters exceeding Soil Quality Guidelines (CCME Agricultural/Industrial) in soil samples for a number of ranges. These are not drinking water exceedances but are listed below for context regarding the site’s environmental status:

- Selenium: Highly contaminated soil found at Cambrai Range (Tank positions).
- Lead: High concentrations found in soil at all small arms ranges (e.g., Gully, Alpha).
- PAHs: Exceeded industrial soil criteria at the Skeet Range.

Detection of Uranium in Groundwater

Uranium was frequently detected in groundwater samples across the site at concentrations exceeding both federal and provincial criteria.

Guideline Exceedances

Uranium concentrations regularly exceeded the Health Canada Drinking Water Quality Maximum Acceptable Concentration (MAC) of 20 µg/L, as well as federal aquatic life and provincial standards in various wells.

Well Stations with Uranium Exceedances

- **2020:** Exceedances were noted at wells including GW027, GW030, GW044, GW045, GW046, GW051, GW052, GW053, GW058, GW069, GW070, GW071, GW079, GW084, GW111, GW113, GW114, GW118, GW124, GW125, GW127, GW129, GW130, GW133, GW134, GW142, GW143, and GW231.

- **2021:** Similar exceedances were recorded at GW027, GW028, GW030, GW044, GW054, GW058, GW069, GW071, GW084, GW113, GW114, GW115, GW118, GW124, GW125, GW127, GW129, GW130, GW133, GW134, GW142, GW143, and GW231.

Possible Sources of Uranium

Evidence from the monitoring reports indicates that uranium in the groundwater is likely of natural origin.

- The bedrock in the Meaford area, which consists of shale, limestone, and dolostone (Queenston, Georgian Bay, Blue Mountain, and Billings Formations), often contains naturally occurring radionuclides and metals like uranium.
- In the majority of cases where uranium exceeded a regulatory guideline (PMO), the concentrations did not exceed the site-specific tolerance limits (background levels) established for the area. This suggests the levels are reflective of the local natural environment rather than anthropogenic contamination from training activities.

Uranium is widely present across 4 CDTC Meaford at levels exceeding drinking water and aquatic life guidelines, but these concentrations are generally consistent with the area's geology and are not believed to be caused by military training.

Elevated selenium and lead concentrations have been detected in soil samples from active ranges.

Antimony, Boron, Cobalt, Copper water quality exceedances were detected at well GW081 which is likely attributed to the former Garrison landfill or sewage lagoons. Antimony, Arsenic, Barium, Boron, Copper, Iron, Manganese, Sodium, Zinc exceedances are likely associated with use of munitions in active ranges. While groundwater at 4 CDTC Meaford frequently exceeds water quality guidelines for dissolved metals, only a subset of wells (notably in active training ranges and the former landfill) exceed natural background levels. Well monitoring locations with exceedances are depicted in Figure 1 below.

Conclusion

An environmental assessment should integrate existing soil and groundwater monitoring information and consider the implications of possible aggravated migration of these substances into local potable water supplies and aquatic habitats because of the proposed project. Potable water supplies include private wells and the Intake Protection Zone for the Municipality of Meaford as depicted in the Grey County Official Plan Appendix A.

