



Wetland Approximation Project #250912



Pro Build - Steve Brunette



162 Highway 94, Corbeil, ON



May 27, 2025



Planners | Surveyors | Biologists | Engineers

May 27, 2025
Project: 250912

Pro Build
Attn: Steve Brunette
162 HWY 94
Corbeil, ON
P0H 1K0

Re: Wetland Approximation – Pro Build – 162 Highway 94, Corbeil

Dear Mr. Brunette

TULLOCH Environmental, a division of TULLOCH Engineering Inc. (TULLOCH) was retained to perform a wetland approximation at the site of the proposed construction of a shop at 162 Highway 94 in Corbeil, Ontario (the 'Site'). This mapping was performed in support of a complete Site Plan Control Agreement package for the construction of a new shop. The construction of the new shop is intended to take place in the front half of the property; thus, wetland approximation efforts were scoped to target the northeast corner of the parcel (see Figure 1 for the Site and Study Area).

Wetlands are subject to development constraints according to the Ontario Provincial Policy Statement, the Municipality of East Ferris Official Plan, and North Bay-Mattawa Conservation Authority ('NBMCA') policies. For planning purposes, wetlands are typically defined and mapped according to guidelines within the Ontario Wetland Evaluation System (the 'OWES').

The OWES applies a plant-centric definition to wetlands and seeks to map wetland extents based on the prevalence of wetland indicator plant species. For this reason, OWES wetland mapping must be undertaken during the growing season; after the snow melts and once plants have emerged. OWES wetland mapping cannot be undertaken in the late fall through early spring.

TULLOCH was retained in early spring (May 2025) to undertake an on-site assessment of the Site to determine if wetlands are likely to be present and, if so to approximate their extent based on evidence could be obtained. Due to the May timing, and a late onset of spring in 2025, very little vegetation had emerged on Site at the time of the field investigation. The proponent was informed that this timing would mean that TULLOCH cannot guarantee the accuracy of this mapping. TULLOCH wetland evaluators can none-the-less **approximate** wetland areas, and these approximations can assist proponents when considering future land development. These early season approximations can vary in accuracy depending on attributes of the Site and the

vegetation community present. The proponent prioritised this early season OWES mapping despite the potential for limitations in accuracy.

This report provides details on the information reviewed and the observations made that support the tentative opinions provided in this report. This work has been undertaken by Environmental Professionals formally trained by the Ministry of Natural Resources (MNR) as wetland evaluators in the OWES.

Defining 'Wetland'

The term wetland is variously applied operationally, regulatorily, and colloquially. For planning purposes in Ontario, the Ontario Wetland Evaluation System ('OWES') is typically adopted to delineate wetland boundaries and evaluate wetlands based on their biological, hydrological, and social significance.

The OWES defines wetlands generally as:

"Lands that are seasonally or permanently flooded by shallow water as well as lands where the water table is close to the surface; in either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic or water tolerant plants."

The OWES favours a plant-centric approach to defining wetland boundaries. Specifically, the OWES defines the boundary of a wetland according to the "50% wetland vegetation" rule, whereby a wetland is denoted to begin where 50% or more of the relative plant cover is dominated by wetland plant species. Soils information can also be collected to complement plant observations.

Under natural conditions wetlands can, by this definition, vary greatly in scale from several square meters to several square kilometers in area. Operationally, the OWES sets out certain minimum areas that serve as benchmarks for wetland classification. Specifically:

- The OWES considers individual areas of wetland formation to be Wetland Units. The OWES does not typically evaluate the significance of Wetland Units that are less than 2.0ha in area unless that unit exhibits particularly important ecological functions or is required to maintain connectivity among other (larger) wetland units.
- The OWES breaks down and describes Wetland Units according to Vegetation Communities which are sub-sections of the wetland with a common plant community composition and structure. The minimum size of an OWES Vegetation Community is 0.5ha.

Based on these definitions, the minimum mappable wetland size under the OWES framework is 0.5ha.

An alternative means of describing wetlands in this province is the Ontario Ecological Land Classification ('ELC') system. The ELC system applies a soil-centric means of classifying wetland presence and defining wetlands to ecosite. Specifically, attributes of soil substrate texture and

coloration (e.g., mottles and gley) are used to determine the soil moisture regime and then infer wetland presence. Once again, these conditions can exist on scales of several square meters to several square kilometers in area. The ELC system also adopts a minimum 0.5ha for mappable ecosites.

