DANCE ENVIRONMENTAL INC.

Natural Environment Level 1 & 2 Reports and E.I.S.

For Aggregate Licence Application – 311804 Highway 6, Concession 1, Divisions 1 to 3 Part Lot 19 & 20, Concession 2, Part Lot 46 Normanby, West Grey County of Grey.

Prepared for:
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February 5, 2024.
DE-475

1.0 BACKGROUND

Teeswater Concrete Limited is applying for a Category 3 aggregate extraction licence for a new pit to be located at 311804 Highway 6, Normanby, West Grey, County of Grey. The proposed extraction area covers slightly more than 80ha.

The site is currently zoned C2-115, NE and NE2.

This Natural Environment Levels 1 and 2 Technical Report was prepared as part of the pit licence application. Dance Environmental Inc. was retained to prepare this report based on field work conducted within the proposed pit licence area and where possible the area within 120m, based on property access. The study site is located within Ecoregion 6E.

Within the EIS the use of the term “onsite” refers to the proposed pit licence area. The use of the term “offsite” refers to the area within 120m of the proposed pit licence area. Within the EIS the term “study area” refers to the site and offsite areas combined. The “limit of extraction” refers to the outer edge of where extraction will take place. The subject property encompasses approximately 133.3ha., see Figure 1.

A draft EIS Terms of Reference was prepared on August 8, 2023 and it was circulated to the County of Grey and the SVCA for comment. The draft TOR was revised to a final TOR on August 23, 2023, based on comments from the County. On August 28, 2023, Michael Cook, Planning Ecologist from the County of Grey indicated that the final TOR was “considered acceptable”. The final TOR is contained in Appendix 1.

2.0 STUDY OBJECTIVES

The objective of the Natural Environment Level 1 report under the Aggregate Resources Act, is to determine whether any of the following features exist on and within 120 metres of the licence area, including: significant wetland, habitat of endangered or threatened species, fish habitat, significant valleylands, significant wildlife habitat, significant woodlands, and Areas of Natural and Scientific Interest.

The EIS has been prepared to meet the County of Grey OP requirement, specifically Section 7.11.1. Pertinent policies of the SVCA will also be addressed.

3.0 STUDY METHODS

3.1 Existing Information

The following sources were contacted and researched to determine what was known about the present study area: the County of Grey; an information request for MNRF file data to midhurstinfo@ontario.ca; Natural Heritage Information Centre data were researched using the Make-a-map: Natural Heritage Map tool to obtain historical Species at Risk information (Square 17NJ17); and a request for mapping and information to the SVCA was also made; the DFO fish and

LEGEND

- EXISTING DITCH / WATERCOURSE
- EXISTING FENCELINE
- 240.0 — EXISTING GROUND CONTOUR
- EXISTING TREELINE
- 120m BOUNDARY LIMIT
- BOUNDARY OF AREA TO BE LICENCED
- ZONING BOUNDARY
- PROVINCIALLY SIGNIFICANT WETLAND BOUNDARY
- DIRECTION OF EXISTING SURFACE FLOW
- TH — TESTHOLE LOCATION
- MW/PZ — MONITORING WELL / PIEZOMETER LOCATION
- A1 — EXAMPLE OF CURRENT ZONING
- AGRICULTURAL — EXAMPLE OF CURRENT LAND USE
- PRIVATE SUPPLY WELL (APPROXIMATE LOCATION)
- SAUGEEN VALLEY CONSERVATION AUTHORITY REGULATED AREA (O.REG. 169/06 SCREENING AREA)
- PRIMARY ENTRANCE / EXIT FROM THE SITE

Surveyed Butternut (Endangered) Location

Base Map Source: GMBP Jan. 12, 2024.

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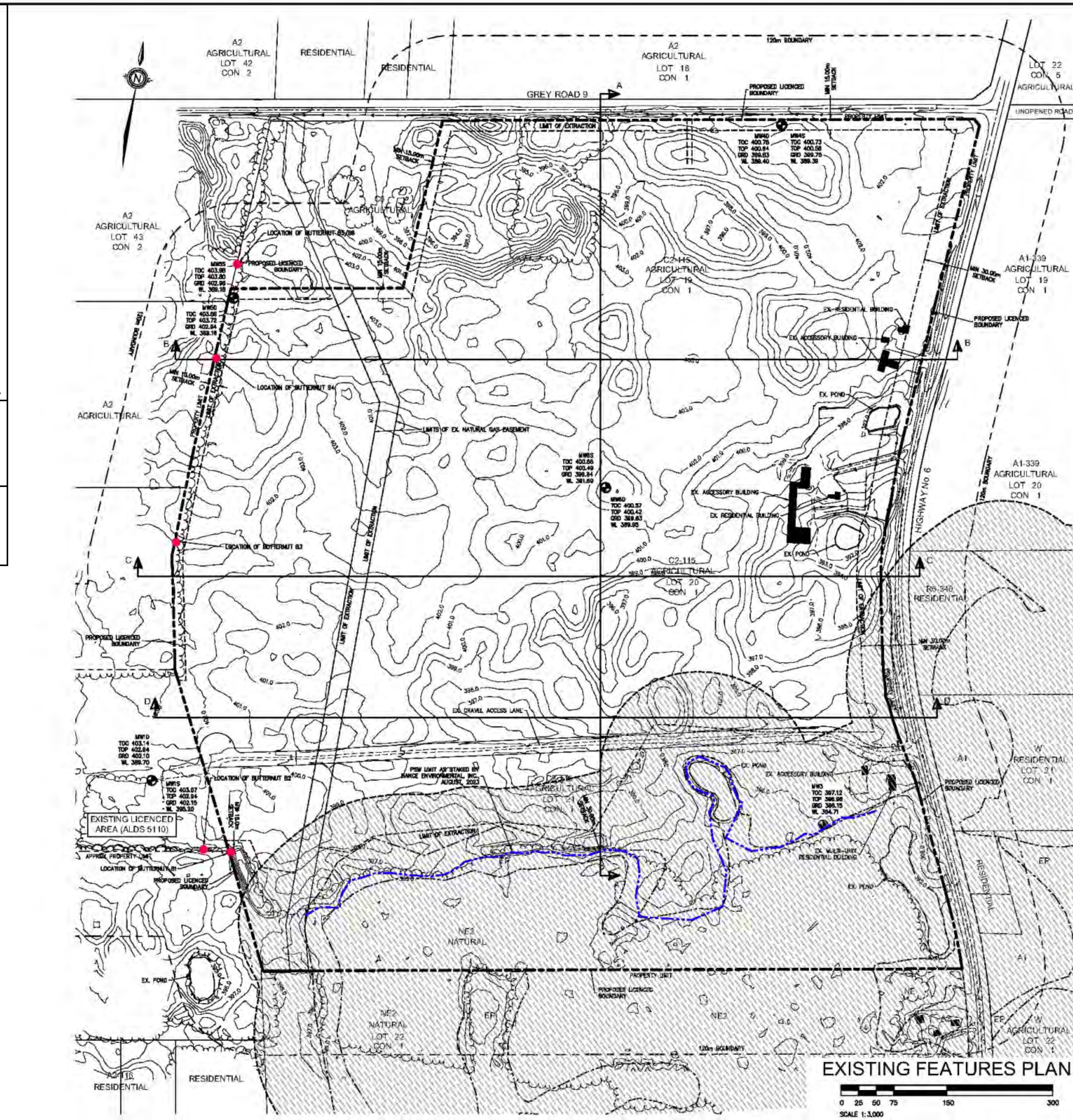
Feb. 5, 2024

Figure 1. Existing Features Plan, Watson Pit, Mount Forest, ON.



MUNICIPALITY OF WEST GREY
KEY PLAN
NOT TO SCALE

NOTES :
1. TOPOGRAPHIC SURVEY CONDUCTED BY GM BLUEPLAN ENGINEERING LIMITED, APRIL 25, 2023.

APPLICANT:
TEESWATER CONCRETE

APPLICANT'S SIGNATURE

DATE

BENCHMARK 1 ELEV. - ______m
TO BE DETERMINED

PRELIMINARY NOT FOR CONSTRUCTION

GM BluePlan ENGINEERING

PROPOSED AGGREGATE PIT

TEESWATER CONCRETE LTD.

PART LOT 19 & LOT 20 CONCESSION 1, PART LOT 46, CONCESSION 2

MUNICIPALITY OF WEST GREY, GEOGRAPHIC TOWNSHIP OF NORMANBY

DRAWN BY :	APPROVED BY :	PROJECT NO.	DRAWING NO.
E.J.T.	C.S.	218045-1	1
DESIGNED BY :	DATE :	SCALE :	
E.J.T.	DEC 7, 2023	1:3,000	

mussel Species at Risk mapping for the study area was reviewed for occurrences.

Environmental mapping in the County of Grey Official Plan was reviewed.

The NHIC Make-a-map tool was accessed to obtain Species at Risk information for the study area. Squares with data exist more than 500m off site to the east, eg. 17NJ1776 and more than 1000m to the west, eg. 17NJ1376, but no squares were shown for the site and area within 120m. Provincially Significant Wetland is shown to be present to the south of the proposed extraction area.

Data retrieved from the Ontario Herp Atlas indicate records between 1931 and 2018, inclusive for Square 17NJ17. Common species are listed, plus Pickerel Frog and Snapping Turtle.

Data retrieved from the Second Ontario Breeding Bird Atlas (OBBA) for Square 17NJ17 indicate that 95 bird species were documented. Most are common species found breeding in rural landscapes. The following species that have Species at Risk status were found during the Second OBBA: Eastern Wood-Pewee, Bank Swallow, Barn Swallow, Wood Thrush, Bobolink and Eastern Meadowlark.

Data retrieved for the site square from the Ontario Butterfly Atlas indicate the occurrence of Monarch, a species of Special Concern. Of interest, but not a SAR, is the occurrence of the Bog Copper, a species that is dependent on cranberry plants as larval food plants. Because of this food plant specificity, Bog Copper lives only in, or near to, bogs.

The DFO Aquatic Species at Risk mapping has no records of SAR, nor critical habitat, within 1km of the site.

An information request was submitted to Midhurst District MNRF (midhurstinfo@ontario.ca) on August 4, 2023. Steve Varga, from the Aurora-Midhurst-Owen Sound District Office of OMNRF responded on September 14, 2023 and provided the Wetland Evaluation Summary and Wetland Data Record for Letterbreen Bog. He also provided commentary on fish habitat associated with watercourses draining from the bog.

An existing information request was sent via email to Michael Cook of the SVCA on July 28, 2023. On the day of the request Mr. Cook responded with a SVCA Regulated Areas map for the study area, with a Heritage Features Grey County map, with a Species List for SAR and a Fish Habitat DFO map along with a one-page text, addressing the Aggregate Resources Act Level 1 factors.

The hydrogeological assessment for the study area was also reviewed (GM Blue Plan Engineering, 2023). This report describes soils, watercourses and groundwater conditions in the area.

Figure 1 shows the site location and adjacent lands.

3.2 Field Work

An initial site visit, along with a review of historical records from NHIC for the 10x10 km square in which the study area is located were used to determine the surveys to be conducted. The methodological approaches used to complete flora and wildlife surveys are provided in detail below.

3.2.1 Vegetation

Vascular Plant Inventory and ELC Community Identification

Detailed vascular plant surveys were conducted during Spring, Summer and Autumn (see Table 1 for dates) to develop a list of plant species present within the study area. The plant surveys also focused on determining whether any regionally or provincially rare plants were present within the study area, including searches for Butternut.

The findings of the vascular plant inventory conducted within the study area boundaries were used to assist with the determination of ELC polygons within the licence area and area within 120m of it. Vegetation community mapping used the Ecological Land Classification (ELC) methods described in Lee et al. (1998), with vegetation community types being classified using Harold Lee's 2008 update to the ELC vegetation community types and community codes (Lee 2008).

3.2.2 Wildlife

3.2.2.1 Breeding Birds

Breeding bird surveys conducted in 2023 were completed following the breeding bird survey protocol used for the Ontario Breeding Bird Atlas (OBBA 2001). The breeding bird surveys focused on assessing the breeding bird activity within the study area over two survey visits, at least 10 days apart. All visits were conducted during early morning hours between a half hour before sunrise and 09:00 hrs. The breeding bird surveys involved two Dance Environmental Inc. biologists conducting walking transects throughout the different ELC communities which were onsite and offsite where access allowed.

All bird species observed or heard within the study area during each breeding bird site visit were recorded. Any birds which were observed or heard within the study area boundaries, but outside of the breeding bird season, were recorded as incidental observations. If any Species at Risk were observed, their locations were to be mapped and any details of the observations recorded. Details of the survey visits such as dates, times and weather conditions are provided in Table 1.

TABLE 1. Dates, Times and Weather of 2023 Site Visits, Proposed Watson Pit.

DATE 2023	START (24hrs)	END (24hrs)	WEATHER	STAFF	PURPOSES OF TRIP
April 13	16:55	20:35	25 to 19.5^{0}C, 0% cloud, no precip.; wind: Beauf. 1 to 2	KWD, JLD	Reptiles, birds, first frog chorus survey
May 26	16:31	22:27	21 to 15^{0}C, <5% cloud, no precip.; wind: Beauf. 1 to 2	KWD, JLD	Reptiles, birds, vegetation, second frog chorus survey
June 3	14:01	15:02	24^{0}C, 100% cloud, no precip.; wind: Beauf. 2	KWD, JLD	Reptiles, birds, vegetation
June 8	06:13	09:41	11 to 15^{0}C, 100% cloud, no precip.; wind: Beauf. 1 to 2	KWD, KSD, JLD	First breeding bird survey, reptiles, vegetation
June 21	20:40	22:32	20^{0}C, 0% cloud, no precip.; wind: Beauf. 1	KWD, JLD	Turtle nesting, third frog chorus survey
June 23	06:07	09:54	17^{0}C, 100% cloud, no precip.; wind: 0	KSD, KWD, JLD	Second breeding bird survey, turtle nests, vegetation
July 8	07:26	08:47	14^{0}C, 90% cloud, no precip.; wind: Beauf. 0 to 1	KWD, JLD	Check for EAME, vegetation, turtle
July 26	08:20	11:16	21 to 27^{0}C, 100% cloud, no precip.; wind: Beauf. 1 to 2	KWD	Vegetation, insects, turtle nests, site meeting with client
Aug. 2	10:21	15:31	19^{0}C, 25% cloud, no precip.; wind: Beauf. 2	KSD, KWD	Flag wetland edge, vegetation, insects
Aug. 11	09:56	14:34	16^{0}C, 20% cloud, no precip.; wind: Beauf. 1 to 2	KSD, KWD	Flag wetland edge, Butternut HA, birds, vegetation
Aug. 21	09:30	13:40	19^{0}C, 50% cloud, no precip.; wind: Beauf. 1 to 2	KSD, KWD	Meet County Ecologists, client, Bill Kester on site; vegetation, insects
Oct. 6	10:10	14:47	16^{0}C, 100% cloud, no precip.; wind: Beauf. 1	KSD, KWD	ELC, snakes, vegetation, insects

LEGEND

KSD = Kevin Dance M.E.S.
KWD = Ken Dance, M.Sc.
JLD = Janet Dance, Field Technician

3.2.2.2 Reptiles and Amphibians

Within the study area, searches for reptiles and amphibians were undertaken on several dates during Spring, Summer and Autumn of 2023, see Table 1. Potentially suitable habitats were searched during site visits and logs, debris and stones were lifted to search for herptiles.

Methods outlined in the Marsh Monitoring Protocol (BSC, 2008) were followed to document amphibian choruses. Figure 2 shows the locations of the seven frog chorus inventory stations established on April 13, 2023. By June 21, 2023, two of the ponds (FRG6 and FRG7) had dried up and were not inventoried during the third frog chorus inventory.

Turtle surveys were conducted in 2023, as there were wetland/ponds on and within 120m of the proposed licence area. No wetlands/ponds were located within the area proposed for extraction.

Turtle counts were undertaken in early Spring to identify whether any turtles were present at the wetland/ponds within the study area. These counts were undertaken when vegetation was still low and turtles would be able to be seen in the water along the shallow pond edges or out on pond edges sunning. Binoculars were used to count individuals, identify the species present and then determine a maximum count of individuals present at one time during the count period (approximately a 10 minute survey at each station).

If turtles were confirmed to be present, searches for turtle nests in any potential open sandy areas around the pond were to be undertaken. Open sandy areas were searched for evidence of recent digging and filling in of nest locations and any locations where nests were dug up by predators which are identifiable by a dug hole in the ground accompanied by turtle egg shells. If turtle nests were found they were to be mapped and described.

3.2.2.3 Other Wildlife

Methods used to determine the occurrence of other wildlife species include the observation of tracks, scrapes, scats, feathers, fur, shed snake skins, calls and direct observations.

Site visits were conducted between April 13 and October 6, 2023, see Table 1. Drainage, watercourse, vegetation, wildlife, wetland and fisheries features on and adjacent to the proposed pit site were examined and recorded during site visits.

