NATURAL ENVIRONMENT

TECHNICAL REPORT

PREPARED FOR

JT Excavating Ltd.
Aggregate Resources Act Application

JT Pit

Part Lot 22, Concession 5 NDR
Geographic Township of Bentinck
Municipality of West grey, County of Grey

PREPARED BY

AWS

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1 Introduction

JT Excavating Ltd. has proposed to establish a new gravel Pit, known as 'JT Pit' within its land holding of Lot 22, Concession 5 NDR, geographic Township of Bentinck, Municipality of West Grey, County of Grey. The full property is 41.16 ha (101.7 ac) having Assessment Roll Number 420528000604300 with the county property parcel report provided under Appendix 1 and the property location provided on Figure1. The site is vacant farm dominated with cash crop fields with a narrow forested strip bisecting the central lands and forested lands along the north property limit.

The Aggregate Resources Act (ARA) application is for extraction above water, with the Site Plan designs by GM BluePlan Engineering. In the context of this report the full property is referred to as the 'Study Lands' and the ARA 120m adjacent lands are referred to as the 'Site Lands', however; the Licence Lands are smaller and within the Study Land. The Study Land area being larger aided in field assessment of key features and ecological functions of the adjacent northerly woodland within the full property. The term, 'Adjacent Lands', refers to the prescribed areas adjacent to natural heritage features and the 120m adjacent review lands under the ARA, and for Provincial Natural Heritage Policies and the Grey County Official Plan policies.

Aquatic and Wildlife Services (AWS) Environmental Consulting Inc. was retained in the spring of 2021 to undertake the required environmental survey works within the Study Land in support of this ARA application and to address Natural Heritage policies of the Provincial Policy Statement and Official Plan of Grey County.

1.1 NETR Guidelines

This Natural Environment Technical Report (NETR) Level I & II has been undertaken to meet the requirements of the Aggregate Resources Act, 1997 and the updated Aggregate Resources of Ontario Standards under Ontario Regulation 244/97. This report will follow the Provincial Policy Statement of 2020 for Natural Heritage 2.1 features and the reporting format, requirements as outlined within the Provincial Natural Heritage Reference Manual, Second Edition March 2010 and the ARA Standards of August 2020. Additionally, a review of the environmental policies of the Grey County Official Plan has also been provided, thus in essence this report also meets the technical requirements of an Environmental Impact Study (EIS).

Note: For this NETR text, all *Italic writing* sections are direct quotes from referenced documents and reports, other than Latin/Scientific names for species.

This NETR is a combined Level 1 - Significant Feature Analysis & Level 2 - Impact Assessment; in accordance to the Aggregate Resources Act (ARA) requirements plus an expanded broader landscape literature review extending 5km's beyond the Study Land for review of Species-At-Risk. This technical reporting format incorporates a literature background review, air photo review, supporting technical reports and on-site detailed field inventory works to address planning and licence amendment concerns through an 'Impact Assessment' approach relating to natural heritage features and/or ecological functions.

The Aggregate Resources of Ontario: Technical Reports and Information Standards of August 2020 for section 2.2 Natural Environment Report which represents a Level 1 report review, states:

> *The report must identify any of the following natural heritage features and areas that exist on the site and within 120metres of the site…*

The ARA Natural environment report which represents a Level 2 or Impact assessment, states:

> *Where any of the above features (section 2.2 (a) through (g)) or areas have been identified, the report must identify and evaluate any negative impacts on the natural features or areas, including their ecological functions, and identify any proposed preventative mitigative or remedial measures. The report must also identify if the site or any of the features, included in a through (g), are located within a natural heritage system that has been identified by a municipality in Ecoregions 6E and 7E or by the province as part of a provincial plan.*

AWS field survey methodology outlined under section 2 and investigation dates, weather conditions outlined under Table No. 1, are in accordance to accepted survey protocols, guidelines and in compliance with the ARA standards.

2 Study Works

2.1 Study Land

The proposed gravel pit licence lands are refered to in the context of this technical report as the '**Study Land**' delineated on Figure 2. With the adjacent surrounding 120m lands referred to as the '**Site Lands**' also delineated on Figure 2. Field habitat assessment of the adjacent inaccessible Site Lands (other private land ownership) was undertaken through observations along property lines, roadside and air photo interpretation. A broader landscape review, which extends 5km's from the Study Land is included as background literature/data search of historical significant flora and fauna records, with findings provided under Appendix 2.

2.2 Background Review

A literature review and a data search was conducted to aid in the identification of natural heritage features within the Site Lands and historical occurrence records for significant flora and fauna extending 5km's from the Study Land, provided under Appendix 2. This background review was utilized to augment field data collection for the NETR process. A full listing of reports / documents cited has been provided within the reference section 22.

2.3 Field Study Methodology

NETR field investigations and data collection for this report were carried out in March then from April to September 2021 providing three-season coverage for search effort. Field survey methodology followed provincial standards and accepted guidelines and environmental impact study guidelines for the County of Grey and Saugeen Valley Conservation Authority. Details of survey focus works and dates are provided in Table No. 1.

- A qualified two-person team comprised of John Morton and Judith Jones from AWS Environmental Consulting (see Appendix 9), completed the natural environment field inventory and assessment works within the Study Land.

Vascular Plant Surveys were conducted during the growing seasons (spring and summer) of 2021. A complete list of species with conservation ranking, status levels and Floristic Quality Scores is provided in Appendix 3. Naming and taxonomy follow the VASCAN database (Brouillet et al. 2010). Survey works followed two standardized search methods:

i. A 'transect-grid' approach was completed over the forested upland and wetland areas of the Study Land, with transect lines spaced 30m apart in both north-south and west-east orientations. Transect lines were followed using hand-held compasses, with all observed vascular plants recorded.

ii. Random coverage search methods were undertaken within all vegetation community types, habitat transitional edges and all sensitive lands (wetlands, water courses) within the Study Land and portions of the accessible adjacent Site Lands (same property ownership).

General Fauna Surveys within the Study Land included specific searches and/or investigation for amphibians, breeding birds, hibernation emergence and gestation activity for snakes, turtles and nesting habitat, general searches for mammals and movement corridor functions. A full summary list of all recorded fauna species over the study period has been provided under Appendix 4 with current rankings, status levels and highest bird breeding codes observed.

1) Bird Surveys for the Subject Lands followed several standardized search methods:

a) Monitoring activity included a 'Point Count' methodology for breeding activity in accordance to Bird Studies Canada for Woodland habitat. Point Count Locations were established to cover all habitat types within the Study Lands, with no point count location closer than 100m (limited overlapping of potential territories). Occurrences were recorded through both sightings and calling for a total of 5-10 minutes at each point count location in the early morning hours (dusk to 10:40am).

b) Additional bird observations of feeding adults and fledglings during summer site visits were also recorded and listed under Appendix 4 as observations outside the breeding season.

2) **Herpetofaunal Surveys** were conducted throughout the Study Land but were focused within suitable habitat areas; riparian woodlands, wetland-upland transition zone, water courses and scattered rock piles.

   a) Preliminary habitat investigation did identify suitable candidate amphibian breeding habitat within the Study Land, as such Anuran night time Calling Survey works were undertaken during the early and mid spring breeding activity period. No suitable habitat for late season breeding season species was identified.

   b) Preliminary habitat investigation did note minor potential for Turtle habitat-egg laying; as such surveys were undertaken during the active egg laying period along with other general fauna activity survey works.

   c) Reptiles-Snake activity was actively searched for during the spring hibernation emergence period, summer gestation period and forage activity periods within suitable habitat areas.

3) **Mammal** sightings or observations of habitat use (tracks, scat) were recorded during all other flora and fauna investigation work during site visits in 2021. Specific searches plus random coverage across the Study Land was undertaken in the spring season when soil conditions were 'moist' for potential track identification and habitat usage.

4) **Fish Community** survey works were limited given the water course features, but active searches for fish were undertaken through observation during the high flow period.

2.4 Field Survey Dates and Focus of Works

Table No. 1: Field Survey Dates

Date	Search Time & Effort	Starting Weather Conditions	Survey Focus
March 17, 2021	1300 to 1400 For 1.0 hrs	Air Temp. = 2 C Wind Speed = 3-6 km/hr Precipitation = 0, Cloud Cover = 25%,	Overwintering survey for Raptor activity
April 23, 2021	1100 to 1230 For 1.5 hrs	Air Temp. = 12 C Wind Speed = 12-19 km/hr Precipitation = 0, Cloud Cover = 25%,	Reptile hibernation emergence, Amphibian breeding activity, Stick nests and Hydrology.
April 29, 2021	2100 to 2115 For 0.25 hrs	Air Temp. = 6 C Wind Speed = 6-12 km/hr Precipitation = 0, Cloud Cover = 50%,	First night time Anuran Calling Survey, Bat forage activity. Owl nesting/calling survey
May 6, 2021	0900 to 1030 For 1.5 hrs	Air Temp. = 8 C Wind Speed = 0-3 km/hr Precipitation = 0, Cloud Cover = 25%,	Reptile hibernation emergence, General Fauna, Cavity trees
May 19, 2021	1515 to 1630 For 1.25 hrs	Air Temp. = 20 C Wind Speed = 12-19 km/hr Precipitation = 0, Cloud Cover = 50%	Reptile hibernation emergence & forage & egg mass searches, General Fauna
May 19, 2021	2200 to 2215 For 0.25 hrs	Air Temp. = 12 C Wind Speed = 6-12 km/hr Precipitation = 0, Cloud Cover = 25%,	Second night time Anuran Calling Survey, Bat forage activity
June 3, 2021	0900 to 1030 For 1.5 hrs	Air Temp. = 16 C Wind Speed = 6-12 km/hr Precipitation = 0, Cloud Cover = 75%	First breeding Bird survey, General Fauna
June 20, 2021	0600 to 0615 For 0.25 hrs	Air Temp. = 21 C Wind Speed = 3-6 km/hr Precipitation = 0, Cloud Cover = 50%	Open Country habitat only: breeding Bird survey.
June 29, 2021	0900 to 1030 2 person crew For 3.0 hrs	Air Temp. = 25 C Wind Speed = 6-12 km/hr Precipitation = 0, Cloud Cover = 25%	Third breeding Bird survey, Spring Flora Inventory, Turtle & egg laying survey
July 19, 2021	0830 to 1000 For 1.5 hrs	Air Temp. = 19 C Wind Speed = 0-3 km/hr Precipitation = 0, Cloud Cover = 50%	Snake gestation activity, General Fauna
August 16, 2021	1330 to 1630 2-Person Crew For 6.0 hrs	Air Temp. = 24 C Wind Speed = 6-12 km/hr Precipitation = 0, Cloud Cover = 50%	Summer Flora Survey, Hydrology, Vegetation / ELC, Snake gestation activity, General Fauna

Site investigations covered the winter of 2021, spring and summer growing seasons of 2021, with eleven site visits providing 18.0 hours of field inventory work within the Study Land and immediate adjacent lands. Point Count location mapping for Anuran and Breeding Bird surveys are provided under Appendix 4.

3 Vegetation Community Characterization

Vegetation community boundaries within the Site Lands are depicted on Figure No. 7. They were mapped and defined in the field based upon the 'Ecological Land Classification (ELC) for Southern Ontario, First Approximation', with ELC types, ranking and characterization provided in the below table.

Table No. 2: Vegetation Communities Types - ELC Codes

Vegetation Community No.	ELC Code	Type	Description	Provincial Designation
1	FOD5-6	Dry-Fresh Sugar Maple-White Ash Deciduous Forest	Mature aged stand with closed upper canopy. Abundant lower canopy of Prickly Ash, Ground cover at 30% mixed herbs. Stand Averages: B.A.= 24 sq.m/ha, Height = 22m, Main trees= 20cm dbh, Average crown diameter of edge trees is 7-8m.	S5
2	CUP3-2	White Pine Coniferous Plantation	Mature aged stand with closed upper canopy. Little regeneration or ground cover noted, with average crown diameter of edge trees at 6-7m and tree height of 20m.	S5
3	CUM1-1	Dry-Moist Old Field Meadow	Open old field with scattered tree saplings and shrubs	S5
4	FOM7-2	Fresh-Moist White Cedar-Hardwood Mixed Forest Type	Mature aged stand with closed upper canopy, Ground cover at 50% of Graminoids and Forbs. Stand Averages: BA = 16 sq.m/ha, Avg. diameter = 20cm, Height = 20m, Average crown diameter of edge trees ranges from 4m-5m.	S5
5	MAM2-2	Reed-canary Grass Mineral Meadow Marsh	Dense grass with patchy growth of Trees and Tall Shrubs, seasonally flooded	S5
6	SWD3-1	Red Maple Mineral Deciduous Swamp	Mature aged stand with closed upper canopy, dense but patchy ground cover at 50% forbs. Stand Avg. BA = 20 sq.m/ha, Avg. diameter = 26cm, Upper Canopy height = 24m. Seasonally flooded	S5
7	SWM1-1	White Cedar-Hardwood Mineral Mixed Swamp	Mature aged stand with closed upper canopy. Off site community	S5

Significant Feature Analysis (Level 1)

The following Natural Heritage Features as defined by the Provincial Policy Statement 2.1 and those listed under section 2.2 of the Aggregate Resources of Ontario Standards have been researched on available reports, data banks, maps etc. currently available through Municipal, Provincial and Federal agencies for the Site Lands.

4 Habitat of Endangered and Threatened Species

A literature search for historic records of Endangered and Threatened species has been undertaken for the surrounding landscape, extending 5km's from the Study Lands, utilizing the Species At Risk in Ontario (SARO) listings maintained by the Ontario Ministry of Natural Resources (OMNR); and the national lists maintained by Environment Canada (i.e. Committee on the Status of Endangered Wildlife in Canada (COSEWIC)). As input to this work and in conjunction with field investigations, a review was undertaken of the Natural Heritage Information Centre (NHIC) web site findings (see Appendix 1), along with published resources of the OMNRF.

The Provincial Policy Statement (PPS) section 2.1.7 states:

> *Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.*

The NHIC historical data record search identified seven fauna Species-At-Risk (SAR) in the search coverage area. A review of provincial habitat description and on-site field assessed Study Lands habitat suitability are provided below:

Eastern Meadowlark

- Provincial habitat description: *Eastern Meadowlark require open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10 ha in size*

- Study Land habitat: Suitable habitat within vegetation community 3 and along fence lines however: on-site habitat is well below provincial threshold level. Intensive on-site breeding bird survey works did not record this species within the Study Land (see Appendix 3). As such no negative impacts to the breeding population of this bird will be incurred from the proposed aggregate extraction plan. Therefore it can be concluded that site development will be in-compliance with the Endangered Species Act, 2007 for this bird species and no further review is deemed required.

Bobolink

- Provincial habitat description: *Bobolink require large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha.*

- Study Land habitat: No suitable habitat within the Study Land to provincial description. Intensive on-site breeding bird survey works did not record this species within the Study Land (see Appendix 3). As such no negative impacts to the breeding population of this bird will be incurred from the proposed aggregate extraction plan. Therefore it can be concluded that site development will be in-compliance with the Endangered Species Act, 2007 for this bird species and no further review is deemed required.

Bank Swallow

- Provincial habitat description: *Bank swallows nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs.*

- Study Land habitat: No suitable habitat within the Study Land to provincial description. Intensive on-site breeding bird survey works did not record this species within the Study Land (see Appendix 3). As such no negative impacts to the breeding population of this bird will be incurred from the proposed aggregate extraction plan. Therefore it can be concluded that site development will be in-compliance with the Endangered Species Act, 2007 for this bird species and no further review is deemed required.

Restricted Species

- ID numbers 904872 and 904882
- SAR Ontario was contacted: Species was not observed during 2021 site investigations within the Study Land, nor is there suitable habitat within the Study Lands (habitat is anticipated to be directly associated with the Saugeen River floodplain area). Thus there are no implications under ESA 2007 or further review is deemed required for this restricted species.

On-site investigations within the Study Land were undertaken for flora and fauna that are currently listed under the Endangered Species Act (ESA). For the Study Land, observed vascular plants are recorded under the flora listing of Appendix 3 and observed or evidence of fauna are recorded under the listing been provided in Appendix 4. Through intensive on-site survey works, one tree Species-At-Risk (SAR) was identified within the Study Land: Black Ash which has an 'Endangered' status in Ontario.

Through this analysis of historical data and on-site investigations it has been confirmed that one species currently having an endangered status is present within the Study Land. Therefore further review and impact assessment is warranted and provided under reporting section 14.

5 Fish Habitat

The Ontario Base Mapping layer for the Site Lands (Figure 3) identifies a watercourse commencing within the central-west side ravine lands. This watercourse is also identifiable through air photo imagery (Figure 2) and documented on Official Plan mapping, Zoning and Conservation Authority regulatory lands mapping. On-site field investigations confirmed the presence of a seasonal/intermittent stream commencing within vegetation community 5 (wetland environment), with water flow in a westerly direction through vegetation community 6 until reaching the main Saugeen River approximately 350m west of the properties westerly limit.

Throughout the study period, no fish were observed at any time within this watercourse which averaged 8cm in depth by 20cm in width during peak flow period. The channel composition was primarily silt with numerous locations of woody debris creating blockages. During the spring run-off period, surface waters flooded throughout vegetation community 6 creating ideal shallow waters suitable for amphibian breeding habitat. By late June the watercourse channel had become a series of standing pools, and by mid-July no surface waters were observed, only moist soil conditions. As such, no Fish Habitat as defined under the Federal Fisheries Act, was identified within the Study Land for this watercourse. This watercourse provides in-direct Fish Habitat within the main Saugeen River only, through nutrient loading

The Provincial Policy Statement (PPS) Natural Heritage section 2.1.6 states:

> *Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.*

The PPS Natural Heritage section 2.1.8 states:

> *Development and site alteration shall not be permitted on adjacent lands* (120m*) to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*

The Grey County Official Plan policy 7.9.2 in part states:

> *No development will be permitted within 30 metres of the banks of a stream, river, or lake unless….*

The on-site Ravine feature is the headwaters area of this intermittent watercourse, with groundwater recharge functions along its adjacent lands and up-gradient into vegetation community 3. The Ravine associated woodlands not only provide fauna habitat but also steep slope stability and nutrient loading source to the watercourse. To maintain no negative impact to off-site fish habitat and to maintain the ecological function of this watercourse, it is recommended that the limit of extraction for aggregate removal and/or pit operations maintain a minimum 30m setback from the Ravine feature woodlands. This setback width would be in-compliance with the County Official Plan noted policy and the noted PPS policies of no negative impact to the identified ecological function this watercourse provides to the off-site Fish Habitat and water resources to the receiving waters of the Saugeen River

With **no** Fish Habitat confirmed within the Study Land and with no adverse alterations to the watercourse or its ecological functions it can be concluded that this ARA application will be in compliance with the Federal Fisheries Act, the PPS 2.1.6, 2.1.8 and similar Official Plan policies. Therefore, no further assessment in relation to Fish Habitat is deemed required.

6 Significant Wetlands & Coastal Wetlands

A review of Provincially Significant Wetland (PSW) features within the Study and Site Lands has been provided on Figure 3, sourced through the provincial web site mapping for natural heritage. This mapping confirms that **no** evaluated significant wetland features have been designated within the Study or Site Lands.

The Provincial Policy Statement (PPS) section 2.1.4 (a and b) states:

> *Development and site alteration shall not be permitted in significant wetlands in Ecoregions 5E, 6E and 7E and significant coastal wetlands.*

With the Study Lands located within Ecoregion 6E, this policy is applicable.

The PPS Natural Heritage section 2.1.8 states:

> *Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*

With no evaluated Provincially Significant Wetlands or Significant Coastal Wetlands within the Study or Site Lands, it has been demonstrated and can be concluded that this ARA application is in compliance with the PPS 2.1.4 (a and b) and 2.1.8 and similar policies of the County of Grey Official Plan 7.3.1. Therefore no further review or impact assessment in regards to Provincially Significant Wetlands and Significant Coastal Wetlands is deemed required.

7 Significant Valleylands

Grey County has identified Significant Valleylands within its Natural Heritage System-Green in Grey, with area mapping provided on Figure 4B. This County O.P. constraint mapping **confirms** that a Significant Valleyland feature does occur within the Site Lands, but not within the Study Land.

The Provincial Policy Statement (PPS) section 2.1.5 (c) states:

> *Development and site alteration shall not be permitted in significant valleylands in Ecoregions 6E and 7E unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

The PPS section 2.1.8 for the adjacent lands to Significant Valleylands states:

> *Development and Site Alteration shall not be permitted on adjacent lands (*120m*) to the natural heritage features and areas identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*

The Grey County Official Plan policy 7.7.1 for Significant Valleylands states:

> *No development or site alteration may occur within Significant Valleylands or their adjacent lands (120m) unless it has been demonstrated through an environmental impact study that there will be no negative impacts on the natural features or their ecological functions.*

With the ARA licence lands located within the adjacent lands to a Significant Valleyland feature, further review and impact assessment is required and provided under reporting section 16.

8 Significant Areas of Natural and Scientific Interest (ANSI)

A review of Provincially Significant ANSI's was undertaken from OMNRF and Land Information Ontario web site mapping provided on Figure 3. This provincial mapping demonstrates that **no** significant ANSI features, either earth science or life science, occur within the Study Land or Site Lands.

The Provincial Policy Statement (PPS) Section 2.1.5 (e) states:

> *Development and site alteration shall not be permitted in significant areas of natural and scientific interest unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

The PPS Natural Heritage Section 2.1.8 for adjacent lands states:

> *Development and site alteration shall not be permitted on adjacent lands (120 m) to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*

Similar policy wording and intent for Significant ANSI's is within the Grey County Official Plan and the Municipality of West Grey Official Plan.

With **no** ANSI feature identified within the Study or Site Lands, it has been demonstrated and concluded that aggregate extraction and operations within the Study Land would be in compliance with the PPS 2.1.5 (e), 2.1.8 and the Grey County Official Plan policy 7.6.1. Therefore, no further review or impact assessment is deemed warranted for this feature.

9 Significant Woodlands

The County of Grey has undertaken countywide mapping for Significant Woodlands within its current Official Plan-Appendix B, with the study area mapping provided under Figure 4B. The County Official Plan mapping identifies woodlands within the Site Lands to have a 'Significant Woodland' designation, with no Significant Woodland designation within the Study Land itself.

The Natural Heritage Provincial Policy 2.1.5 (b) regarding Significant Woodlands states:

> *Development and site alteration shall not be permitted in significant woodlands in Ecoregions 6E and 7E unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

The Grey County Official Plan policy 7.4.1 states:

> *No development or site alteration may occur within Significant Woodlands or their adjacent lands unless it has been demonstrated through an environmental impact study, as per Section 7.11 of this Plan, that there will be no negative impacts on the natural features or their ecological functions.*

In review of the 2020 air photo imagery and on-site assessment of the woodlands in relation to the County significant woodland limits, concern was noted that the Significant Woodland feature was larger and could extend into the northern forested area of vegetation community 1. As such, further review has been provided within this technical report regarding candidate Significant Woodland within the Study Land area.