It is important to note that not all wetlands support standing water. Wetlands also develop in areas prone to seasonal flooding (such as in the spring) or where water tables are high enough to affect the rooting zone of local vegetation.

Our wetland evaluations are performed by environmental professionals trained in both the OWES and ELC systems. For the purposes of wetland mapping, TULLOCH adopts the OWES definitions with a minimum community size of 0.5ha unless otherwise stated. Mapping is therefore plant-centric, with soils and topographic data collected as needed to supplement plant community observations.

North Bay-Mattawa Conservation Authority regulates development within wetlands and upland areas within 30m of wetlands (defined as the 'Areas of Interference'). NBMCA wetland policies require wetlands smaller than 0.5ha be mapped where they are sufficiently hydraulically connected to other wetlands.

In East Ferris, Zoning By-Law 2021-60, section 3.43 states 'No new main building shall be erected in any zone within 30m of any lake, river, stream or wetland. Specific regulations related to a zone or water feature may supersede this regulation. Accessory structures shall provide a setback of 15m from any lake, river, stream or wetland.

Methods

The Site was visited on May 2, 2025, by Valerie Murphy (Senior Environmental Specialist) with TULLOCH and Zoe Watson (Environmental Technician) with TULLOCH. Ms. Murphy is trained by the MNR in the OWES system and is recognised by that Ministry as a qualified OWES Evaluator.

The Site was walked for the identification of upland and wetland vegetation communities, focusing on woody plants (trees and shrubs) that were visible in the early spring season. Some other identifiable senesced forb and graminoid (ferns and reeds) residuals were also encountered. The species composition and structure of these communities were noted to the extent possible and photographed. The transition areas between these communities (i.e., ecotones) were approximated as well. Once within an ecotone, the approximate location where the apparent relative plant dominance shifted from upland to wetland species was found and GPS waypointed. Waypoints were collected in this manner at intervals of approximately 10 to 20m. Waypoints were collected with the assistance of a Garmin GPSMAP 65S.

Soil characteristics were assessed on Site using an Edelman Auger. In the OWES system, soil properties such as effective texture, moisture regime, and depth to watertable can supplement plant community observations. Soils were characterized according to finger assessments outlined in the *Field Guide to Substrates of Ontario*.

Site observations were supplemented by several layers of spatial Geographic Information System (GIS) data obtained from Land Information Ontario (via the Ontario GeoHub) and reviewed for this Site, specifically:

- 'Wetlands': A high-level provincial approximation of known or suspected wetlands across Ontario. Data provided by the MNR.
- 'Ontario Hydro Network - Waterbody' - A high-level provincial approximation of known waterbodies across Ontario. Data provided by the MNR.
- 'Ontario Hydro Network - Watercourse' - A high-level provincial approximation of known watercourses across Ontario. Data provided by the MNR.
- 'COOP 2016 DEM' - Digital Elevation Modeling created by the Central Ontario Orthophotography Project provided approximate Site topographic contours at 1m intervals.

Aerial imagery was obtained from ESRI Online and from Google Earth Pro which depicted the Site over the course of several years and during various seasons. Specifically, TULLOCH reviewed and compared spring imagery (leaf off) with that of summer (leaf on).

Regulated areas mapping from NBMCA was reviewed.

All mapping and spatial measures were performed in QGIS.

Wetland Approximation Results

The following sections outline the results of this assessment. All figures are provided in Attachment I. All field photographs are provided in Attachment II.

Based on the information reviewed for the Site, and observations made while traversing the Site, TULLOCH can provide an approximation of the wetland boundary on Site as depicted in Figure 2.

Wetland Vegetation Communities

Mappable wetlands were encountered within the Site; see Figure 2.

Wetlands were encountered on the Site (Figure 2). Three (3) different areas of wetland vegetation were identified on the Site; specifically, a tall tree swamp (TtS) bordered by a tall shrub swamp (TsS), which was adjacent a narrow leaved emergent marsh (NeM). Wetland boundary approximations are included in Figure 2.