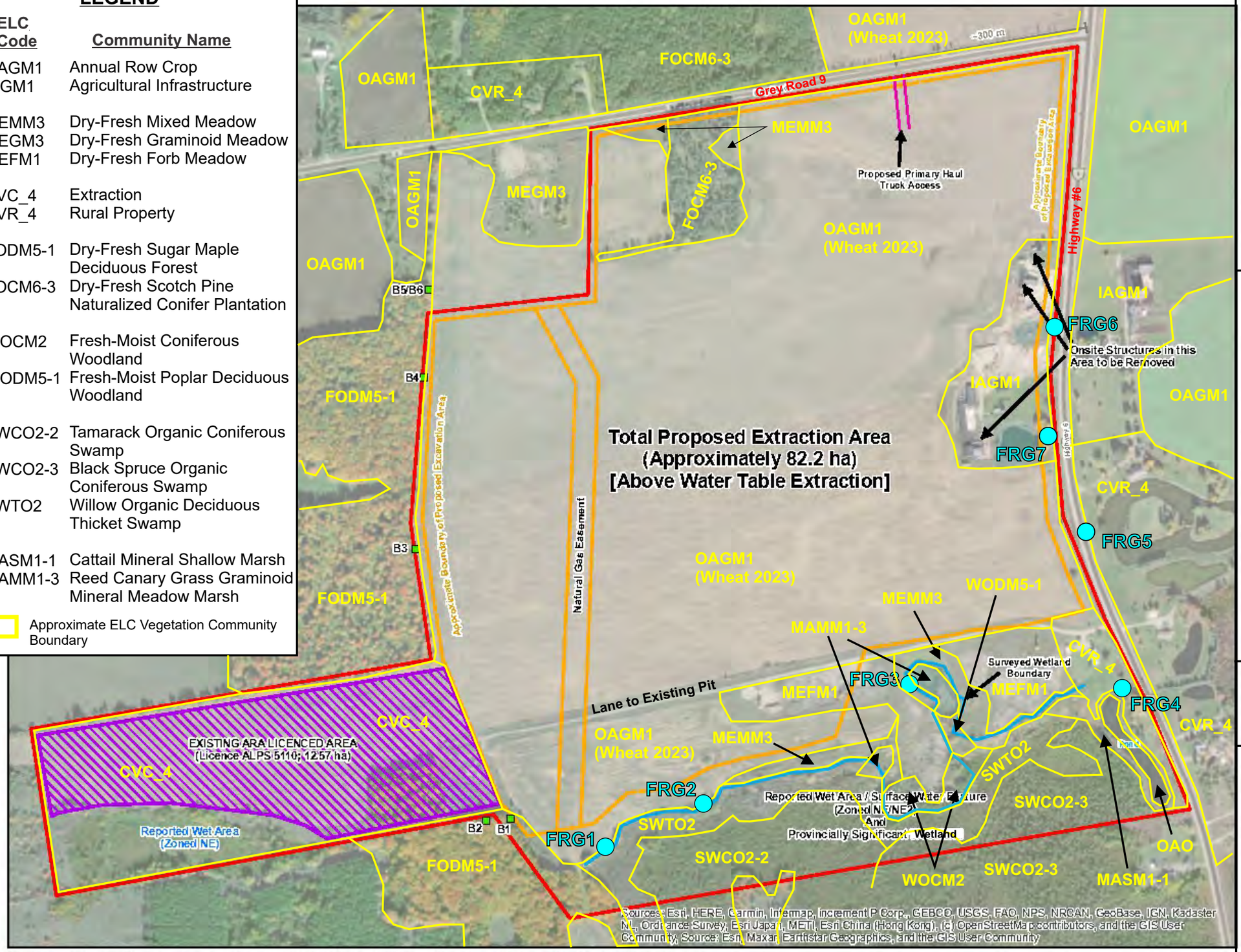
3.2.2.4 Winter Wildlife

Given site habitat conditions, primarily intensive row crop agriculture, and the sparseness of the on site Scotch Pine plantation, it is our opinion that no Winter wildlife inventories are necessary.

LEGEND

ELC Code	Community Name
OAGM1	Annual Row Crop
IAGM1	Agricultural Infrastructure
MEMM3	Dry-Fresh Mixed Meadow
MEGM3	Dry-Fresh Graminoid Meadow
MEFM1	Dry-Fresh Forb Meadow
CVC_4	Extraction
CVR_4	Rural Property
FODM5-1	Dry-Fresh Sugar Maple Deciduous Forest
FOCM6-3	Dry-Fresh Scotch Pine Naturalized Conifer Plantation
WOCM2	Fresh-Moist Coniferous Woodland
WODM5-1	Fresh-Moist Poplar Deciduous Woodland
SWCO2-2	Tamarack Organic Coniferous Swamp
SWCO2-3	Black Spruce Organic Coniferous Swamp
SWTO2	Willow Organic Deciduous Thicket Swamp
MASM1-1	Cattail Mineral Shallow Marsh
MAMM1-3	Reed Canary Grass Graminoid Mineral Meadow Marsh

Approximate ELC Vegetation Community Boundary



Note: Proposed extraction area is set back 15 metres from property boundaries and treelines, 30 metres from the boundaries adjacent to Highway 6, and 30 metres from onsite water features (i.e. southern wetland area).

Figure 2. ELC Vegetation Communities and Amphibian Monitoring Station Locations, Watson Pit, 311804 Highway 6, Mount Forest, ON.

N
W E
S

LEGEND

- Approximate Property Boundary and Proposed Licenced Boundary
- Existing ARA Licenced Area (Licence ALPS 5110; 12.37 ha)
- Total Proposed Above the Water Table Extraction Boundary (Approximately 82.2 ha)
- Surveyed Wetland Boundary Delineated by Dance Environmental
- Surveyed Butternut Tree Identified by Dance Environmental
- FRG1 — Approximate Location of Amphibian Call Survey Station

Scale

0 50 100 200 300 400 Meters

1:6,000

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DE-475
Feb. 5, 2024

PRELIMINARY SITE PLAN

Normanby Con 1, Divisions 1 to 3,
Part Lots 19 and 20, Con 2, Part Lot 46
Municipality of West Grey

Basemap Source: BluePlan ENGINEERING

Dec. 4, 2023

Any Winter wildlife use of the Letterbreen Bog would be protected from impact by the proposed setbacks from extraction and the fact that there is usually little or no extraction occurring during the Winter in Grey County.

4.0 FINDNGS

4.1 Physical Conditions

4.1.1 Surface Water and Drainage

Figure 2 shows that the Letterbreen Bog has standing water at the southern edge of the subject property. There are no streams or springs on the site. There are 2 small depressions located adjacent to the eastern property boundary and the Highway 6 right-of-way. These depressions contain water after the Spring melt, but they dry out during the Summer and Autumn when water table elevations are lower. GMBP (2023) indicates that water levels in these 2 depressions are considered to be generally consistent with fluctuating groundwater table elevations.

The ground surface across the site is hummocky with low, rolling hills. The elevation moderately declines in the south toward the Letterbreen Bog and to the east toward Highway 6.

4.1.2 Physiography and Geology

The site is located within the Horseshoe Moraines. Soils are well sorted gravelly outwash of the Burford series. Physiographic mapping for the site shows both kame moraines and glacial outwash deposits. The bedrock underlying the site is dolostone of the Salina formation (GMBP, 2023).

4.1.3 Estimated Water Table Elevation

Based on existing information the water table in the area is generally estimated to be approximately 395.0 masl in the south, adjacent to Letterbreen Bog and it descends in a northward direction to approximately 389.0 masl in the northern portion of the site. Based on measured shallow groundwater elevations it is inferred that local groundwater flows in a northerly direction, away from the southern Letterbreen Bog feature (GMBP, 2023).

4.2 Regulated Area

Figure 3 shows in green the approximate extent of the area regulated by the SVCA under Ontario Regulation 169/06. The extent and limit of Hazardland/Floodplain is also shown on this figure.

The extent of Provincially Significant Wetland (PSW) to the south of the proposed aggregate extraction zone is shown in a yellow-green colour and cross-hatching on Figure 3. Other (unevaluated) wetlands are shown in a pale blue cross-hatch. Field work conducted for the present study in August 2023 has found that there is not wetland present in the north central coniferous plantation (FOCM6-3), nor to the west of the northwestern corner of the PSW. More detail is provided later in the EIS regarding precise wetland boundaries.

Figure 3. SVCA Regulated Area and Location and Extent of PSW.

Base map source: SVCA, M. Cook, 28 July 2023.

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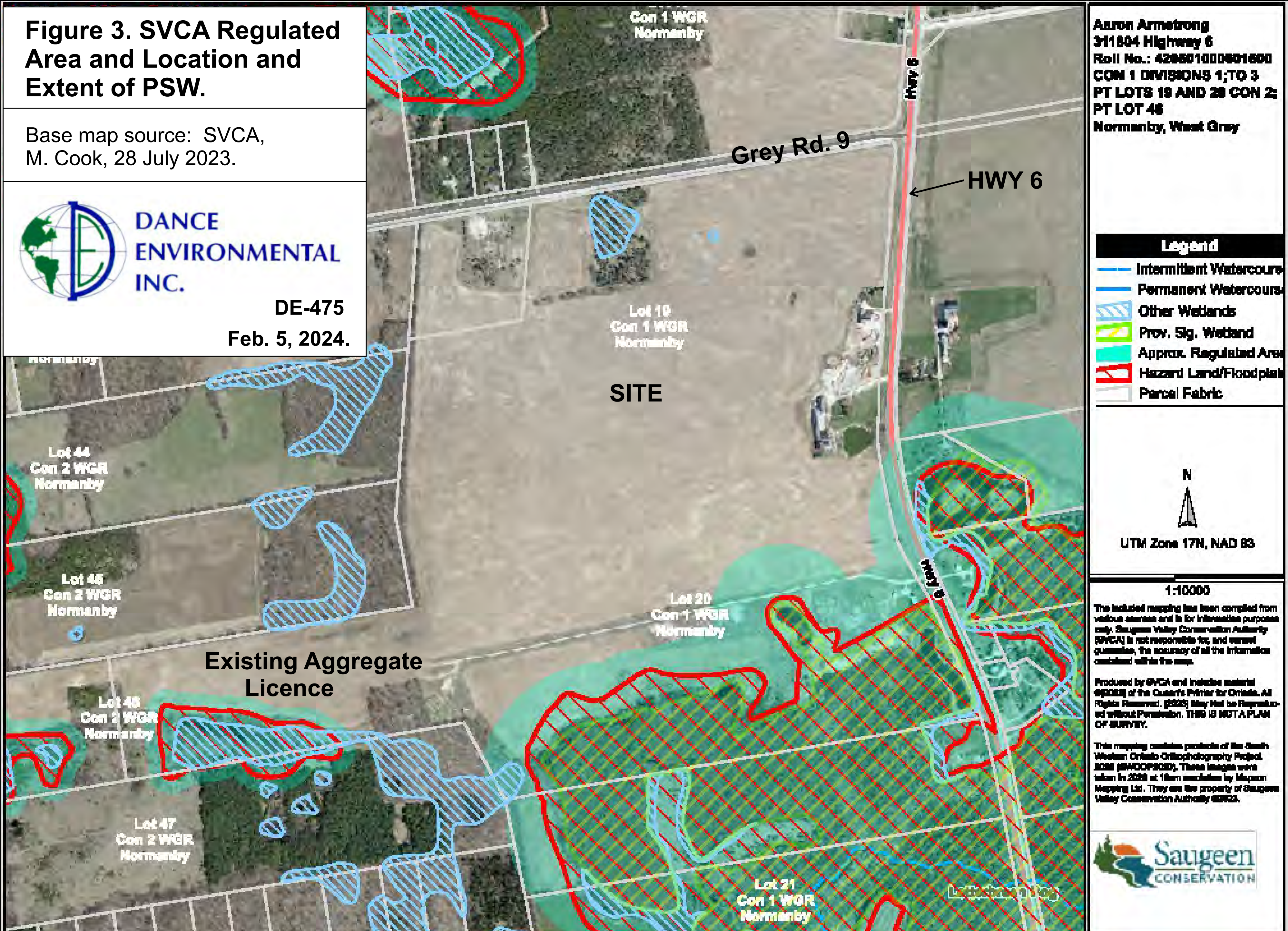


4.3 Vegetation

4.3.1 On Site

Figure 2 shows the location and extent of vegetation units inclusive of the proposed licence area and area within 120m it. The ELC vegetation community descriptions are described below in relation to their location of being within the proposed licence area or outside of the proposed licence area.

Communities within the Licence area:

Annual Row Crops (OAGM1)

The OAGM1 community comprises the largest area within the proposed licence, with one area of large contiguous row crop field to the north of the existing pit entrance road. A second smaller row crop field is also present south of the western portion of the existing pit licence entrance road. During the 2023 growing season the OAGM1 fields proposed for extraction within the licence area were planted in wheat. As active agricultural fields, they are annually exposed to disturbance by large machinery, use of pesticides, herbicides, fertilizers and tillage of the soil.

Typical agricultural and invasive plant species were identified along the annual row crop field within the licence area including Kentucky Bluegrass, Orchard Grass, Common Dandelion, *Plantago major*, Canada Goldenrod, Common Mullein, and Common Burdock.

A detailed species list for this community is provided in Appendix 2.

Agricultural Buildings (IAGM1)

Within the proposed licence area, on the west side of Highway 6, is an ELC community type comprising of Agricultural Infrastructure, which includes farm sheds, barn, farm house, and concrete paddock. Two areas of depressions which seasonally have some surface water for cattle watering were present, but dried up quickly during Spring 2023 and were dominated by Reed Canary Grass and were small in size. The majority of the community is dominated by farm structures and manicured lawn comprising of Kentucky Bluegrass, White Clover, Common Dandelion, and *Plantago major*.

Dry-Fresh Scotch Pine Naturalized Conifer Plantation (FOCM6-3)

The Dry-Fresh Scotch Pine Naturalized Conifer Plantation is located south of Grey Road 9, in the central portion of the northern edge of the licence area. The FOCM6-3 plantation comprises of rolling topography, with the land sloping from high elevation in the south to lower elevation towards Grey Road 9 to the north. The FOCM6-3 community is dominated by mid-aged Scotch Pine, with only a few other trees species being present along the southern and western edges of the plantation. Overall, very minimal diversity of species was present below the canopy of Scotch Pine with a nearly non-existent understorey of elderberry and Red Raspberry, which were scattered periodically within the understorey.
A detailed species list for this community is provided in Appendix 2.

Inclusion: Dry-Fresh Mixed Meadow (MEMM3)

Two separated areas of MEMM3 habitat were identified as inclusions of the FOCM6-3 plantation community. On the east side of the FOCM6-3 plantation community is an area of open mixed meadow comprising of a variety of forb and graminoid species. This area of mixed meadow at one time was Scotch Pine plantation, but when logging took place all trees in that area were removed, resulting in meadow. The MEMM3 habitat is in a depressional low in the plantation.

There is also a small area of MEMM3 located south of Grey Road 9 and adjacent to the northwest corner of the FOCM6-3 plantation. This area slopes steeply towards Grey Road 9, and as a result has been excluded from active agricultural due to the difficulty of using farm machinery in that area.

A list of species within the MEMM3 inclusions is provided in Appendix 2.

Dry-Fresh Forb Meadow (MEFM1)

To the south of the eastern half of the existing pit entrance road is a large community dominated by a variety of forb species. This early succession community has some areas with scattered trees including Balsam Poplar, Trembling Aspen, and Eastern White Cedar. The soils of the community are very rocky and based on site conditions suggest the top soil was removed historically, exposing the rocky soil layer that remains present. The MEFM1 community showed rather limited species diversity and was dominated by Field Pussytoes, with Gray Goldenrod, Poverty Oat Grass, Blueweed, Heath Aster, and *Plantago lanceolata* being abundant throughout it. A detailed species list for this community is provided in Appendix 2. Some of the MEFM1 area will be extracted and some will not be.

Dry-Fresh Mixed Meadow (MEMM3)

Located along the eastern half of the southern edge of the proposed licence area, south of the lane to the existing pit, are two areas of Dry-Fresh Mixed Meadow. The western area of MEMM3 community is located on what appears to be an old berm (potentially made from topsoil removal from the MEFM1 community area. The eastern area of MEMM3 community extends westerly from the CVR_4 (house lot) towards the WODM5-1 where the community extends north and then west around the MAMM1-3 marsh/pond. The MEMM3 community comprises primarily of herbaceous plant species, but some tree and shrub species have established, creating clusters of young trees/shrubs while some areas have only a few individuals scattered throughout. A variety of ground layer species were present including Kentucky Bluegrass, Orchard Grass, Common Valerian, Calico Aster, Heath Aster, New England Aster, Canada Goldenrod, and Early Goldenrod. A detailed species list for this community is provided in Appendix 2. None of the MEMM3 area will be extracted.

Reed Canary Grass Graminoid Mineral Meadow (MAMM1-3)
A portion of the Letterbreen Bog PSW, which is primarily to the south of the proposed licence area, extends north into the licence area boundary and was identified as Reed Canary Grass Graminoid Mineral Meadow Marsh (MAMM1-3). The MAMM1-3 community is located to the south of the existing pit entrance road, to the eastern end of the roadway. As the community name indicates, Reed Canary Grass dominates this wetland habitat, and includes some fluctuating locations of open water depending on time of the year. This wetland habitat exhibits characteristics that indicate it is a man-made depression, which was used historically as a water source for cattle. Along the north and eastern edges of the MAMM1-3 community at top of bank a narrow band of Willows has also established. None of the MAMM1-3 area will be extracted.

Inclusion: Fresh-Moist Poplar Deciduous Woodland (WODM5-1)
A small patch of Fresh-Moist Poplar Deciduous woodland is located to the south of the MAMM1-3 community, and south of the existing pit entrance road. The canopy of this community is dominated by Balsam Poplar and contains a limited understorey comprising mostly of the occasional Red-osier Dogwood, Nannyberry and Common Buckthorn. This community is in a topographically lower areas as the MEFM1 habitats on the east and west sides of it slope towards it, with the lowest areas running north to south, connecting the MAMM1-3 meadow marsh to the north to the wetland habitats to the south.

The list of plant species within the MAMM1-3 and WODM5-1 communities are provided in Appendix 2.

4.3.2 Off Site

Communities Outside of Licence Area:

Annual Row Crops (OAGM1)
There are fields of annual row crops present adjacent to the west, north and east of the proposed pit licence area. The locations of the OAGM1 fields are shown on Figure 2.

Agricultural Buildings (IAGM1)
To the east of the proposed licence area, on the east side of Highway 6 are agricultural buildings. A few scattered trees have been planted around the barn buildings and farm house and the majority of the area is manicured lawn comprising of Kentucky Bluegrass, Common Dandelion, White Clover, *Plantago majo*r, Ribgrass, and Small Crabgrass.