With a Significant Woodland feature identified within the Site Lands, and the ARA Licence within the 'adjacent land' to Significant Woodland and candidate Significant Woodland within the Study Land area, further review and impact assessment is required and provided under section 18, to demonstrate compliance with the PPS 2.1.8 and Grey County Official Plan policy7.4.

10 Significant Wildlife Habitat

Currently no mapping has been undertaken within Grey County to identify Significant Wildlife Habitat (SWH) due to its complexity and due to the sub-components that require on-site survey works. Some historical OMNRF inventory and wildlife assessments within Grey County have been checked to locate any previously determined confirmed SWH within the Study or Site Lands. NETR field inventory works carried out over the Study Land shall augment this historical data to aid in the determination of significance for each wildlife habitat sub-component.

The Ontario Ministry of Natural Resources and Forestry published in January 2015 "Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E" as a supplement document to the 2000 Significant Wildlife Habitat Technical Guide (SWHTG). This supporting document provides a listing of candidate and criteria or threshold levels to confirm the presence of significant wildlife habitat within Ecoregion 6E with MNRF-Land Information Ontario identifying that the subject lands are situated within Ecoregion 6E. Some historical Provincial MNRF inventory and wildlife assessment works within Grey County (Green in Grey Natural Heritage System) have been sourced to aid in determination of confirmed SWH.

The subject Study Land is within the provincial Ecoregion 6E area. Provided below is a review of Ecoregion 6E criteria for candidate SWH, a review of threshold levels and any confirmed SWH for the Study Land. This review follows the Natural Heritage Reference Manual, 2010 (NHRM), flow chart of Figure No. 9-1 for the identification and confirming Significant Wildlife Habitat.

NHRM Flow Chart for Identifying and Confirming SWH

Step 1

- *A: Does the area involve trigger for SWH?*
    - Yes, there are Natural Heritage feature designations within the Site Lands as shown on Official Plan mapping Figure 4B and Zoning mapping Figure 5.
- *B: Is any confirmed SWH identified?*
    - None historically confirmed however; Study Land could support candidate habitat given site features of; diverse woodland habitats, seasonal water course feature and small wetland feature.

Step 2

- *ELC for Site and within 120m*
    - Completed, see section 3 and Figure 7.
    - ELC types within the Site Lands could support SWH (woodlands & wetland types).

Step 3 and Step 4

- *Identification of candidate SWH and determination of candidate or confirmed SWH*
    - Ecoregion 6E criteria review provided below for the Study & Site Lands.

10.1 Seasonal Concentration Areas of Animals

A summary review of the Table 1.1 Criterion is provided below:

- Waterfowl Stopover and staging (Terrestrial)
    - No criteria waterfowl species were observed during the study period.
    - ELC criteria code CUM1 is present but no seasonal flooding occurs (along steep sloped ravine).
    - Criteria species or aggregate numbers or identifiable suitable habitat not met.
    - No confirmed SWH.
- Waterfowl Stopover and staging (Aquatic)
    - No criteria waterfowl species were observed during the study period.
    - ELC criteria code SWD3 is present but no activity and too small of a habitat area to support large aggregations of waterfowl.

- Criteria species or diversity or aggregate numbers or suitable habitat not met.
- No Confirmed SWH.

- Shorebird Migratory Stopover
  - No criteria shorebird species were observed during the study period.
  - ELC criteria code MAM2 is present but no activity and too small of a habitat area to support large aggregations of shorebirds.
  - Criteria species diversity or aggregate numbers or suitable habitat not met.
  - No confirmed SWH.

- Raptor Wintering Area
  - No criteria raptor species were recorded during the overwintering on-site survey.
  - ELC criteria Forest codes: FOD and FOM are present and Open Upland criteria code: CUM are present.
  - Criteria species diversity or aggregate numbers not met, habitat areas within the Study Land does not meet criteria of >20ha and no preferred habitat type of 'least disturbed idle/fallow or lightly grazed field meadow lands'
  - No confirmed SWH.

- Bat Hibernacula
  - No bat species were observed or evidence noted during the study period.
  - No ELC criteria codes present.
  - No confirmed SWH.

- Bat Maternity Colonies
  - No bat species were observed during the study period, including night survey activity monitoring during amphibian calling survey.
  - ELC criteria codes FOD, FOM and SWD are present. However; no extraction or site alterations are proposed within any of the forested environment of the Study/ARA Licence Lands. Thus with no habitat impacts occurring and mitigative buffers/setback in-place to maintain no negative impacts to candidate supporting habitat, no intensive or further Bat investigations or impact assessment is required.
  - No confirmed SWH or any negative impacts anticipated to potential habitats.

- Turtle Wintering Areas
  - No criteria turtle were species observed during the study period.
  - ELC criteria codes: SW and MA are present, but no deep organic soils identified that would function as overwintering turtle habitat.
  - Species criteria numbers or diversity or suitable habitat not met.
  - No confirmed SWH.

- Reptile Hibernaculum
  - No criteria snake species were observed during the site investigations during the hibernation emergence activity period.
  - Minor suitable habitat within vegetation community 4 was noted, but no activity recorded.
  - Species diversity, numbers, congregations not met.
  - No confirmed SWH.

- Colonially-Nesting Bird Breeding Habitat: Bank and Cliff
    - No criteria bird species were observed during the study period.
    - ELC criteria code: CUM1 is present but no exposed soils along the steep slope (abundant groundcover of shrubs and dense grasses a deterrent).
    - Species criteria numbers or diversity or suitable habitat not met.
    - No confirmed SWH.

- Colonially-Nesting Bird Breeding Habitat: Tree/Shrub
    - No criteria bird species were observed during the study period.
    - ELC criteria code SWD3 is present but no nesting activity.
    - Species criteria numbers or diversity or suitable habitat not met.
    - No confirmed SWH.

- Colonially-Nesting Bird Breeding Habitat: Ground
    - No criteria bird species were observed during the study period.
    - ELC criteria code MAM2 and CUM are present but no nesting activity.
    - Species criteria numbers or diversity or suitable habitat not met.
    - No confirmed SWH.

- Migratory Butterfly Stopover Areas
    - No criteria butterfly species were observed during the study period.
    - The Site Lands are not located within 5km of Lake Ontario or Lake Erie (criteria site locations).
    - No confirmed SWH.

- Landbird Migratory Stopover Areas
    - Migratory songbird species were confirmed during the study period.
    - The Site Lands area not located within 5km of Lake Ontario or Lake Erie (criteria site locations).
    - No confirmed SWH.

- Deer Yarding Areas
    - Province determines this habitat. Former MNRF has identified and mapped wintering deer yards within Grey County and no such habitat designation is identified within the Site Lands through Land Information Ontario.
    - No confirmed SWH.

- Deer Winter Congregation Areas
    - Within Grey County, deer are typically constrained by snow depths thus yarding habitat is used rather than congregation areas. Congregation areas are typically associated with Carolinian regions, thus not a SWH function in Grey County.
    - No confirmed SWH.

10.2 Rare Vegetation Communities

A summary review of the Table 1.2.1 Criterion is provided below:

- Cliffs and Talus Slopes
  - No ELC criteria code types present within the Site Lands.
  - No confirmed SWH.

- Sand Barren
  - No ELC criteria code types present within the Site Lands.
  - No confirmed SWH.

- Alvar
  - No ELC criteria code types present within the Site Lands.
  - No confirmed SWH.

- Old Growth Forest
  - ELC criteria code types: FOD, FOM and SWD are present within the Study Land.
  - Provincial Habitat description criteria for 'Old Growth Forest' community not present (tree sizes, density, etc.) within the Study Lands or identifiable within the Site Lands.
  - No confirmed SWH.

- Savannah
  - No ELC criteria code types present within the Site Lands.
  - No confirmed SWH.

- Tallgrass Prairie
  - No ELC criteria code types present within the Site Lands.
  - No confirmed SWH.

- Other Rare Vegetation Communities
  - No identified vegetation communities with an S1, S2 or S3 ranking present within the Site Lands.
  - No confirmed SWH.

10.3 Specialized Habitat for Wildlife

A summary review of the Table 1.2.2 Criterion is provided below:

- Waterfowl Nesting Area
  - No criteria waterfowl species were recorded during the study period.
  - ELC criteria codes: MAM2 and SWD3 are present but no nesting activity.
  - Species diversity, nesting pair’s numbers for criteria thresholds not met.
  - No confirmed SWH.

- Bald Eagle and Osprey Nesting, Foraging and Perching Habitat
  - No criteria species were observed during the study period.

    - ELC criteria codes: FOD, FOM and SWD are present within the Study Land and open water of a large river (Saugeen) within the Site Lands, but no activity or old nests observed.
    - Species and numbers for criteria thresholds not met.
    - No confirmed SWH.

- Woodland Raptor Nesting Habitat
    - No criteria species were observed during the study period.
    - ELC criteria codes: FOD, SWD and FOM are present but no stick nests were identified during site investigations.
    - Species and numbers for criteria thresholds not met.
    - No confirmed SWH.

- Turtle Nesting Areas
    - No criteria species were observed during the study period.
    - No ELC criteria codes present. Though pockets of suitable exposed gravel along the agricultural road bisecting the ravine area was noted, no turte nesting activity was observed.
    - Species diversity or numbers for criteria thresholds or suitable habitat not met.
    - No confirmed SWH.

- Seeps and Springs
    - Criteria species were observed within the Study Lands.
    - No groundwater upwelling features of 'springs or seeps' were identified within the Study Land or identifiable through air photo interpretation for the Site Lands.
    - Criteria thresholds for seep/spring numbers are not met.
    - No confirmed SWH.

- Amphibian Breeding Habitat (Woodland)
    - One criteria species: Wood Frog was recorded during the spring breeding survey period.
    - ELC criteria codes: FOD, FOM and SWD are present within the Study Land.
    - Suitable breeding habitat identified, as such night time Anuran Calling Survey during the early and mid breeding season period were completed, with findings provided under Appendix 4. Population numbers recorded were below threshold criteria level of Code 3 and below threshold criteria level of at least 20 adult individuals.
    - Breeding population numbers and diversity for criteria thresholds are not met.
    - No Confirmed SWH.

- Amphibian Breeding Habitat (Wetlands)
    - Criteria species: Northern Leopard Frog was observed during the spring breeding survey period.
    - ELC criteria code: SW and MA are present.
    - Suitable breeding habitat identified, as such night time Anuran Calling Survey during the early and mid breeding season period were completed, with findings provided under Appendix 4. Calling codes and individual numbers were low and below the criteria threshold level of Code 3 or at least 20 adult individuals.
    - Breeding population numbers for criteria thresholds are not met.
    - No Confirmed SWH.

- Woodland Area-Sensitive Bird Breeding Habitat
    - Criteria bird species: Ovenbird was recorded during the study period within vegetation community 1.
    - ELC criteria code: FOD, FOM and SWD are present within the Study Land.
    - Species diversity (criteria of 3 or more) or nesting activity for Cerulean or Canada Warbler, not met.
    - No confirmed SWH.

10.4 Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)

A summary review of the Table 1.3 Criterion is provided below:

- Marsh Breeding Bird Habitat
    - No criteria bird species were recorded during the study period.
    - ELC criteria code: MAM2 is present but no nesting activity for criteria species.
    - Species diversity or nesting numbers or suitable habitat not met.
    - No confirmed SWH.

- Open Country Bird Breeding Habitat
    - No criteria bird species were recorded during the study period.
    - ELC criteria code: CUM1 is present but no nesting activity for criteria species.
    - Species diversity or nesting numbers or minimum suitable nesting habitat not met
    - No confirmed SWH.

- Shrub/Early Successional Bird Breeding Habitat
    - No criteria bird species were recorded during the study period.
    - No ELC criteria codes are present within the Site Lands.
    - Indicator or Common bird species or nesting numbers or minimum area (>10ha) not met
    - No confirmed SWH.

- Terrestrial Crayfish
    - No criteria species or evidence of chimneys was observed during the study period.
    - ELC criteria code: MAM2 and SWD are present.
    - Species diversity and nesting numbers for criteria thresholds not met
    - No confirmed SWH.

- Special Concern and Rare Wildlife Species
    - No vascular plants having a Special Concern or Provincially Rare status were recorded within the Study Lands (See Appendix 3).
    - One fauna having a Special Concern or Provincially Rare status was **confirmed** within the Study Land (See Appendix 4) of vegetation community 1: Eastern Wood-pewee
    - Historical NHIC data records (Appendix 2) had listed five species of conservation concern. A review of provincial habitat descriptions and on-site habitat characterization for each are provided below:

- Eastern Wood-pewee
  - Provincial habitat description: *The eastern wood-pewee lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation*
  - Study Land habitat: **Confirmed** on-site within vegetation community 1 during the breeding/rearing season.

- Snapping Turtle
  - Provincial habitat description: *permanent, semi-permanent fresh water; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water; often hibernate together in groups in mud under water; home range size ~28 ha.*
  - Study Land habitat: Minor suitable habitat identified within the Study Land wetland environment but given its seasonal surface waters, small area size and limited to no forage availability, the area provides no key life cycle habitat use. Species was not identified through intensive on-site investigations

- Eastern Ribbonsnake:
  - Provincial habitat description: *sunny grassy areas with low dense vegetation near bodies of shallow permanent quiet water; wet meadows, grassy marshes or sphagnum bogs; borders of ponds, lakes or streams; hibernates in groups*
  - Study Land habitat: No suitable habitat identified, vegetation community 5 is 'dry' from late spring till early fall season. On-site intensive investigations did not record this species. No site development or alterations proposed from the ARA application to this habitat area.

- Flooded Jellyskin:
  - Provincial habitat description*: In Canada, most of the extant populations of the Flooded Jellyskin Lichen are in north temperate to boreal regions that are at least partly forested. Small, seasonal ponds with a fringe of flood tolerant trees or shrubs, and rocky lakeshores and waterways support the lichen (COSEWIC 2004)*
  - Study Land habitat: Marginal habitat identified within the Study Land vegetation community 5. This lichen species is associated with water tolerant hardwood trees like Black Ash and Poplar. On-site investigations did not observe this species. Potential habitat has been protected due wetland and Black Ash-endangered species status. Thus no negative impacts are anticipated.

- Hart's-tongue Fern
  - Provincial habitat description: *American Hart's Tongue Fern grows on calcareous rocks in deep shade on slopes in deciduous forest. Most Ontario occurrences are in maple-beech forest. Established plants can grow in exposed, rocky crevices and on outcrops, but*

moist, mossy areas seem to be essential for spore germination and early plant development.

- Study Land habitat: No suitable habitat was identifiable within the Study Land or immediate adjacent Site Lands. On-site flora inventory works did not recorded this species within the Study Land.

- **Confirmed SWH for Eastern Wood-pewee.**

10.5 Animal Movement Corridors

A summary review of the Table 1.4.1 Criterion is provided below:

- Amphibian Movement Corridors
  - With no confirmed SWH for amphibian breeding identified through the Table 1.1.1 (section 10.3), as per the guidelines, movement corridor delineation is not required within the Study Land.
  - No confirmed SWH**.**

- Deer Movement Corridors
  - With no confirmed SWH for deer overwintering habitat identified through the Table 1.1.1 (section 10.3), as per the guidelines, movement corridor delineation is not required within the Study Land.
  - As per the guidelines, no movement corridor delineation is required.
  - No Confirmed SWH.

10.6 Exceptions for Ecoregion 6E

A summary review of Provincial Criteria Table 1.5.1 is provided below:

- Mast Producing Areas
  - Candidate areas are only within Sub-EcoDistrict 6E-14, the Upper Bruce Peninsula. Study Land is within Sub-EcoDistrict 6E-4, Lower Grey County.
  - No confirmed SWH.

- Sharp-tailed Grouse
  - Candidate areas are only within Sub-EcoDistrict 6E-17, for Manitoulin Island.
  - No confirmed SWH.

In summary for this review of Ecoregion 6E criteria schedules, Significant Wildlife Habitat has been confirmed for Eastern Wood-pewee within vegetation community 1 of the Study Land.

Step 4 Conclusion

- *Does the area contain one or more candidate or confirmed SWH*

  - **Yes.**
  - *Option 1: Protect confirmed SWH*
    - Undertaken through the Level 2 impact assessment provided.
  - Option 2: *Evaluate further through more detailed investigation*

The Natural Heritage Provincial Policy 2.1.5 (d) states:

> *Development and site alteration shall not be permitted in significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

Natural Heritage Provincial Policy 2.1.8 regarding the adjacent lands (120m) for significant wildlife habitat states:

> *Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.3, 2.1.4 and 2.1.5 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*

The Grey County Official Plan policy 7.10 in part states:

> *Development and site alteration is not permitted within, SWH (including Deer Wintering Yards), and their adjacent lands (120m), unless it has been demonstrated through an acceptable environmental impact study… that there will be no negative impacts on the natural features or their ecological functions*

With Significant Wildlife Habitat **confirmed** within the Study Land, further review and impact assessment is warranted and provided under reporting section 17.

11 Area of Provincial Plans

The subject Study Land is **not** situated within any of the Provincial Plans of; Oak Ridges Moraine Conservation Plan, Greenbelt Plan, A Place To Grow Growth Plan for the Greater Golden Horseshoe, Niagara Escarpment Plan or the Lake Simcoe Plan.

As such no further review or land use planning concerns for the proposed ARA Application in relation to the aforementioned Provincial Plans is required.

12 Other Key Natural Heritage Features

The County of Grey has undertaken a Natural Heritage Study (2017 Green in Grey) which has delineated Core and Linkage habitat areas of County concern. Mapping of the surrounding landscape has been provided under Appendix 5 which shows **no** Key Natural heritage core or linkage habitat within the Study Land or Site Lands.

Beyond the County Natural Heritage System, the County Official Plan mapping of natural environment features/constraints of Figure 4B shows a wetland feature within the ravine area of the west-central area of the Study Land. This unevaluated wetland is designated as 'Other Wetland' under the County Official Plan and as such is considered to be Locally Significant. With this Locally Significant wetland feature within the proposed ARA License Lands, further review and impact assessment is warranted and provided under reporting section 19.

13 Natural Heritage Feature Summary

Through the Natural Heritage significant feature analysis for the Site Lands, the following five features of impact assessment concern have been identified:

- Habitat for Endangered Species: Black Ash
- Adjacent lands to a Significant Valleyland
- Candidate Significant Woodlands
- Significant Wildlife Habitat: Eastern Wood-pewee
- Other Key N.H Features: Locally Significant Wetland

Further review of these features and their ecological functions has been provided within the 'Impact Assessment' (Level 2) component of the NETR. ARA operational design and constraints are identified with recommended mitigation measures in relation to the proposed development activity to maintain compliance with applicable Acts, Regulations, Legislation and Planning Policies.

Impact Assessment (Level 2)

14 Site Description

The Study Land is within the rural landscape of the Municipality of West Grey, with its Official Plan section A3 stating in part:

> *Lands located outside of these two settlement (*Durham and Neustadt*) areas (i.e. within the Municipality of West Grey but not shown on Schedules 'A' or 'B') are not subject to this local Official Plan, and therefore are covered directly by the County of Grey Official Plan.*

Therefore, with the Study Land not within the Municipalities two settlement areas, no direct Official Plan policies under the Municipality of West Grey apply to this ARA Application.

The Site Plan - Existing Features, page by GM BluePlan Engineering shows much of the current property topography and land use functions/features.

14.1 Development Proposal

The Licence Lands are outlined on the 'Site Plans' which are situated within and are smaller in area than the NETR Study Lands, with extraction operations focused within the existing cleared agricultural fields.

14.2 Hydrology and Hydrogeology

Within the Study Land, an intermittent watercourse is identifiable within the west half of the central ravine features. No other surface water features were identifiable within the Study Land through on-site investigations. Detailed hydrogeological assessment has been undertaken by GM BluePlan; with mitigative measures of extraction limits no maintain no adverse hydrogeology alterations to the wetland and/or watercourse headwaters area of the ravine area.

14.3 Terrain

See the Existing Features page of the Site Plan, which depicts the properties topographical information in greater detail than mapping within this NETR or Ontario Base Mapping.

Overall the extraction area of the Licence Lands is generally flat, with the fields south of the central Ravine having gentle slope to the west property limit, while much of the northern field has a gently slope to the north. Within the central area of the property/Study Lands there is the Ravine feature which has a west-east orientation with an elevation drop of approximately 8.5 meters from the adjacent fields.

15 Habitat for Endangered Species

15.1 Characterization

Black Ash was upgraded to 'Endangered' status in 2021 by the Committee on the Status of Species at Risk in Ontario (COSSARO) with official inclusion on the Species At Risk Ontario list on January 26, 2022. This species is currently listed federally as 'Threatened' and has No Schedule or Status under SARA (Species At Risk Act).

Mature trees, saplings and seedlings of Black Ash were recorded within the wetland environment of vegetation community number 5, with colony mapping provided on Figure 8

15.2 Impact Assessment

The Environmental Registry of Ontario posted the below Province of Ontario decision on January 27, 2022 regarding Black Ash under the Endangered Species Act, 2007:

> *We have made a new Minister's regulation (*O. Reg. 23/22*) that temporarily pauses the application of the general prohibitions against adversely impacting species and their habitat in the under the* Endangered Species Act, 2007 *(ESA) to Black Ash for two years from the time when it is added to the Species at Risk in Ontario List (SARO List) regulation (*O. Reg. 230/08*). The regulation came into force on January 26, 2022.*
>
> *The ministry will use this time to gather relevant information to determine the best way to protect and recover Black Ash., including how to protect Black Ash by managing invasive Emerald Ash Borer taking into account the social and economic realities of Ontarians.*

We remain committed to engaging with stakeholders, Indigenous communities and the public as part of continued efforts to protect and recover species at risk in Ontario.

Details about the new regulation:

- *The regulation includes an order to temporarily pause the application of the prohibitions in sections 9 and 10 of the ESA against harming the species or its habitat for a period of two years from the time that Black Ash is added to the SARO List regulation.*
- *The temporary pause applies across Ontario.*
- *The reason for the temporary suspension is that the application of the prohibitions would likely have significant social or economic implications for many parts of Ontario and, as a result, additional time is required to determine the best approach to protecting the species and its habitat.*

Regulatory impact statement

The regulation allows activities that impact Black Ash and its habitat to proceed without the requirement for an ESA authorization or exemption for a period of two years while the government determines the best approach for protecting and recovering the species.

This will reduce burden to proponents both during the two-year period during which protections are paused, and will allow the government time to determine the best protection approach for Black Ash that balances the species' needs with the social and economic implications of its protection.

With a two-year provincial moratorium under ESA, no ESA authorizations will be required in relation to Black Ash, provided the Aggregate Resources Act application is approved and licensed before January 26, 2024. If not approved by that date, further review may be required at that time to ensure continued compliance with the Endangered Species Act and Ontario Regulation of that time. Currently Environment Canada does not have Black Ash on Schedule 1, to the Species-At-Risk Act, but is under consideration for addition.

Though Black Ash has a two-year moratorium under ESA for habitat protection, development or land use changes under the Planning Act still must address planning policies as this species has an endangered status under the Ontario SAR list and threatened status under Federal COSWEIC list.