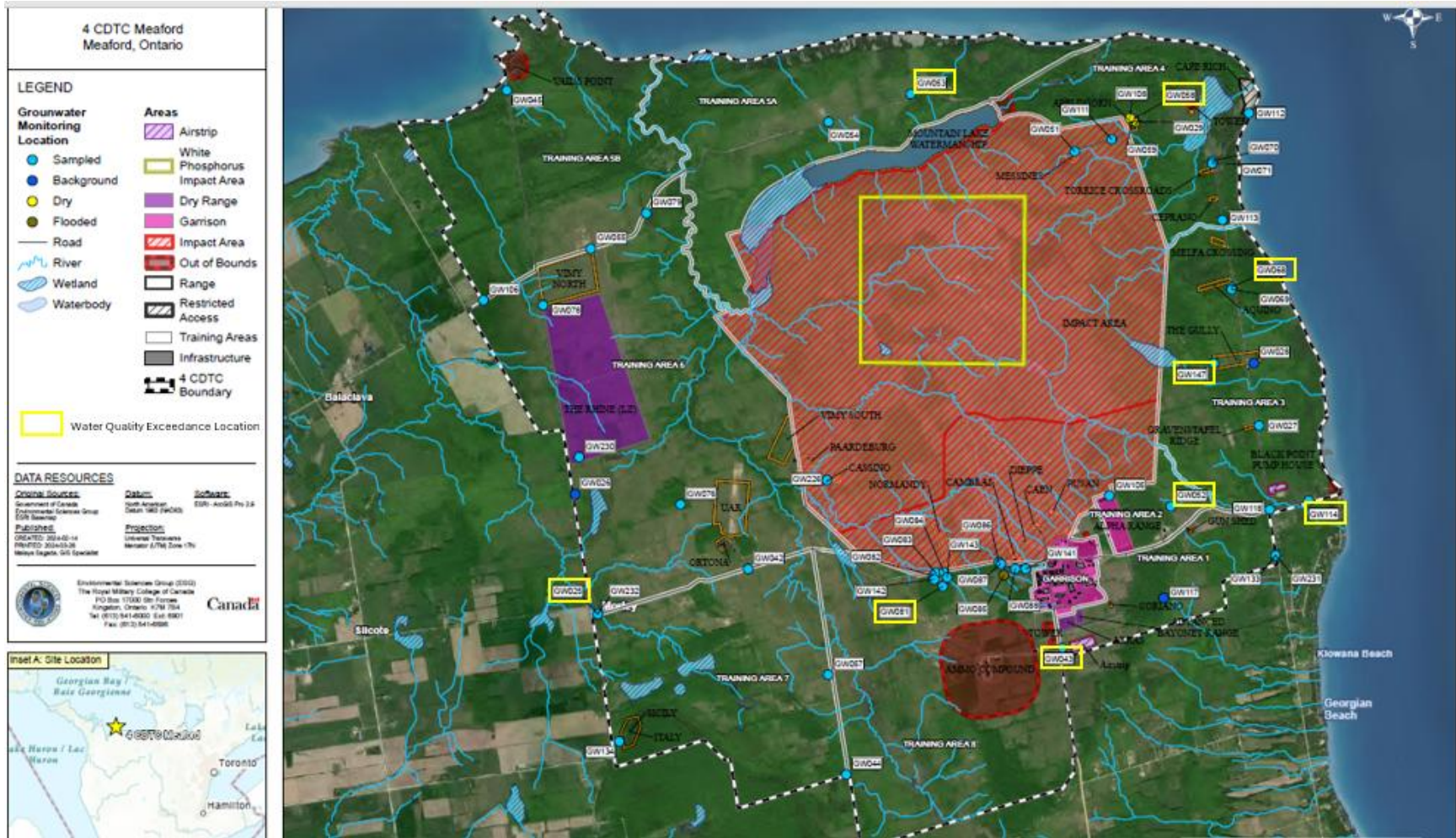


Figure 1: Well monitoring locations with exceedances (adapted from *CAO 23-15 Monitoring, 4 CDTC Meaford, Munitions Monitoring Plan, Part B – Annual Results Report*)

Natural Heritage Features

The Grey County Natural Heritage Systems Study (NHSS) was completed in 2017. In terms of general natural heritage context, 4 CDTC Meaford is located on a peninsula on the south shore of Georgian Bay, covering approximately 7,650 hectares. The area is characterized by:

- **Diverse Habitats:** The site consists of forest, abandoned farmland, and wetlands.
- **Water Bodies:** Major features include Mountain Lake, located north of the Restricted Impact Area, and Sucker Creek on the western side of the property.
- **Conservation and Protection:** The Bayview Escarpment Provincial Nature Reserve borders the training area to the south.

Significant Natural Heritage Features

According to the Grey County NHSS, several categories of significant features are identified through mapping and protected within the county, many of which are present within or immediately adjacent to 4 CDTC Meaford. These are mapped in Figure 2.