Extraction (CVC_4)
An already licenced aggregate pit is located to the west of the southern edge of the proposed Watson Pit licence area. To the north and south of the existing pit is Sugar Maple forest (FODM5-1). The existing entrance road for the offsite licenced pit runs east to west, dissecting the north and south agricultural fields in the proposed extraction area for the Watson Pit. A portion of the existing pit has

had the topsoil removed for extraction and some of the northern portion was still in active agriculture (wheat in 2023). Plant species within this community are primarily agricultural weeds including Timothy, Common Dandelion, *Plantago Major*, and Common Mullein.

Rural Property (CVR_4)

To the southeast corner of the licence area is Rural Property, with a house and associated yard. Other areas of Rural Property are present along the eastern edge of Highway 6. Three other rural properties with residential homes are present to the north of Grey Road 9, to the northwest of the licence area. The Rural Property communities contain extensive areas of primarily manicured lawn, asphalt driveways, and varying degrees of landscape trees and shrubs around the properties. On the east side of Highway 6 some of the rural properties include areas of man-made open water ponds of varying sizes. A detailed species list for this community is provided in Appendix 2, but information was limited as these areas were offsite with no permission for access.

Dry-Fresh Sugar Maple Deciduous Forest (FODM5-1)

Along most of the western edge of the proposed licence area is Sugar Maple forest, and to the southwestern corner of the licence area is a patch of FODM5-1 forest which is separated from the northern FODM5-1 habitat by the existing licenced pit (CVC_4). Within the southwestern FODM5-1 woodland patch, some Butternut trees were confirmed to be present along its eastern woodland edge. Butternuts were also found along the southeastern edge of the FODM5-1 forest to the west of the proposed licence area. The FODM5-1 communities showed some variation of topography within the forest habitat, but were considered to be Dry-Fresh in characteristics with Sugar Maple being dominant within the forest. Other canopy species included American Beech, and Black Cherry. The understorey contained some Common Buckthorn among the Sugar Maple saplings as well. Some of the common herbaceous species included Wild Black Currant, Herb-Robert, Small Enchanter's Nightshade, Wooly Blue Violet, and Jack-in-the Pulpit.

A detailed species list for this community is provided in Appendix 2.

Fresh-Moist Coniferous Woodland (WOCM2)

This community is located along the northern edge of the Letterbreen Bog PSW wetland community to the south, which was identified as Willow Organic Deciduous Thicket Swamp (SWTO2). To the north of the woodland is sparsely treed forb meadow (MEFM1). This mid-aged treed habitat appears to have established itself from the coniferous species within SWTO2, SWCO2-2 and SWCO2-3 communities to the south which can also tolerate drier conditions. The canopy was dominated by Tamarack, with Scotch Pine, Balsam Poplar, Balsam Fir and Eastern White Cedar being present. The understorey contained Balsam Fir, Common Buckthorn, Red-osier Dogwood and High Bush Cranberry. Along the outer, northern edge of the community were thickets of dense Black Raspberry. A detailed species list for this community is provided in Appendix 2.

Willow Organic Deciduous Thicket Swamp (SWTO2)
The Willow Organic Deciduous Thicket Swamp comprises of much of the northern edge of the Letterbreen Bog PSW which extends to the south of the proposed licence area. Narrow areas of trees were present at the wetland edge adjacent to the OAGM1 field south of the existing pit entrance road. In the eastern portion of the northern edge of the SWTO2 community, MEMM3 and WOCM3 communities were located to the north of it. To the south of the SWTO2 community were areas of SWCO2-2 and SWCO 2-3 swamp. This community comprised of a patchwork of open water throughout it as well, which remained all year round. The willow Organic Deciduous Thicket Swamp was dominated by Willow species including *Salix bebbiana*, *Salix eriocephala*, Shining Willow, Slender Willow, and Pussy Willow with Winterberry and Bog Laurel also being abundant. A detailed species list for this community is provided in Appendix 2.

Tamarack Organic Coniferous Swamp (SWCO2-2)
Within the PSW located to the south of the proposed licence area for the Watson Pit a large portion of the wetland community was identified to be a Tamarack Organic Coniferous Swamp (SWCO2-2). The SWCO2-2 community was found to be located to the south of the western half of the SWTO2 Willow thicket community. At the eastern boundary of much of this community the SWCO2-2 community is adjacent to Black Spruce Swamp (SWCO2-3). The southern boundaries of this community are approximate due to the difficulty and high risk of surveying this type of habitat with the areas of open water and unknown depths to the mud bottom. Tamarack dominated this community, but the occasional deciduous species were noted to be present as well. A detailed species list for this community is provided in Appendix 2.

Black Spruce Organic Coniferous Swamp (SWCO2-3)
The Black Spruce Organic Coniferous Swamp (SWCO2-3) community was located to the west of the Cattail marsh (MASM1-1) community and to the east the Tamarack swamp (SWCO2-2). The SWCO2-3 community is located to the southeast of the proposed licence area with the SWTO2 Willow thicket community being to the north of it. A list of species for this community is provided in Appendix 2.

Cattail Mineral Shallow Marsh (MASM1-1)
To the south of the CVR_4 (rural property/house), is a narrow linear Cattail Mineral Meadow Marsh community running north to south to the west of the OAO pond community, located to the southeast of the proposed extraction area. The MASM1-1 marsh community is dominated by dense cattails including both Broad-leaved Cattail and Narrow-leaved Cattail. At the west side of the MASM1-1 community is SWCO2-3 swamp dominated by Black Spruce. Along edges of this community are the occasional Red-osier Dogwood and Common Buckthorn shrubs scattered throughout it. Due to the density of the cattails the ground layer is limited in species present, but Northern Willow-Herb, Rough Goldenrod, Flat-Topped Bushy Goldenrod, Spotted Water Hemlock, and Field Horsetail are some

of the species that were noted. A detailed species list for this community is provided in Appendix 2.

Open Water Aquatic (OAO)
There are several man-made ponds located on the east side of Highway 6 which are part of Rural Property communities which were discussed above. To the southeast of the proposed extraction boundary, on the west side of Highway 6 is long linear dug pond, to the south of the CVR_4 rural property at the south east edge of the existing pit entrance road. The pond surface was open with submergent vegetation dominated by Common Coontail and a variety of common wet tolerant emergent forb species along the pond margins including Broad-leaved Cattail, Reed Canary Grass, Common Reed, Bitter Nightshade, Perfoliate Thoroughwort, and Northern Bugleweed.

Dry-Fresh Graminoid Meadow (MEGM3)
To the northwest of the proposed licence area, on the south side of Grey Road 9, is a square piece of property which has been left to naturalize. Annual Row Crop (OAGM1) fields surround this community to the east, south and west. At this location the MEGM3 community has established after obvious historical disturbance (potentially of wayside pit) where topsoils and some material was removed making it no longer valuable for agricultural use. In some areas the community had clusters of Balsam Poplar and Eastern Cottonwood and some areas have a few individuals growing. Some young Scotch Pine and Common Buckthorn have started to establish in the understorey, scattered sporadically around the community. Overall, the community is dominated by Awnless Brome and Orchard Grass with other species like Timothy, Giant Crabgrass, Brown Knapweed, Wild Carrot, and Early Goldenrod also being present. A detailed species list for this community is provided in Appendix 2.

Dry-Fresh Scotch Pine Naturalized Conifer Plantation (FOCM6-3)
Located on the north side of Grey Road 9 extends a large Dry-Fresh Scotch Pine Naturalized Conifer Plantation (FOCM6-3). On the western edge of the community are three house lots (CVR_4) which have been built into what was once FOCM6-3. Scotch Pine dominates the FOCM6-3 community on the north side of the Grey Road 9, but some other species have become established in the mature Scotch Pine plantation. Canopy and sub-canopy species which have naturalized into the community include White Elm, White Ash, American Basswood, Eastern White Cedar, Hawthorn sp. and Common Apple. A detailed species list for this community is provided in Appendix 2.

4.3.3 Significance of Plant Species

Several Butternut saplings and 1 large Butternut tree were found in the study area. The details about these trees will be addressed in the Endangered species section of this report. Appendix 3 contains the Butternut data sheets.

The Letterbreen Bog, which is partly located within the proposed licence area, but outside of the extraction area, is known to contain regionally significant plant species (OMNRF 1999). The Wetland Data Record OMNR (1989) indicates the occurrences of one provincially significant orchid (White Fringed Orchid) and four regionally significant plant species, one of which is also an orchid.

4.4 Wildlife

The results of the inventory of on-site and off site birds is provided in Appendix 4. The bird species which were observed in 2023 are listed by the wildlife inventory unit in which they were observed, and the season of the observation is also noted. The seasons of observation are listed as: Spring (**S**), breeding season birds (**B**) (see legend of Appendix 4), and post-breeding season (**A**).

4.4.1 Bird Community

4.4.1.1 Existing Information

A review of the data from the Second Ontario Breeding Bird Atlas revealed the occurrence of species typical in the rural/natural area habitats present. The OBBA data for the area was identified as square 17NJ17. The second OBBA results for Endangered, Threatened, or Special Concern bird species included: Eastern Wood-Pewee, Bank Swallow, Barn Swallow, Wood Thrush, Bobolink and Eastern Meadowlark. Based on historical records of the previous mentioned bird species, particular attention was taken when completing the breeding bird surveys to confirm presence or absence of those species.

4.4.1.2 Bird Inventory Results

A summary of bird species observed and/or heard during the 2023 breeding bird season as well as the Spring and Post-breeding Autumn season are provided in Appendix 4, and are listed by the wildlife inventory unit where they were found. Figure 4 shows the limits of each inventory unit.

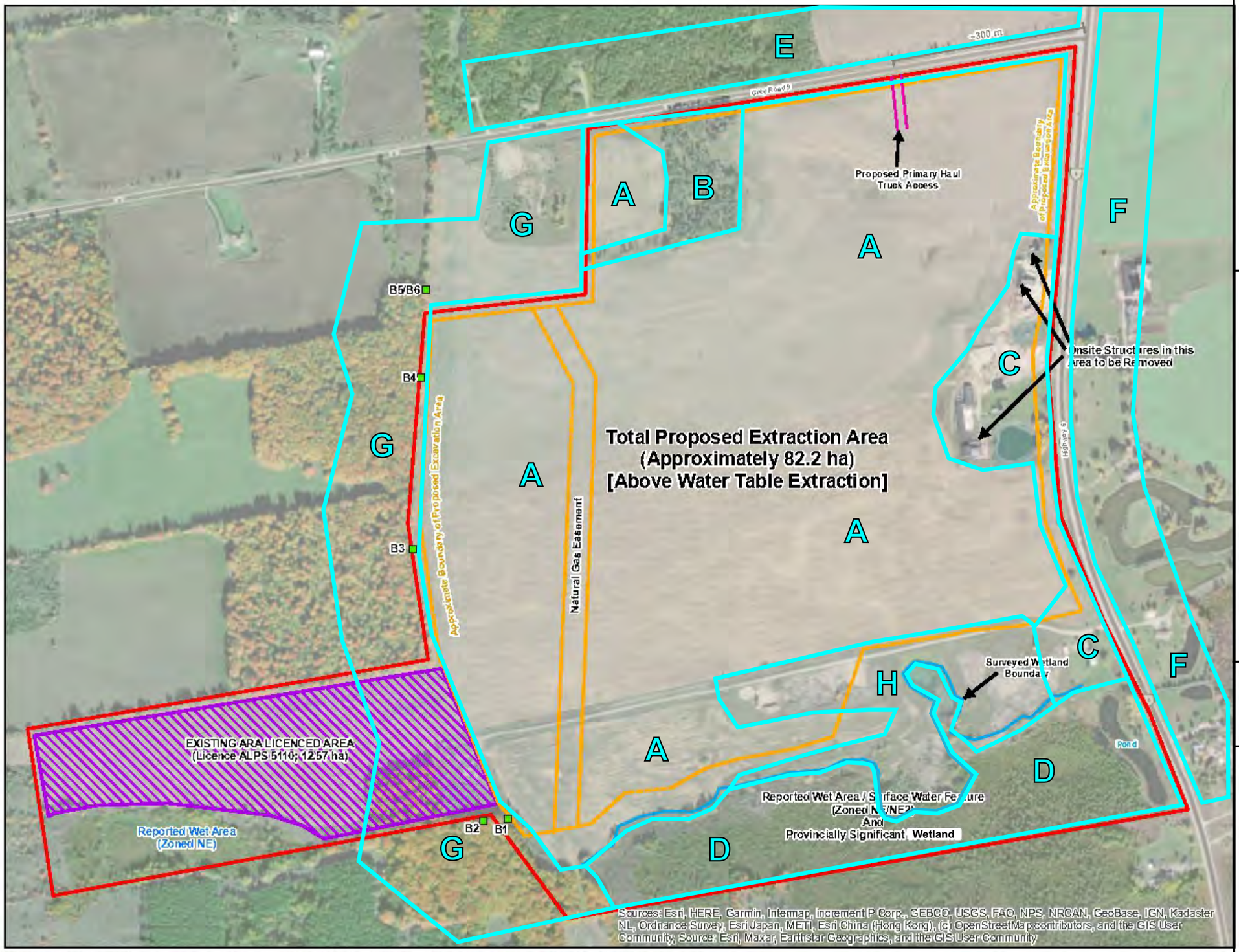
With no historical records of crepuscular bird species being present and no high-quality preferred habitat for those species noted to be present within the study area, evening crepuscular surveys were determined to be unnecessary, and were not undertaken.

Three Species at Risk were observed during the 2023 breeding season surveys including: Eastern Wood-Pewee, Eastern Meadowlark, and Barn Swallow.

Eastern Wood-Pewee was heard/observed in one location during the breeding bird surveys. This off site woodland, located to the west of the site, is outside of the proposed extraction area, but is within 120m of it.

Eastern Meadowlark (EAME) was not seen nor heard during the main breeding bird season. EAME was not encountered during the June 3, 8, or 21, 2023 site visits. A single EAME was heard and seen on June 23 in the meadow habitat around Pond 3. The locations are shown on Figure 5. The same area was checked thoroughly on July 8, 2023 and no EAME was heard or seen.

Figure 4. Bird Observation Polygon Locations, Watson Pit, 311804 Highway 6, Mount Forest, ON.



Note: Proposed extraction area is set back 15 metres from property boundaries and treelines, 30 metres from the boundaries adjacent to Highway 6, and 30 metres from onsite water features (i.e. southern wetland area).

N
W E
S

LEGEND

- Approximate Property Boundary and Proposed Licenced Boundary
- Existing ARA Licenced Area (Licence ALPS 5110; 12.37 ha)
- Total Proposed Above the Water Table Extraction Boundary (Approximately 82.2 ha)
- Surveyed Wetland Boundary Delineated by Dance Environmental
- Surveyed Butternut Tree Identified by Dance Environmental
- A — Location of Bird Observation Polygons

Scale

0 50 100 200 300 400 Meters

1:6,000

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DE-475
Feb. 5, 2024.

PRELIMINARY SITE PLAN

Normanby Con 1, Divisions 1 to 3,
Part Lots 19 and 20, Con 2, Part Lot 46
Municipality of West Grey

Basemap Source:

BluePlan ENGINEERING

Dec. 4, 2023

This behavior pattern suggests that a single EAME visited the study area briefly, after having been displaced by haying in another location. A pair was not present and the individual did not stay and defend a territory, so the breeding category is Possible: observed in its breeding season in suitable nesting habitat, code: H.

Barn Swallows were observed foraging over the agricultural field proposed for extraction on June 8 and 23, and July 8, 2023. On June 23, 2023, two or more adult Barn Swallows entered a barn located within the proposed licence boundary, on the west side of Highway 6, in wildlife inventory Unit C. It is presumed that Barn Swallows were nesting in this barn. See Figure 5 for the location.

Barn Swallows were also observed off site around farm and residential buildings located to the east of Highway 6 (wildlife inventory Unit F).

4.4.2 Mammals

During the 2023 survey period, a total of 12 common mammalian species were observed or evidence of their presence was found within the study area, including: Woodchuck, Eastern Chipmunk, Red Squirrel, Black Squirrel, Eastern Cottontail, Raccoon, Coyote, Beaver, Muskrat, Striped Skunk, Meadow Vole and White-tailed Deer. None of these mammal species are considered to be significant in Grey County or are listed provincially as Species at Risk under the Endangered Species Act (ESA 2005).

There was evidence of some deer browse in a few locations along the southern part of the study area, specifically adjacent to the PSW. The Midhurst District MNRF was contacted for existing information and documentation of deer wintering yards was not provided. There is no extensive, heavy conifer cover, that is required for deer wintering in the present study area.

Bat Maternity Habitat on Site

The only treed habitat patch that is proposed for removal is a Scotch Pine plantation (FOCM6-3), located on the northwestern portion of the site. This unit was examined during the leaf off season for potential bat maternity habitat. As can be seen in Photo 1, the Scotch Pine trees are of relatively small diameter, with no cavities or loose bark present. Also, as is evident from Photo 1, there are very few snags or other trees that would provide bat maternity habitat.