The PPS policy 2.1.7 states:

Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements

The Grey County Official Plan 7.10.2 states:

*No development or site alteration will be permitted within the Habitat of Threatened/Endangered species adjacent lands except in accordance with provincial and federal requirements. No development or site alteration will be permitted within the adjacent lands (*120m*) to these areas unless it has been demonstrated through an environmental impact study that there will be no negative impacts on the natural features or their ecological functions.*

The colony area of Black Ash is within the wetland environment of vegetation community 5 which is located within the base of a topographical ravine feature. This ravine feature has steep but forested slopes towards the wetland, with an average elevation drop of 8.5 m, see the Existing Features page of the Engineering Site Plan for detailed site topography. The forested ravine slopes and crest provide a vegetated buffer zone to the wetland environment and overlapping ecological functions throughout this central property ravine feature. Through the impact assessment reporting of sections 18.2 and 19.2, a 30m wide setback has been recommended from the tree line and/or corridor function of the ravine feature. Exempt to this 30m setback is for the internal haul road and associated upgrades which are kept to a minimum and follow the current agricultural road which bisects this ravine feature.

The Operational design of the pit must demonstrate and establish a vertical or depth limit for aggregate extraction near this ravine feature which will have no negative hydrogeological impacts or draw-down influence to the wetland or watercourse features. With this hydrogeological constraint established and the operational setback distance from the wetland supporting habitat, no negative impacts to Black Ash within the Study Land is anticipated. Thus with these mitigative measures implemented, the extraction limits and operational practices of the Licence will be in compliance with the PPS 2.1.7 and the Grey County Official Plan policy 7.10.2.

16 Significant Valleyland

16.1 Characterization

Through the analysis of reporting section 7, the Study Lands are situated within portions of the adjacent lands to the County of Grey delineated Significant Valleyland feature along this section of the Main Saugeen River, as shown on Figure 4B. Appendix 6 provides delineation of the 120m adjacent lands for the Significant Valleyland, which shows minor incursion into the subject properties northwest, northeast and southwest corners of the Study Land. With the ARA Licensed Lands being further south and outside of the properties northern woodland (vegetation community 1), the Licence Land limit is beyond the ‘adjacent lands’ to the valleyland feature in the northwest property corner.

16.2 Impact Assessment

The northeast and southeast corners of the Licence Lands do intersect small areas of the ‘adjacent lands’ to the Significant Valleyland feature, as shown on Appendix 6. These intersecting adjacent lands are all cleared fields, with no ecological functions or direct terrain functions relating to the valleyland itself. As such, proposed extraction and pit operational activities within these ‘valleyland adjacent lands’ will have no negative impact on the valleyland feature or its ecological functions.

Therefore it has been demonstrated and concluded that the proposed ARA application will be in-compliance with the PPS 2.1.8 and the Grey County Official Plan policy 7.7.1 for adjacent lands to a Significant Valleyland.

17 Significant Wildlife Habitat

17.1 Eastern Wood-pewee

Adult Eastern Wood-pewees were recorded during the active breeding season within vegetation community 1 of the Study Land. This vegetation community provides suitable breeding and rearing habitat for this woodland bird species, with the ELC type consistent with the provincial habitat description.

17.2 Impact Assessment

Much of the north limit of the Licence Land is along the edge of vegetation community 1, with a limited intersection of the woodland along the western portion edge of this woodlot. Table 2, section 4 for vegetation community 1 recorded 'edge trees' to have a crown diameter ranging from 7 m to 8m, or crown branching extending on average 3.5m to 4m beyond the tree line edge.

Key to maintaining no negative impact on vegetation community 1 being the supportive habitat for the special concern status bird will be mitigated through the extraction limit setback to maintain forest tree health. As vegetation community 1 is part of the candidate Significant Woodland feature, extraction setback width has been provided under reporting section 18.1.

With this mitigative measure for significant woodland protection in place, it has been demonstrated and concluded that the proposed ARA application will be in-compliance with the PPS 2.1.8 and the Grey County Official Plan policy 7.10.1 for adjacent lands to Significant Wildlife Habitat.

18 Significant Woodland

18.1 Characterization

Figure 4B outlines the Significant Woodland feature as per the Grey County Official Plan, being the NETR vegetation community 2. In field assessment observed this woodland environment to have continuous tree cover extending to the north along the Study Land northeast corner. It is anticipated that the 2017 Green in Grey Natural Heritage GIS system which was utilizing older air photo imagery at that time, could not discern the tree size or density within the lands immediately adjacent to the northeast study corner. Append 7 provides an analysis of air photo imagery since 2010 in this specific area which shows the natural succession and growth of tree cover. Appendix 7 also provides a site photograph taken in April 2021 which shows the north tree line edge (conifer plantation) of vegetation community 2, being the mapped north limit of the County NH significant woodland limit. This site photo shows a continuous hardwood tree stand north of that conifer plantation limit, extending into the Study Land, being forested stand vegetation community number 1. As such, through on-site investigations, the new Significant Woodland limit, based on County criteria for significance determination, extends further north and into the Study Land with Figure 8 providing the extent of what this NETR considers to be the current Significant Woodland feature limits.

18.1.1 Ecological Functions

The mature hardwood stand within the northern portion of the Study Land, being vegetation community 1, has been documented to provide breeding habitat for Eastern Wood-pewee, a migratory woodland bird species with a provincial status of Special Concern.

Vegetation community 3 creates a separation width >20m from the ravine woodlands to that of the off-site easterly Significant Woodlands. Thus the forested ravine compartments of vegetation communities 2, 4 and 6 are 'fragmented' from the off-site easterly vegetation community number 2. As such, the ravine woodlands are not part of the Significant Woodland but are partially situated within the 'adjacent lands' to the Significant Woodland feature. However; this vegetated ravine area provides key ecological functions to the area Significant Woodland flora and fauna. This ravine woodland flora provides a variety of diversity in tree species, genetics' and a seed source to the area including the endangered Black Ash. This ravine area also provides specialized habitat for ecological functions of fauna life cycles aspects and linkage/corridor cover habitat along the wetland and watercourse features associated with fauna from the Significant Woodland environment.

18.2 Impact Assessment

Direct impacts from aggregate extraction operational activities could be incurred on the Significant Woodland as portions of the Licence Lands occur within the feature limits.

Indirect impacts from aggregate extraction operational activities could also be incurred within the adjacent lands to the significant woodland feature through impacts or loss of ecological functions provided by the ravine forest and wetland cover plus hydrology/wetland functions within the ravine feature.

To maintain no direct or indirect negative impact to tree health within or adjacent to vegetation community 1, a buffer zone will be required for the protection and maintenance of a healthy tree root rhizome system along this woodlands south perimeter. A literature review of provincial documents and other scientific research technical reports was undertaken and summarized below for mature tree root rhizomes and forest tree health preservation.

This literature review showed a varied range of recommended buffer widths:

- 1m to 10m beyond the drip line of trees
    - For vegetation community 1, Sugar Maple trees are broad-canopied, having their crown canopy extending on average 4m beyond the main stems. Vegetation community 2 being dominated with White Pine is also considered to be broad-canopied tree species, which on-site investigations noted the average canopy branching extending 5m out from the main stem. Thus this represents a buffer width between 5m to 14m from vegetation community 1 and 6m to 15m from vegetation community 2.

- Up to 1.5X the drip line for narrow-canopied trees
    - Not applicable, as both vegetation community 1 (dominated by Sugar Maple) and vegetation community 2 (dominated by White Pine) are both broad-canopied tree species.

- From the main stem a horizontal distance of 2X the crown radius for broad-canopied trees
    - This represents a buffer width or development setback of 8m to 10m.

- Circular area with the radius equal to the height of the tree
    - At time of assessment, vegetation community 1 primary canopy trees were 22m in height while vegetation community 2 the primary canopy trees are 20m in height. This would represent a buffer distance of 22m from the main stem of the outer limit trees to the Significant Woodland.

- 10m from the main stem canopy crown outer limit
    - This represents a buffer width of 15m on average from the Significant Woodland feature.

Through the aforementioned literature review, for the protection of the rooting zone of the supportive habitat trees within vegetation community 1 and 2, ranges from 6m to 22m with most reflecting a 10m to 15m setback for root rhizome protection. As such, given the sites terrain a 15m buffer zone to the Significant Woodland vegetation communities 1 and 2 is recommended, to maintain no negative impacts to tree health. No operational aspects such as berms or material storage should occur within this natural environment buffer zone area.

The ravine feature which partially occurs within the Significant Woodland adjacent lands provides key ecological functions for fauna movement, fauna life cycle functions and flora diversity along with hydrology functions of the wetland environment and supportive hydrology functions to receiving waters for fish habitat. With these key ecological functions of the ravine habitat it is recommended that the limit of extraction maintain a 30m separation width from the edge of the ravine treeline. With this expanded buffer zone width along the ravine feature, no negative impacts to the adjacent lands of the Significant Woodlands or its supporting ecological features shall be incurred from the pit operational activities.

Thus, with the limit of extraction maintaining a minimum 15m separation distance from the Significant Woodlands, 30m from the ravine woodland, constrained operational activities within these setback, it has been demonstrated and concluded that this ARA operational design will be in compliance with the PPS 2.1.8 for ‘adjacent lands’ to Significant Woodlands and the Grey County Official Plan policy7.4.1.

19 Locally Significant Wetland-Hazard

19.1 Characterization

Figure 4B sourced from the County Official Plan Appendix B overlay, shows a designated ‘Other Wetland’ being the mapped vegetation community 5 within the Study Land central ravine feature. On-site investigations determined that the County mapped wetland is slightly larger and extending further westward along the watercourse riparian zone. Vegetation community 6 is characterized as a seasonally flooded swamp wetland which met the provincial wetland definition with outer boundary delineation following the provincial wetland evaluation 50% vegetation rule criteria.

This wetland environment provides habitat for the endangered Black Ash, is the headwater area for the intermittent watercourse, provides breeding habitat for the local amphibian population and functions as cover habitat for seasonal and daily movement of fauna from the Significant Woodland environment.

19.2 Impact Assessment

Through the impact assessment review of section 18.2, Significant Woodland adjacent lands it has been recommended that the limit of extraction within the Licence Lands maintain a 30m setback from the ravine woodland edge. This separation distance should extend along the full west-east length of the ravine feature and on both the north and south perimeter. The interior haul road which is to follow the existing agricultural lane bisecting the ravine, is anticipated to have no measurable cumulative negative impacts on the wetland or its identified ecological functions, provided any road upgrades are kept to a minimum and focused along the eastern side of the road crossing (away from the wetland and Black Ash colony location). This 30m separation width will also maintain the seasonal surface water run-off input source from the surrounding lands to the wetland feature. The pit operational design will be required to demonstrate an extraction depth that will not negatively impact on the recharge function of the surrounding adjacent lands to this wetland environment.

The Grey County Official Plan policy 7.3 for 'wetlands' states in part:

> *The County generally encourages development be setback from Wetlands by at least 30 metres….*

Thus, with the limit of extraction maintaining a 30m separation distance from the wetland feature and hydrogeology constraint for wetland input recharge waters, it has been demonstrated and concluded that this ARA operational design will be in compliance with the Grey County Official Plan policy 7.3 for Wetland-Hazard and policy 7.3.2 for Other Wetlands.

20 Natural Environment Mitigation Measures

The following mitigation measure shall be represented on the Site Plans to address the identified potential negative environmental impacts from the proposed aggregate extraction operation. These measures are recommended to maintain the ecological functioning role and natural heritage features that have been identified within the Study Land and are in keeping with Provincial and County natural heritage policies and guidelines.

1. The 'Limit of Extraction' shall maintain a minimum separation width, to identified Natural Environment features as outlined on Figure 9, with no disturbances within the natural environment setbacks other than that for the internal haul road crossing the central ravine feature:
    i. 30m from the woodland edge of the central Ravine & Wetland Feature being vegetation community numbers 2, 3, 4, 5 and 6.
    ii. 15m from the Significant Woodland along the north boundary and northeast property corner, being vegetation community numbers 1 and 2.

2. The ‘Operational Plan’ shall show the internal haul road along the existing agricultural land which bisects through the central area of the Ravine feature. However; any required road upgrades or width expansion shall be shown and focused away from the west side of the road which is adjacent to the Black Ash colony and Wetland environment.

3. The ‘Operational Plan’ design and depth of extraction shall demonstrate no negative hydrogeological or draw-down influences that could negatively impact the wetland feature or it’s identified ecological functions or the headwater area of the watercourse feature.

21 Conclusions

The proposed extraction operations and associated development activities for the JT Pit aggregate licence application has been assessed for impacts on the natural environment. Potential negative impacts have been mitigated through avoidance, setbacks/buffer zones, and operational design constraints to address the identified significant features on-site and identified key ecological functions.

This report and the supporting Site Plan and engineering assessment for groundwater by GM BluePlan Engineering have examined in detail, the potential for negative effects on natural features and functions within and beyond the Site Lands. This report has demonstrated that with the proper mitigative measures in place, no measurable negative impacts should occur to the natural heritage features or ecological functions identified both on and off site. This NETR has also demonstrated that the proposed licence is considered to be in compliance with ARA standards, ESA 2007, the 2020 Provincial Policy Statement for Natural Heritage and the Natural Heritage/ Environment Policies of the 2019 Grey County Official Plan.

All comments contained within this report pertain to available literature, reports, documents and existing site conditions for this study area. All natural environment feature locations are estimates based on current maps available, with plotting by hand held GPS units within +/- 3m accuracy. The maps contained within this report should not be considered 'a legal survey' but are adequate for this planning/application review process and are based on site surveying data shown on the Site Plans by GM BluePlan Engineering.

Respectfully Submitted

_____

John Morton, President
AWS Environmental Consulting Inc.

22 References

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Ontario Ministry of Natural Resources and Forestry, version 2014, Significant Wildlife Habitat Mitigation Support Tool

23 Figures

Mapping Note for Clarification:

For Detailed Licensed Boundary Mapping, See The 'Site Plans'. All Below Figures Are A Very Close Approximation For The Licensed Boundary But Given Various Mapping Scales, Figures May Not Match The Licensed Boundary In Its Entirety To The Site Plan.

Figure 1: Property Location

- Base map source: Grey County website. JT Pit Part Lot 22, Concession 5 NDR, Geographic Township of Bentinck, Municipality of West Grey

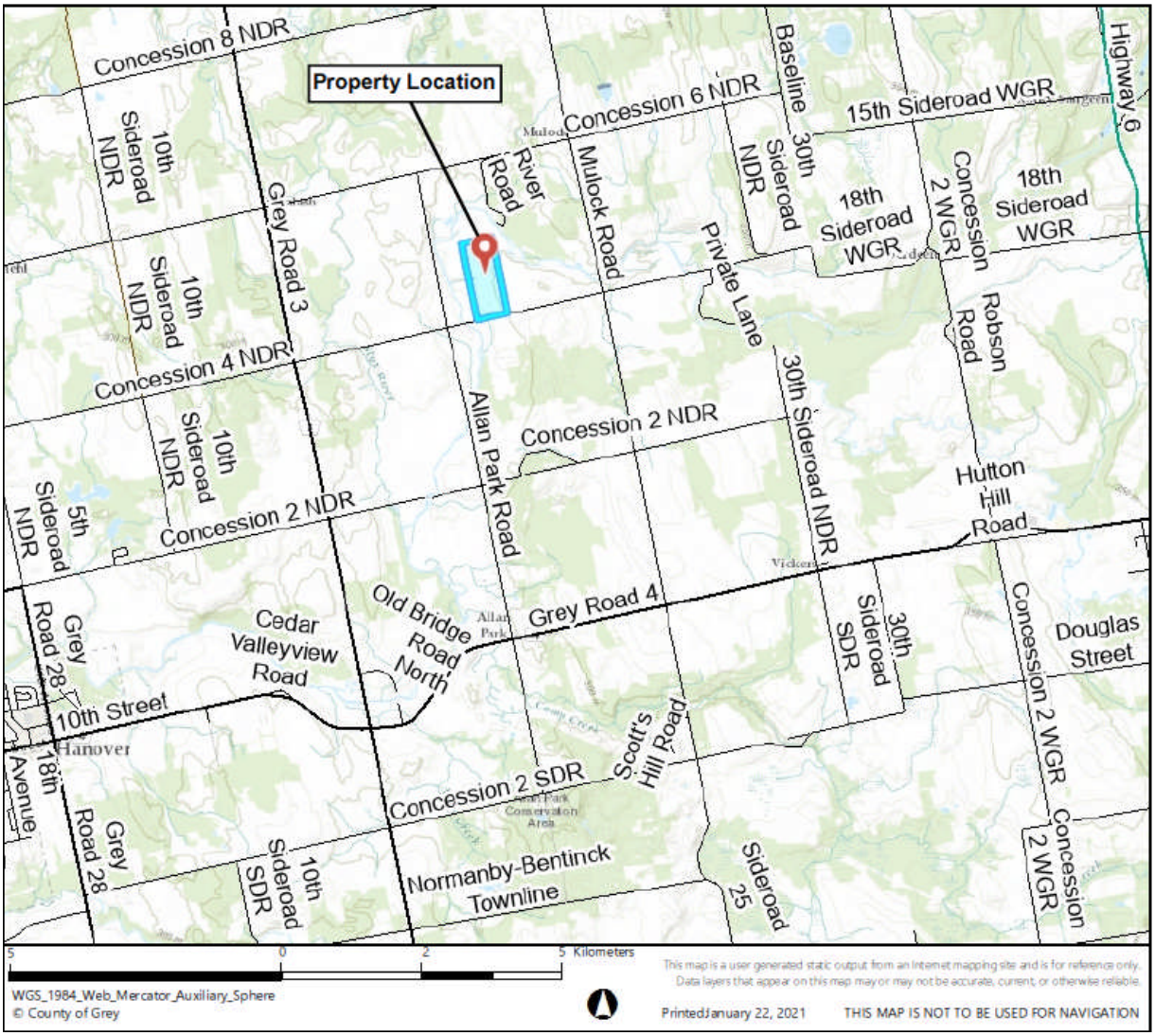
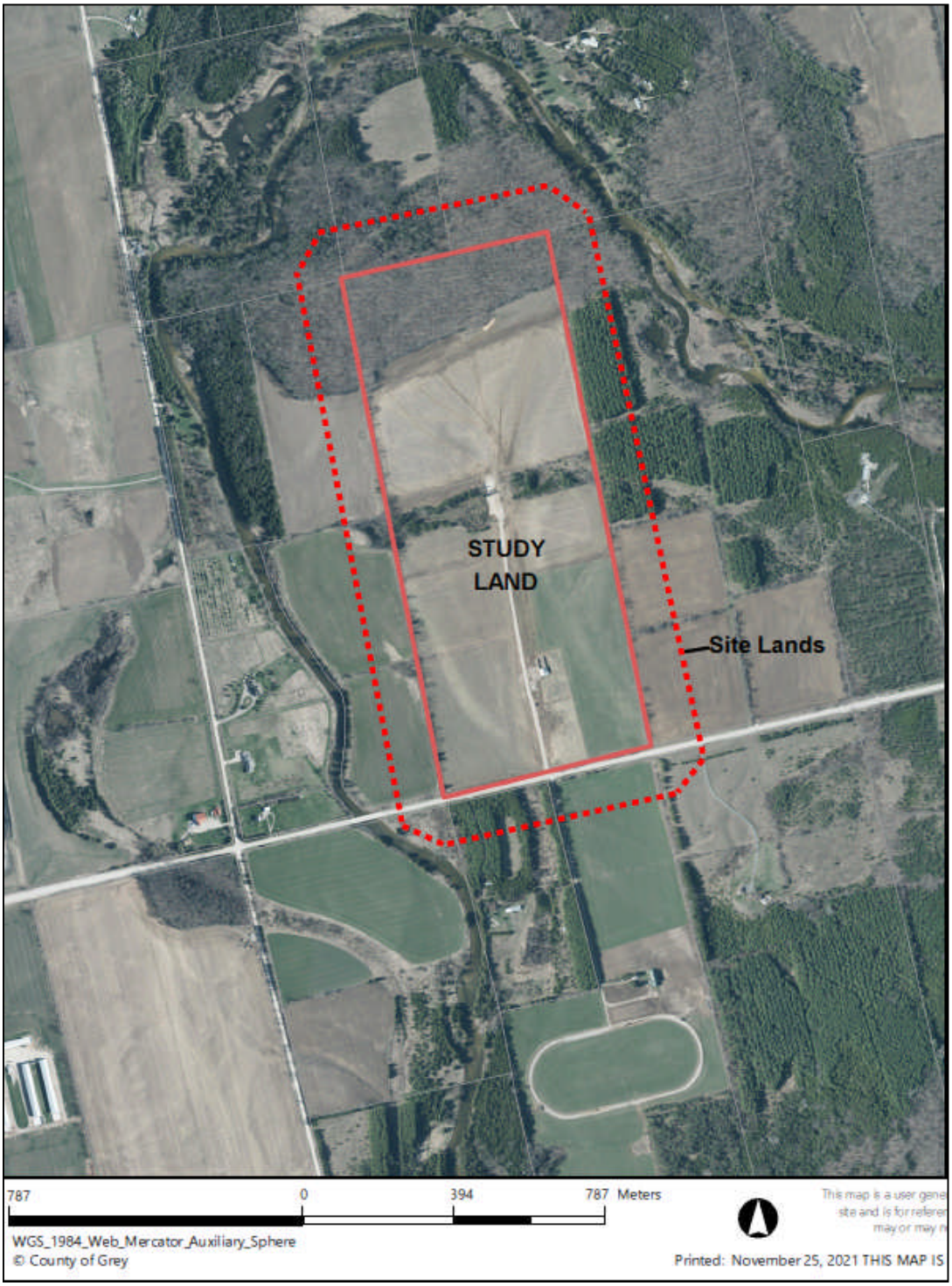


Figure 2: Study and Site Lands

- Base map source: Grey County website with 2020 air photo imagery
    - Site Lands represent those surrounding lands 120m from the Study Land