On-site observations suggest a portion of the Site has previously been filled with granular materials. It is unknown what the original vegetation community of the filled area was. The previous disturbances on the Site about the wetland and has created a well-defined upland/wetland interface.

The tall tree swamp (see “TtS”, Figure 2), dominated by Balsam Fir, is bordered by a tall shrub swamp (see “TsS”, Figure 2), which is dominated by Speckled Alder. These wetland areas are located along the north and eastern portions of the filled area (Table 1, Photo 1-3).

The narrow leaved emergent marsh (see “NeM”, Figure 2), dominated by graminoids and reeds, is located along the northern portion of the filled area (Table 1, Photo 4).

Standing and flowing water was observed on the Site, within the wetland areas.

Soils were assessed at four locations across the Site (Table 2). The *Field Guide to Substrates of Ontario* classifies soil into ‘moisture regimes’ based on the soil’s ‘effective texture’ and soil discolorations (i.e., ‘mottles and gley’) indicative of ephemeral or permanent water table saturation. All soils were found to have an effective texture ranging from a Sandy Clay Loam to Clay to Loam. Moisture regime classifications varied between 2 and 6 indicating Fresh to Wet soils. No organic soils were observed, and peat deposition was minimal, including the wetland areas, with the exception of the tall shrub swamp.

Table 1 – Dominant and sub-dominant plant species observed within the wetlands. See Table 3 for plant species encountered across the remainder of the Site.

Form	Common	Latin Name	OWES Wetland Indicator?*
Trees	Balsam Fir	<i>Abies balsamea</i>	P
	Trembling Aspen	<i>Populus tremuloides</i>	N
	White Birch	<i>Betula papyrifera</i>	N
	Red Maple	<i>Acer rubrum</i>	P
Shrubs	Speckled Alder	<i>Alnus incana</i>	Y
	White Meadowsweet	<i>Spiraea alba</i>	Y
	Honeysuckle species	<i>Lonicera sp.</i>	P
Herbs & Forbs	Woodland Strawberry	<i>Fragaria vesca</i>	N
	Common Cattail	<i>Typha latifolia</i>	Y
	Trillium species	<i>Trillium sp.</i>	N
Ferns & Allies	Sensitive Fern	<i>Onoclea sensibilis</i>	Y
	Wood Fern	<i>Dryopteris carthusiana</i>	P
Grasses	Common Reed	<i>Phragmites australis</i>	P
	Graminoids	NA	P
Mosses	Moss species	NA	P

*Wetland indicator plant species as classified by the OWES system.

'Y' (Yes) = A wetland indicator, which is an obligate wetland species rarely found outside of a wetland.

'P' (Possible) = A plant species that is common to wetlands, but that can also grow upland.

'N' (No) = A plant species that is not attributed to wetlands.

'U' (Upland) = A plant species that is rarely found within wetlands, and a good indicator of upland conditions (a TULLOCH classification).

Table 2 - Soils information collected on Site.

	Location 1	Location 2	Location 3	Location 4
Excavated Profile Depth	53cm	66cm	22cm	29cm
Depth to Watertable	Surface	Surface	16cm	N/A
Depth of Organic Peat	0cm	34cm	0cm	0cm
Depth to Mottles / Gley	44cm / NA	NA / 10cm	19cm / NA	NA / NA
Effective Texture	Sandy Clay Loam	Clay	Loam	Sandy Clay Loam
Moisture Regime	5 (Very Moist)	6 (Wet)	6 (Wet)	2 (Fresh)
Photo Number	Photo 5	Photo 6	Photo 7	Photo 8

Organic Hazard Lands

No areas of organic hazard lands were found within the Site. Soils were consistently Sandy Clay Loam to Clay to Loam a Loamy Sand with negligible deposition of organic peat.

Watercourses

One (1) watercourse was identified as flowing through the Site within the wetland (see Figure 3).

Upland Results

This Site is primarily comprised of an upland Dry to Fresh, Coarse: Spruce – Fir Conifer ecosite (ELC ecosite G052Tt; Photo 9). The upland plant community is described in Table 3. This report is not intended to be an assessment of upland habitat, but some upland plant community information was collected as a contrast to the wetland areas plant community described above.