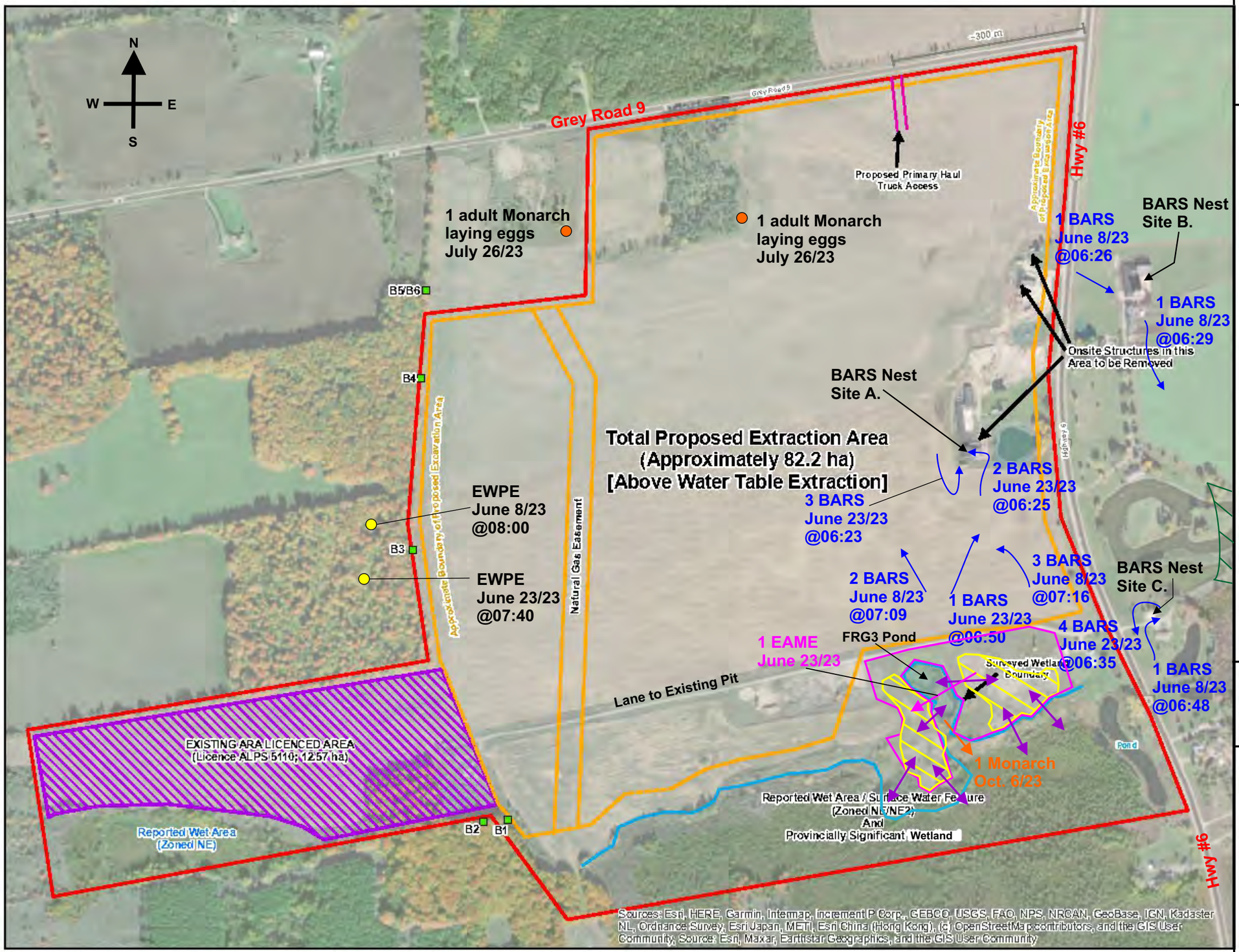
This plantation was logged in recent years and has low tree density and low tree diversity.

Based on the foregoing assessment, we have concluded that the on site coniferous plantation has virtually no potential as bat maternity habitat.

Photo 1. Scotch Pine Plantation, On Site.

Photo taken: October 6, 2023.

Figure 5. Species at Risk Observations and Locations of Key Natural Features, Watson Pit, 311804 Highway 6, Mount Forest, ON.



Note: Proposed extraction area is set back 15 metres from property boundaries and treelines, 30 metres from the boundaries adjacent to Highway 6, and 30 metres from onsite water features (i.e. southern wetland area).

LEGEND

- Turtle Nesting Area -Common Snapping Turtle
- Travel Corridor for Turtle Nesting and Wintering
- Flight Path of Barn Swallow (BARS) -(SC)
- Flight Path of E. Meadowlark (EAME) -(THR)
- EAME Potential Habitat
- Monarch Observation
- Monarch Flight Path
- Eastern Wood-Pewee (EWPE) -(SC)
- Approximate Property Boundary and Proposed Licenced Boundary
- Existing ARA Licenced Area (Licence ALPS 5110; 12.37 ha)
- Total Proposed Above the Water Table Extraction Boundary (Approximately 82.2 ha)
- Surveyed Wetland Boundary Delineated by Dance Environmental
- B1 Butternut (Endangered) -Surveyed Location
- Approximate location of SWH for frogs (2 Level 3 choruses heard, but >120m away)

Scale

0 50 100 200 300 400 Meters

1:6,000

DANCE ENVIRONMENTAL INC.

DE-475
Feb. 5, 2024.

PRELIMINARY SITE PLAN

Normanby Con 1, Divisions 1 to 3,
Part Lots 19 and 20, Con 2, Part Lot 46
Municipality of West Grey

Basemap Source: BluePlan ENGINEERING

Dec. 4, 2023

4.4.3 Amphibians and Reptiles

The Ontario Herpetofauna Atlas was reviewed for historical records between 1931 and 2018, for the 17NJ17, 10x10km square. The historical records indicated 9 frog species, 2 turtles, one snake and one salamander species for the area. The only provincially listed Species at Risk was Common Snapping Turtle, which is listed as Special Concern. No other Species at Risk were noted to be in the Atlas square.

Snakes:

Few snakes were encountered during the study. One large Northern Watersnake was found dead along the western shoulder of Highway 6 near the FRG 4 station on June 8, 2023. This location is more than 120m from proposed extraction.

Although expected, Common Gartersnake was not found during site visits.

Amphibians:

The first amphibian call survey was undertaken as per the Marsh Monitoring Program protocol, on April 13, 2023. A total of seven survey station locations were monitored for the presence of calling breeding frogs, the locations of stations FRG1 to FRG7 are shown on Figure 2. On April 13, 2023 the weather conditions were: air temp. =20^{o}C; water temp =19^{o}C; wind = Beauf. 1; 0% cloud; pH = 6.8 to 6.9.

As can be seen in Table 2, five species of amphibian were heard during the entire chorus monitoring program. The only station which had two or more woodland frogs calling at Level 3 was FRG5 with Spring Peeper and Wood Frog both at Level 3 during the April (first) survey visit. FRG5 is located off site to the east of Highway 6 in a residential yard. This pond appears to have been dug and is somewhat manicured.

A Northern Leopard Frog was seen off site to the northwest of the proposed licence on July 26, 2023.

TABLE 2. Amphibian Call Survey Results by Species, Call Level Code and Station Number, Proposed Watson Pit, 2023.

Species	Survey Visit #	Stations and Call Levels						
		FRG1	FRG2	FRG3	FRG4	FRG5	FRG6	FRG7
Spring Peeper	1	3	3	3	2	3	2	2
	2	2	1	2	1	--	dry	dry
	3	--	--	--	--	--	dry	Dry
America Toad	1	--	--	--	--	--	--	1
	2	--	--	--	--	--	--	--
	3	--	--	--	--	--	--	--
Green Frog	1	--	--	--	--	--	--	--
	2	--	1	--	--	--	--	--
	3	1	1	--	1	1	--	--
Gray Tree Frog	1	--	--	--	--	--	--	--
	2	1	1	2	1	1	--	--
	3	--	--	--	--	--	--	--
Wood Frog	1	--	--	--	--	3	--	--
	2	--	--	--	--	--	--	--
	3	--	--	--	--	--	--	--

LEGEND

Call level codes (MMP):
1 = calls can be counted; not simultaneous
2 = some simultaneous call; but distinguishable
3 = calls not distinguishable, individually overlapping
-- = not present

Turtles:

On the following dates ponds were approached quietly and binoculars were used to search for and to count turtles: May 26, June 3,8,23 and July 8, 2023. Locations of ponds were identified on the basis of the closest frog inventory station, eg. FRG#. This inventory focused on FRG3 and FRG4.

Results regarding sunning turtles are as follows: no sunning turtles were observed on 4 survey dates but 5 adult Midland Painted Turtles were seen in the FRG3 pond on June 8, 2023. One dead Midland Painted Turtle was found along Highway 6, to the south of the existing pit entrance.

Egg shell fragments of both Common Snapping Turtle and Midland Painted Turtle were found south of FRG3 on June 8, 2023. A photo was taken of a female Common Snapping Turtle (CSTU) laying eggs on June 8, 2023.

Figure 6 shows the extent of the area where turtle nesting was observed based on several visits in June and July 2023.

LEGEND

EXISTING DITCH / WATERCOURSE
EXISTING FENCELINE
EXISTING GROUND CONTOUR
EXISTING TREELINE
120m BOUNDARY LIMIT
BOUNDARY OF AREA TO BE LICENCED
PROPOSED PHASING LIMIT
PROPOSED FENCED AREA OF EXTRACTION LIMIT
ZONING BOUNDARY
PROPOSED LIMIT OF EXTRACTION
PROPOSED BOTTOM OF SLOPE
PROPOSED SILT FENCE
PROVINCIALLY SIGNIFICANT WETLAND BOUNDARY
LIMIT OF SIGNIFICANT WILDLIFE CONSTRAINT ZONE
PROPOSED EXCAVATION ELEVATION
DIRECTION OF SURFACE FLOW
TESTHOLE LOCATION
MONITORING WELL / PIEZOMETER LOCATION
EXAMPLE OF CURRENT ZONING
EXAMPLE OF CURRENT LAND USE
PRIVATE SUPPLY WELL (APPROXIMATE LOCATION)
SAUGEEN VALLEY CONSERVATION AUTHORITY REGULATED AREA (O.REG. 169/06 SCREENING AREA)
PRIMARY ENTRANCE / EXIT FROM THE SITE
INTERNAL ACCESS ROUTE
DIRECTION OF EXTRACTION

Surveyed Butternut (Endangered) Location

Recommended Silt Fencing and Post & Wire Fence

Conceptual Location of Barn Swallow Nesting Structure

Ungraded Setback Between Extraction and Natural Features

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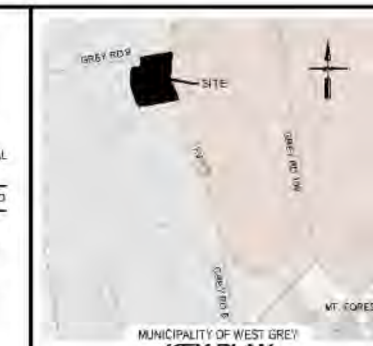
Base Map Source: GMBP Feb. 2, 2024.

Figure 6. Operations Plan and Recommended Mitigation, Watson Pit, Mount Forest, ON



NOTES :
1. TOPOGRAPHIC SURVEY CONDUCTED BY GM BLUEPLAN ENGINEERING LIMITED, APRIL 25, 2023.

APPLICANT:
TEESWATER CONCRETE

APPLICANT'S SIGNATURE

DATE

BENCHMARK 1 ELEV. - ______m
TO BE DETERMINED

PRELIMINARY
NOT FOR CONSTRUCTION

GM BluePlan ENGINEERING

PROPOSED AGGREGATE PIT

TEESWATER CONCRETE LTD.

PART LOT 19 & LOT 20 CONCESSION 1, PART LOT 46, CONCESSION 2

MUNICIPALITY OF WEST GREY, GEOGRAPHIC TOWNSHIP OF NORMANBY

DRAWN BY:	APPROVED BY:	PROJECT NO.:	DRAWING NO.:
E.J.T.	C.S.	218045-1	2
DESIGNED BY:	DATE:	SCALE:	
E.J.T.	JAN 17, 2024	1:3,000	

Based on the several dozen Common Snapping Turtle nest sites identified on the basis of disturbed areas, depressions and egg fragments, more than one CSTU was nesting in the area.

The Ecoregion 6E Significant Wildlife Habitat (SWH) Criteria Schedules indicate that one or more CSTU nesting sites are considered to be SWH. So the turtle nesting area shown on Figure 6 is considered to be SWH.

4.4.4 Fish

The permanent ponds which were inventoried for frog chorus activity (FRG1, 2, 3, 4 and 5) are considered to have potential to support warmwater fish populations. For example, Central Mudminnow and another unidentified minnow species were observed to be present in the FRG4 pond.

Information provided by Steve Varga MNRF, in September 2023 indicates that a stream which drains from the southern end of the Letterbreen Bog is a coldwater stream containing Brook Trout. This stream is also a headwater tributary of the South Saugeen River. This stream is located more than 450m from the closest proposed aggregate licence boundary and more than 500m from the closest proposed extraction.

Using the Fisheries and Oceans Canada (DF0) website an Aquatic Species at Risk report for a 1km radius from the centre of the study area was obtained and reviewed. The DFO data for the area, identified that there was no Critical Habitat present for Species at Risk fish, or mussels.

4.4.5 Butterflies, Odonata and Bumble Bees

In 2023, Monarchs were observed on four dates in weedy areas outside of lands proposed for extraction. On July 26, 2023, Monarchs were observed laying eggs on Common Milkweed that was growing on an off site old pit that is located in the northwestern corner of the study area. This is a MEGM3 ecosite, according to ELC methods

Common Milkweed were found scattered around the outer margins of the proposed licence area. The proposed extraction area has few milkweed plants because it is almost entirely intensively farmed land.

Other butterfly species observed within the study area include: Red Admiral, Cabbage White, Black Swallowtail, Mourning Cloak, Meadow Fritillary, Tiger Swallowtail, Summer Azure, Viceroy, Common Ringlet, Northern Crescent, Silvery Blue, European Skipper, Hobmok Skipper, Clouded Sulphur, Little Wood-Satyr, and Common Wood-Nymph.

The Odonata species observed during the 2023 survey period included: White-faced Meadowhawk, Widow Skimmer, Chalk-fronted Corporal, Emerald Spreadwing, Spotted Spreadwing, Lyre-tipped Spreadwing, Common Spreadwing, Sedge Sprite, and Marsh Bluet.

The only Bumble Bee species that was found was the Common Eastern Bumble Bee.

4.5 Fish Habitat

As indicated in Section 4.4.4 above, the ponds in the study area are expected to provide habitat for warmwater fish. Also, Brook Trout habitat is known in an un-named creek that drains from the southern edge of the Letterbreen Bog (OMNRF 2023 S. Varga), located approximately 500m from proposed extraction.

4.6 Species at Risk

4.6.1 Introduction

The 2023 natural environment inventories resulted in Dance Environmental Inc. staff confirming the presence of 5 Species at Risk within the proposed licence area or within 120m of it. These species are: Butternut (Endangered) Barn Swallow (THR), Eastern Wood-Pewee (SC), Common Snapping Turtle (SC), and Monarch (SC).

4.6.2 Habitat of Endangered and Threatened Species

Butternut (Endangered)

Several Butternut saplings (4) and one live tree were found to be present off site, but adjacent to the western margin of the proposed pit. BHA was completed and the locations of Butternuts are shown on Figure 2. The BHA Tree Analysis software indicates that the live tree is a Category 3 (archivable) specimen, another tree is dead and Category 1. Three of the saplings are healthy and Category 2 (retainable) and one sapling has cankers and is Category 1 (non-retainable).

The BHA data are contained in Appendix 3.

Several dead Butternuts were also found in the off site study area.

Barn Swallows were observed in 2023 foraging over the Agricultural Row Crop field (OAGM1) where extraction is proposed and other fields and yards located east of Highway 6, but within 120m of the extraction limits.

Eastern Meadowlark (Threatened)

Eastern Meadowlarks were not encountered during the two breeding bird inventories. On June 23, 2023, however, a single Eastern Meadowlark (EAME) was heard and seen in the meadow habitat located south of the lane to the existing ARA licenced area and flanking the FRG3 pond, see Figure 5. A site visit was made on July 8, 2023 to check for EAME, but it was absent. Since EAME was not present in suitable habitat on two dates during the breeding season this species was not confirmed to be breeding. It is thought that the single EAME observed may have wandered to this location following

displacement by haying in another off site field. There are no hayfields within 120m of the site.

4.6.3 Habitat of Species of Special Concern

Barn Swallow

Barn Swallows (BARS) are thought to be breeding within two different sets of barn buildings and a house yard shed. See Figure 5 for locations of these buildings.

One barn located within the proposed extraction area, on the western side of Highway 6 in the central portion of the site, had several adult BARS flying into it during the breeding season. One barn and one shed/garage in a rural residential yard, both located west of Highway 6, are also thought to provide habitat for BARS nests. These buildings would provide nesting habitat. The yards and fields adjacent to these building provide rearing and foraging habitat for BARS (MNR 2013a).

Barn Swallows were observed in 2023 foraging over the Agricultural Row Crop field (OAGM1) where extraction is proposed and other fields and yards located east of Highway 6, but within 120m of the extraction limits.

Eastern Wood-Pewee:

During the 2023 breeding bird surveys Eastern Wood-Pewee (EWPE) was confirmed as breeding in the western off site sugar maple forest, see Figure 5. This Dry-Fresh Maple Hardwood Deciduous Forest (FODM6-5) community is located to the west of the proposed licence area. The two EWPE call locations were 60 to 75m west of the eastern forest margin.

Common Snapping Turtle:

Common Snapping Turtle nesting was confirmed when a photo of a female laying eggs was obtained on June 8, 2023. Numerous nests and egg shells were found to the east, west and south of the FRG3 pond, see Figure 6.

Arrows on Figure 5 show travel corridor areas where CSTU can reach the nesting habitat from the FRG3 pond and from the Letterbreen Bog PSW, to the south. The egg laying and travel corridor areas would all be considered SWH for nesting turtles.

Monarch:

Monarch (MONA) butterfly habitat is most extensive in the meadow habitat that flanks the FRG3 pond area. In addition to nectar sources, the largest patch of Common Milkweed is found in this location. Other patches of Common Milkweed were found in the northwestern area of the study area, where MONA was seen laying eggs on July 26, 2023, see Figure 5.

4.7 Significant Wetlands

The extensive wetland which is located to the south of the existing lane into the existing ARA Licence area is a Provincially Significant Wetland (PSW) known as Letterbreen Bog.

During the 2023 growing season the northern margin of the wetland habitat was flagged and staked by Dance Environmental Inc. On August 21, 2023, two County of Grey Ecologists: Natalie Mechalko and Michael Cook, checked and confirmed the locations of the wetland margin markers. Subsequently, GMBP surveyed and plotted the wetland edge flag/stake locations. The location of the northern wetland margin in 2023 is shown on Figure 2.