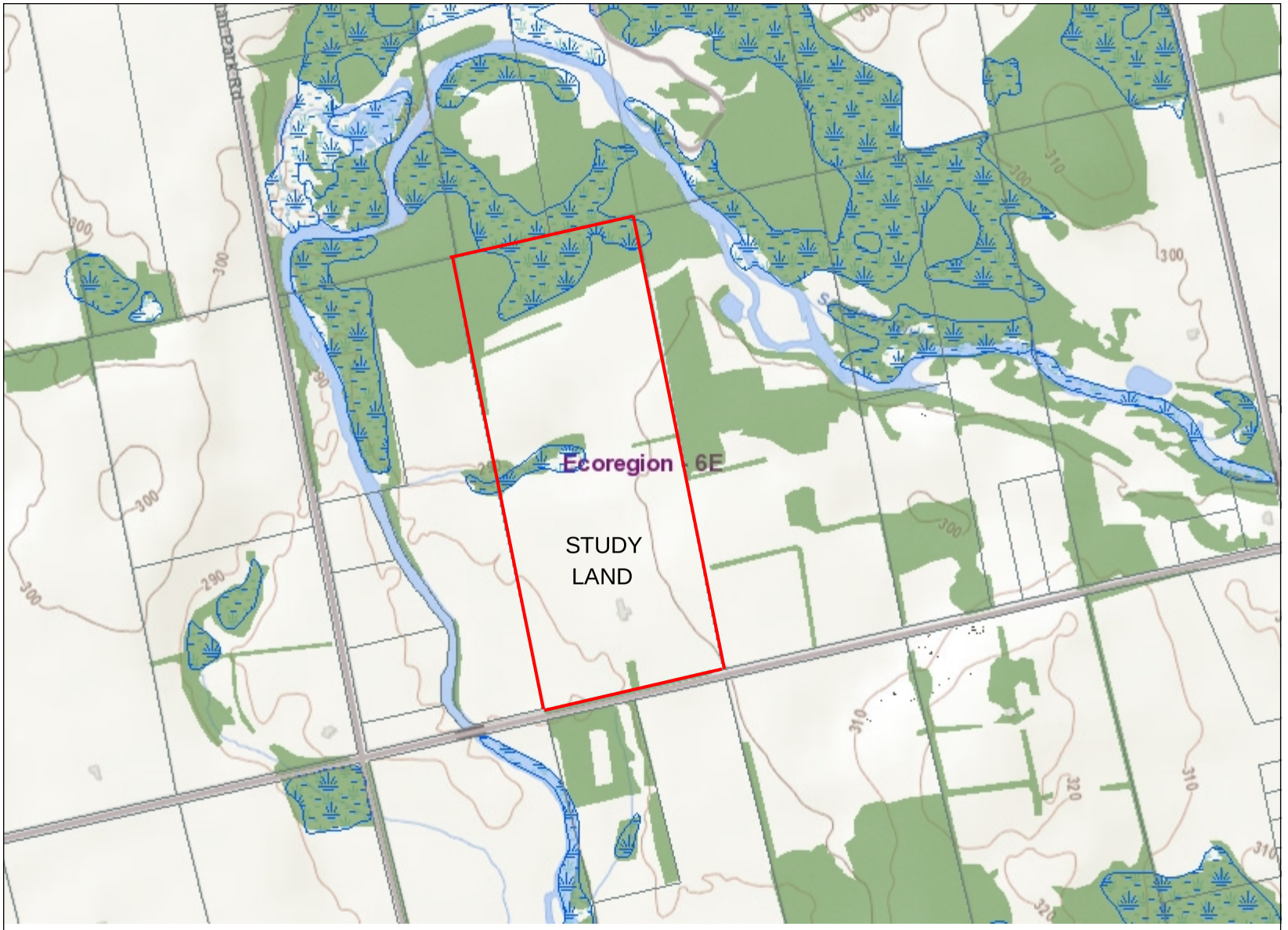
Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

Figure 3: Provincial Features

Notes: JT Pit
Municipality of West Grey



Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion

Wetland
- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

Area of Natural Heritage & Scientific Interest (ANSI)
- Provincially Significant Life Science ANSI
- Provincially Significant Earth Science ANSI

Greenbelt Plan
- Boundary
- Greenbelt External Connections

Land Use Designations
- Protected Countryside
- Greenbelt Towns and Villages
- Greenbelt Hamlets
- Urban River Valley
- Greenbelt Specialty Crop Area

Niagara Escarpment Plan (NEP)
- Boundary
- Parks and Open Space System

Land Use Designations
- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre

Oak Ridges Moraine Conservation Plan (ORM)
- Boundary

Land Use Designations
- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area

0.7 0 0.33 0.7 Kilometers

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

This map may not display all features listed in the legend because the feature layer was not turned on at the time the map was made; the features do not exist in the geographic range; or features have not been mapped. Absence of a feature in the map does not mean they do not exist in this area.

Figure 4A: Grey County Official Plan – Land Use

- Base map source: Grey County website with 2020 air photo imagery and OP Overlay
    - Agricultural and Hazard Lands designations

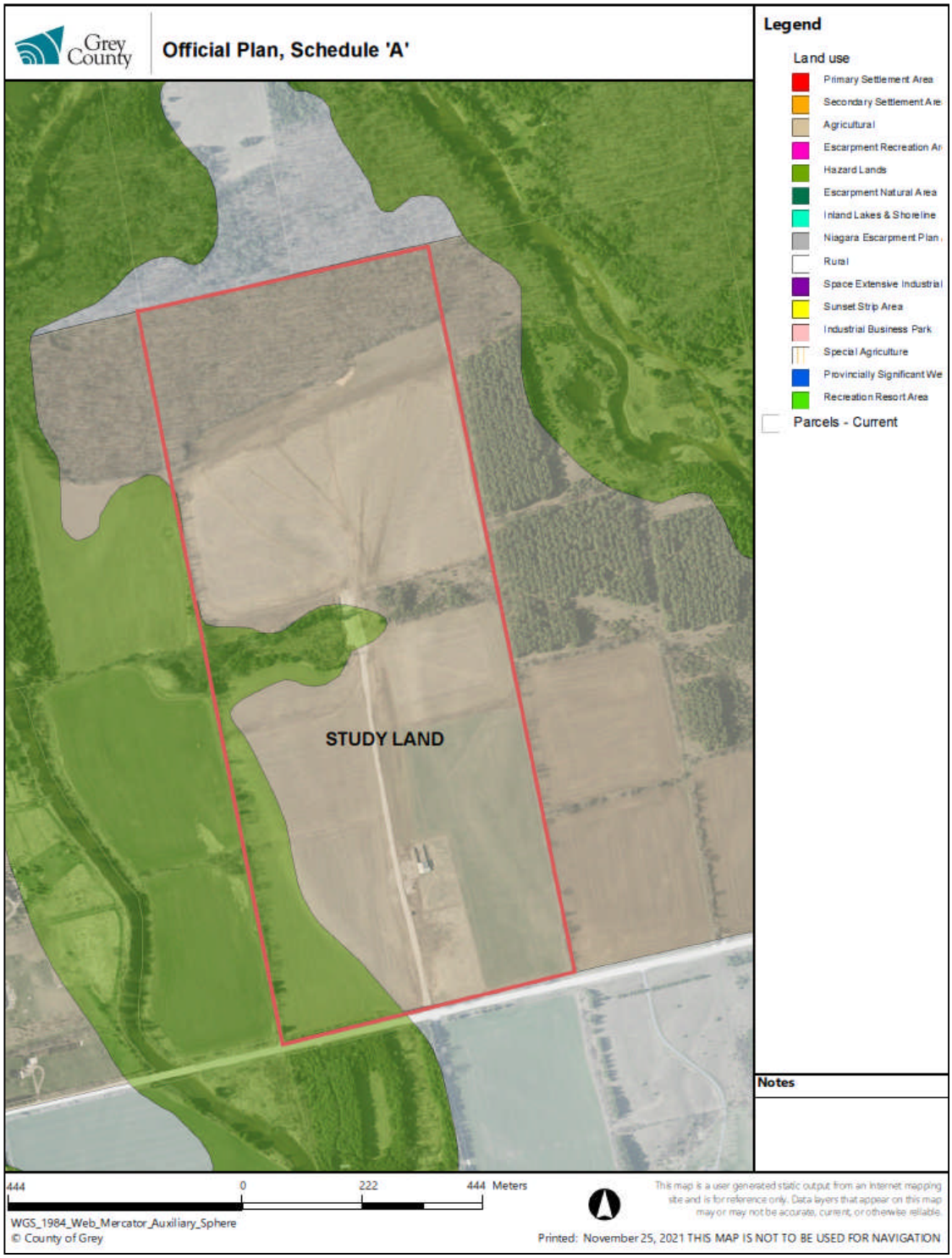


Figure 4B: Grey County Official Plan – Environmental Constraints

- Base map source: Grey County website with 2020 air photo imagery and OP Overlay
    - Significant Woodlands, Significant Valleylands, Stream and Other Wetlands

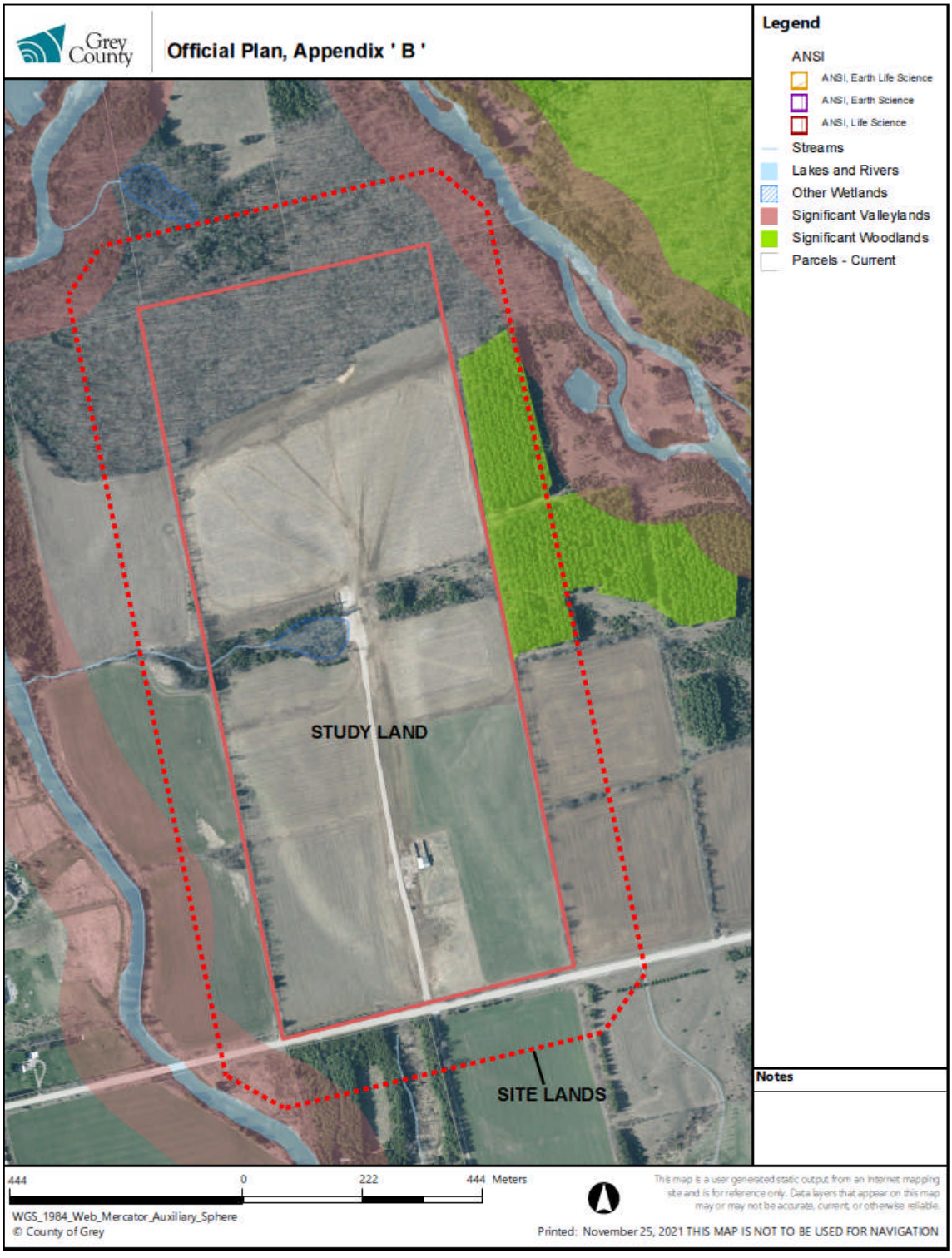


Figure 4C: Grey County Official Plan – Aggregate Resources

- Base map source: Grey County website with 2020 air photo imagery and OP Overlay

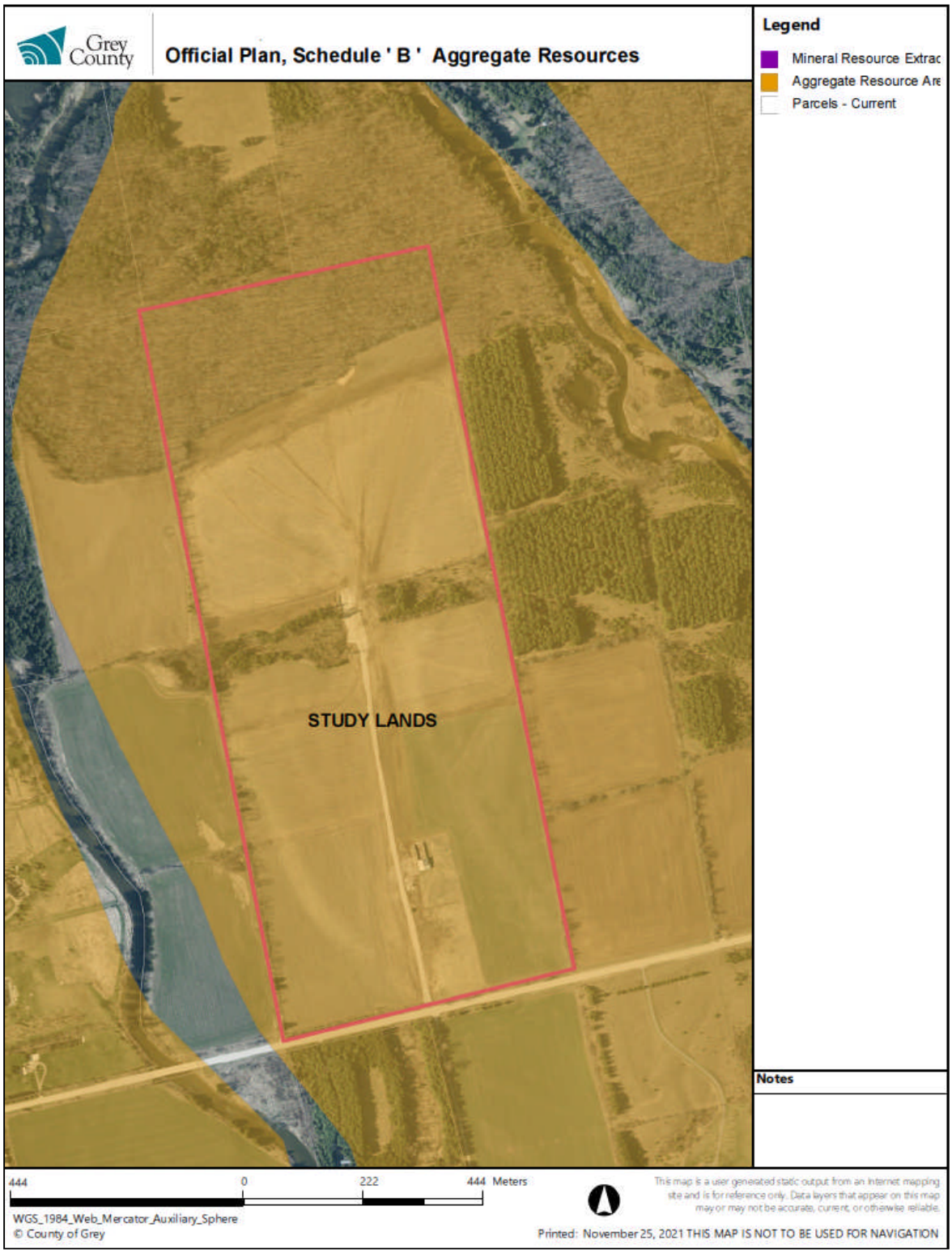


Figure 4D: Grey County - Aggregate Classifications

- Base map source: Grey County website with 2020 air photo imagery and Overlay

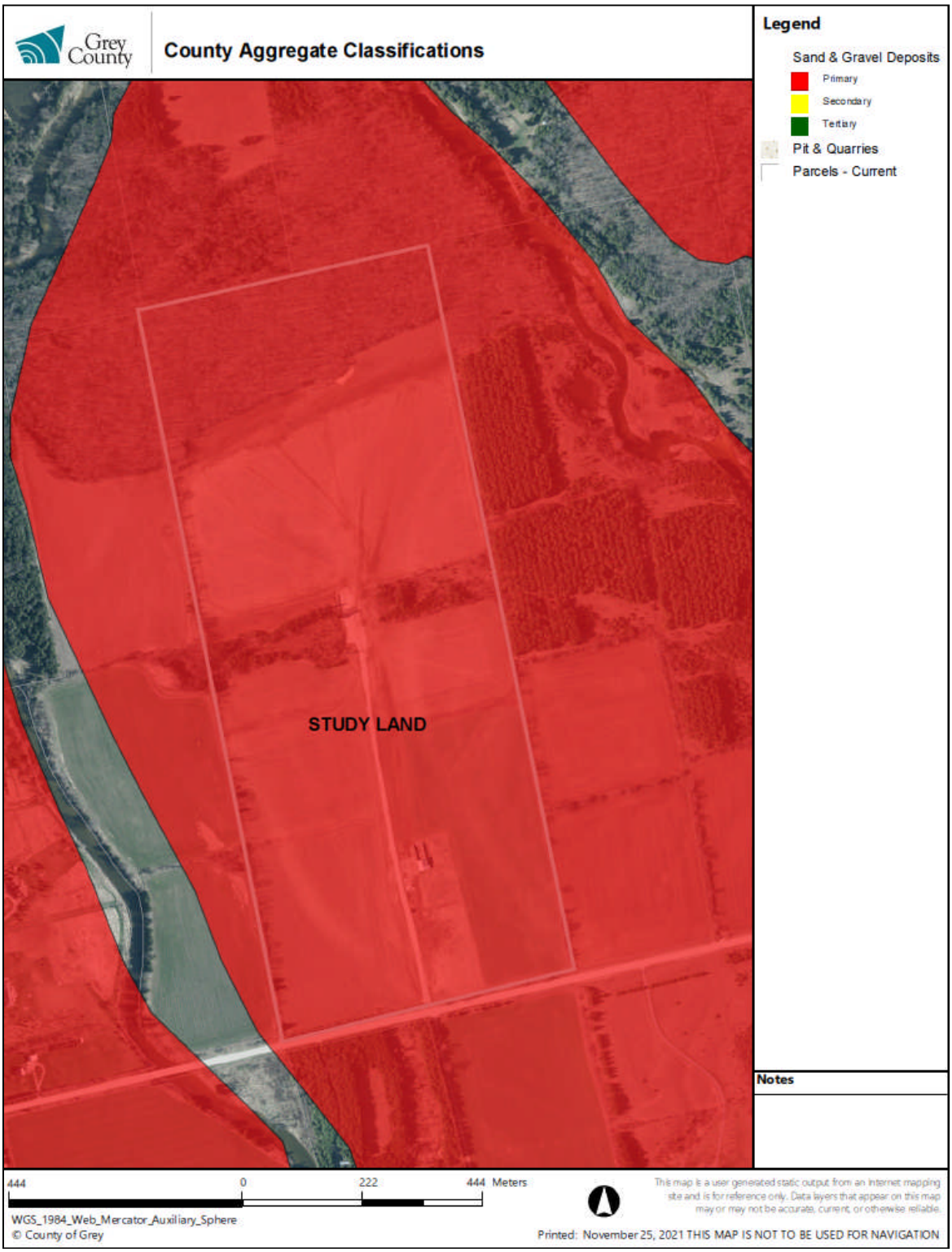


Figure 5: Municipality of West Grey - Zoning

- Base map source: Grey County website with 2020 air photo imagery and Zoning Overlay

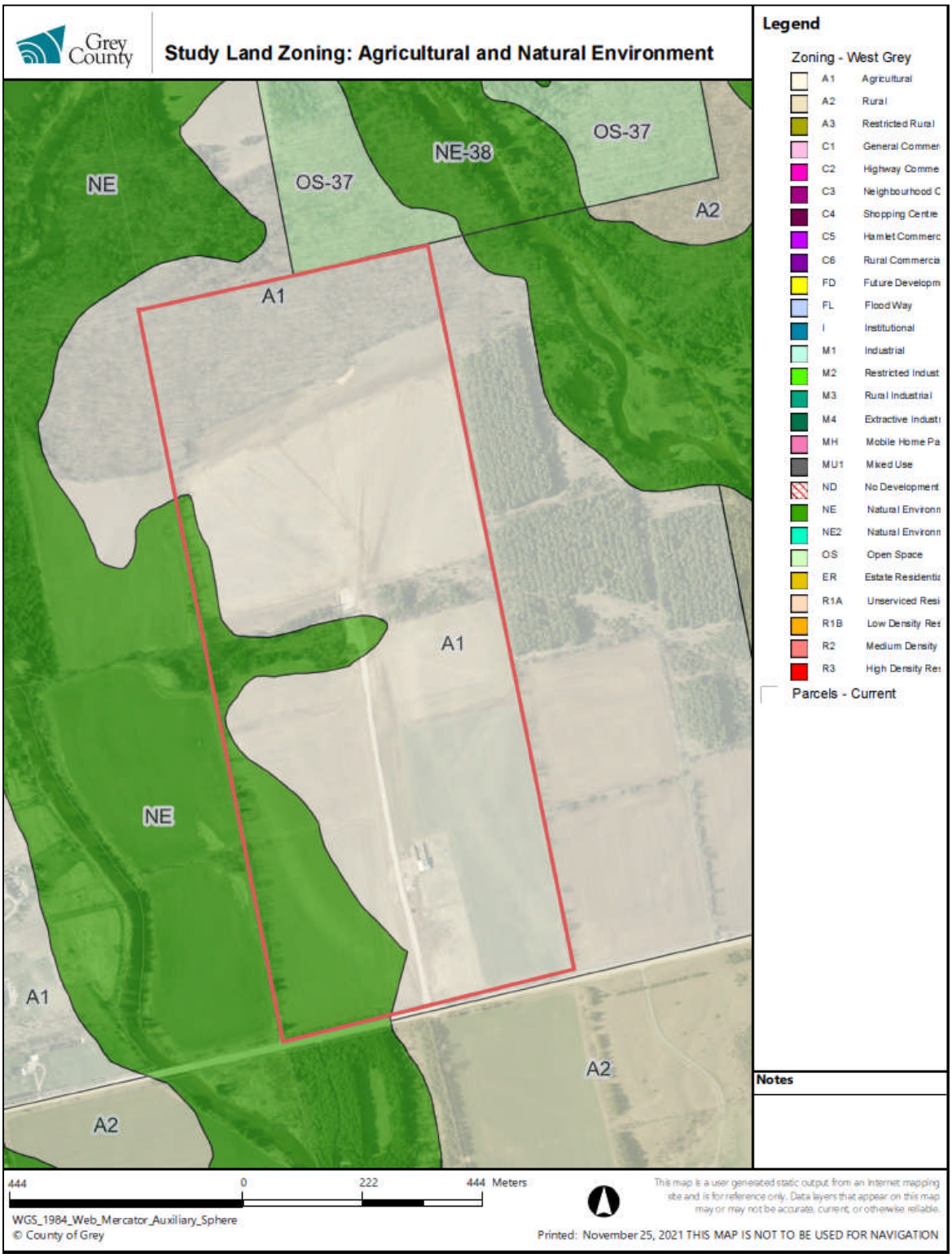


Figure 6: Conservation Authority Screening Lands

- Base map source: Grey County website with 2020 air photo imagery and SVCA Overlay