Table 3 - Dominant and sub-dominant plant species observed within the upland plant community.

Form	Common	Latin Name	Wetland Indicator?
Trees	Balsam Fir	<i>Abies balsamea</i>	P
	Trembling Aspen	<i>Populus tremuloides</i>	N
	White Birch	<i>Betula papyrifera</i>	N
	White Pine	<i>Pinus strobus</i>	N
Shrubs	Honeysuckle species	<i>Lonicera spp.</i>	P
	Wild Red Raspberry	<i>Rubus idaeus</i>	N
Herbs & Forbs	Trillium species	<i>Trillium spp.</i>	N
	Bunchberry	<i>Cornus canadensis</i>	N
Ferns & Allies	Bracken Fern	<i>Pteridium aquilinum</i>	N
	Wood Fern	<i>Dryopteris carthusiana</i>	P
Grasses	Graminoid species	<i>Graminoid spp.</i>	P

*Wetland indicator plant species as classified by the OWES system.

'Y' (Yes) = A wetland indicator, which is an obligate wetland species rarely found outside of a wetland.

'P' (Possible) = A plant species that is common to wetlands, but that can grow upland as well.

'N' (No) = A plant species that is not attributed to wetlands.

'U' (Upland) = A plant species that is rarely found within wetlands, and a good indicator of upland conditions (a TULLOCH classification).

Closing

OWES certified professionals at TULLOCH have undertaken an off-season wetland approximation (using OWES methodologies) at 162 Highway 94 in Corbeil, Ontario (Figure 1). In Corbeil, wetlands are managed according to policies set out by the North Bay-Mattawa Conservation Authority and the Municipality of East Ferris Official Plan.

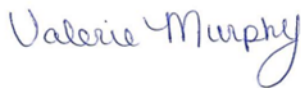
This wetland approximation was performed at the site of a proposed shop development. **Three wetland communities were encountered within the Site boundaries (Figure 2).** NBMCA wetland policies consider the Area of Interference around a wetland to be those upland areas within 30m of wetland boundaries. Approximated wetland boundaries and Areas of Interference associated with this Site are provided in Figure 2. Further, the Municipality zoning by-law requires a 15m setback of accessory structures from wetland boundaries, as such, mapping also shows a 15m setback from approximated wetland boundaries.

We are pleased to provide this letter as a record of our observations and wetland approximation results. While these observations are approximate, based on visible vegetation, current growth, and previous site disturbances, TULLOCH has a high level of confidence in the mapped approximate wetland boundaries.

Should you have any questions, please contact the undersigned.

Sincerely,
TULLOCH Environmental

Report prepared by:



Valerie Murphy
Senior Environmental Professional
OWES Wetland Evaluator

Attachments:
Attachment I – Figures
Attachment II – Photos

Attachment I
Figures



**162 HWY 94 Corbeil
Steve Brunette**

Site and Study Area

Legend




-  Area of Interest
-  Study Area 30m
-  Full Site



Figure 1
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Project: 250912
Notes: Site boundaries are approximate.