- Significant Woodlands
- Identified wetlands ≥ 2 ha
- Significant Wildlife Habitat (SWH): Deer Yards and Deer Wintering Areas, which are specifically mapped by the Ministry of Natural Resources (MNR)
- Areas of Natural and Scientific Interest (ANSI)
 - Sucker Creek - Cape Rich Life Science (provincial)
 - Sucker Creek Valley - Cape Rich Earth Science (provincial)
 - Bayview Escarpment Life Science (provincial)
- Aquatic Features: This includes permanent and intermittent watercourses, as well as waterbodies like Mountain Lake
- Bayview Escarpment Provincial Park (Nature Reserve)
- Niagara Escarpment Plan – Natural Heritage System

Hydrological and Hydrogeological Features

The 4 CDTC site is divided into four distinct drainage basins that flow towards Georgian Bay:

1. Basin 1: Streams rising on the Queenston Formation tableland flowing east to Nottawasaga Bay.
2. Basin 2: Streams at the foot of the Niagara Escarpment contributing to Johnson Creek.
3. Basin 3: Seasonal streams north of the impact area discharging into Mountain Lake.
4. Basin 4: Sucker Creek, which drains most training ranges and perennial streams on the western portion of the base.

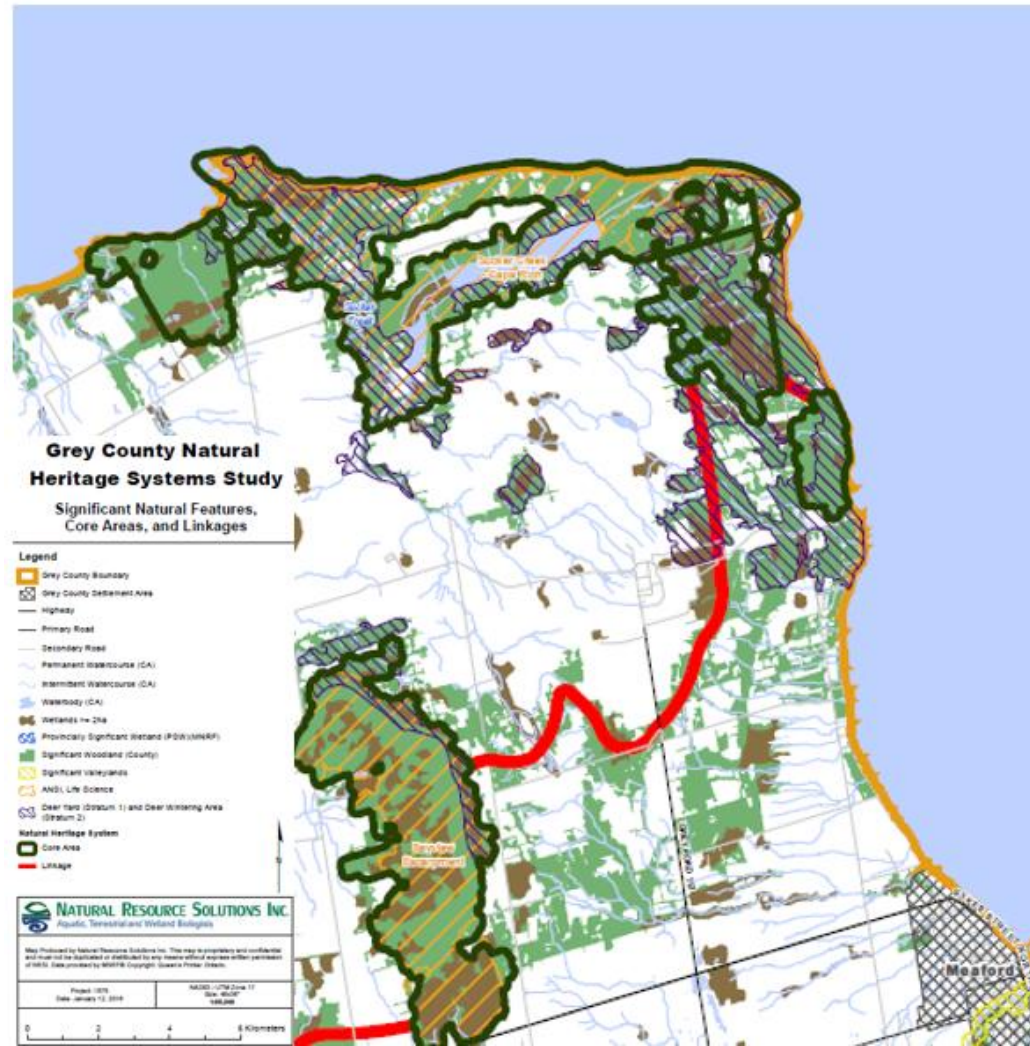


Figure 2: Significant Natural Heritage Features, Core Areas and Linkages

Conclusion

The proposed Ontario Pumped Storage Facility is located ovetop of three significant natural features identified in the Grey County Natural Heritage Systems Study:

- 1) Identified wetlands >2 ha
- 2) Significant Woodlands
- 3) Significant Wildlife Habitat

The proposed location could be in conflict with the recommended Natural Heritage System.

Species-at Risk