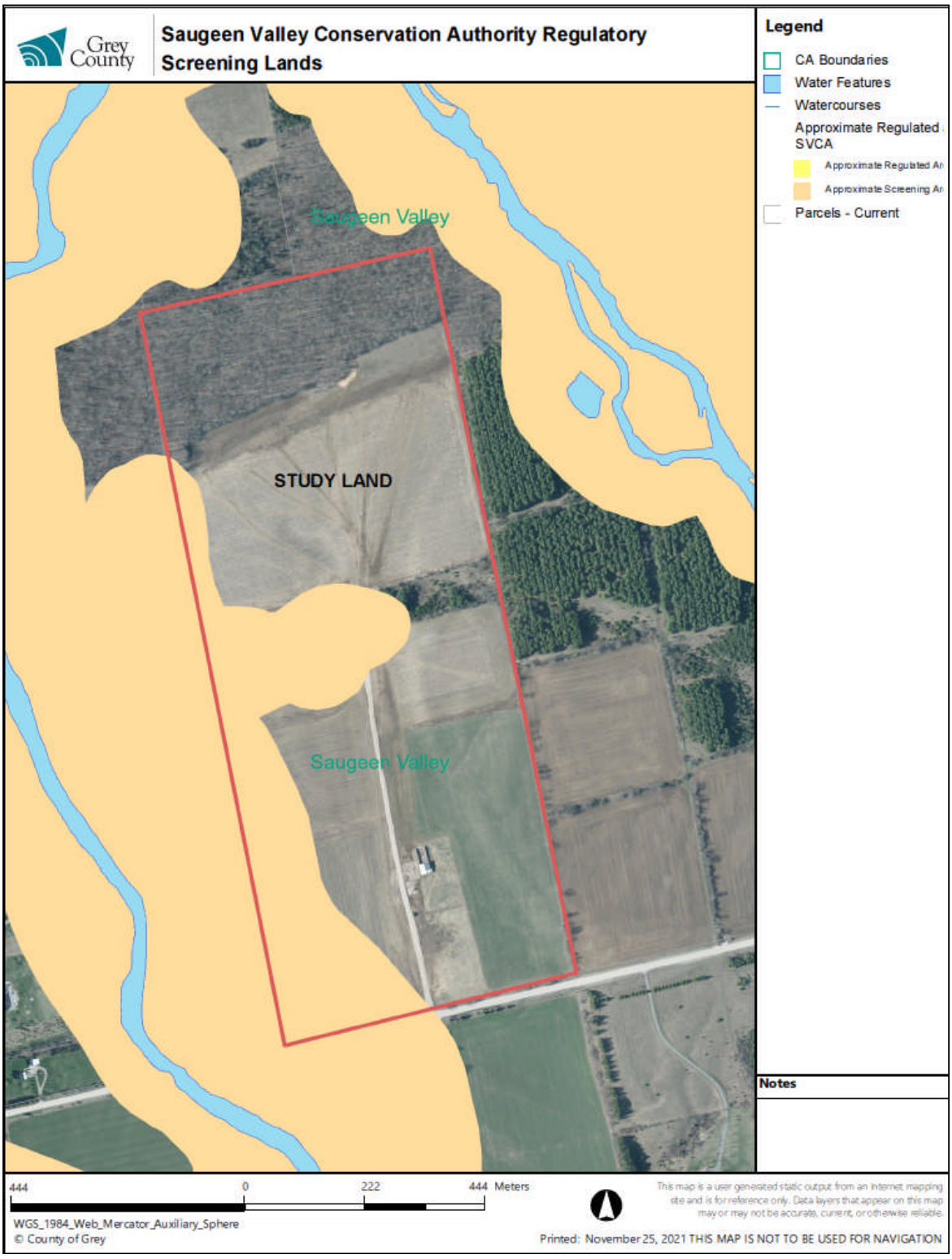


Figure 7: Vegetation Communities

- Base map source: Grey County website with 2020 air photo imagery

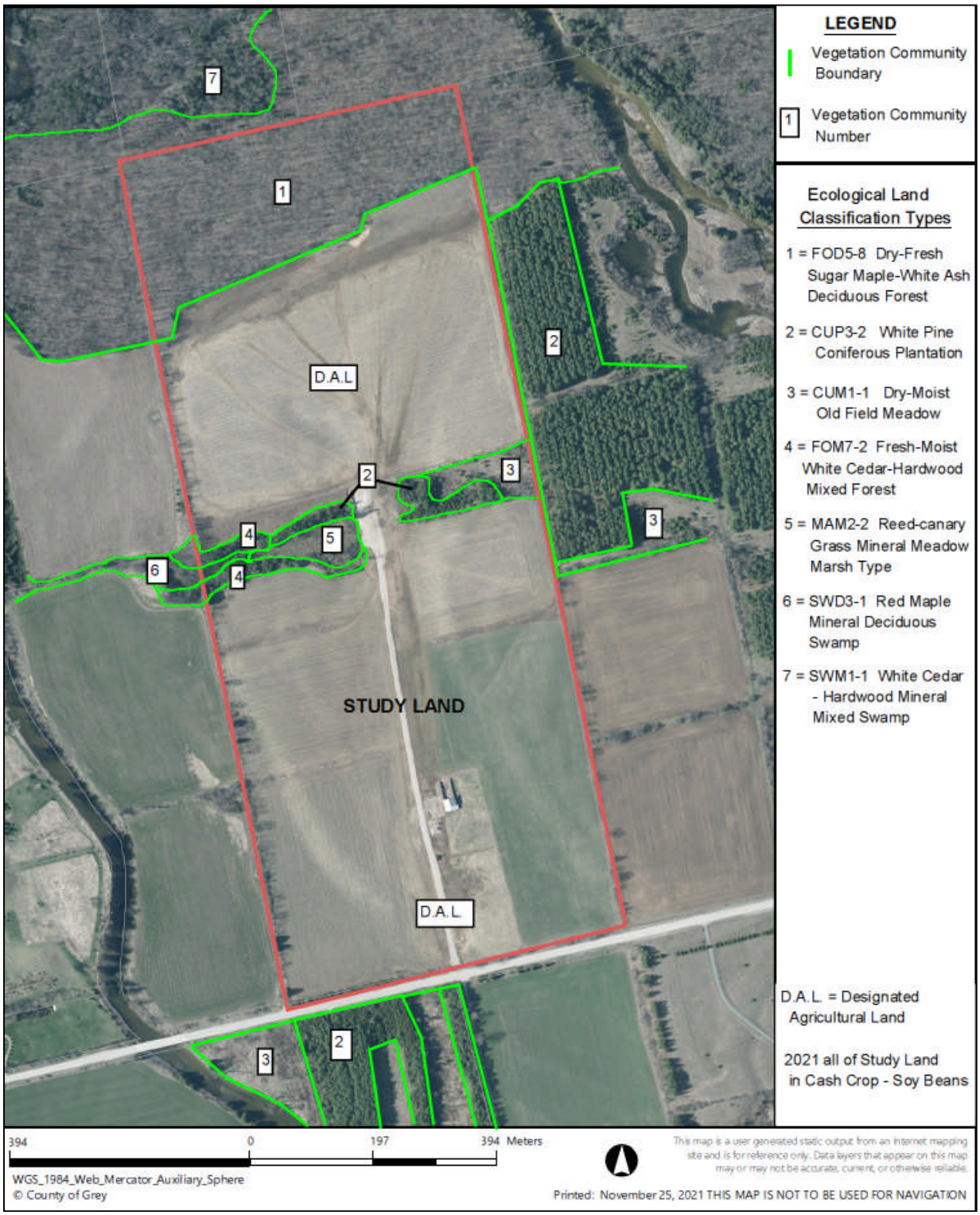


Figure 8: Natural Heritage Features

- Base map source: Grey County website with 2020 air photo imagery

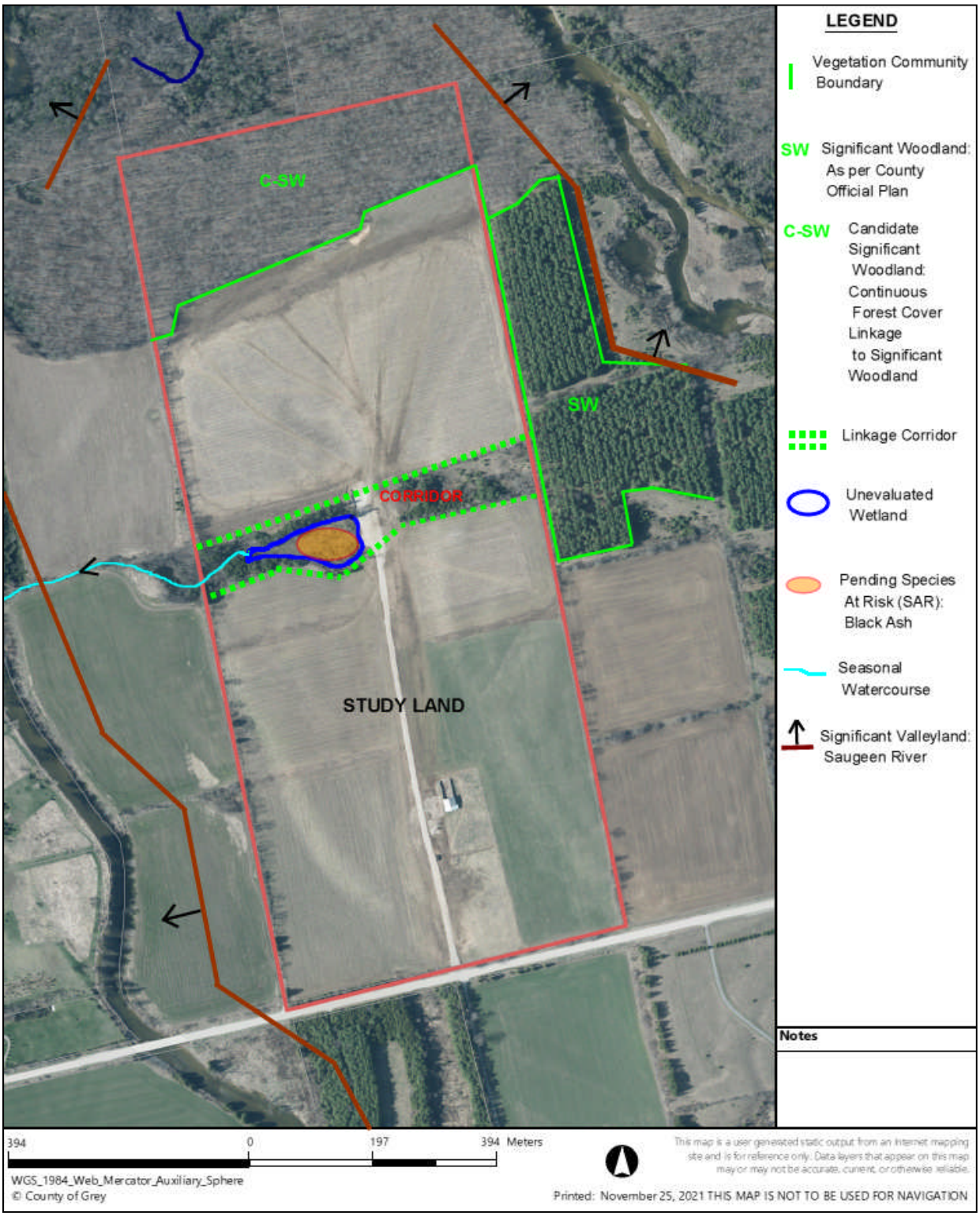
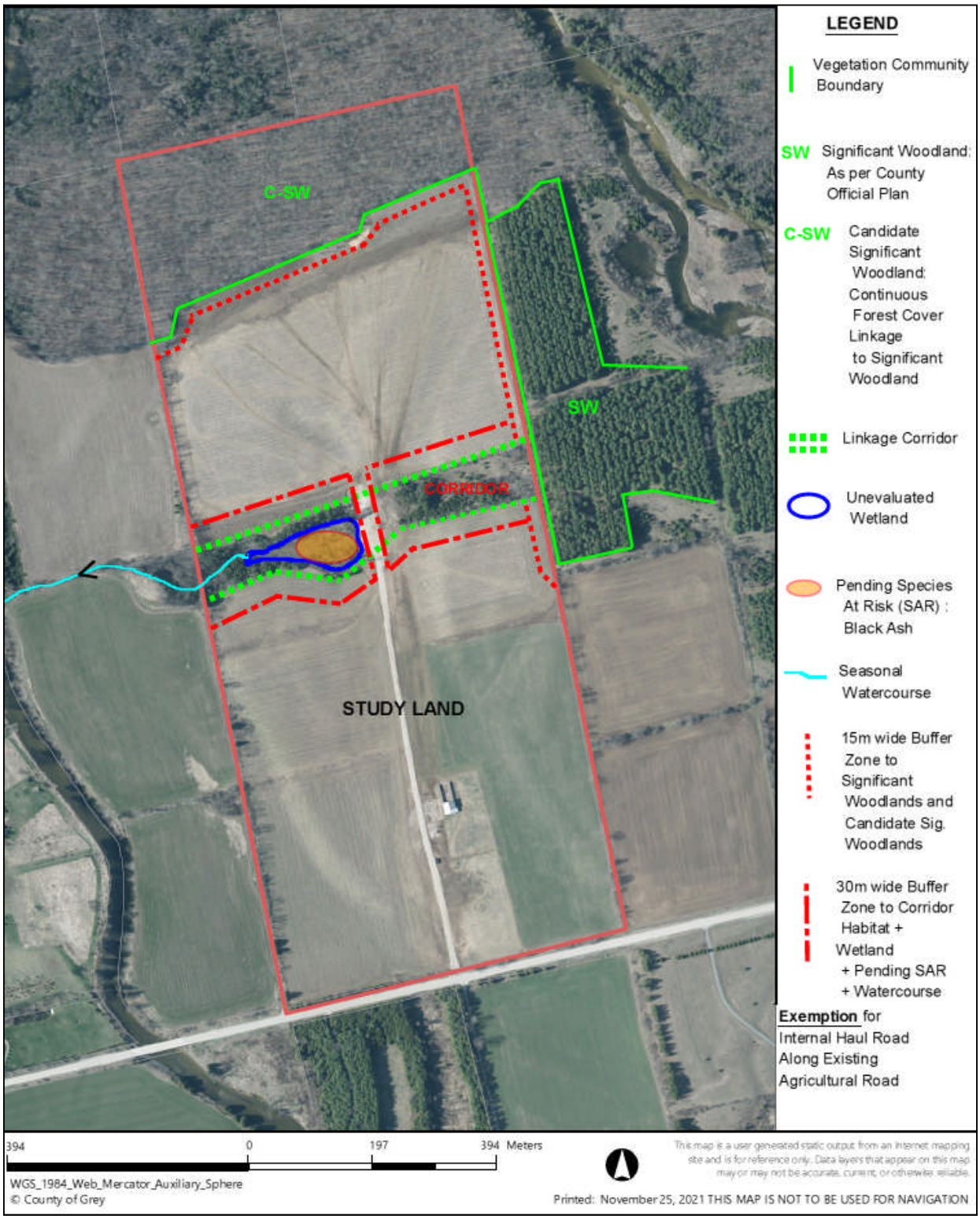


Figure 9: Natural Heritage Buffer Zones

- Base map source: Grey County website with 2020 air photo imagery



APPENDIX 1

- Grey County Parcel Report for subject Property

Property Report

Data Sources: Grey County, Municipal Property Assessment Corporation, Teranet, Queens Printer

Report Generated 02/01/2022 13:53:11

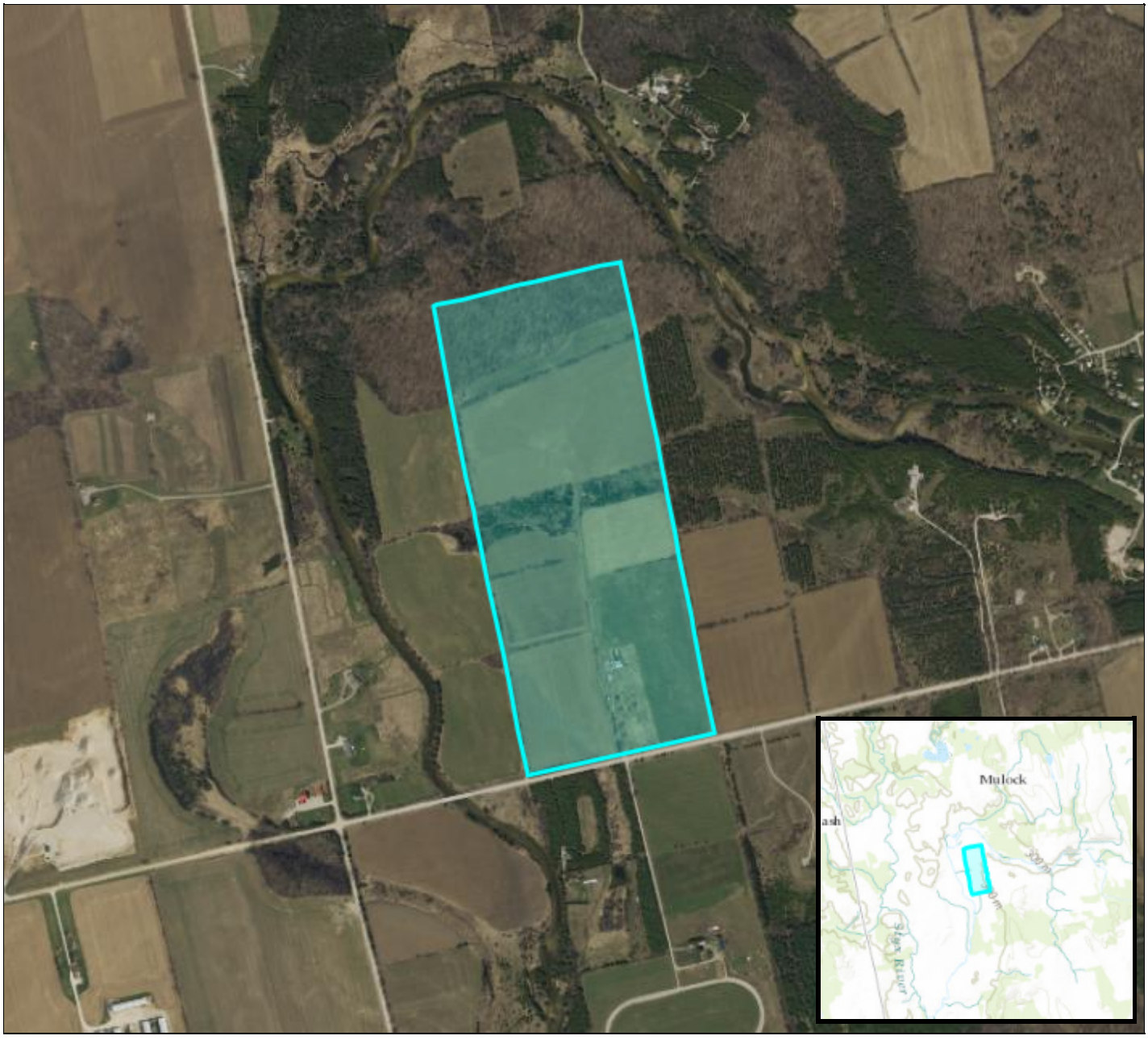
Roll Number	Address	Assessed Value	Acerage
420528000604300	382063 CONCESSION 4 NDR	$588000	101.70

Notice: Assessed value may not reflect current market value MPAC

NEC Designation	Legal Description	Property Use
Outside the Niagara Escarpment Plan Area	382063 CONCESSION 4 NDR CON;5 LOT 22	Farm without residence - with secondary structures; with farm outbuildings

Zoning

Natural Environment,Agricultural,Open Space



APPENDIX 2

- MNRF: Natural Heritage Information Centre data search for Significant Flora and Fauna search coverage map and historical records extending 5km's from the Study Land

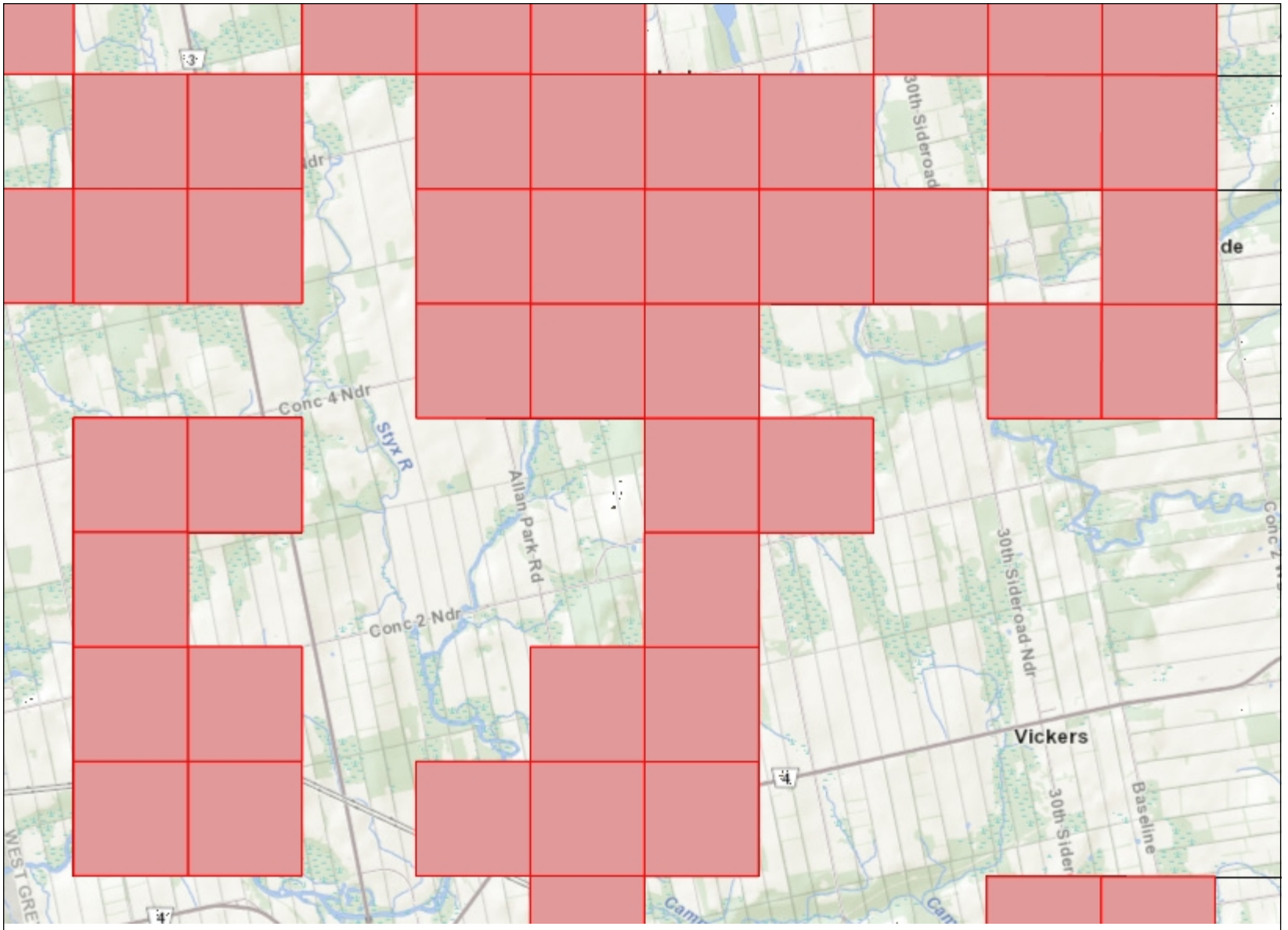
Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