**162 HWY 94 Corbeil
Steve Brunette**

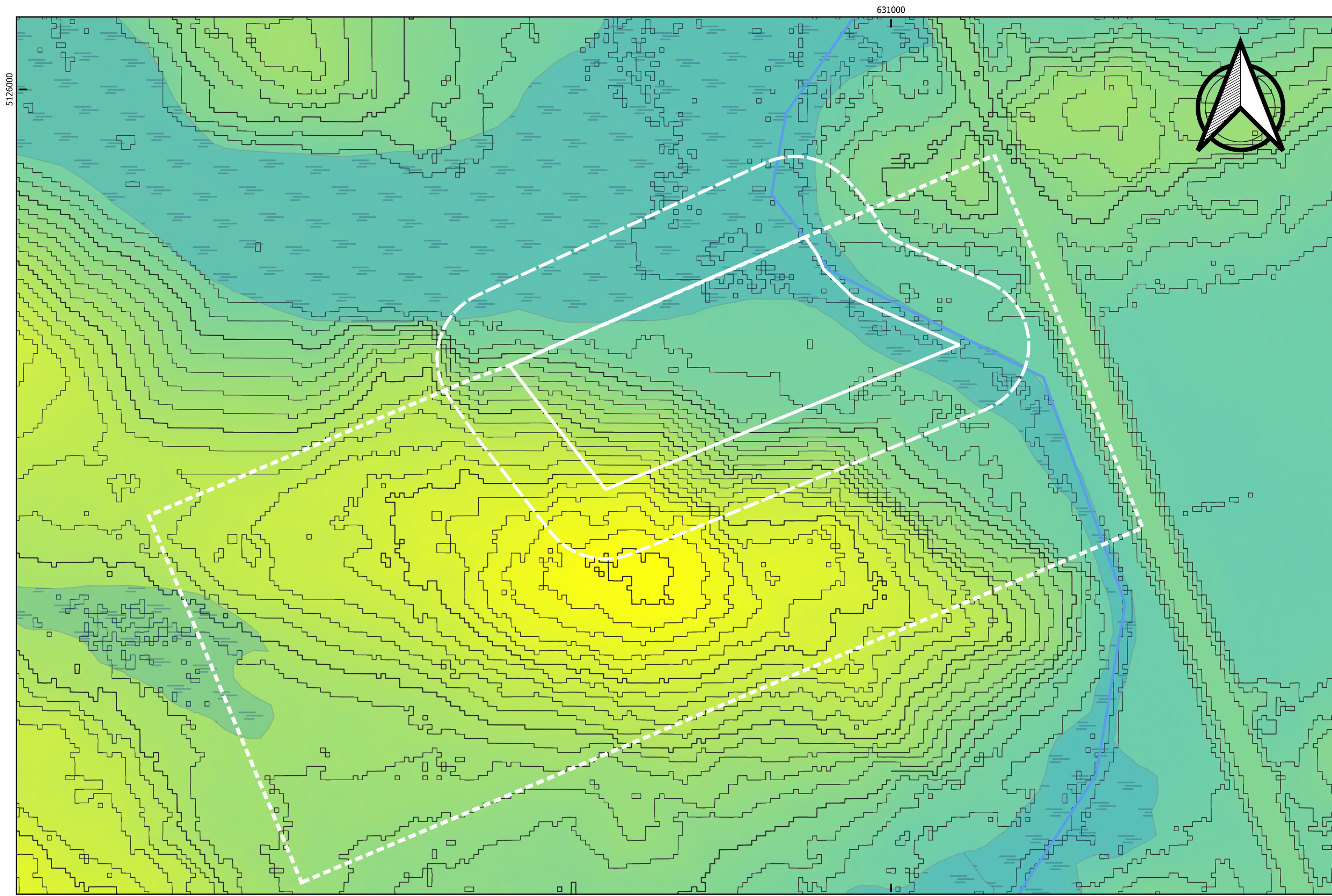
Wetland Approximation

Legend

- Area of Interest
- Study Area 30m
- Full Site
- Soil WPs
- Expected Wetland Waypoints
- Expected Wetland
- 15m
- 30m



Figure 2
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Project: 250912
Notes: Site boundaries are approximate.



**162 HWY 94 Corbeil
Steve Brunette**

Provincial LIO and DEM Data (See Notes)

Legend

- Approximate Site Boundaries
- OHN Watercourse
- LIO Wetland

DEM Elevation Intervals

- 1m
- 5m

DEM Elevation (m ASL)

- 240
- 218



Figure 3
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Project: 250912
Notes: Approximate Site Boundaries. This data is derived from provincial sources and are not field verified. On-site observations in Figure 2 supersede this data.