Based on Natural Heritage Information Centre records obtained for 1km tiles located within and adjacent to the training centre and the Survey for Endangered Bats, Meaford Ontario (October 2023) report, a total of **26 species at risk** have been identified as present or detected in the area.

Summary of Species at Risk

- Total Identified Species: 26
- Endangered: 10 species (1 restricted)
- Threatened: 8 species
- Special Concern: 8 species

Species by Taxonomic Group

Birds (11 Species)

- Endangered: Loggerhead Shrike, Red-headed Woodpecker
- Threatened: Eastern Meadowlark, Bobolink, Golden-winged Warbler, Eastern Whip-poor-will, Short-eared Owl, Wood Thrush
- Special Concern: Eastern Wood-ewee, Canada Warbler, Grasshopper Sparrow

Mammals / Bats (5 Species)

- Endangered: Little Brown Myotis, Tricolored Bat, Hoary Bat*, Eastern Red Bat*, Silver-haired Bat*

**Note: The migratory bats (Hoary, Eastern Red, and Silver-haired) were identified in the bat report as recently assessed as Endangered by COSEWIC.*

- Northern Myotis and Eastern Small-footed Myotis (both endangered) could potentially be present but were not detected during this specific survey.

Reptiles (4 Species)

- Threatened: Massasauga (Great Lakes / St. Lawrence population)
- Special Concern: Snapping Turtle, Eastern Milksnake, Midland Painted Turtle

Fish (2 Species)

- Endangered: Lake Sturgeon (Great Lakes - Upper St. Lawrence River population)
- Special Concern: Silver Lamprey (Great Lakes - Upper St. Lawrence populations)

Plants & Ferns (2 Species)

- Endangered: Butternut
- Endangered: Restricted
- Special Concern: American Hart's-tongue Fern

Amphibians (1 Species)

- Threatened: Western Chorus Frog (Great Lakes - St. Lawrence - Canadian Shield population)

Based on the federal *Species at Risk Act* (SARA) Schedule 1 and official recovery strategies, the designations and critical habitat descriptions are presented in Table 2 below:

Species	SARA Schedule 1 Status	Critical Habitat Description (Biophysical Attributes)
Butternut	Endangered	50m radius around any healthy naturally occurring tree. Typically found in rich, moist, well-drained soils; often near stream banks or forest edges with solar exposure.
Eastern Meadowlark	Threatened	Large, contiguous grasslands (>5 ha) including pastures, hayfields, and meadows. Requires moderately tall vegetation for nesting and elevated perches (shrubs/posts) for singing.
Golden-winged Warbler	Threatened	Early-successional forest and shrubland. Requires a mosaic of herbaceous ground cover for nesting, clumps of shrubs/saplings (1–4m tall), and adjacent mature forest for foraging.
Lake Sturgeon (GL-SL pop.)	Threatened*	Spawning: Shallow, fast-flowing water with rocky/boulder substrate (rapids/falls). Nursery: Areas with sandy/silty bottoms. Connectivity: Unobstructed migration corridors between rivers and lakes.
Loggerhead Shrike	Endangered	Pasture/Alvar: Short-grass areas with scattered thorny shrubs (e.g., Hawthorn) used for nesting and "impaling" prey. Critical habitat is identified in specific core areas (e.g., Carden/Napanee).
Massasauga (GL-SL pop.)	Threatened	Gestation: Open, sunny areas (shrub thickets/rock barrens) for basking. Hibernation: Wetlands with accessible water tables (e.g., sphagnum swamps/burrows) to avoid freezing.

Species	SARA Schedule 1 Status	Critical Habitat Description (Biophysical Attributes)
Red-headed Woodpecker	Endangered	Open Woodland: High density of standing dead trees (snags) for nesting and caching food. Prefers savanna-like environments with sparse understory and large-diameter trees (>30cm DBH).
American Ginseng	Endangered	Rich Deciduous Forest: Mature stands with approx 75% canopy shade. Requires deep, nutrient-rich, well-drained soil (often over limestone) and stable forest interiors free from trampling.
Short-eared Owl	Special Concern	Open Landscapes: Marshes, grasslands, and tundra. Because it is "Special Concern," Critical Habitat is not formally defined under SARA, but habitat protection is managed through broader land-use plans.
Western Chorus Frog	Threatened	Ephemeral Wetlands: Temporary ponds that dry up in summer (no fish). Includes a 300m terrestrial buffer around ponds for foraging and overwintering in leaf litter.
Wood Thrush	Threatened	Interior Forest: Large blocks of deciduous or mixed forest (>100ha) with a high canopy, well-developed leaf litter layer for ground-foraging, and a dense sapling layer for nesting.

Table 2: Schedule 1 Species: Status and Critical Habitat

**Note: The Lake Sturgeon (Great Lakes - Upper St. Lawrence population) was reassessed as Endangered by COSEWIC, but its legal Schedule 1 listing remains Threatened in many federal contexts while the status update is finalized.*

Conclusion

Because 4 CDTC Meaford is federal land, any area identified as "Critical Habitat" for Endangered or Threatened species is legally protected from destruction under SARA Section 58.

Fish and Fish Habitat

The Cape Rich to Meaford corridor represents a unique transition zone in Georgian Bay, where the deep waters of the western basin meet the "shale plains" and high cliffs of the Niagara Escarpment. This area is part of Fisheries Management Zone 14 (FMZ 14) and is characterized by its high-energy, exposed shoreline and deep-water proximity.

Aquatic Habitat Mapping & Features

Mapping in this region highlights a stark contrast to the marshy archipelagos of eastern Georgian Bay. The habitat is defined by:

- **The Cape Rich Steps:** A series of submerged shale terraces and plains. This Paleozoic bedrock is often overlain by shallow overburden, creating a rugged underwater landscape.
- **River Influences:** The Bighead River (Meaford) and Beaver River (Thornbury) provide critical inputs. Habitat mapping for these rivers focuses on thermal stability, identifying them as important corridors for migratory species.
- **Bathymetry:** Unlike the shallow eastern coast, the water off Cape Rich drops off rapidly into the deep western basin. This creates a "cold-water" interface close to the shore.
- **Government Data Sources:**
 - **DFO Species at Risk (SARA) Map:** Provides spatial data on critical habitats for protected species.
 - **Great Lakes Baseline Coastal Habitat Survey:** A federal/provincial initiative that provides geospatial data on shoreline classification and nearshore substrate.

Fish Community Information

The fish community is a mix of offshore "cold-water" species and nearshore residents. Meaford is frequently cited as a "home base" for trophy-sized salmon and trout due to its access to deep water.