Search Coverage Area for Historical Records of "Species of Conservation Concern"

Notes: Tremble Pit
Part Lot 22, Con 5 NDR, Bentinck



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2.6 0 1.32 2.6 Kilometers

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JT Pit : Part Lot 22, Conc 5 NDR, Municipality of West Grey

NHIC historical records search for flora and fauna 'Species of Conservation Concern', within a 5km radius to the Study Land

Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status
Species	Eastern Meadowlark	Sturnella magna	S4B	THR	THR
Species	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR
Species	Bank Swallow	Riparia riparia	S4B	THR	THR
Species	Eastern Wood-pewee	Contopus virens	S4B	SC	SC
Species	Snapping Turtle	Chelydra serpentina	S4	SC	SC
Species	Eastern Ribbonsnake	Thamnophis sauritus	S3	SC	SC
Species	Flooded Jellyskin	Leptogium rivulare	S3	NAR	SC
Species	Hart's-tongue Fern	Asplenium scolopendrium var. americanum	S3	NAR	SC
Species	Scarlet Beebalm	Monarda didyma	S3	NAR	NAR
Species	Restricted	ID Numbers 904872, 904882			

APPENDIX 3

- Flora Inventory Listing: Ranking, Status & Floristic Quality Assessment Scoring

JT Pit: Study Land

Flora Listing with current Ranking, Status and S. Ontario Floristic Quality Scoring

Part Lot 22, Conc. 5 NDR, Geographic Township of Bentinck, Municipality of West Grey

1) Central property woodland corridor Upland: Vegetation community 2 , 3 & 4, plus Wetland: Vegetation communities 5 and 6

One tree Species of Provincial Conservation Concern identified: Black Ash

Latin Name	Common Name	Vegetation Communities		Native or Introduced	Federal			Provincial			Regional	FQA	
		2+3+4	5+6		Ranking	COSEWIC	SARA	Ranking	COSSARO	ESA	Local	CC	CW
Acer rubrum	Red Maple		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	0
Acer saccharinum	Silver Maple		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	-3
Acer saccharum	Sugar Maple	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	3
Acer x freemanii	Freeman's Maple (red x silver)		X	N	NNA	NAR	N.A.	SNA	NAR	N.A.	Common	6	-5
Achillea millefolium	Yarrow	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3
Actaea pachypoda	Doll's Eyes	X		N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	6	5
Ageratina altissima	White Snakeroot	X	X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	3
Alisma triviale	Northern Water Plantain		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	1	-5
Anemone virginiana	Thimbleweed	X		N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	4	3
Arctium minus	Burdock	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3
Asarum canadense	Wild Ginger	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	5
Asclepias syriaca	Common Milkweed	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	0	5
Bidens tripartita	Beggar's Ticks		X	N	N5	NAR	N.A.	S5?	NAR	N.A.	Common	5	-3

Boehmeria cylindrica	Small-spike False Nette		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	-5
Caltha palustris	Marsh Marigold		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	-5
Carex gracillima	Graceful Sedge	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	3
Carex leptonervia	Finely-nerved Sedge		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	0
Carex lupulina	Hop-like Sedge	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	-5
Caulophyllum thalictroides	Blue Cohosh	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	5
Centaurea nigra	Black Knapweed	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	5
Circaea lutetiana	Enchanter's Nightshade	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	3
Cirsium arvense	Canada Thistle	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3
Clematis virginiana	Virgin's Bower	X	X	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	3	0
Clinopodium vulgare	Wild Basil	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	5
Cornus alternifolia	Alternate-leaved Dogwood	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	3
Cornus obliqua	Silky Dogwood		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	2	-3
Crataegus punctata	Dotted Hawthorn	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	5
Dactylis glomerata	Orchard Grass	X	X	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3
Danthonia spicata	Poverty Grass	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	5
Daucus carota	Wild Carrot	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	5
Dulichium arundinaceum	Three-way Sedge		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	7	-5
Echium vulgare	Bugloss	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	5
Epipactis helleborine	Helleborine	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3
Eupatorium perfoliatum	Boneset		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	7	-5
Equisetum arvense	Field Horsetail	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	0	0
Euthamia graminifolia	Grass-leaved Goldenrod	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	2	0
Eutrochium maculatum	Joe-Pye-Weed		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	-5
Fragaria virginiana	Wild Strawberry	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	2	3
Fraxinus americana	White Ash	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	3
Fraxinus nigra	**Black Ash**		X	N	N5	**THR**	N.A.	S3	**END**	**Pending**	Common	7	-3
Galium palustre	Marsh Bedstraw		X	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	5	-5
Geum canadense	White Avens	X	X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	0

Hemerocallis fulva	Orange Day Lily	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	5
Hesperis matronalis	Dame's Rocket	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3
Impatiens capensis	Touch-Me-Not		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	-3
Juglans nigra	Black Walnut	X		N	N4	NAR	N.A.	S4	NAR	N.A.	Common	5	3
Juncus dudleyi	Dudley's Rush		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	1	-3
Laportea canadensis	Wood Nettle		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	-3
Leersia oryzoides	Rice Cutgrass		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	-5
Lobelia cardinalis	Cardinal Flower		X	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	7	-5
Lycopus americanus	American Water Horehound		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	-5
Maianthemum racemosum	Spikenard	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	3
Malus pumila	Apple	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	5
Matteuccia struthiopteris	Ostrich Fern	X	X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	0
Menispermum canadense	Canada Moonseed Vine		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	-3
Nepeta cataria	Catnip	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3
Oenothera biennis	Evening Primrose	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	0	3
Onoclea sensibilis	Sensitive Fern		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	-3
Ostrya virginiana	Ironwood	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	3
Parthenocissus inserta	Virginia Creeper	X		N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	3	3
Phalaris arundinacea	Reed Canary Grass		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	0	-3
Phleum pratense	Timothy	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3
Physocarpus opulifolius	Ninebark		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	-3
Picea abies	Norway Spruce	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	5
Pilosella officinarum	Mouse-ear Hawkweed	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	5
Pinus strobus	White Pine	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	3
Poa trivialis	Rough Bluegrass		X	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	-3
Polygonum amphibium	Water Smartweed		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	-5
Potentilla anserina	Silverweed		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	-3
Prunus serotina	Black Cherry	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	3
Ribe hirtellum	Gooseberry		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	-3
Ribes rubrum	Garden Red Currant	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	5
Robinia pseudoacacia	Black Locust	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3

Rubus occidentalis	Wild Black Raspberry	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	2	5
Rubus strigosus	Wild Red Raspberry	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	0	-2
Rumex crispus	Curly Dock		X	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	0
Salix discolor	Pussy Willow	X	X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	-3
Salix lucida	Shining Willow		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	-3
Salix petiolaris	Meadow Willow		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	-3
Sanguinaria canadensis	Bloodroot	X		N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	5	4
Scirpus cyperinus	Wool-grass		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	-5
Sium suave	Water Parsnip		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	-5
Smilax hispida	Bristly Greenbrier	X		N	N5	NAR	N.A.	S4	NAR	N.A.	Common	6	0
Solanum dulcamara	Black Nightshade		X	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	0
Solidago altissima	Tall Goldenrod	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	1	3
Solidago canadensis	Canada Goldenrod	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	1	3
Solidago nemoralis	Grey-stemmed Goldenrod	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	2	5
Sparganium emersum	Green-fruited Bur-reed		X	N	N5	NAR	N.A.	SU	NAR	N.A.	Common	6	-5
Symphyotrichum	Heart-leaved Aster	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	5
Symphyotrichum	Calico Aster	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	0
Symphyotrichum novae-	New England Aster		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	2	-3
Symphyotrichum pilosum	Frostweed Aster	X	X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	2
Syringa vulgaris	Common Lilac	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	4	2
Taraxacum officinale	Dandelion		X	I	N5	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3
Thelypteris palustris	Marsh Fern		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	-4
Thuja occidentalis	Eastern White Cedar	X	X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	-3
Tilia americana	Basswood	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	3
Toxicodendron rydbergii	Poison Ivy	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	2	0
Triosteum aurantiacum	Horse Gentian	X		N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	7	5
Tusselago farfara	Colt's Foot	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	3
Typha latifolia	Broad-leaved Cattail		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	1	-5
Ulmus americana	American Elm		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	1	-5
Verbascum thapsus	Mullein	X		I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	5
Viburnum opulus ssp.	High-bush Cranberry		X	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	5	3

Viburnum rafinesquianum	Downy Arrowwood	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	7	5
Viola blanda	Sweet White Violet		X	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	-3
Vitis riparia	Wild Grape	X		N	N5	NAR	N.A.	S5	NAR	N.A.	Common	0	0
Zanthoxylum americanum	Northern Prickly-Ash	X		N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	3	3
MEAN												3	0

Total number of Native species = 84 or 78%
Total number of Introduced or Non-Native species = 24 or 22%
108

2) Back of Property Forested Upland (Vegetation community 1) + Treed Fencelines

No vascular plants of conservation concern identified

Latin Name	Common Name	Native or Introduced	Federal			Provincial			Regional	FQA	
			Ranking	COSEWIC	SARA	Ranking	COSSARO	ESA	Local	CC	CW
Acer saccharum	Sugar Maple	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	3
Actaea pachypoda	Doll's Eyes	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	6	5
Aquilegia canadensis	Columbine	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	5	1
Asarum canadense	Wild Ginger	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	5
Carex albursina	White Bear Sedge	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	7	5
Carex arctata	Drooping Wood Sedge	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	5
Carex leptonervia	Finely-nerved Sedge	N	NNR	NAR	N.A.	S4	NAR	N.A.	Common	5	0
Carex peckii	Peck's Sedge	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	5
Carex pedunculata	Long-stalked Sedge	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	5
Circaea lutetiana	Enchanter's Nightshade	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	3
Clematis virginiana	Virgin's Bower	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	3	0
Cornus alternifolia	Alternate-leaved Dogwood	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	6	5
Euthamia graminifolia	Grass-leaved Goldenrod	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	2	-2
Fraxinus americana	White Ash	N	NNR	NAR	N.A.	S4	NAR	N.A.	Common	4	3
Geranium robertianum	Herb Robert	N	N4	NAR	N.A.	S5	NAR	N.A.	Common	0	5
Geum canadense	White Avens	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	0

Hepatica acutiloba	Sharp-lobed Hepatica	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	5
Maianthemum racemosum	Spikenard	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	3
Menispermum canadense	Mayflower	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	3
Oryzopsis asperifolia	Rough-leaved Mountain Rice	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	5
Ostrya virginiana	Ironwood	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	4
Parthenocissus inserta	Virginia Creeper	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	3	3
Polygonatum pubescens	Solomon's Seal	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	5
Prunus serotina	Black Cherry	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	3
Robinia pseudoacacia	Black Locust	I	NNA	Exotic	N.A.	SNA	Exotic	N.A.	Exotic	0	4
Rubus strigosus	Wild Red Raspberry	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	0	-2
Sanguinaria canadensis	Bloodroot	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	5	4
Smilax hispida	Bristly Greenbrier	N	N5	NAR	N.A.	S4	NAR	N.A.	Common	6	0
Symphyotrichum cordifolium	Heart-leaved Aster	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	5
Symphyotrichum	Calico Aster	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	3	0
Thalictrum dioicum	Early Meadow Rue	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	6	3
Tilia americana	Basswood	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	4	3
Trillium grandiflorum	Large-flowered Trillium	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	5	3
Triosteum aurantiacum	Horse Gentian	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	7	5
Ulmus americana	American Elm	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	1	-5
Viburnum rafinesquianum	Downy Arrowwood	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	7	5
Viola blanda	Sweet White Violet	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	6	-3
Vitis riparia	Wild Grape	N	N5	NAR	N.A.	S5	NAR	N.A.	Common	0	0
Zanthoxylum americanum	Northern Prickly-Ash	N	NNR	NAR	N.A.	S5	NAR	N.A.	Common	3	3
MEAN										4	3

Total number of Native species =	38	or 97%
Total number of Introduced or Non-Native species =	1	or 3%
	39	

National and Provincial Rank: Based on current 2022 Ontario Natural Heritage Information Center (NHIC) listings

NNA/ NNR defined as: No Ranking
N5 defined as: Very common
N4 defined as: Common
N3 defined as: Rare to uncommon species
N2 defined as : Very Rare
N1 defined as: Extremely Rare

SNA defined as : Unranked
S5 defined as: Secure
S4 defined as: Apparently Secure
S3 defined as: Vulnerable
S2 defined as: Imperiled
S1 defined as: Critically Imperiled

NAR defined as : Not At Risk / END defined as : Endangered / THR defined as :Threatened / SC defined as : Special Concern

National Status based on: Species At Risk Act, COSEWIC 2022 Listings SARA: Schedule 1 listed, Schedule 2 or Scheule 3 or Not Applicable (NA)

Provincial Status based on: 2007 Endangered Species Act and current regulatory habitats, NHIC 2022 and 2022 COSSARO Listings
ESA:Regulated General or Specific Habitat or Not Applicable (NA)

Regional Status based on: Bruce-Grey Plant Committee: A Checklist of Vascular Plants for Bruce and Grey Counties Ontario

Ontario Ministry of Natural Resources and Forestry, 'Floristic Quality Assessment' (**FQA**) Scoring System:

CC = Coefficient of Conservatism, ranked 0 (grows anywhere) to 10 (very specific habitat requirements)
WI = Wetness Index, values from -5 (very wet) to 5 (very dry)

APPENDIX 4

- Fauna Inventory Listing with Rankings and Status Levels and Point Count Location Map

JT Pit: Study Land , Part Lot 22, Con 5 NDR, geographic Twp of Bentinck

Fauna Inventory with Current Ranking, Status and Observed Numbers

One Provincial Bird Species of Conservation Concern recorded: Eastern Wood-pewee

Birds Note: '*' denotes a criteria bird species for Significant Wildlife Habitat determination

	Latin Name	Common Name	Recorded Breeding Code	Observed Range of Adult Numbers	Federal			Provincial			Regional
					Ranking	COSEWIC	SARA	Ranking	COSSARO	ESA	Local
	Cardinalis cardinalis	Northern Cardinal	Po-H	2	N5	NAR	NA	S5	NAR	NA	Common
	Carduelis tristis	American Goldfinch	Pr	5	N5	NAR	NA	S5	NAR	NA	Common
	Charadrius vociferus	Killdeer	Conf	2	N5	NAR	NA	S5	NAR	NA	Common
	Colaptes auratus	Northern Flicker	Po-H	1	N5	NAR	NA	S4	NAR	NA	Common
	Contopus virens	**Eastern Wood-pewee**	Po-H	3	N5	NAR	NA	S4	**SC**	NA	Common
	Cyanocitta cristata	Blue Jay	Conf	4	N5	NAR	NA	S5	NAR	NA	Common
	Dumetella carolinensis	Gray Catbird	Po-H	2	N5	NAR	NA	S4	NAR	NA	Common
	Molothrus ater	Brown-headed Cowbird	Po-H	1	N5	NAR	NA	S4	NAR	NA	Common
	Picoides pubescens	Downy Woodpecker	Po-H	2	N5	NAR	NA	S5	NAR	NA	Common
	Poecile atricapillus	Black-capped Chickadee	Pr	5	N5	NAR	NA	S5	NAR	NA	Common
	Quiscalus quiscula	Common Grackle	Po-H	2	N5	NAR	NA	S5	NAR	NA	Common
X	Seiurus aurocapilla	Ovenbird	Po-S	3	N5	NAR	NA	S4	NAR	NA	Common
	Setophaga ruticilla	American Redstart	Pr	4	N5	NAR	NA	S5	NAR	NA	Common
	Spizella passerina	Chipping Sparrow	Po-H	12	N5	NAR	NA	S5	NAR	NA	Common
	Turdus migratorius	American Robin	Conf	5	N5	NAR	NA	S5	NAR	NA	Common
	Zenaida macroura	Mourning Dove	Pr	4	N5	NAR	NA	S5	NAR	NA	Common
	Zonotrichia albicollis	White-throated Sparrow	Po-H	3	N5	NAR	NA	S5	NAR	NA	Common

Condensed Breeding Codes as per Bird Studies Canada Protocol

Ob = Observed bird outside of the Breeding Season
Ob-X = Observed in breeding season but no evidence of breeding
Po-H = Possible: Observed in suitable nesting habitat
Po-S = Possible: Singing/Calls in suitable nesting habitat
Pr = Probable: pairs observed, nest building, courtship display
Conf = Confirmed: active nest, egg shells, feeding young

Mammals

Latin Name	Common Name	Observed Number	Federal			Provincial			Regional
			Ranking	COSEWIC	SARA	Ranking	COSSARO	ESA	Local
Lepus americanus	Snowshoe Hare	2	N5	NAR	NA	S5	NAR	NA	Common
Odocoileus virginianus	White-tailed Deer	3	N5	NAR	NA	S5	NAR	NA	
Peromysus maniculatus	Deer Mouse	3	N5	NAR	NA	S5	NAR	NA	Common
Procyon lotor	Raccoon	1	N5	NAR	NA	S5	NAR	NA	
Tamias striatus	Eastern Chipmunk	3	N5	NAR	NA	S5	NAR	NA	Common

Reptiles

None observed		0							

Amphibians

Lithobates pipiens	Northern Leopard Frog	5	N5	NAR	NA	S5	NAR	NA	Common
Lithobates sylvaticus	Wood Frog	2	N5	NAR	NA	S5	NAR	NA	Common

Butterflies

Callophrys augustinus	Brown Elfin	3	N5	NAR	NA	S5	NAR	NA	Common
Papilio cresphontes	Giant Swallowtail	2	N5	NAR	NA	S5	NAR	NA	Common
Pieris rapae	Cabbage White	7	NNA	Exotic	NA	SNA	Exotic	NA	Exotic

Fish

None Observed		0							

Dragonflies & Damselflies

Anax junius	Common Green Darner	1	N5	NAR	NA	S5	NAR	NA	Common
Sympetrum rubicundulum	Ruby Meadowhawk	3	N5	NAR	NA	S5	NAR	NA	Common

NNA defined as: Not Ranked
N5 defined as: Secure
N4 defined as: Apparently Secure
N3 defined as: Vulnerable
N2 defined as : Imperiled
N1 defined as: Critically Imperiled

SNA defined as : Unranked
S5 defined as: Secure
S4 defined as: Apparently Secure
S3 defined as: Vulnerable
S2 defined as: Imperiled
S1 defined as: Criticall Imperiled (Prov. Rare)

NAR: Not At Risk
END : Endangered
THR: Threatened
SC: Special Concern

National Status based on: Species At Risk Act, and COSEWIC 2022 Listings SARA: Schedule 1 listed, Schedule 2 or 3 or Not Applicable (NA)

Provincial Status based on: 2007 Endargered Species Act, NHIC 2022, and COSSARO 2022 Listings ESA:Regulated or Not Applicable (NA)

Regional Status lists based on:
Birds- Region No. 8 (Bruce) 'Atlas Breeding Birds of Ontario 2001-2005'
Dragonflies & Damselflies: S. Ontario Regional Lists of Odonata, Paul Pratt

Anuran (Frog and Toad) Point Count Calling Survey Results:

Survey Date / Time	Point Count No.	Species Code / Calling Code / Numbers	Species Code / Calling Code / Numbers
April 29/ 2100	A1	WF / 1 / 2	~
May 19/2200	A1	NLF / 1 / 5	~

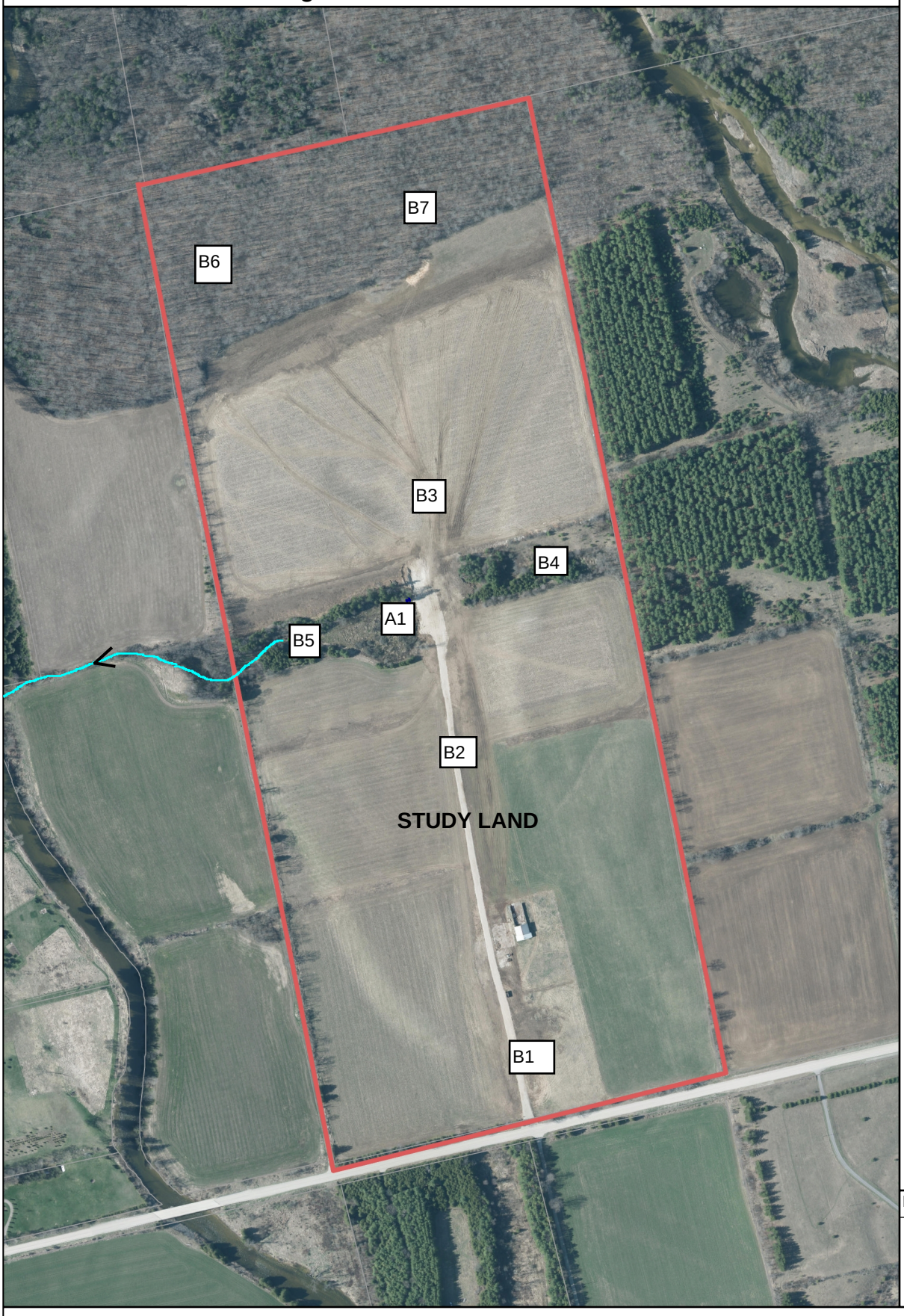
North American / Bird Studies Canada - Marsh Monitoring Frog Calling Abundance Codes:

Code 0 = No calling activity
Code 1 = Individual calls do not overlap and calling individuals can be descretly counted
Code 2 = Calls of individuals sometimes overlap, but numbers of individuals can still be estimated
Code 3 = Overlap among calls seems continous (full chores) and count estimate is impossible

Frog Species Codes:

SP = Spring Peeper	WF = Wood Frog	NLF= Northern Leapord Frog	BF = Bullfrog	MF = Mink Frog
GT = Gray Treefrog	GF = Green Frog	AT = American Toad	PF = Pickeral Frog	WCF = Western Chorus Frog

JT Pit, Natural Environment Point Count Monitoring Locations



Legend

Parcels - Current

LEGEND

A1 Anuran Calling Survey

B1 Breeding Bird Survey

Notes

394 0 197 394 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

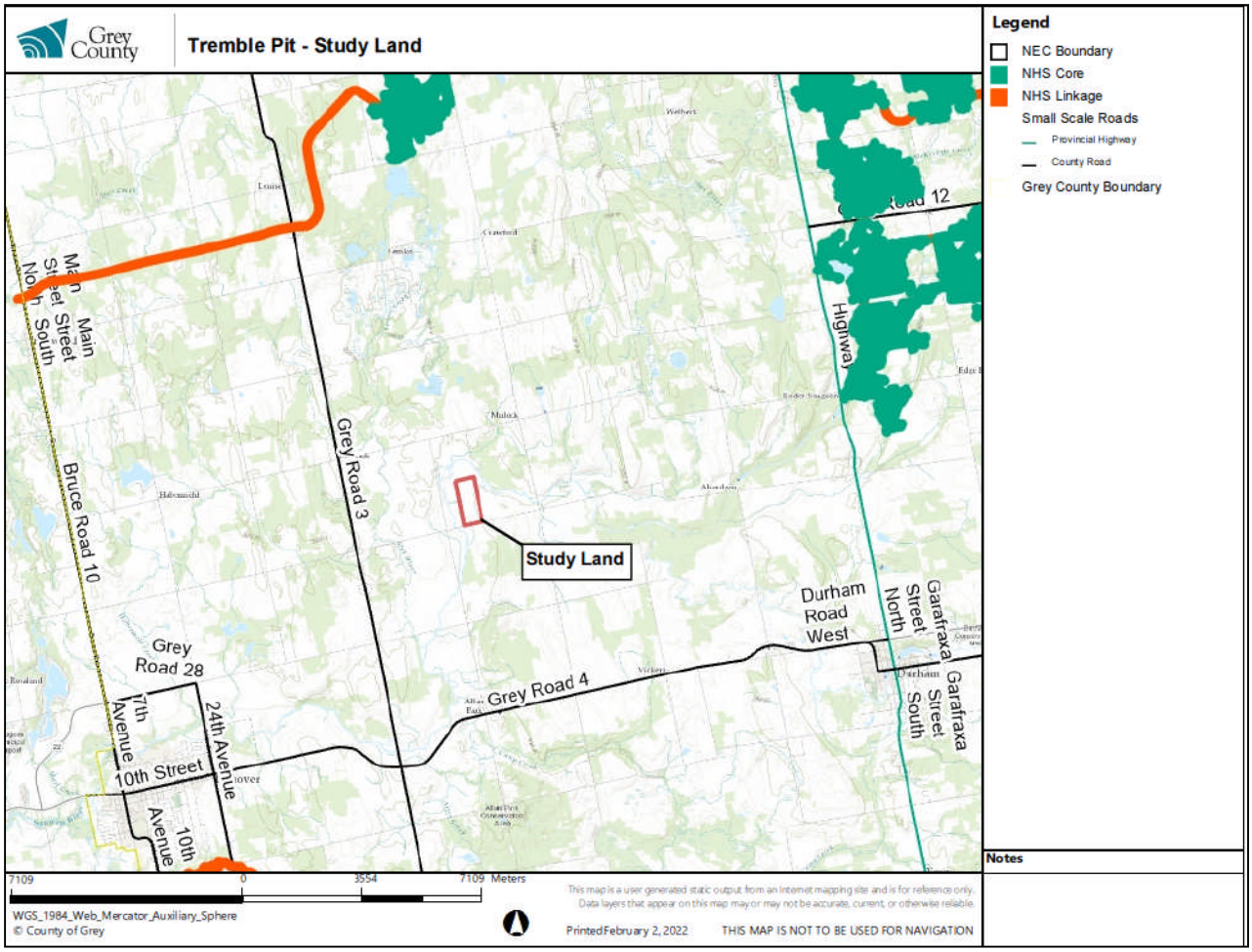
This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

Printed: November 25, 2021 THIS MAP IS NOT TO BE USED FOR NAVIGATION

APPENDIX 5

- Grey County Natural Heritage System for the Study Area

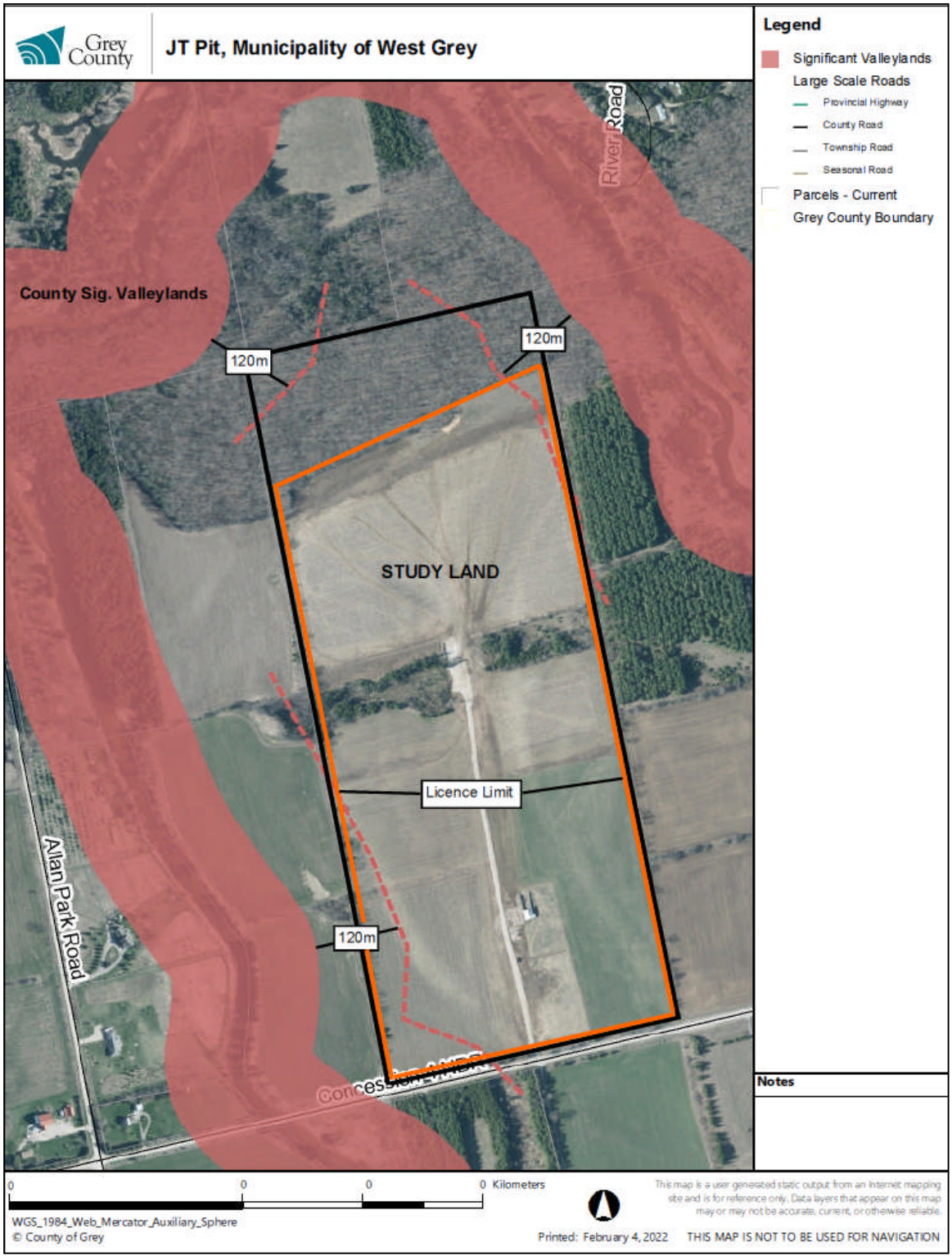
Grey County Natural Heritage System: Core Features & Linkages



APPENDIX 6

- Significant Valleyland –Adjacent Lands

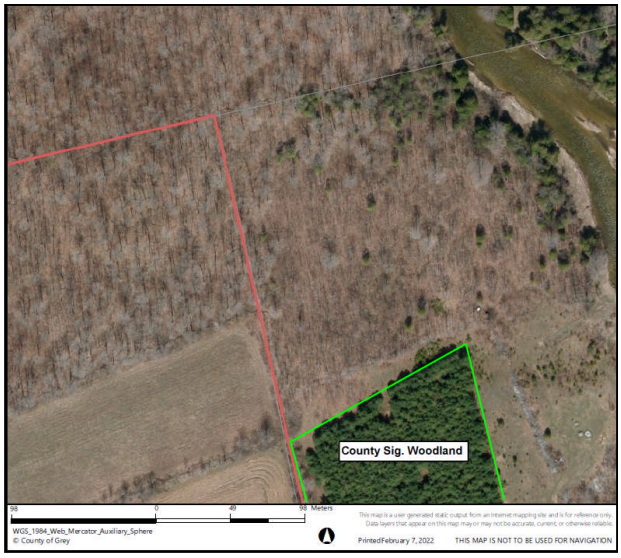
County Significant Valleyland Feature: 120m Adjacent Lands



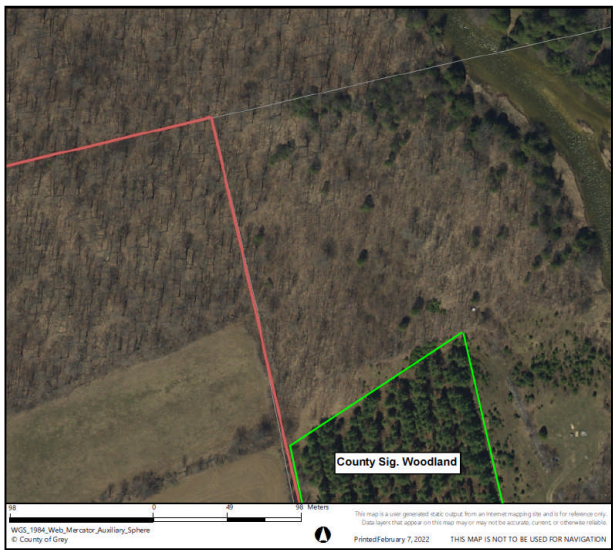
APPENDIX 7

- Tree Succession and Expansion of the Significant Woodland area

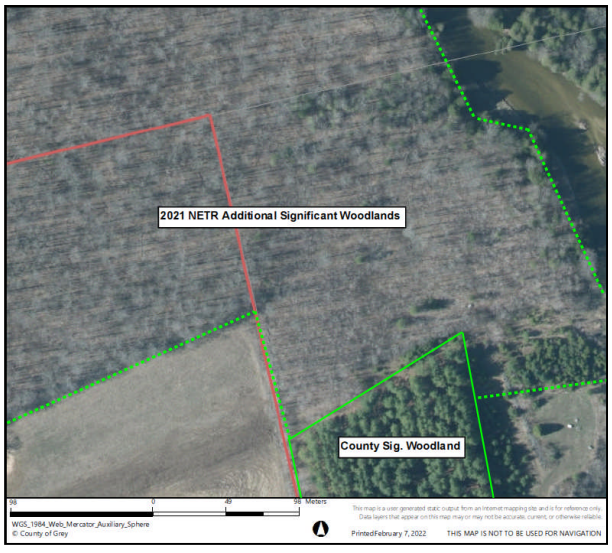
Significant Woodland Review: Northwest Study Land Corner Tree Age Succession



2010 Air Photo Imagery



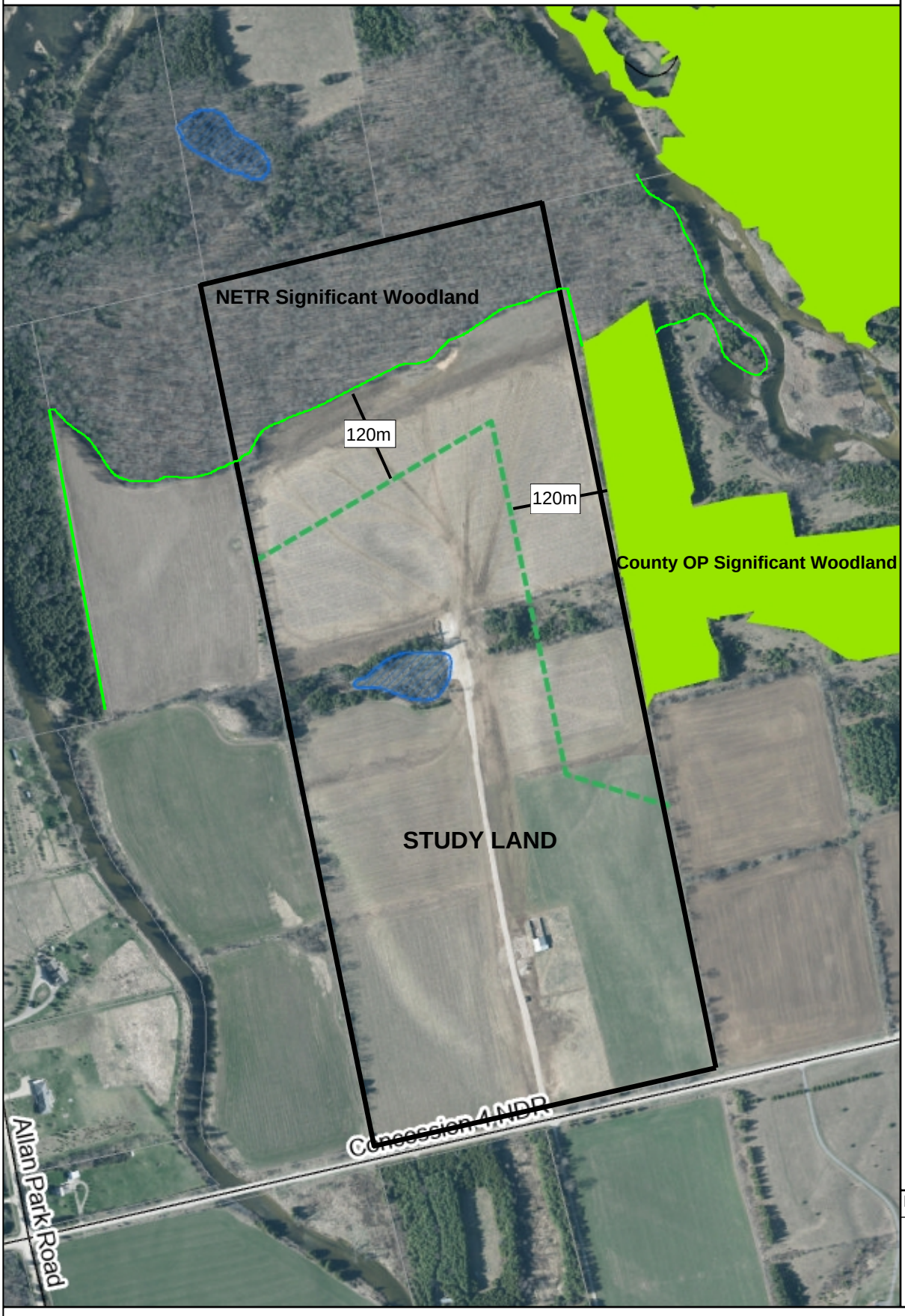
2015 Air Photo Imagery



2020 Air Photo Imagery

2021 Site Photo, North Limit of County Sig. Woodland with continuoues Hardwood Trees to the North

JT Pit Application: Part Lot 22, Con. 5 NDR, Municipality of West Grey



Legend

- Other Wetlands
- Significant Woodlands
- Large Scale Roads
  - Provincial Highway
  - County Road
  - Township Road
  - Seasonal Road
- Parcels - Current
- Grey County Boundary

Notes

444 0 222 444 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

Printed: February 4, 2022

THIS MAP IS NOT TO BE USED FOR NAVIGATION

APPENDIX 8

- Study Lands Photographs, 2021

Photo No. 1: Vegetation community 1, June 2021

Photo No. 2: Vegetation community 2, June 2021

Photo No. 3: Vegetation community 3, June 2021

Photo No. 4: Vegetation community 4, June 2021

Photo No. 5: Vegetation community 5, June 2021

Photo No. 6: Vegetation community 6, May 2021

Photo No. 7: Existing agricultural lane bisecting central property ravine area, April 2021

Photo No. 8: Cash crop (soy beans) field, extraction area, June 2021

APPENDIX 9

- AWS Qualifications and Experience

AWS

AWS Environmental Consulting Inc.
(Operating as Aquatic and Wildlife Services)
242090 Concession Rd. 3 Keppel,
R.R. # 1, Shallow Lake, Ontario, Canada, N0H 2K0

Office: 519-372-2303, Email: aws@gbtel.ca
Web site: www.awsenvironmental.ca

C.V. Summary: John D. Morton

Education

- 1985: Graduate Sault College, Forestry Technician
- 1986: Honors Graduate Sault College, Fish & Wildlife Technologist
- 15 years training and experience with Ontario Ministry of Natural Resources as a contract & full time employee for Natural Heritage Programs and Biology/Ecology

Work Experience Summary

- 1997 to Present: Sole Proprietorship of **Aquatic and Wildlife Services**, specializing in Natural Heritage
  Studies and Development Impact Assessments:
  - Over 250 Natural Heritage and Natural Environment Impact Study Reports for Land Use development proposals throughout Southwestern and Central Ontario in accordance to Legislation and Regulation for Federal and Provincial Agencies, Government and Niagara Escarpment Plan Policies and Conservation Authority Regulatory Lands.
    - Impact assessment technical reports ranging from: Single Residential Lot creations to Plan of Subdivisions for 100+ Lots, and Aggregate applications ranging from 5ha Wayside Gravel Pits to120 ha Quarry Operations for both above and below groundwater table.
  - Design and Monitoring technical reports for Marina Development, , Water Crossings, Recreational Pond designs, Fish & Wildlife Habitat Restoration Plans and Managed Forest Plans.
  - Species At Risk Surveys for flora and fauna with study areas encompassing 20ha to 7000ha
  - Ontario Municipal Board expert witness testimony on Natural Heritage Features, Ecology, Development Impacts and Mitigation Techniques.

- 1986 to 1997 : Resource Technician with the Ontario Ministry of Natural Resources, responsibilities included:
  - Backfill positions for Owen Sound Area Office District Biologist (Fisheries and Wildlife), and District Fish & Wildlife Management Officer.
  - Review and commenting on Provincial interests through Planning Review for development proposals.
  - Deputy Conservation Officer with completion of 5-week Enforcement Training Program, Provincial Offenses charges, court evidence presentation and convictions.
  - Fish & Wildlife Population and Habitat surveys and Rehabilitation Designs.

- Midhurst District Administrator and Program Coordinator of Wetlands and CFWIP Programs with annual budgeting and auditing roles.
- Fisheries Research Technician and Fish Culture Technician, Chatsworth Fish Culture Station.

- 1982 to 1986 : Contract Resource Technician With Ontario Ministry of Natural Resources, Grey-Sauble and Saugeen Conservation Authorities, responsibilities included:

  - Wetland Inventory Technician, Fish and Wildlife Population and Habitat Surveys.

Project Related Experience Summary

- Fauna population and habitat surveys:

  - Salmonid biomass surveys through seining and Electrofishing.
  - Stream/Watershed surveys for habitat quality/conditions, fish passage/barriers, water quality assessment including Benthic Macro Invertebrate sampling.
  - Genetic research survey work on Chinook Salmon, Saugeen Muskellunge, Backcross Lake Trout.
  - Inland Lake surveys for water quality, thermal regimes, fisheries qualitative assessments through seining, trap netting, creel survey.
  - Stream/River/Lake Fisheries habitat enhancement and rehabilitation Plans.
  - Wintering Deer Yard mapping, quality assessment, carrying capacity calculations, herd health monitoring and natural reproduction rates.
  - Genetic research work on Bruce Peninsula Eastern Massassagua Rattlesnake and Black Bears including radio telemetry.
  - Breeding Bird surveys including waterfowl nesting surveys and natural recruitment success, Bald Eagle monitoring and banding, mapping of Owen Sound area significant production/staging areas.
  - Amphibian qualitative assessment within sensitive environments and monitoring population trends for wetland habitat conditions.
  - Species At Risk Surveys with habitat mapping and Ecological Land Classification community mapping for Copeland Forest, Shallow Lake Wetland, Meaford National Defense Training Centre, Grey County Pretty River Forest Tract and Oliphant Fens

- Flora species and habitat surveys:

  - Provincially Certified Wetland evaluator to Book 2 and 3 standards, with over 150 wetland evaluations and desktop upgrades completed. Wetland Evaluation instructor to former book 2 standards with successful training of 30+ candidates.
  - Southern Ontario Ecological Land Classification- Vegetation Community Mapping for sensitive and/or rare habitat types including fens, bogs, natural beaches, and alvars plus common woodland community types.
  - Botanical qualitative inventory works including identification, mapping of species of conservation concern with status levels and habitat types/condition assessments.
  - Tree marking for sustainable harvesting and rotational management of fuel wood and/or saw logs.
  - Native tree and shrub nursery operation with annual seedling production and retail sales of deciduous and conifer seedlings and saplings.

Certification & Training Courses:

- Provincially Certified Wetland Evaluator to Book 2 and Book 3 Standards
- Provincial Class 1 Electrofishing Certification
- Provincial workshop training for Natural Heritage Environmental Impact Studies, Natural Hazard Studies and Non-Renewable (Aggregates) Impact Studies
- Level '1' OMNR Law Enforcement training
- Advanced Fish Habitat training and Habitat Impact Assessment
- Fluvial Geomorphology Workshop
- Stream Bioengineering Restoration training
- Cyprinidae Identification Workshop
- Wetland Restoration Techniques Training
- Provincial Managed Forest Tax Incentive Plan Approver
- Species-At-Risk Ontario Mussel Identification
- Bruce Peninsula Eastern Massassagua Rattlesnake Habitat Identification Training through Radio Telemetry work with Parks Canada
- Ecological Land Classification System for Southern Ontario
- Provincial Tree Making Course
- WHMIS
- Ontario Courts Evidence Collection and Presentation Training
- Department of Fisheries and Oceans South Georgian Bay Fish Habitat Issues Workshop
- Provincial Butternut Health Assessor
- Biotechnical Slope Stabilization Workshop.