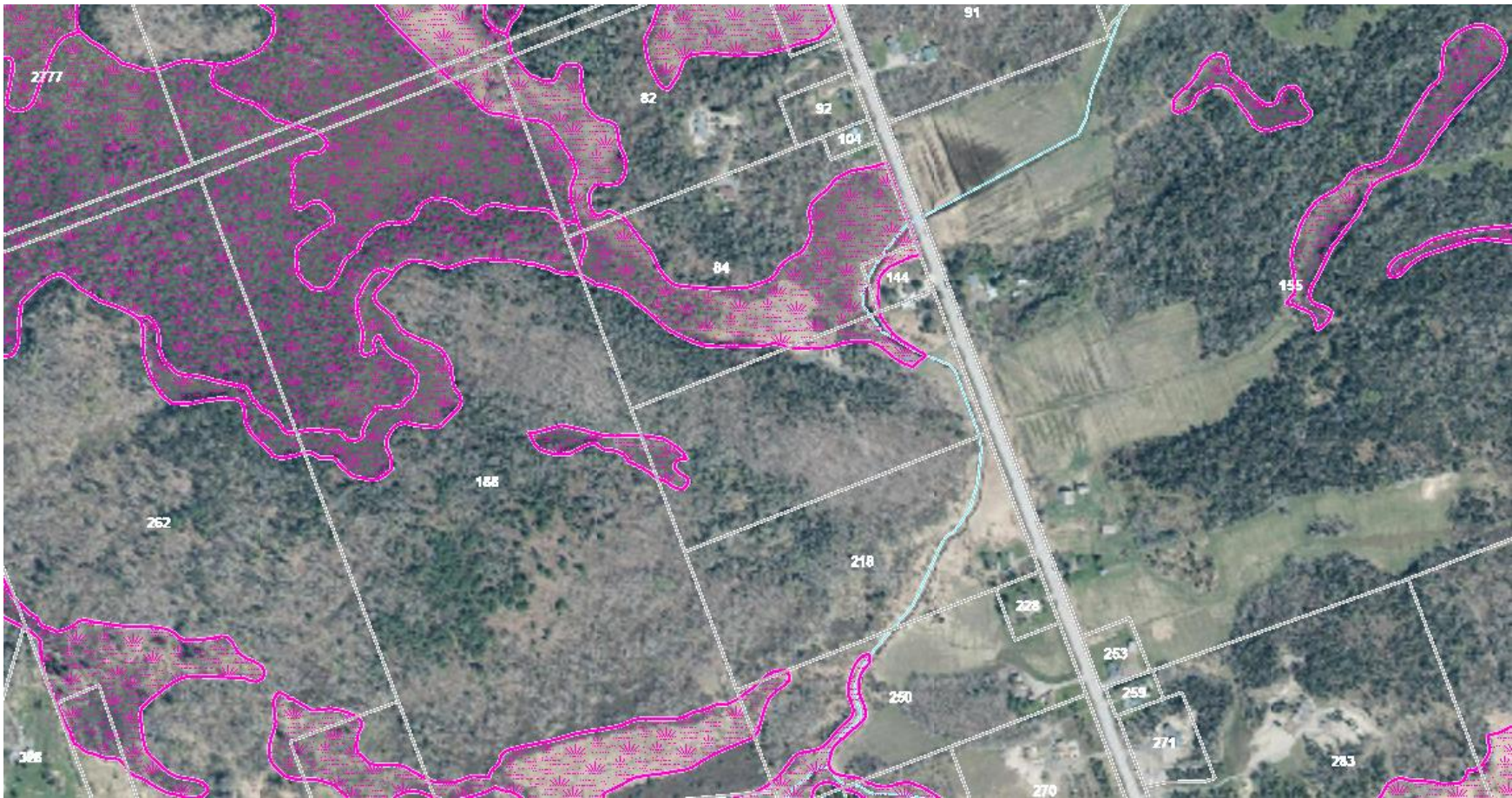


Figure 4 – North Bay Mattawa Conservation Authority regulated areas mapping for the Site. Note that conservation authority mapping is generally not field verified and therefore prone to inaccuracies Mapping tool is available at: https://co-geo.nvca.on.ca/Html5Viewer/index.html?index.html?viewer=NBMCA_Public.NBMCA_On-line_Mapping_Tool

Attachment II
Photos



Photo 1: Tall tree swamp east of filled area.



Photo 2: Ecotone between tall tree swamp and tall shrub swamp.



Photo 3: Tall shrub swamp north/northeast of filled area.



Photo 4: Narrow leaved emergent marsh north of filled area.



Photo 5: Soil profile 1.



Photo 6: Soil profile 2.



Photo 7: Soil profile 3.



Photo 8: Soil profile 4.



Photo 9: Upland dry to fresh coarse: spruce-fir conifer south of filled area (G052Tt).



Photo 10: Transition between tall shrub swamp and filled area.