Fish Category	Key Species in the Area
Offshore / Cold-water	Lake Trout, Chinook Salmon, Rainbow Trout (Steelhead), Lake Whitefish, and Splake.
Nearshore / Predator	Smallmouth Bass, Northern Pike, and occasionally Walleye.
Forage / Prey Fish	Deepwater Cisco (Bloater), Round Goby (invasive but common), and Lake Herring.
Species at Risk	The area may host Lake Sturgeon or specific SARA-listed mussels in tributary mouths.

Key Community Trends:

- **Whitefish & Trout:** Historically high, though Lake Whitefish populations have seen declines recently due to changes in the food web (specifically the impact of Zebra/Quagga mussels).
- **Salmonids:** This area is a primary destination for the "Steelhead run" in the spring and fall, particularly in the Bighead and Beaver Rivers.
- **Invasive Species:** The Round Goby is now a dominant part of the nearshore community, serving as both a competitor to native darter species and a primary food source for Smallmouth Bass.

Key Underwater Features (Cape Rich to Meaford)

The underwater topography in this specific corridor is defined by:

- **The Escarpment Drop-off:** Unlike the gradual sandy slopes of Wasaga Beach to the east, the area between Meaford and Cape Rich features a steep bathymetric gradient.
- **Substrate Transition:** There is a transition from exposed bedrock (shale) near the Cape to alluvial deposits (gravel/sand) near the mouth of the Bighead River in Meaford.
- **Thermal Refugia:** Because the 30-metre depth contour is so close to the shore here, this area serves as a "cold-water highway" for Lake Trout and Salmon, allowing them to remain near the shoreline even in late summer.

Lake Trout in Georgian Bay are "shoal spawners" that rely on clean, silt-free rock.

- Cape Rich (The Point): This is considered a high-potential spawning area due to its exposed position and large boulders. The wind and wave action here are critical; they keep the "interstitial spaces" (the gaps between rocks) clear of silt, allowing eggs to fall in and stay oxygenated throughout the winter.
- Vail's Point Shoal: Located just north of Meaford, this submerged rocky ridge is a known aggregation point for Lake Trout in late October and early November.

While spawning habitat is abundant, natural recruitment (wild-born fish surviving to adulthood) in southern Georgian Bay has been a challenge for decades. Most Lake Trout caught here are still the result of provincial stocking programs (often marked with a clipped adipose fin).

Whitefish also spawn over shallow rocky shoals (usually 1–5 metres deep) in late autumn, but they are currently facing a "recruitment crisis" in this part of the bay.

- The "Shale Steps": The shallow shale terraces between Cape Rich and Meaford are the primary target for spawning Whitefish. They seek out the flat limestone and shale plates where small cobble has accumulated.
- The Recruitment Gap: MNR monitoring has noted that while adult Whitefish still aggregate on these shoals to spawn, there has been very little "substantial reproduction" (survival of young-of-year) in southern Georgian Bay for nearly 20 years.
- Invasive Impact: Scientists believe Quagga Mussels have heavily impacted these shoals. The mussels cover the rocks, and their waste (pseudofeces) creates a layer of silt that can smother Whitefish eggs before they hatch in the spring.

Conclusion

Proposed water intake and discharge system may have an impact on spawning and nursery habitat for Lake Whitefish and Lake Trout. This potential impact will need to be investigated in an environmental assessment process. In addition, the potential conflict of vertical inlet and outlet diffusers for boat anglers using downriggers will need to be considered.

Next Steps

Moving into Phase 2 of this project, we will acquire detailed GIS data to map the following:

- Surficial geology
- Wells exceeding natural background levels
- Identified wetlands >2ha
- Significant woodlands

- Significant wildlife habitat
- Areas of Natural and Scientific Interest (ANSIs)
- Species-at-risk
- Near shore bathymetry
- Aquatic habitat surveys
- Fish community surveys

We expect to be developing these products during the latter part of February.

Please feel free to contact me should you have any questions.

Regards

A handwritten signature in black ink, appearing to read 'Mark Heaton', written in a cursive style.

Mark Heaton
Ecologist
Symbiosys Ecology Corp.
December 31, 2025

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