Letterbreen Bog covers 129.3 ha and has a catchment basin of 5.7 sq. km. It is predominately swamp (73.2%), but is also 18.4% bog. The area is a headwater wetland with 94% organic soil. It is an important water recharge area and provides flows to Fairbanks Creek, a tributary to the South Saugeen River.

4.8 Significant Woodlands

Natural heritage mapping from the County of Grey Official Plan indicates that the wooded area associated with the Letterbreen Bog (Appendix B, Constraint Mapping, Map 3) to the south of the site is Significant Woodlands. The Sugar Maple woodland located off site to the southwest of the southwestern corner of the site is also considered to be Significant Woodlands. The woodland located north of Grey Rd. 9 which is across from the northwestern portion of the site is Significant Woodlands. The on site plantation and the off site maple woodland located along the western site boundary are not Significant Woodlands, see Figure 7.

4.9 Significant Valleylands

There are no Significant Valleylands present within 120m of the proposed pit licence area (email M. Cook, July 28, 2023).

4.10 Significant Wildlife Habitat

The County of Grey has not identified Significant Wildlife Habitat. A review of existing data was used along with site investigations to determine if Significant Wildlife Habitat exists in the study area.

Wildlife habitat was investigated in the study area to identify candidate Significant Wildlife Habitat (SWH). The ELC community mapping was used as the basis for determining the presence (or absence) of candidate SWH.

Section 9 and Figure 9-1 of the Natural Heritage Reference Manual (2010), the Significant Wildlife Habitat Technical Guide and Appendices A through R MNR (2000), and the Ecoregion Criteria Schedule for Ecoregion 6E (MNRF 2015) were used to complete these assessments.

Figure 7.
Significant Woodlands.

Base map source: SCVA,
M. Cook, 28 July 2023.

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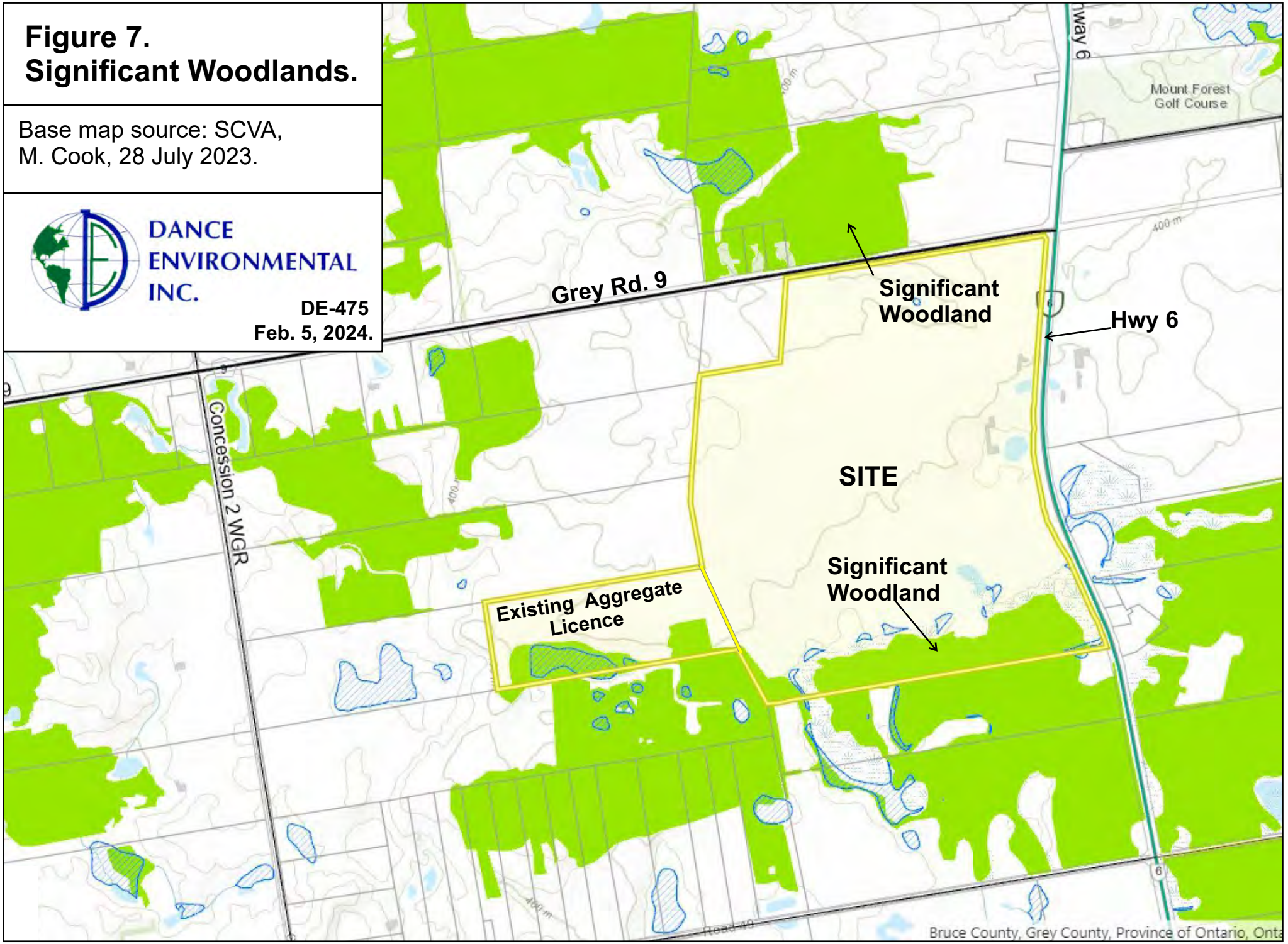

All of the ELC ecosite occurrences on the site and within 120m in the study area, are common in Ecoregion 6E and thus are not considered rare vegetation communities (Table 1.2.1 OMNR 2012).

Schedule 3: Ecoregion 6E Criteria for seasonal concentration areas, specialized wildlife habitat for Species of Conservation Concern and animal movement corridors were examined. Each set of habitat factors was evaluated, guided by the content of the Ecoregion 6E Criterion Schedule (MNRF 2015). As part of the impact assessment, each section of the Criterion Schedules of the Significant Wildlife Habitat Technical Guide are assessed below in report Sections 4.10.1 (Seasonal Concentration areas), 4.10.3 (Specialized Habitat for Wildlife), and 4.10.4 (Habitat for Species of Special Concern).

4.10.1 Seasonal Concentration Areas

Ecoregion 6E Table 1.1 Seasonal Concentration Areas of Animals

a. Waterfowl Stopover and Staging (Terrestrial)

Meadow habitat is present within 120m in sufficient size to provide habitat for the diversity or numbers of waterfowl required to meet this criterion. Inventory data found no large concentrations of waterfowl stopover or staging.

No confirmed SWH for this habitat type.

b. Waterfowl Stopover and Staging (Aquatic)

Marsh and pond habitat is present within 120m. No significant number of waterfowl use days observed. No Confirmed SWH for this criterion.

c. Shorebird Migratory Stopover Area

No flooded field locations. Only a few Killdeers were observed within the area. Certainly the 1000 shorebird use days criterion is not met. No Confirmed SWH for this habitat type.

d. Raptor Wintering Area

Suitably sized, meadow and shrub land habitat is absent from the study area. There are woodlands to the south and west of the proposed licence area, however, there are no significant areas of hay or meadows which would make the area appealing to significant numbers of wintering raptors. No candidate SWH in the study area.

e. Bat Hibernacula

There is no CCR (crevice) or CCA (cave) habitat known from the site or off site area.

No Candidate SWH for this habitat type.

f. Bat Maternity Colonies

No suitable habitat is present within the proposed area for extraction, as it is primarily an annual row crop field. The only treed area to be lost is a small

Scotch Pine plantation which is not a suitable ELC community. There are virtually no deciduous trees in this plantation and snags, loose bark etc. are virtually absent, see Photo 1.

No Candidate SWH for this habitat type.

g. Turtle Wintering Areas

Two species of turtles were observed in 2023 within wetlands/ponds that are outside of the extraction area. These were: Midland Painted Turtle and Common Snapping Turtle. The required ELC Community Classes were present, as soft mud and permanent open water. Based on observations of turtles in the area there are expected to be 5 or more over-wintering Midland Painted Turtles and more than 1 Common Snapping Turtle.

The FRG3 pond did not have deep water in October 2023, but the main wetland to the south which contains some open water and bog communities had deeper permanent water in October 2023. Figure 6 shows where the Turtle Wintering Area SWH is expected to occur.

Based on this evidence we have concluded that there is Confirmed SWH for wintering turtles.

h. Snake Hibernaculum

No snake concentrations were found during the present study. There is not confirmed SWH for reptile hibernation.

i. Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)

Neither the proposed licence area or the area within 120m of it was found to have nest site habitat for the either swallow species in 2023. No suitable ELC community types are present according to the criteria schedule.

No Confirmed SWH for this criterion, as no individuals or nesting of either species was found or observed in 2023.

j. Colonially – Nesting Bird Breeding Habitat (Trees/Shrubs)

Although there are a few tall standing trees within the Letterbreen Bog, no herons were observed entering these trees, nor were nests evident. Only small numbers of foraging Great Blue Herons and Green Herons were observed in the study area. No confirmed SWH for this habitat type.

k. Colonially – Nesting Breeding Bird Habitat (Ground)

No suitably large cultural meadow or large water habitats present nearby for gulls and terns.

There are no historical records of nesting by the subject species in the study area and the 2023 breeding bird inventory did not document nesting by any of the subject species.

No Candidate SWH for this habitat type, nor confirmed SWH for this habitat type.

l. Migratory Butterfly Stopover Areas

The study area does not have 10ha of cultural meadow habitat.
There is no documented history of the adjacent area being migratory butterfly stopover habitat and a few individuals were seen of the target species in 2023 and but not in the numbers required to meet the Monarch Use Days target

No Confirmed SWH for this habitat type.

m. Landbird Migratory Stopover Areas

The proposed extraction area boundary does not include any large woodlots.

Based on our inventories the site and area within 120m is not known as a significant land bird stopover area.

No Candidate SWH for this habitat type.

n. Deer Yarding Areas and Deer Winter Congregation Areas

No ELC community types for Candidate SWH are present in the proposed extraction area boundary, but within 120m there are ELC community types which are considered candidate habitat. MNRF data provided did not indicate that there are known deer yarding areas or deer winter congregation areas occurring in close proximity to the study area (MNRF 2023). No significant evidence of deer browse or concentrations of pellets was found during the surveys in 2023, which would indicate the potential presence of high concentrations of White-tailed Deer.

There is Candidate SWH for this habitat type, but no Confirmed SWH based on the 2023 surveys completed and information from MNRF that did not indicate known deer yards in proximity to the study area.

4.10.2 Rare Vegetation Communities

We reviewed the ELC communities found during the study area inventory relative to the Ecoregion 6E rare vegetation community Table 1.2.1. There are no cliff or talus slope, sand barren, alvar, old growth forest, savannah, tall grass prairie, or other rare vegetation communities present in the study area. So there is no Candidate SWH for these criteria

4.10.3 Specialized Habitat for Wildlife

a. Waterfowl Nesting Area

Mallard and Wood Duck were the only listed wildlife species observed during the breeding season. Less than 5 Mallard pairs were observed during the breeding bird and other inventory visits

No Candidate SWH for this habitat type.

b. Bald Eagle and Osprey Nesting, Foraging and Perching Habitat

Swamp and deciduous forest habitat is present within 120m of the proposed pit extraction boundary, but suitable large nesting trees are lacking in the area. No nests were found in 2023, nor were either species observed in 2023.

No Confirmed SWH for this habitat type.

c. Woodland Raptor Nesting Habitat

Although forest and swamp habitat is present within 120m, no stick nests were found to be present in 2023.

No breeding or rearing activity of the listed raptor species was observed during the 2023 site visits.

Candidate SWH for this habitat type was present, but no Confirmed SWH.

d. Turtle Nesting Areas

There is exposed sand and gravel within 100m of the FRG3 Pond and the main portion of Letterbreen Bog. Snapping Turtle nests, egg shells and 1 adult egg-laying female were observed. Figure 6 shows the extent of potential egg-laying habitat as well as potential travel corridors to and from the egg-laying sites and habitat. The egg laying and travel corridor areas would be included within the SWH for turtle nesting.

Confirmed SWH for turtle nesting is present outside of the proposed extraction area.

e. Seeps and Springs

No springs or seeps were observed within the study area by Dance Environmental Inc., nor by the hydrogeologists. No SWH for springs or seeps.

f. Amphibian Breeding Habitat (Woodland)

No vernal pools or frog choruses were found in the conifer plantation on site nor in the upland deciduous woodlands within 120m of the proposed extraction boundary.

The Letterbreen Bog, which is located to the south of the proposed extraction limit has some swamp treed habitat with wetland shrub thicket and bog elements. Pools within these features do contain water until mid-July and beyond. Marsh Monitoring Protocol stations FRG1 through FRG4, inclusive inventoried amphibian choruses three times during 2023. Only one of the listed frog species (Spring Peeper) had a call Level 3 chorus at these stations.

The only instance where two Call Level 3 listed frog species occurred were Spring Peeper and Wood Frog at FRG5. FRG5 is located along the eastern

shoulder of Highway 6, to the northwest of the laneway into the existing aggregate pit. The Call Level 3 was heard from the woodland edge adjacent to landscape ponds that are present in rural residential yards. Figure 5 shows that the location of these calling frogs is >120m from the closest margin of the proposed licence boundary. The raised bed of Highway 6 also separates the proposed licence area from the location of these calling woodland frog species.

Although habitat is present and some woodland frog choruses were heard, there was not Call Level 3 choruses for two listed species within 120m of the site proposed licence boundary. No confirmed SWH for the woodland amphibian breeding habitat on the site or within 120m.

g. Amphibian Breeding Habitat (Wetlands)

The ELC vegetation community types which are outlined in the SWHTG are present within the licence area and within120m of it.

For example, SW, MA, BO and OA are present in the Letterbreen Bog which is located within the proposed licence boundary. As noted in the preceding text Call Level 3 choruses were only found for a single listed frog species, not two. So, although habitat is present, the chorus inventory did not confirm SWH for wetland amphibian breeding habitat.

h. Area Sensitive Bird Breeding Habitat

Within the proposed pit licence area boundary there are no community types suitable for area sensitive breeding birds, but within 120m of it there are FOD and SWM community types.

In order to confirm the presence of SWH, breeding pairs of three or more of the species listed in the criteria schedule need to be present. Only one of the species on the list was found during the breeding season in the area within 120m of the proposed pit licence area, Veery.

There is no Confirmed SWH for this habitat type.

4.10.4 Habitat for Species of Conservation Concern

a. Marsh Breeding Bird Habitat

Although there is Meadow Marsh, shrub and bog habitat present off site within 120m the 2023 breeding bird inventory indicates the occurrence of only one target species: Green Heron.

A single Green Heron was seen in the Letterbreen Bog on June 23, 2023. This species was seen on this single date during the breeding season. A pair or young were not seen, nor was a nest evident.

Since breeding was not confirmed for the Green Heron, SWH was not confirmed for Marsh Breeding Bird Habitat.

b. Open Country Bird Breeding Habitat

There is a small, narrow band of Cultural Meadow located along the existing lane to the existing aggregate pit, however, it covers less than the 30ha which is a habitat criterion for Open Country Bird Breeding habitat.

A male Northern Harrier was observed in the study area on both June 23 and July 8, 2023. On both dates this bird flew from north to south over the on site wheat field, then south into Letterbreen Bog. The harrier did not hunt over the sparse cultural meadow that is present on site.

On June 8, 2023 a singing male Savannah Sparrow was encountered along the lane to the existing aggregate pit, it was not present on June 23, 2023. Savannah Sparrow was heard singing in the on site wheat field during both the June 8 and 23, 2023 breeding bird surveys. So, there is not confirmed breeding of Savannah Sparrow in the cultural meadow habitat.

Vesper Sparrow calls were heard on June 8, 2023 from the existing pit lane margin against the on site wheat field and from the Cultural Meadow wildlife inventory Unit H. This species was not detected in these or other locations in the study area during the site visits on June 3, 23 and July 8, 2023. These observations indicate no confirmed breeding of Vesper Sparrow in the study area.

Since the target species are either not using the cultural meadow (Northern Harrier) or are not confirmed breeding in the subject habitat, there is not confirmed SWH for Open Country Bird Breeding Habitat.

c. Shrub/Early Successional Bird Breeding Habitat

None of the specified cultural thicket, cultural savannah or cultural woodland ecosites are present on the site or within 120m. No cultural shrub thickets or cultural woodlands 10ha or larger in area are present on site or within the 120m off site radius.

No indicator species were encountered within the site or 120m wide off site study area.

A few occurrences of common species were recorded, but without the presence of confirmed breeding of an indicator species, the requirements are not met for SWH.

No Confirmed SWH for this habitat type.

e. Terrestrial Crayfish

As is evident from Table 1, numerous site visits were made to the edges of Letterbreen Bog where habitat for terrestrial crayfish could occur. No crayfish chimneys or burrows were found in the study area.

No confirmed SWH for this habitat type.

f. Special Concern and Rare Wildlife Species

Natural Heritage Information Centre (NHIC) element occurrences within the pertinent 1km grid:

Review of the NHIC data for the study area shows no square coverage or data for the site and lands within 120m. Ontario Breeding Bird Atlas 2 data for Square 17NJ17 indicates probable breeding for Eastern Wood-Pewee and Wood Thrush. The Ontario Herp Atlas has records from Square 17NJ17 between 1931 and 2018. Special Concern species Snapping Turtle was documented in the square in 1990. Monarch butterfly was found during the 2023 inventory for the present study.

Information received from the SVCA indicated that American Bumble Bee Bombus pensylvanicus is Special Concern and is known from the study area (Michael Cook email July 28/23).