Recipient of Provincial -OMNR Award for Fish Habitat Restoration Works & Stewardship

JUDITH JONES, Biologist **WINTER SPIDER ECO-CONSULTING**

P.O Box 278, Manitowaning, Ontario P0P 1N0 Canada (705) 859-1027 or (416) 268-0993 cell
<winterspider@eastlink.ca>

M.S. Cell Biology, University of Illinois, Chicago 1983
B.S. Botany, University of Michigan, Ann Arbor 1980
Ontario provincial wetland evaluator--certified 1999
Canadian Environmental Assessment Agency—screening training, 2007
Certificate of Proficiency in Spanish, Ryerson University, 2012

I have been an independent biological consultant since 1995. My work supports conservation as well as intelligent development and sustainable resource use. It is my conviction that sustainable growth requires all of these. My experience covers a broad range, including environmental assessments (EIS, NETR, CEA) for private development and First Nations; biological inventories and vegetation mapping; recovery and monitoring of Species-At-Risk (SAR); management and conservation planning for natural areas and parks; working with First Nations on land use planning and conservation; alvar ecology; gathering traditional ecological knowledge (TEK), and teaching the general public. I am the author of more than 30 federal or provincial recovery strategies and 9 COSEWIC status reports for endangered/threatened species.

SELECTED CONSULTING ACTIVITIES 2000-2020

Ecosystem Restoration

2016-present • Coordinator, Manitoulin Phragmites Project. A $100k / year funded project to control Invasive Phragmites across Manitoulin Island, (Ontario SAR-SP, Gosling Foundation, and other partners).

Environmental Assessment

2005-present • Field surveys for EIS and NETR for proposed developments and new aggregate licences (AWS Environmental Inc.; WSP Canada; Robin Craig Consulting)

2014-present • Field surveys and assessments for SAR for private landowners and real estate agents on Manitoulin Island (Rolston Realty, Hugh McLaughlin Realtor)

2015 • Background work, field surveys, and oversight to fulfill federal environmental requirements for SAR during oil well remediation (Wiikwemkoong Unceded Territory)

2006-2007 • CEA screenings for new subdivision, fuel storage, ambulance base (Beausoleil FN)

Selected Inventories of Natural Areas with Management and Conservation Planning

2013-2015 • Rankin Management Area (Rankin Resources Group/OMNRF)

2014 • 58 acres on Manitoulin Island for a Species at Risk farm plan (private owner)

2011-12 • Measuring 50 years of forest change (Niagara Escarpment Commission)

2011 • Ecological values of a property for an ecogift transaction (Orland Conservation)
• Copeland Forest (Couchiching Conservancy)

2009-2010 • Oliphant Shoreline (Lake Huron Centre for Coastal Conservation)

2009 • Degrassi Point Prairie Remnant ANSI (OMNRF Midhurst)

2004 • Carden Alvar ANSI (OMNRF Bancroft)
• Trent-Severn Waterway (Parks Canada, Peterborough)

2003 • 20 candidate ANSIs on Manitoulin Island (Escarpment Biosphere Cons.)
• Wawashkesh - Naiscoot Conservation Reserve (OMNRF Parry Sound)
• Freeman Twp. Old Growth Conservation Res. (OMNRF Parry Sound)

2001-2002 • Field work Ontario's Living Legacy/Georgian Bay Coast (NCC/OMNRF)
2000 • Niagara Escarpment of Manitoulin Island (Escarpment Biosphere Cons.)
• Misery Bay Provincial Nature Reserve (Ontario Parks Northeast Zone)
• Queen Mother-M'Nidoo M'Nissing Prov. Park (Ontario Parks Northeast Zone)
• Blue Jay Creek Provincial Park (Ontario Parks Northeast Zone)

Species-At-Risk: General Surveys, Threats Reduction, Conservation Planning

2007-present • Wiikwemkoong First Nation
2010 • United Chiefs and Councils of M'Nidoo M'Nissing (Manitoulin Island)
2009 • Shallow Lake SAR survey (AWS Environmental Inc., Owen Sound)
2009 • Serpent River First Nation
2004-5 • North Channel and Manitoulin Island alvars (Parks Canada)

Species-At-Risk: Monitoring Design and Implementation

2010-present • Hill's Thistle (Thr.) at Wiikwemkoong Unceded Territory, Bruce Peninsula NP, Ontario Parks, and NCC properties
2015 • Prairie ecosystem habitat improvement: project and monitoring design (CWS)
2009-present • Eastern Massasauga Rattlesnake in Wiikwemkoong Unceded Territory
2003-present • Pitcher's Thistle (Thr./SC) in the Manitoulin Island region
2004-present • Coordination of volunteers who monitor Pitcher's Thistle
2008 • Forked Three-awned Grass at Georgian Bay Islands NP (Parks Canada)

Species-At-Risk: Habitat Delineation, Field Mapping, and Protection

2016 • Aweme Borer Moth (End.) (CWS and Ontario SAR-SF funding)
2015-2017 • Habitat management for Pitcher's Thistle (Ontario SAR-SF funding)
2014 • Colicroot distribution and habitat study (CWS)
2005-6, 2010 • Forked Three-awned Grass (End.) (Canadian Wildlife Service)
2006- 2008 • Dwarf Lake Iris (Thr.) and Hill's Thistle's (Thr.) (Parks Canada, Ottawa)
2007 • Critical habitat design for Pitcher's Thistle (End.) in Pukaskwa National Park
2001-2004 • Pitcher's Thistle populations and initial habitat characteristics
2002 & 1999 • Loggerhead Shrike & habitat on Manitoulin Island (OMNRF Kempsville)

Species-At-Risk: Recovery Strategies, Action and Management Plans, Status Reports

Summary 2007 – 2020 (details on request). Author of more than 30 recovery strategies, management plans, and COSEWIC reports on SAR. These are legal federal or provincial government documents for the recovery and protection of SAR. Species include: American Hart's-tongue Fern, Aweme Borer Moth, Blue Ash, Cherry Birch, Climbing Prairie Rose, Colicroot, Crooked-stem Aster, Dense Blazing Star, Dwarf Lake Iris, Forked Three-awned Grass, Gattinger's Agalinis, Hill's Pondweed, Hill's Thistle, Houghton's Goldenrod, Illinois Tick-trefoil, Lake Huron Grasshopper, Lakeside Daisy, Large Whorled Pogonia, Nodding Pogonia, Pitcher's Thistle, Queensnake, Round-leaved Greenbrier, Slender Bush-clover, and Willowleaf Aster.

Species-At-Risk: Research, Outreach, Education

1992 – present • Spring flora classes for the Manitoulin Island community, weekly, casual basis.
2016 – present • Workshops for school and community members (Wiikwemkoong)
2017 • Population viability analyses for Pitcher's Thistle [with Parks Canada]
2010 • Demographic trends in Pitcher's Thistle at Pukaskwa National Park

References and Publications

Gladly supplied on request.

Natural Environment Technical Reports: Aggregate Resources Experience 1997-2019

Bruce County (42)

- Johnston Bros. Colwell Pit
- Ferris Pit
- Hunter Albemarle Quarry
- Greenock Pit
- Culross Pit
- Gingerich Pit
- HSC Lindsay Quarry
- Bridge Wiarton Quarry
- Buckskin Wiarton Quarry
- Teeswater Concrete Pit
- Crigger Pit
- Arran Wayside Pit
- Elderslie Wayside Pit
- Vola Rock Quarry
- Hays Quarry
- Hunter Albemarle Pit
- DiPoce Quarry
- Cedarwell Hanover 'B' Pit
- Lang Farm Pit
- Ransome Construction-Arran Pit
- Horner Pit-Arran
- Bester Pit
- Everest Quarry
- Bricker Pit
- Reich Pit
- Chepstow Pit
- Bridge Lindsay Quarry
- Nickason Pit
- Arran Wayside
- K.Jackson Pit
- Forbes Tara Pit
- South Bruce Pit
- Beirnes Pit
- Chamberlain Quarry
- Lang Farm 2 Pit
- Ebel Quarry
- Legerock Wiarton Quarry
- Hunter Albemarle Quarry
- Campbell Pit
- HSC Albemarle Quarry
- BIO- Quarry Road East Side
- Crigger Pit Expansion

Grey County (42)

- Kilsyth Wayside Pit
- Arnott Pit
- HSC Clavering Pit
- Kinghurst Taylor Pit
- Cedarwell Priceville Pit
- HSC Grant Pit
- Cedarwell Benett Pit
- Priceville Pit
- H. Bye Const. Rice Pit
- H. Bye Const. Atiken Pit
- J. Cook Pit
- S. Cook Pit
- West Grey Wayside Pit
- H. Bye Const. Flanagan Pit
- Gowenlock Pit
- Southgate Pit 2
- Winter Pit
- Hays Pit
- Shepherd Pit
- Best Pit
- Aberdeen Pit
- Durham Stone & Paving Arnil Pit
- H. Bye Const. Egremont Pit
- Feversham Pit
- HSC Durham Pit
- HSC Keppel Quarry
- HSC Bayview Quarry
- HSC Sarawak Clay Pit
- Southgate Pit
- HSC Pike Pit
- Aberdeen Exp. Pit
- Winters Quarry
- Blueland Farms Handy Pit
- O'Neil Pit
- Ellison Pit
- Becker Pit
- West Grey Wayside
- Fleshcon Croft Pit
- Ardiel Pit
- Southgate Pit
- Markdale Pit
- Cedarwell Hanover B Pit

Region of Durham (3)

- Vicdom S & G North Sunder. Pit
- Vicdom S & G Sunderland Pit
- Brock Aggregates Sunderland Pit

Huron County (4)

- Open Valley Pit
- Handy Acres Pit
- Porter Pit
- Lavis Contr. Walter Pit

Middlesex County (8)

- Forest City Agg. II, VDV Pit
- Demar Agg. Lagrou Pit
- L82 Const. Hill Pit
- Demars Fallan Pit
- Blythdale Leitch-Gover Pit
- Paton Bros. Trafalgar Road Pit
- Szorenyi Pit Expansion
- London-Byron Pit

Oxford County (14)

- Matheson Farms Pit
- Twp of S.-W. Oxford Horely Pit
- Stubbe's Precast Sims Pit
- Forest City Agg.Arnold Pit
- Bedrock G & S Boniface Pit
- Demar Agg. Granger Pit
- AAR-CON Baigent Pit
- Zorra Twp. Robinson Pit
- Smith Const. Pit
- Paton Peat Extraction
- Blythdale Ross Pit
- Stubbe's Precast Chapman Pit
- Horley Pit Expansion
- Ross Pit Expansion

Dufferin County (1)

- St.Mary's Cement Craig Pit

Elgin County (2)

- Strickland Bulldozing Strickland Pit
- Walker Pit

Peel Region (1)

- Blueland Farms McCormick Pit

Simcoe County (1)

- Croft Sunnidale Pit

Manitoulin Island (1)

- Aggregate Resource Suppliers Association

AWS: Natural Heritage Environmental Impact Studies and Experience 1997-2020

Residential Subdivisions & Commercial Development

Grey County (18)

Andpet 16th Ave Comm Deve.-Owen Sound
Loucks Subdivision- Chatsworth
Langen Subdivision-Shallow Lake
Boulter Subdivision- Keppel
Hilton Head Subdivision- Meaford
Oak Meadows Subdivision-Meaford
Mannerow Estates- Owen Sound
Georgian Shores Subdivision-Sarawak
Sutacriti Park Phase III- Sarawak
Debrincat Subdivision- Holland
Ferraro Subdivision- McCullough Lake
Andpet Bothwells Corner Comm.- Owen Sound
HSC Alvanley Comm. Cement Plant-Keppel
MacKinnon-Smart Subdivision-Francis Lake
Saugeen Cedar Heights-Hanover
Sunvale Homes-Durham
Barry's Construction-Kilsyh
Georgian Escapes-Owen Sound Bay

Bruce County (31)

Lakeside Woods Subdivision-Saugeen
Weatherhead Development- Eastnor
Maple Ridge Development-Amabel
Good Acres Development-Eastnor
Brown Subdivision- Kincardine
Sundance Estates- Bruce
Walker Estates Phase II-Amabel
Mystic Cove Subdivision-Kincardine
Black Subdivision-Kincardine
Mary Rose Subdivision-Saugeen
Gray Mildmay Development- Carrick
Lake Huron Escape-Bruce
MacKenzie Development-Saugeen
Harkins Harbour Development- Lindsay
Karen Investment Ltd-Port Elgin
Dent Dubdivision-Mildmay
Barry's Construction- Blue Water Shores
Pegasus Trails-Saugeen
Lorne Beach Development- Kincardine
Mulholland Division St-Southampton
Chippewa Golf & Country Club-Saugeen
Leslie Subdivision-Saugeen
McMillan Subdivision-Saugen
Peacock's Meats and Groceries Inc-Tobermory
John Webster-Southampton
John Innes-Southampton
Moravian Subdivision-Southampton
Barry's Construction-Walkerton
Innes Subdivision-Southampton
Sauble Sunset Residence-Subdivision
Sabbagh: Southampton Subdivision

Manitoulin Island (1)

Barrie Island 300ac Cottage Subdivision

Infrastructure Projects & Industrial Development

Bruce County (20)

Barrow Bay North Shore Road
Bruce Road 21-Stoney Creek
Bruce Rd 25 and Bruce Rd 23 and Shipley Creek
Kincardine-Park Street
Bruce Road 12 and Bruce Rd 9
Hwy 6 Culverts-Northern Bruce Peninsula
Southampton Sanitary Sewers
Arran Landfill Expansion
Calhouan Drain
Bruce County Line Road Upgrades
Otter Creek-Dam Removal
McClure's Bridge
Silver Creek Bridges-Walkerton
Saugeen Shores 10th Line Drain
Mildmay Elora Street Dam Removal
South Bruce Carrick-Normanby Meux Cr Bridge
Mildmay Adam Street Dam Removal

Grey County (20)

Owen Sound 7th Street Drain
Highway 4 Hanover-Stream Crossing
Owen Sound 6th Ave Stream Course
Sarawak Carney Street SWM
Southgate- Camp Creek Crossing
Owen Sound 9th St. Bridge
Owen Sound 10th St. Extension
Grey County Line
Greir Creek Bridge
Chatsworth- Sewage Upgrade
Southgate-Stream Realignment
Mill Creek Crossing
Dipple Drain
West Grey-Traverston Creek Realignment
Owen Sound-Sydenham River Stabilization
Minnihill Creek Fish Habitat Improvements
Town of Hanover Business Park
Viking-Cives Ltd - Mount Forest
Sydenham Heights-Owen Sound Servicing
Georgian Bluffs-Inglis Falls Road

Wellington County (4)

Murphy Subdivision - Mount Forest
South Saugeen Development-Mount Forest
Town of Minto-Coon Creek 5-Year Monitoring
Town of Minto-Palmerston Industrial Park

Perth County (1)

Maitland River Estates - Listowel

Huron County (2)

Wingham Force main
Goderich Pier Stabilization

AWS: Natural Heritage Environmental Impact Studies and Experience 1997-2020

Recreational and Energy Land Use Development

Grey County (31)

Monterra Plateau Stream Realignment
Devils Glen Ski Hill Expansion
Morris Wetland Creation
Rocky Saugeen Campground Expansion
Sobiski Property Shoreline Stabilization
Pesnail Property Shoreline Stabilization
Carmicheal Pond Cleanout
Overton Pond Design
Beaver River Bank Stabilization
Andrews Pond Design
Hrodzicki Storage Building
Klages Tree Retention Plan
Cedar Run Horse Park Expansion
Osler Bluff Shi Club-Storage Building
Osler Bluff Ski Club-Water Reservoir
Blue Mount. Orchard Run Ski Hill Expansion
Walters Falls Hydro Facility Proposal
Blue Mount Resort-Roller
Blue Mount. Resort Stream Monitoring
AndPet Commercial Development
East West Exchange Retreat Camp
Lahman Comm. Development
Blue Mount. Resort SWMP Outlet Monitoring
Lee Pond Design
Morrison Marina
Meaford-Cemetery Creek Realignment
Goodyear-Effluent Monitoring
Miller Group Ltd, -Owen Sound Indus. Park
Parker-Nature Retreat Resort
Bayou Cable Park Inc.-Thornbury
Georgian Escapes Ltd- Retreat

Bruce County (13)

Blue Heron Parking Lot
Home Hardware-Sauble Beach
Mystic Cove Stream Realignment
Casey Property-Bank Stabilization
Wells Trucking-Mildmay
MacKenzie Marina Dredging
Pike Bay Marina Dredging
Chesley Lake Cottagers Assoc. Dredging
Miller Property Shoreline Dredging
Hood Property Shoreline Dredging
Smith Com. Expansion
LEED Tree Retention Plan
Mildmay-Hamel's Pond and Elora Street Dam

Simcoe County (4)

Hamilton Brothers Ltd.-Stream Restoration
Devils Glen Stream Realignment
Devils Glen Club House Expansion
Robitaille Wind Farm-Cedar Point

Dufferin County (2)

Bowman Comm. Development
Cedar Highlands Ski Club

Wellington County (1)

White's Creek Restoration

Manitoulin Island (2)

Manitoulin Streams Association
Municipality Official Plan

AWS: Natural Heritage Environmental Impact Studies and Experience 1997-2020

Lot Severances & Building Envelopes

Grey County (98) and NEC

Zaferis Building Envelope	Hughes Building Envelope	Wiley Severance
Clancy- 20th Street Building Envelope	Wilson Building Envelope	Davies Severance
Emmerson Building Envelope	Smith Severance	Stewart Severances
Shantz Building Envelope	Currie Building Envelope	Irwin Building Envelope
Fligg Building Envelope	Volette Building Envelope	Valent Building Envelope
Todd Severance	Robinson Severance	Barfoot Building Envelope
Underwood Building Envelope	Taylor Building Envelope	Voisin Building Envelope
Klages Severances	Lowe Building Envelope	Colborne Building Envelope
Beacock Building Envelope	Donavon Building Envelope	Tengler Building Envelope
McNeil Building Envelope	Lupia Building Envelope	Langeraap Building Envelope
Gilbert Severances	Zeggil Severances	Wattie Building Envelope
Dillman Severance	McNeil Severance	Hall Severance
Thom Severances	Byers Building Envelope	Hrodzicki Building Envelope
DiFransco Severances	Gilmour Building Envelope	Nicholls Dwelling Expansion
Farnenhorst Building Envelope	Martindill Severance	NEC-Caframo Tree Preservation Plan
Biesinger Severances	Peach Severance	Elliott Building Envelope
Love Building Envelope	Ryan Severance	Spaleta Building Envelope
Braun Severances	J. Martin Building Envelope	Haslam Severance
Legge Building Envelope	Shrek Building Envelope	Bethune Severance
Wilcox Building Envelope	James Severance	O'Sullivan Building Envelope
HSC Clavering Severances	Maxwell Severance	McGlynn Building Envelope
Holmes Building Envelope	Harris Severance	Edgar Lot Severances
Brulette Severances	R. Martin Building Envelope	Moore Buliding Envelope
Philipp Severances	Philipp Building Envelope	Dr. Bond Lot Severance
Sheppard Severance	Bauman Building Envelope	Craig Building Envelope
Pfaff Building Envelope	Berg Building Envelope	Godwin Building Envelope
Wilmer Severances	Shrek Severance	Weber Envelope
Doherty Building Envelope	Yoder Severance	Value Stream Prod. Severances
Menaul Severance	Hollingshead Severance	Cameron Building Envelope
McNabb Building Envelope	McKay Building Envelope	Kopp Laneway-Wetland Coridor
Toombs Building Envelope	Molner Severance	Maddil Lot Development
McGowan Building Envelope	Detzier Severance	Wilkie Lot Development
Lobban Severance	Baragar Building Envelope	

AWS: Natural Heritage Environmental Impact Studies and Experience 1997-2020

Lot Severances & Building Envelopes continued

Bruce County (50) and NEC

Lee Building Envelopes
Hall Building Envelope
Vespasiano Severance
Matheson Severances
Seeman Severance
P. MacDonald Severances
Arcaro Building Envelope
Goetz Severances
Chippewa Golf Course Severances
S. MacDonald Severances
Zepf Severances
Porto Severance
B. Elliot Severances
Royal Homes-Kincardine
Ferguson Point Severances
CAW-Saugeen Beach Severances
Siekierski Building Envelope
Murray Severance
Walker Severances
Janssen Building Envelope
Knight Building Envelope
Thorn Severance
Kramer Building Envelope
Smith Severances
D. Elliot Severance
O'Conner Severances
McLay Severances
Burley Building Envelope
Hamiton Severances-Saugeen
Miramichi Shores-Copway St, Saugeen
Barclay Site Development-Saugeen
Collins Severance- Kincardine
NEC - Weiss Tree Preservation Plan
Town of Saugeen Shores Building Envelope
Bennett Severance
Voison-Southamton
Robinson Family-Southampton
Rudell-Fishing Islands
Kempton Building Envelope
Sauble Christian Felowship-Parking Lot Exp.
Lamport Building Envelope
Southampton-Division Street
Lamport Building Envelope
Carniello-Lake Huron Shoreline Dev.
Goodale Lot Severance
Rintoul Wiarton Lot Development
Martin Lot Severance
Hahn Lot Development
Earnest Lot Severances
Hayes Lot Development

Huron County (2)

Wingham Golf Course Severances
Kraemer Building Envelope

Dufferin County (1)

Preist Severance

Wellington County (2)

Town of Erin-Weber Building Envelope
Town of Erin-Langen Severance

Simcoe County (2)

Wilbert Severances
Alliance Homes Building Envelopes

Natural Environment Impact Assessment Reports for Aggregate Applications

Southern & Central Ontario: 120+ Technical Reports for Pits and Quarries, above and below watertable with scuccesful representation at Ontario Muncipal Board Hearing, Niagara Escarpment Hearings, County and Municipal Council Presentation and Legal Court Proceedings

Species At Risk and Biological Surveys

Bruce County (13)

Rankin River-Sky Lake SAR Study
Rankin River-Boat Lake SAR Study
Rankin River-Isaac Lake SAR Study
Beatty Saugeen River-Thermal
Grey/Bruce Wetland Evaluation Upgrades
Spring Creek Fish Habitat
Saugeen River-Muskellunge Habitat
Beatty Saugeen River-Smolt Passage
Chesley Lake Angling Winter Creel
Peninsula Black Bear Radio Tag-Dens
Peninsula Winter Yard Deer Browse
Denny's Dam Fishway Monitoring
Saugeen Shores-Significant Woodland Study

Grey County (3)

Shallow Lake SAR Study
Meaford National Defence Base SAR Study
Pretty River Valley County Forest SAR Study

Simcoe County (1)

Copeland Forest SAR Study

Region of Peel (1)

Rattray Marsh SAR Study

City of London (1)

Byron Pit Natural Environment Rehab Features