Eastern Wood-Pewee:

During the 2023 breeding bird surveys Eastern Wood-Pewee was heard calling in the same Sugar Maple woodland on June 8 and 23, 2023. Presence of calling on a territory 7 days apart yields a breeding level of probable. The calling EWPE was estimated to be ≥ 60m inside the Sugar Maple woodland, to the west of the proposed extraction boundary, see Figure 5. There is, therefore, Confirmed SWH for this species within 120m of the proposed pit location.

Barn Swallows:

Figure 5 shows locations where Barn Swallows (BARS) were observed foraging. These locations include on site agricultural fields and agricultural infrastructure areas. It appeared that BARS were nesting in one on site barn, and one off site barn and one off site shed/garage. Much of the site and off site study area habitat has potential as BARS foraging habitat.

Wood Thrush:

Although this species was recorded in OBBA 2 Atlas Square 17NJ17, Wood Thrush was not heard or seen anywhere in the study area during the 2023 inventory visits. No Confirmed SWH for this species.

Monarch:

Adult Monarchs were seen in the study area during the breeding season and during the Autumn migration season. Egg laying was observed in two locations in the NW sector of the study area. Confirmed SWH for this species.

American Bumble Bee:
This species has been reported in the study area (SVCA 2023 email).

During the insect inventories this species was not observed. No Confirmed SWH for this species.

Other Species:
Other species of herptiles, birds and plants which were reported from existing information sources to be near or in the study area were checked for status. No additional Special Concern species were found during the 2023 inventories.

g. Animal Movement Corridors

SWH was not confirmed for Amphibian Breeding Habitat (woodlands), so the animal movement corridor analysis is not required.

Minor, local movements of insects, birds and herptiles probably occur between the Letterbreen Bog through or along the western margin of upland woodland patches and via an off site hedgerow, to the woodland located off site north of Grey County Rd. 9. Northern Harrier and Coyote were observed moving along this edge.

4.11 Areas of Natural or Scientific Interest

No areas of Natural or Scientific Interest (ANSI) are present within the proposed licence area or within 120m of it (M. Cook, July 28, 2023).

5.0 CONCLUSIONS OF LEVEL 1 STUDY

Natural Environmental Level 1 elements that have been confirmed on the site or within 120m are:

- Habitat of Endangered or Threatened Species – Eastern Meadowlark, Butternut;
- Significant Wetlands - Letterbreen Bog PSW, within the proposed licence boundary;
- Significant Woodlands;
- Fish Habitat – within Letterbreen Bog;
- Significant Wildlife Habitat:
    - Turtle Wintering Areas;
    - Turtle Nesting Areas;
    - Special Concern and Rare Wildlife Species - Common Snapping Turtle, Eastern Wood-Pewee, Barn Swallow, and Monarch.

Other factors to consider are the County of Grey Official Plan and the Saugeen Valley Conservation Authority Regulated Area.

6.0 LEVEL 2 STUDY

A Level 2 impact analysis is required by the Aggregate Resources Act (ARA) if any of the Level 1 features are present on or within 120m of the study area. The following section is provided in order to meet those requirements.

Since the Level 2 ARA study has to address and predict the potential for environmental impact, it seems appropriate to describe the Purpose and Rationale for the proposed undertaking and to provide a description of the undertaking, in the present location in the NETR/EIS. This describes the proposed elements of the proposed undertaking in a convenient location close to where the impact analysis text is being presented.

6.1 Purpose and Rationale

The purpose of the undertaking is to obtain a licence to extract aggregate above the water table. The present NETR/EIS report is to address natural heritage elements required by the ARA and the Grey County Official Plan.

The application addresses the subject property because a valuable aggregate resource is present and it can be extracted without negative impact to the Natural Heritage features and functions.

Good transportation facilities and linkages further support the rationale to extract in this location.

6.2 Description of the Proposed Undertaking

Figure 6, the Operations Plan, depicts the location and extent of the proposed licence boundary and the limit of extraction.

The access road is proposed to be located in the northeastern corner of the pit, exiting onto Grey Road 9. A 3m high earth berm will be constructed along the eastern margin of the licenced area, within the 30m setback from the Highway 6 ROW.

There will be 8 phases of extraction, beginning in the north central portion of the site (Phase 1A) and progressing southerly to Phases 1B and 1C, see Figure 6. The final Phase 6 will be extraction between the Natural Gas Easement and the off site maple woodland to the west.

Stockpiling is proposed to occur within the central, interior portion of the site in the Phase 1B area.

Extraction will remain 1.5m or more above the water table.

Houses and barns located to the west of Highway 6 will be removed.

Natural heritage features located along the southern margin of the proposed licence are protected within undisturbed setbacks, where extraction will not occur.

6.3 Proposed Mitigation

The following recommendations are made which will contribute to minimizing the potential for impact on the natural environment.

Mitigation recommendations are as follows:

1. Clearing of any vegetation within the limit of extraction should occur between October 1 and April1 to prevent any destruction of birds, eggs or nests, and to prevent impact on bat populations.

2. Effective dust control should be maintained along the access road and in the pit so that dust does not impact adjacent vegetation and wildlife.

3. Adequate undisturbed setbacks should be established between the limit of extraction and the Level 1 features. Rationale for setback widths, locations, management and maintenance should be determined through the impact assessment process, report section 6.4.

4. Progressive rehabilitation should be undertaken.

5. Equipment fueling, maintenance and fuel storage should be located near the central portion of the site, away from the off site ponds, woodlands, and wetlands.

6. Extraction should be kept 1.5m above the shallow ground water elevation so that there are no impacts on the off site natural features.

7. Silt control fence should be installed to protect the woodland and wetlands to the south, and the woodlands to the west and southwest.

8. The southern and western boundaries of the licence margin should be fenced with post and wire fencing to prevent equipment from impacting the adjacent woodlands and wetlands.

9. If in the future, the houses, barns and sheds are to be removed, MECP regulations in force at the time should be reviewed to ensure that the methods and timing of building removals are in compliance with requirements pertinent to Barn Swallows.

10. A 15m setback from the property boundary should be left ungraded and be allowed to naturalize in the area of the west-central woodland, where Butternut saplings have been found. Since extraction here is to occur in

the last Phase (6), which will be many decades from now, this area could be farmed until the year before extraction is to occur.

Three years prior to extraction in Phase 6, the health of the Butternuts should be checked and regulations pertaining to Butternuts that are in effect at the time should be followed. Presuming that there are healthy Butternuts present and regulations require their protection, prior to stripping topsoil on the lands to be extracted during Phase 6, silt fence should be erected and monitored periodically. The 15m setback should be allowed to naturalize, or whatever prescription to protect Butternuts is required, should be implemented.

11. If Bank Swallows begin to nest in the new pit margins, pertinent regulatory requirements should be followed to avoid impacts on this species.

6.4 Impact Assessment

Each Level 1 feature is assessed for potential impact, taking into account the mitigation recommended in report section 6.3.

6.4.1 Habitat of Threatened and Endangered Species

A. Eastern Meadowlark (EAME)

Although nesting was not confirmed during the 2023 breeding season, the meadow habitat present in the southern corner of the proposed licence did attract a single EAME late in the breeding season.

This meadow habitat area, which is south of the existing lane to the existing pit to the west, will be left intact and will be protected by silt fencing. This fence will prevent sediment transport into the habitat and will prevent machinery entry into the area. No grading will occur in this meadow area. A minimum of approximately 30m will separate extraction from the closest edge of the EAME habitat, but most of the meadow habitat is 75m or more away from extraction. Since the subject meadow habitat area is small and it was not used for nesting in 2023 the area could be considered to be potential Category 2 or 3 habitat. These areas have a moderate (Category 2) and a high level (Category 3) of tolerance to alteration (OMNR 2013 b).

Given the mitigation proposed, it is our opinion that the undertaking will not have a negative impact on Eastern Meadowlark habitat or populations.

B. Butternut

As can be seen on Figure 2, six Butternut trees were found, evaluated, surveyed and plotted during the 2023 growing season. Data forms are provided in Appendix 3 of the present report.

Butternut 1 is a 47cm dbh Category 3 tree, Butternut 2 is dead and Butternuts 3, 4, 5 and 6 inclusive are saplings with dbhs in the 3 to 6cm dbh range. Butternut 4 Is diseased and is non-retainable. Butternuts 3, 5 and 6 are Category 2 trees and thus are retainable.

Butternut 1 is located on the westerly edge of the licence boundary inside a maple woodland. It is situated in a location where drainage from the proposed extraction area does not flow toward this Butternut. A 15m wide ungraded setback will separate the trunk of the tree from the proposed limit of extraction of the new pit. This setback is expected to protect this tree.

The three Category 2 sapling Butternuts 3, 5 and 6 are located along the eastern margin of the maple woodland that is present off site to the west of the central portion of the proposed pit. Butternuts 5 and 6 are off site on lands owned by others and are 40m or more away from the closest extraction. This separation is expected to protect Butternuts 5 and 6.

Butternut 3 is on the edge of a maple woodland and is separated from extraction by a proposed 15m wide, ungraded setback, which currently is intensively farmed. This setback area currently is ploughed and receives applications of fertilizer and pesticides.

It is proposed that a few years prior to extraction in Phase 6, farming cease on the 15m setback and the area be allowed to naturalize. Also, prior to stripping topsoil for Phase 6, silt fence should be erected along the eastern margin of the 15m setback to prevent sediment transport into the woodland and toward Butternut 3. Once natural cover is established in the 15m setback the silt fence can be removed.

Given the mitigation that is proposed, it is our opinion that the undertaking will not have a negative impact on the Butternuts present, their habitat, nor on the Butternut population in the study area.

6.4.2 Provincially Significant Wetlands (PSW)

The existing northern edge of the Letterbreen Bog in the study area is shown on Figure 1. This line was staked by Dance Environmental Inc. and was checked on site by Grey County ecologists in August 2023.

A minimum 30m wide ungraded setback from this wetland edge will be provided. A post and wire and silt fence will be erected along the northern boundary of the setback from the wetland and from the other natural heritage features that are present in the southeastern area of the study area, see Figure 6. This silt fence will be installed prior to topsoil stripping in the Phase 1B and 1C areas. The setback should be allowed to naturalize, except in specific areas where management of trees and shrubs is undertaken to maintain shade-free areas for turtle nesting. The setback and silt fence will ensure that the wetland habitat features and functions are not impacted.

GMBP (2023) has assessed the potential for the pit to impact surface water quantity and quality, and groundwater quantity in the Letterbreen Bog. Full details are contained in Chapter 6. Impact Assessment within the GMBP (2023) report.

Details pertinent to the present assessment are presented as follows:
with respect to groundwater quantity, the proposed bottom contours of the aggregate pit have been selected to prevent alteration to the groundwater flow regime. As discussed, the proposed bottom contours are a minimum of 1.5 meters above the estimated "high" water table elevation. Pit operations will not include dewatering or groundwater diversion. Thus, no impacts to groundwater are anticipated by mining aggregate above the water table. Groundwater will not be diverted or altered during the aggregate extraction process. Since there are no proposed interactions with the water table or surface water features, the overall water budget, pre- to post- development, is expected to remain unchanged (GMBP, 2023).

Relative to surface water resources and Letterbreen Bog, GMBP 2023 indicates the following:
"The northerly margin of Letterbreen Bog is situated in the southern portion of the property. Based on our onsite groundwater elevation measurements, it is inferred that the surface water elevation in the bog is generally consistent with the water table elevation. Further, it has been determined that the potentiometric surface across the Site declines in a northerly direction, driving shallow groundwater flow towards the north, and away from the Letterbreen Bog. This northerly groundwater flow is expected to significantly reduce the potential for negative impacts to the water balance of the bog.

In order to reduce the potential for impacts to this feature, a setback of 30 metres from the wetland's edge has been established for aggregate extraction. The edge of the wetland was determined by Kevin Dance of Dance Environmental Inc. (the ecological consultant for this application) and was subsequently surveyed by GMBP personnel.

The proposed onsite pit operations are required to have a setback from the areas of the property designated as Hazard Lands as part of the Grey County Official Plan. It is noted that the SVCA regulated screening area extends approximately 50 to100 metres beyond the noted Hazard Land boundary. It is our understanding that development within the area designated as an SVCA screening area is not prohibited as long as suitable consultation with the SVCA has been conducted and written permissions or permits (if required) have been obtained. It is our understanding that Teeswater Concrete Ltd. has already undertaken pre-consultation discussions with SVCA personnel.

It is of particular note that the proposed operations are to be above the water table. No dewatering or water diversions will take place onsite as part of aggregate extraction operations. Based on the occurrence of coarse-grained soils (i.e., the sand and gravel) below the groundwater table, the pre- to post-development groundwater flows are expected to remain similar to the present conditions. Considering both the water budget and flow direction is expected to remain unchanged from pre-extraction to post-extraction when appropriate setback distances are maintained, no impacts to this area is anticipated.
As far as surface water quality is concerned the setback from the boundary of the Letterbreen Bog, the northerly groundwater flow direction, as well as the implementation of best management practices for sediment and run-off control, no impacts to these surface water features are anticipated."

GMBP indicates that, "based on the proposed pit activities, the primary quality concerns relate to the potential degradation of water quality through:

- Increased sediment/suspended solids loading, and

- Increased temperature.
  - With respect to increased sediment and/or turbidity, this is caused through mobilization of fine-grained silt and clay sized soil particles (fines). In this particular scenario the following mechanisms will act to prevent fines.

- The distance and low topographic relief between the pit activities and the Letterbreen Bog will act as a buffer.

Potential impacts to water temperature are not considered to be an issue between pre- and post- development since:

- No surface water ponding is proposed/expected to occur in the proposed areas of extraction;

- Equal infiltration to the subsurface will continue post-development.

Based on proposed extraction to the water table, no water ponding (nor diversion) would occur. During aggregate pit development, precipitation would continue to infiltrate. As such, there is no increased potential for warming of groundwater recharging to the shallow system in the vicinity of the aggregate pit.

The Pit operations will include a spills response plan, which includes training for the proper and safe use, handling, and storage of fuel or other potential contaminants. All spills or releases of contaminants are to be reported immediately to the MECP Spills Action Centre. Further, a spills response plan will be posted onsite at all times."

GMBP assesses surface water quantity as follows:
“The surface water quantity is expected to remain the same pre- and post-development since:

- The surface water features, including outlet elevations and controls, are not to be adjusted as part of the pit development,

To mitigate potential impacts to water quantity we recommend the following mitigative measure:

- To generally maintain surface water flows to the same low-lying locations, sloping of the restored grades to maintain similar catchment areas (pre- and post-development) shall be conducted.”

The conclusion of the GMBP (2023) assessment is that it is reasonable to expect that the proposed aggregate extraction would not impact the local water supply wells in the area, surface water features, or associated ecological receptors in the area.

6.4.3 Significant Woodlands

Significant woodlands are present to the south of the extraction area and north of Grey Road 9, north of the extraction area.

A. Southern Significant Woodland:

South of the site the northern margin of this woodland is generally synonymous with the edge of the PSW. While staking the wetland edge we observed that the woodland edge was sometimes 3 to 5m upslope of the wetland edge. To the southwest of the new proposed aggregate licence portions of the woodland are upland maple woodlands, see Figure 2, the ELC map.

The silt fence that will be placed a minimum 30m upslope of the staked PSW boundary and the ungraded setback will protect the southern woodland from disturbance. Naturalization of the setback will add to the extent of the southern woodland polygon.

Since the hydrogeologic assessment determined that there would be no negative impact on surface and groundwater quantity and quality, there are not expected to be any hydrology impacts to the southern woodland.

Based on the foregoing analysis, it is our opinion that there will not be any negative impacts to the southern Significant Woodland.

B. Northern Significant Woodland

Part of the Significant Woodland located north of Grey Road 9 is opposite the northwestern corner of the proposed licence. The proposed undertaking will not change the areal extent of the off site northern woodland. Dust control in the aggregate pit will ensure that there are no dust impacts on the woodland. Since

the site has hummocky topography and coarse-grained soils, little or no runoff is expected to flow from the site toward the Significant Woodland.

Given the existing wide separation between the site margin and off site woodland, due to Grey Road 9 ROW and implementation of dust control measures, no impacts are expected on the vegetative cover of the northern Significant Woodland.
Based on the foregoing analysis, it is our opinion that there will not be any negative impacts to the northern Significant Woodland.

6.4.4 Fish Habitat Within Letterbreen Bog

There are no streams or permanent ponds within the area proposed for extraction.

The open water pond areas within the PSW are expected to provide habitat for warmwater fish. A Central Mudminnow was encountered in one such pond in 2023.

The minimum 30m undisturbed setback and the silt fence that will be installed prior to topsoil removal will protect any fish habitat located in the wetland from disturbance and sedimentation.

The GMBP (2023) hydrogeologic assessment determined that there would be no negative impact on surface and groundwater quantity and quality, including water temperature, that would affect the Letterbreen Bog. The same conclusion applies to private, landscape ponds located east of Highway 6. Based on the foregoing analysis, it is our opinion that there will not be any negative impacts to fish habitat in the Letterbreen Bog, nor in off site ponds.

6.4.5 Significant Wildlife Habitat Turtle Wintering Areas

These areas are located within pond areas of the Letterbreen Bog PSW. The 30m or greater width, undisturbed and fenced setback from the northern PSW boundary and the turtle habitat will protect any movement corridors for turtles that need to move from the FRG3 pond (see Figure 5) to the south into the main bog to overwinter.

Since the hydrogeologic assessment determined that there would be no negative impacts on water quantity and quality there are not expected to be any hydrology impacts on Turtle Wintering Areas.

Based on the foregoing analysis, it is our opinion that there will not be any negative impacts to Turtle Wintering Areas from the proposed aggregate extraction.

Turtle Nesting Areas

Common Snapping Turtle nesting areas were found adjacent to the FRG3 pond and the northern edge of the main Letterbreen Bog, see Figure 6.

The minimum 30m wide, undisturbed setback from the northern PSW boundary and from turtle nesting areas will protect nesting habitat from disturbance.

Silt fence installation prior to topsoil removal before Phase 1B and 1C extraction will prevent sediment transport toward turtle nesting areas. The fence will also prevent machinery movement into the turtle nesting area. This fence will also prevent turtles from moving into the active extraction areas. Monitoring of the fence to ensure timely repairs, if needed, will ensure that the fence functions effectively.

Every 3 years a monitoring visit should be made to the turtle nesting area to determine if any trees or shrubs should be removed to ensure the long-term availability of open sunny habitat where turtle nesting would be successful. Any tree or shrub removals should be completed using hand tools, to ensure that nesting substrates are not compacted by heavy equipment.

Every 5 years, two monitoring visits (one in early and one in late July) should be conducted to count and map numbers of turtle nests. A brief report should be submitted which documents the nest monitoring results.

The impact analysis presented in Section 6.4.5 (turtle wintering areas) also applies to the turtle nesting area impact assessment.

Based on the foregoing, it is our opinion that there will not be any negative impacts to Turtle Nesting Areas from the proposed aggregate extraction.

Special Concern and Rare Wildlife Species:

Barn Swallow (BARS)

Active Barn Swallow nests were suspected in 2023, in three buildings – Locations A, B, and C on Figure 5. Location A is within the area proposed for extraction. Locations B and C are to the east of Highway 6 and will not be affected by extraction, since these nests are approximately 115m to 145m away from the closest site change, which is berm construction.

Removal of the barn at the Location A nest site will cause loss of Category 1 and 2 habitat, that is, nest sites and roosting, feeding, resting and rearing of young area within 5m of the nest (OMNR 2013a).

Subject to review by, and advice from, MECP, it is recommended that a suitably-sized Barn Swallow nest structure be erected in the southeastern corner of the licenced area, adjacent to the turtle nesting and overwintering, and Eastern Meadowlark habitat.

Figure 6 shows a conceptual location for such a structure. The structure would be installed one nesting season prior to removal of the existing Location A barn

where nesting occurs. In this location the Barn Swallows would be farther from Highway 6 than currently, the wild habitat will be protected by silt fence and an ungraded wild vegetation buffer of approximately 150m width would separate the nesting structure from extraction. Also, in this location Barn Swallows would have access to insect food present in the adjacent meadows, woodland, and Letterbreen Bog.

Given the mitigation proposed, it is our opinion that the undertaking will not have a negative impact on Barn Swallow habitat or populations.

Common Snapping Turtle (COSN)

The Significant Wildlife Habitat (SWH) for this species is the Turtle Wintering Areas, Turtle Nesting Areas and movement corridors between the FRG3 Pond and the main Letterbreen Bog polygon to the south.

All of these SWH areas are protected from extraction by the undisturbed setbacks between the PSW edge and the setbacks from Turtle Nesting Areas adjacent to the FRG3 Pond. For the reasons described in the Turtle Nesting Areas text presented previously there will be no negative impacts on COSN habitat. In fact, due to the management of trees and shrubs in the nesting areas to ensure shade-free habitat in the long term, there will be positive impacts resulting from the proposed undertaking.

Based on the foregoing, it is our opinion that the proposed undertaking will create long term positive impacts for Common Snapping Turtle habitat or populations.

Eastern Wood-Pewee (EWPE)

A calling EWPE was heard on both June 8 and 23, 2023 inside the off site maple forest located west of the mid-point of the proposed pit, see Figure 5.

No trees will be removed from this woodland and a 15m wide ungraded setback between the property boundary and extraction will be allowed to naturalize, so the area of the woodland polygon will increase. Routine dust control will prevent impacts on woodland vegetation. Silt fence will prevent soil from washing into the setback and existing woodland. The EWPE breeds now in a location where agricultural impacts are present in the field to the east. Given that the EWPE nests inside the woodland and a new additional setback will be established, negative impacts on EWPE from the aggregate operation are not expected.

Based on the foregoing, it is our opinion that the proposed undertaking will not create negative impacts on EWPE habitat or populations.

Monarch

Monarch habitat and observations of adults were concentrated in two locations in 2023, see Figure 5. Several hundred Common Milkweed Plants were present in the MEGM3 offsite polygon located northwesterly from the northwesterly corner of the proposed pit. The 15m setback between the extraction limit and the

MEGM3 unit will ensure that this off site milkweed population will not be disturbed. Routine dust control will ensure that the Common Milkweeds in this area are not impacted. The setback between extraction and the off site MEGM3 polygon will also ensure that nectar plants growing in this unit are protected.

The second major Common Milkweed patch (consisting of hundreds of plants) is located adjacent to the FRG3 Pond in the southeastern area of the study area. There are also nectar-producing plant populations growing on the meadows present adjacent to FRG3. This area is protected by setbacks from the edges of the PSW, turtle nesting area and Eastern Meadowlark habitat. Silt fencing, dust control, management of some areas to maintain sunny turtle nesting habitat will all ensure long term protection of the Common Milkweed populations and nectar-producing plants, necessary elements of Monarch habitat.

Based on the foregoing, it is our opinion that the proposed undertaking will not create any negative impacts on Monarch habitat or populations.

6.4.6 Other Policies

Grey County Official Plan

An EIS which addresses OP Policy 7.11.1 and 7.11.2 has been prepared. The present EIS is based on a Terms of Reference agreed to by County staff.

The present EIS presents a purpose and rationale for the development. Maps and figures show the subject lands in relation to natural heritage features and functions listed in the OP and the ARA.

Figures in the EIS/NETR illustrate existing terrestrial and aquatic features, land ownership/use patterns and the proposed land use (aggregate extraction).

Alternatives were considered. For example, during the EIS/NETR study process alternative boundaries for the limits of extraction were considered. In some locations a wider setback from the PSW was provided in the final design (Operations Plan) to protect features and functions which were discovered during the inventory and impact assessment work.

The present impact analysis has addressed features, ecological functions and proposed mitigation measures.

The staking/flagging of the PSW boundary, the ELC assessment and the Butternut assessments have all been completed by certified, trained and experienced ecologists, see Appendix 5, CVs.

The EIS/NETR has concluded that the proposed aggregate extraction can be completed without negative impacts on natural heritage features and functions..

Conservation Authority – Regulated Area

As shown on the Operations Plan (Figure 6) the Ont. Regulation 169/06. Screening Area extends north of the Letterbreen Bog PSW northern boundary, into existing agricultural cropland. The ungraded setbacks and fencing recommended by the current EIS will protect the wetland, woodland, turtle, Monarch and Eastern Meadowlark habitat.

Surface water and groundwater quantity and quality assessments by GMBP (2023) have determined that there will be no impacts on water resources on or adjacent to the site. So, there should be no changes in erosion potential, slope stability, or flooding potential.

The proposed extent of extraction should have no negative impact on the SVCA Regulated Area.

6.5 Residual Impacts and Conclusions on Development Potential

No significant negative, long term natural environment impacts are expected from proposed aggregate extraction on the site lands, nor off site within 120m.

Requirements of municipal, conservation authority, provincial and federal policies will be met regarding minimization of impact on the natural environment.

7.0 MONITORING

It is recommended that ecological monitoring be undertaken at the pit during the years of operation when extraction in Phases 1B and 1C occur. As the Phase 1 extraction area is adjacent to the greatest number of Level 2 features an ecological monitoring plan is recommended to ensure that no significant impacts occur to Level 1 features due to the aggregate extraction. The ecological monitoring plan is to include:

- counting and mapping the numbers of sunning and nesting turtles in the area adjacent to Pond FRG3 and the PSW setback;
- any use of the meadow habitat adjacent to FRG3 by Eastern Meadowlark (EAME): record dates, behavior, and numbers of EAME and map locations;
- estimate numbers of Common Milkweed plants and map locations;
- count and map Monarchs present during monitoring visits;
- a baseline year of monitoring should occur the year following topsoil stripping in the Phase 1A area;
- annual monitoring should occur as soon as topsoil stripping occurs within 150m of the northern setback from PSW/SWH;
- annual monitoring shall continue during the Phase 1B and 1C extraction and should continue until the southern Phase 1B area and the entire Phase 1C area have been progressively rehabilitated; and

- monitoring of the effectiveness of the tree and shrub management to maintain sunny turtle nesting areas should be reported in each annual report.

An annual data summary and interpretation report would be prepared and provided to the client and all relevant agencies during years when monitoring is specified.

8.0 RECOMMENDATIONS

1. The mitigation recommendations contained in Sections 6.3, and 7.0 of this NETR/E.I.S. shall be included on the Operations Plan and shall be implemented by the pit operator. These recommendations are as follows:

A. Clearing of any vegetation within the limit of extraction shall occur between October 1 and April1 to prevent any destruction of birds, eggs or nests.

B. Equipment fueling, maintenance and fuel storage shall be located near the central portion of the site, away from the ponds, woodlands, and wetlands.

C. Extraction shall be kept 1.5m above the shallow ground water elevation, so that there are no impacts on the off site natural features.

D. Silt control fence shall be installed to protect the woodland and wetlands to the south, and the woodlands to the west and southwest.

E. The southern and western boundaries of the licence margin shall be fenced with post and wire fencing to prevent equipment from impacting the adjacent woodlands and wetlands.

F. If in the future, the houses, barns and sheds are to be removed, MECP regulations in force at the time shall be reviewed to ensure that the methods and timing of building removals are in compliance with requirements pertinent to Barn Swallows.

Subject to review by, and advice from MECP, a suitably-sized Barn Swallow nest structure shall be erected in the southeastern corner of the licenced area, adjacent to the turtle nesting and overwintering and Eastern Meadowlark habitat. The structure shall be installed one nesting season prior to removal of the existing Location A barn where nesting occurs.

G. A 15m setback from the property boundary shall be left ungraded and be allowed to naturalize in the area of the west-central woodland where Butternut saplings have been found. Since extraction here is to occur in

the last Phase (6), which will be many decades from now, this area could be farmed until the year before extraction is to occur.

Three years prior to extraction in Phase 6, the health of the Butternuts shall be checked and regulations pertaining to Butternuts that are in effect at the time shall be followed. Presuming that there are healthy Butternuts present and regulations require their protection, prior to stripping topsoil on the lands to be extracted during Phase 6, silt fence shall be erected and monitored periodically. The 15m setback shall be allowed to naturalize, or whatever prescription to protect Butternuts is required, shall be implemented.

A 15m wide ungraded setback from Butternut 1 shall separate the trunk of the tree from the proposed limit of extraction of the new pit. This setback shall be protected by silt and post and wire fencing one year prior to extraction of the southern portion of Phase 6 lands.

H. If Bank Swallows begin to nest in the new pit margins, pertinent regulatory requirements shall be followed to avoid impacts on this species.

I. A minimum 30m wide ungraded setback from the wetland edge shall be provided. A post and wire and silt fence shall be erected along the northern boundary of the setback from the wetland and from the other natural heritage features that are present in the southeastern area of the study area, see Operations Plan. Silt fence shall be installed prior to topsoil stripping in the Phase 1B and 1C areas. The minimum 30m setback shall be allowed to naturalize, except in specific areas where management of trees and shrubs is undertaken to maintain shade-free areas for turtle nesting.

J. The ecological monitoring plan shall include the following:

- counting and mapping the numbers of sunning and nesting turtles in the area adjacent to Pond FRG3 and the PSW setback; every 3 years a monitoring visit shall be made to the turtle nesting area to determine if any trees or shrubs should be removed to ensure the long-term availability of open sunny habitat where turtle nesting would be successful. Any tree or shrub removals shall be completed using hand tools, to ensure that nesting substrates are not compacted by heavy equipment; every 5 years, two monitoring visits (one in early and one in late July) shall be conducted to count and map numbers of turtle nests. A brief report shall be submitted which documents the nest monitoring results;
- document any use of the meadow habitat adjacent to FRG3 by Eastern Meadowlark (EAME): record dates, behaviour, and numbers of EAME and map locations;
- estimate numbers of Common Milkweed plants and map locations;
- count and map Monarchs present during monitoring visits;

- a baseline year monitoring shall occur the year following topsoil stripping in the Phase 1A area;
- Annual monitoring shall occur as soon as topsoil stripping occurs within 150m of the northern setback from the PSW/SWH;
- Annual monitoring shall continue during the Phase 1B and 1C extraction and shall continue until the southern Phase 1B area and the entire Phase 1C area have been progressively rehabilitated;
- Monitoring of the effectiveness of the tree and shrub management to maintain sunny turtle nesting areas shall be reported in each annual report.
- Any annual data summary and interpretation report shall be prepared and provided to the client and all relevant agencies during years when monitoring is specified.

2. Progressive rehabilitation shall be undertaken. Re-vegetating portions of the pit as quickly as feasible would potentially benefit vegetation and wildlife populations in the study area.

3. Dust control effectiveness shall be monitored on an on-going basis, with mitigation measures to be taken as required, to achieve effective dust control.

4. The NETR/EIS report shall be sent to MECP to be reviewed relative to Species at Risk regulations.

9.0 CONCLUSIONS

Based on the 2023 inventory data we have concluded that provided that the mitigation recommendations contained in report Sections 6.0, 7.0 and 8.0 are effectively implemented, the proposed aggregate operation will not create negative impacts on Level 1 natural environment factors, or factors outlined in the County of Grey OP.

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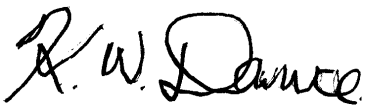
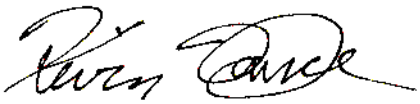
Report prepared by:
Dance Environmental Inc.



K.W. Dance, M.Sc.
President



K.S. Dance, M.E.S.
Terrestrial Ecologist

APPENDIX 1

Terms of Reference,
August 23, 2023

DANCE ENVIRONMENTAL INC.

DE-475
August 23, 2023.

FINAL

Terms of Reference for EIS for Proposed Above Water Table Aggregate Extraction at 311804 Highway 6 Concession 1, Divisions 1 to 3 Pt Lot 19 & 20 Concession 2; Pt Lot 46 Normanby, West Grey County of Grey.

Address: #807566 Oxford Rd. 29, R.R. #1 Drumbo, ON N0J 1G0
TEL (519) 463-6156
Email: dancenvironment@rogers.com

1.0 INTRODUCTION

The following Terms of Reference has been prepared as a step in completing an EIS and NETR for an above water table aggregate extraction project, to be located at 311804 Highway 6, north of Mount Forest. The proponent is Teeswater Concrete Ltd. Dance Environmental Inc. has been retained to prepare the EIS/NETR documents. Figure 1 shows the location of the subject property.

2.0 BACKGROUND

The purpose of the EIS is to meet the requirements of the 2018 County of Grey Official Plan, specifically Section 7.11.1. Pertinent policies of the SVCA are also to be addressed by the EIS. Requirements of provincial and federal regulations will also be addressed. These include the Aggregate Resources Act, PPS (2020), ESA (2007) and DFO requirements.

The EIS will also provide information to support the proposed zone change from the current Highway Commercial Zone to the proposed Mineral Aggregate zoning.

3.0 PURPOSE AND RATIONALE

The purpose of the undertaking is to obtain zoning and approvals to facilitate extraction of a valuable aggregate resource that is located adjacent to excellent transport links.

The rationale is that the aggregate resource is needed to support vital economic activities which are important to the local economy.

4.0 DESCRIPTION OF THE PROPOSED UNDERTAKING

The EIS will summarize and include the following general information on the proposed undertaking.

- Location map;
- Purpose of the aggregate extraction proposal;
- Conceptual plan showing locations and boundaries of areas which are identified as being potentially extractable, along with locations and boundaries of natural heritage features and functions.
- Activities associated with the proposed undertaking that may have direct or indirect, short term or ongoing environmental impacts during extraction and rehabilitation.
- General areas of any proposed grading and drainage or vegetation alterations.

5.0 DESCRIPTION OF THE NATURAL ENVIRONMENT

Study Methods

Existing information sources will be obtained from SVCA, the County of Grey and NDMNRF, and these will be reviewed in the EIS. Data sources which will be used include:

- NHIC –Biodiversity Explorer Species at Risk query
- 2nd Ontario Breeding Bird Atlas
- County of Grey Official Plan (2018 – Consolidated 2023)
- The Ontario Herpetofauna Atlas
- DFO Aquatic Species at Risk mapping; and
- The Ontario Butterfly Atlas.

Information on soils, surface water and groundwater will be obtained from specialty Consultants undertaking studies for the proponent.

The background data screening will help focus the inventory regarding Species at Risk (SAR). Based on existing knowledge, surveys will need to document breeding bird SAR occurrences, breeding evidence and habitat conditions.

All Butternut trees present on the site will be tagged, mapped and a Butternut Health Assessment will be completed for each tree, during the late July to late August period.

If additional Species at Risk are discovered, appropriate data on each will be collected: numbers, locations, breeding status, extent of habitat etc.

In order to complete a thorough EIS for the proposed study area a number of specific ecological inventories and surveys will be completed including:

- Breeding bird surveys (2) two in June to early July, ten days apart;
- Snake inventory – hand searches, late April through Autumn;
- Vegetation inventory (spring, summer, autumn);
- Delineate ELC vegetation communities;
- Butternut inventory and health assessments;
- Herbaceous plant inventory;
- SAR habitat surveys;
- Fish communities in the off site wetland will be documented based on existing information and incidental observations;
- Amphibian breeding in the PSW and adjacent off site ponds will be documented during 3 visits following Marsh Monitoring Protocol methods;

- Numbers and species of turtles present in ponds and wetlands will be documented. Effort will be expended to locate and document any turtle nesting locations present on site or on other public lands, eg. road margins;

- A butterfly inventory will be conducted during site visits between Spring and late Summer. Butterfly habitat impact assessment will focus on Monarch habitat.

- Bat habitat will be described for the small coniferous plantation area which is proposed to be removed. This is the only location where removal of a treed area is proposed. Based on lack of expected impact to SAR bats here, and completion of bat inventories for numerous other studies, it is our opinion that a bat bio-acoustical inventory is not necessary or required. MECP will comment on SAR bat issues associated with this application, after reviewing the NETR/EIS which is submitted with the ARA application.

- The northern edge of the PSW will be staked/flagged, confirmed by agency staff and it will be surveyed and plotted on key plans to be contained in the EIS/NETR.

Any wildlife heard or observed during field surveys will be recorded, as well as any signs of the presence of any species of wildlife (ie. tracks, scat, dens etc.). Reptiles, amphibians and insects will be recorded as seen.

The existing conditions within the study area proposed for extractive use will be described based on the background information collected on the site and the findings of the biological inventory site visit. Descriptions of the proposed development concept in relation to existing soils, hydrogeology, vegetation, fauna, site topography, drainage, wetlands, woodlands other habitat areas and other applicable matters will be provided.

The study area will include the site and lands visible from the site margins, out to 120m. Off site observations will involve air photo interpretation and observations from the site margins using binoculars.

The EIS will include maps and site plans showing the location of the lands affected by the development proposal in relation (where applicable) to the Hazard Lands, Provincially Significant Wetlands, Other Wetlands, Significant Woodlands, Significant Areas of Natural and Scientific Interest, generalized locations (element occurrences) of endangered and threatened species, as well as existing land uses, trees, surface water and landscape

context, ownership patterns, existing and proposed land use types and alternative development concepts.

6.0 ENVIRONMENTAL IMPACT ANALYSIS

- The EIS will include an explanation of the proposed development as well as a corresponding figure. The setbacks determined through the EIS will be shown on this figure in the context of the proposed extraction and rehabilitation.

- The EIS will include a section that demonstrates how the proposed development conforms with the applicable policies outlined in Section 2.0 of this Terms of Reference.

- The study will include a review of the study area for Significant Wildlife Habitat, per Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (2015).

- The EIS will include relevant correspondence from public agencies. This may include confirmation of the scope of work as well as any communications with the Ministry of the Environment, Conservation and Parks (MECP) with respect to the Endangered Species Act.

7.0 MITIGATION/COMPENSATION MEASURES

The EIS will describe the necessary mitigation actions to prevent, change, mitigate or remedy any expected negative impacts upon the woodlands, wetlands and ponds or any significant wildlife habitat or communities which are identified through the collection of the baseline data. Where relevant, a description of methods to protect the ecological functions of the areas affected will be provided. Buffers and setbacks from the wetlands, ponds and woodland edges will be addressed.

The E.I.S. will describe whether there is a need for restoration or enhancement of wildlife habitat or vegetation communities within the study area as a result of the proposed extractive activities. If restoration or enhancement activities are recommended then the conceptual locations of where they should take place, when they should be conducted, and how restoration concepts should be completed will be provided, along with the rationale for these recommendations.

8.0 RESIDUAL IMPACTS AND CONCLUSIONS ON DEVELOPMENT POTENTIAL

The EIS will summarize the nature and magnitude of impacts after mitigation actions are taken and provide conclusions regarding County of Grey, NDMNRF, MECP, DFO and SVCA policies and the advisability of allowing the undertaking.

9.0 MONITORING

Any monitoring recommended during extraction and rehabilitation, including any specific compliance and performance monitoring will be described in the EIS.

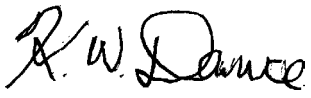
10.0 BIBLIOGRAPHY

The EIS will include a bibliography which will detail the sources of information which were utilized to prepare the EIS.

11.0 STUDY TEAM

The C.V.s of EIS authors will be provided in the EIS report.

Prepared by:



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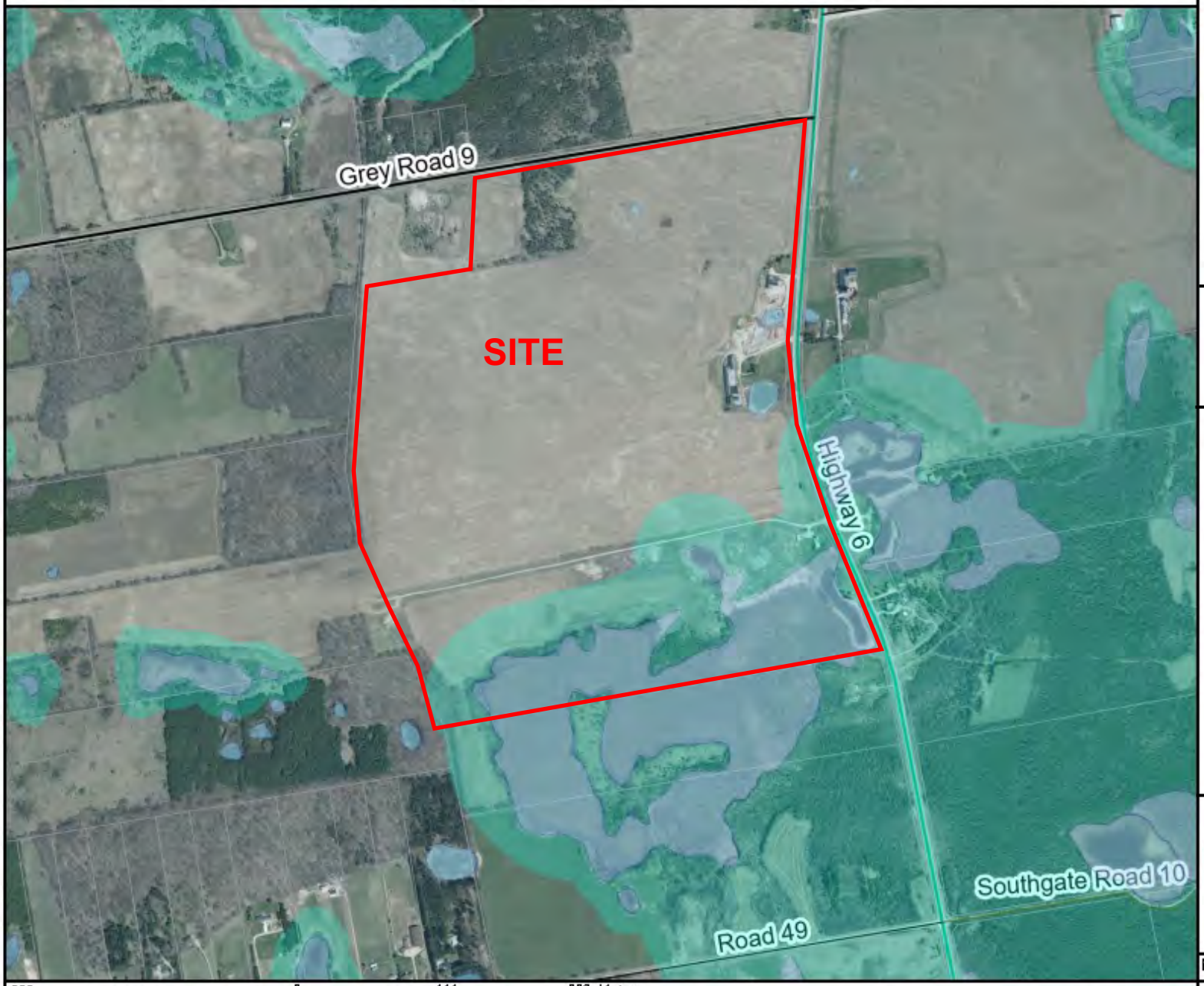

FIGURE 1. 311804 HWY 6, MOUNT FOREST, GREY COUNTY.

LEGEND

Approximate site boundary

DANCE ENVIRONMENTAL INC.

DE-475 Aug.10, 2023.

Notes

APPENDIX 2

Plant Species List,
Watson Pit

BOTANICAL NAME	COMMON NAME	Within Licence Boundary								Outside of Licence Boundary												COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	COSEWIC STATUS	GLOBAL STATUS	LOCAL STATUS GREY
	SOURCE:	OAGM1	MEFM1	FOCM6-3	*Incl. MEMM3*	MAMM1-3	*Incl. WODM5-1*	MEMM3	IAGM1	MEGM3	FOCM6-3	FODM5-1	CVC_4	CVR_4	MASM1-1	SWTO2	SWCO2-2	WOCM2	SWCO2-3	OAO (Pond)	IAGM1	OLDHAM ET AL	OLDHAM ET AL	OLDHAM ET AL	MNR RARE 4th Ed. 2009	SARA Registry	MNR RARE 4th Ed. 2009	
PTERIDOPHYTES	**FERNS & ALLIES**																											
Dennstaedtiaceae	**Bracken Fern Family**																											
Pteridium aquilinum var. lat	Eastern Bracken-fern															X						2	3		S5		G5T	X
Dryopteridaceae	**Wood Fern Family**																											
Athyrium filix-femina var. ar	Northern Lady Fern															X						4	0		S5		G5T5	X
Dryopteris carthusiana	Spinulose Wood Fern											X				X		X				5	-2		S5		G5	X
Matteuccia struthiopteris va	Ostrich Fern											X										5	-3		S5		G5	X
Onoclea sensibilis	Sensitive Fern											X				X						4	-3		S5		G5	X
Equisetaceae	**Horsetail Family**																											
Equisetum arvense	Field Horsetail		X												X	X		X				0	0		S5		G5	X
Osmundaceae	**Royal Fern Family**																											
Osmunda cinnamomea	Cinnamon Fern															X						7	-3		S5		G5	X
Thelypteridaceae	**Marsh Fern Family**																											
Thelypteris noveboracensis	New York Fern															X						7	-1		S4S5		G5	R
Thelypteris palustris var. pu	Marsh Fern															X						5	-4		S5		G5T?	X
GYMNOSPERMS	**CONIFERS**																											
Cupressaceae	**Cedar Family**																											
Thuja occidentalis	Eastern White Cedar		X					X			X							X	X			4	-3		S5		G5	X
Pinaceae	**Pine Family**																											
Abies balsamea	Balsam Fir																	X				5	-3		S5		G5	X
Larix laricina	Tamarack		X													X	X	X	X	X		7	-3		S5		G5	X
Picea abies	Norway Spruce																						5	-1	SE3		G?	
Picea glauca	White Spruce													X								6	3		S5		G5	X
Picea mariana	Black Spruce															X	X		X			8	-3		S5		G5	X
Picea pungens	Colorado Spruce								X												X			NA	SE1		G5	
Pinus sylvestris	Scotch Pine		X	X				X		X	X			X				X					5	-3	SE5		G?	
Taxaceae	**Yew Family**																											
Taxus canadensis	American Yew													X								7	3		S5		G5	X
DICOTYLEDONS	**DICOTS**																											
Aceraceae	**Maple Family**																											
Acer negundo	Manitoba Maple		X																			0	-2		S5		G5	X

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	SOURCE:	OAGM1	MEFM1	FOCM6-3	*Incl. MEMM3*	MAMM1-3	*Incl. WODM5-1*	MEMM3	IAGM1	MEGM3	FOCM6-3	FODM5-1	CVC_4	CVR_4	MASM1-1	SWTO2	SWCO2-2	WOCM2	SWCO2-3	OAO (Pond)	IAGM1	OLDHAM ET AL	OLDHAM ET AL	OLDHAM ET AL	MNR RARE 4th Ed. 2009	SARA Registry	MNR RARE 4th Ed. 2009	
Acer platanoides	Norway Maple								X												X		5	-3	SE5		G?	
Acer rubrum	Red Maple															X	X					4	0		S5		G5	X
Acer saccharum ssp. sacc	Sugar Maple			X								X	X									4	3		S5		G5T?	X
Apiaceae	**Carrot or Parsley Family**																											
Aegopodium podagraria	Goutweed													X									0	-3	SE5		G?	
Cicuta bulbifera	Bulb-bearing Water-hemlock					X																5	-5		S5		G5	X
Cicuta maculata	Spotted Water-hemlock														X	X						6	-5		S5		G5	X
Daucus carota	Wild Carrot		X	X	X	X	X	X		X	X	X											5	-2	SE5		G?	
Sium suave	Hemlock Water-parsnip																			X		4	-5		S5		G5	X
Apocynaceae	**Dogbane Family**																											
Apocynum androsaemifoliu	Spreading Dogbane		X					X										X				3	5		S5		G5T?	X
Aquifoliaceae	**Holly Family**																											
Ilex verticillata	Winterberry															X						5	-4		S5		G5	X
Asclepiadaceae	**Milkweed Family**																											
Asclepias syriaca	Common Milkweed		X	X	X	X		X	X	X						X		X				0	5		S5		G5	X
Asteraceae	**Composite or Aster Family**																											
Achillea millefolium ssp. mi	Common Yarrow		X			X	X	X															3	-1	SE?		G5T?	
Antennaria neglecta	Field Pussytoes		X																			3	5		S5		G5	X
Arctium lappa	Great Burdock			X																					SE5		G?	
Arctium minus ssp. minus	Common Burdock	X	X	X									X							X			5	-2	SE5		G?T?	
Bidens cernua	Stick-tight					X																2	-5		S5		G5	X
Bidens tripartita	European Beggar-ticks															X						4	-3		S5		G5	X
Carduus nutans ssp. nutan	Musk Thistle		X		X					X													5	-1	SE?		G?T?	
Centaurea jacea	Brown Knapweed				X			X		X	X		X										5	-1	SE5		G?	
Centaurea maculosa	Spotted Knapweed		X																				5	-3	SE5		G?	
Centaurea nigra	Black Knapweed			X	X			X			X														SE?		G?	
Cichorium intybus	Chicory				X					X	X												5	-1	SE5		G?	
Cirsium arvense	Canada Thistle		X	X		X				X	X				X								3	-1	SE5		G?	
Cirsium vulgare	Bull Thistle			X	X					X													4	-1	SE5		G5	
Coreopsis grandiflora	Large-flowered Tickseed													X									5	-1	SNA		G5	
Echinacea purpurea	Purple Coneflower													X								10	5		SE1		G4	
Erigeron annuus	Daisy Fleabane		X	X	X			X				X	X									0	1		S5		G5	
Eupatorium perfoliatum	Perfoliate Thoroughwort																X	X	X	X		2	-4		S5		G5	X
Euthamia graminifolia	Flat-topped Bushy Goldenrod			X	X	X	X	X				X			X							2	-2		S5		G5	X

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Hieracium caespitosum ssp	Field Hawkweed		X							X													5	-2	SE5			
Leucanthemella serotina	Giant Daisy	X																							SE1		G?	
Leucanthemum vulgare	Ox-eye Daisy		X	X		X																	5	-1	SE5		G?	
Rudbeckia hirta	Black-eyed Susan													X								0	3		S5		G5	X
Solidago altissima var. altis	Tall Goldenrod						X	X														1	3		S5			X
Solidago canadensis	Canada Goldenrod			X		X		X			X	X	X	X	X	X				X		1	3		S5		G5	X
Solidago gigantea	Giant Goldenrod			X							X											4	-3		S5		G5	X
Solidago juncea	Early Goldenrod			X	X			X		X	X		X									3	5		S5		G5	R
Solidago nemoralis ssp. ne	Gray Goldenrod		X					X		X												2	5		S5		G5T?	X
Solidago rugosa ssp. rugos	Rough Goldenrod							X							X	X	X	X				4	-1		S5		G5T?	X
Sonchus oleraceus	Common Sow-thistle							X															3	-1	SE5		G?	
Symphyotrichum ericoides	White Heath Aster		X					X								X								S5		G5T?	X
Symphyotrichum lanceolatu	Tall White Aster			X		X					X							X		X		3	-3		S5		G5T?	X
Symphyotrichum latericloru	Calico Aster		X			X		X														3	-2		S5		G5T5	X
Symphyotrichum novae-an	New England Aster			X		X		X		X	X				X	X						2	-3		S5		G5	X
Symphyotrichum puniceum	Purple-stemmed Aster				X															X					S5		G5T?	X
Taraxacum officinale	Common Dandelion			X	X			X		X		X	X					X					3	-2	SE5		G5	
Tragopogon dubius	Doubtful Goat's-beard		X																				5	-1	SE5		G?	
Tragopogon pratensis ssp.	Meadow Goat's-beard									X													5	-1	SE5		G?T?	
Tussilago farfara	Coltsfoot												X			X				X			3	-2	SE5		G?	
Balsaminaceae	**Touch-me-not Family**																											
Impatiens capensis	Spotted Touch-me-not					X										X						4	-3		S5		G5	X
Impatiens pallida	Pale Touch-me-not											X										7	-3		S5		G5	X
Berberidaceae	**Barberry Family**																											
Caulophyllum giganteum	Blue Cohosh											X													S5		G	
Betulaceae	**Birch Family**																											
Betula alleghaniensis	Yellow Birch											X				X						6	0		S5		G5	X
Ostrya virginiana	Hop Hornbeam											X										4	4		S5		G5	X
Boraginaceae	**Borage Family**																											
Echium vulgare	Blueweed		X					X			X												5	-2	SE5		G?	
Campanulaceae	**Bellflower Family**																											
Campanulastrum american	Tall Bellflower													X								8	0		S4		G5	
Caprifoliaceae	**Honeysuckle Family**																											

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Lonicera tatarica	Tartarian Honeysuckle		X									X						X					3	-3	SE5		G?	
Sambucus canadensis	Common Elderberry			X								X										5	-2		S5		G5	X
Viburnum lentago	Nannyberry						X	X								X						4	-1		S5		G5	X
Viburnum trilobum	High Bush Cranberry			X				X			X	X						X				5	-3		S5		G5T5	X
Caryophyllaceae	**Pink Family**																											
Silene latifolia	Bladder Campion		X																						SE5		G?	
Stellaria graminea	Grass-leaved Stitchwort		X																				5	-2	SE5		G?	
Ceratophyllaceae	**Hornwort Family**																											
Ceratophyllum demersum	Common Coontail															X				X		4	-5		S5		G5	X
Convolvulaceae	**Morning-glory Family**																											
Convolvulus arvensis	Field Bindweed					X										X				X			5	-1	SE5		G?	
Cuscuta campestris	Field Dodder									X															S2		G5	
Cornaceae	**Dogwood Family**																											
Cornus alternifolia	Alternate-leaved Dogwood			X							X	X										6	5		S5		G5	X
Cornus foemina ssp. racem	Red Panicled Dogwood		X																			2	-2		S5		G5?	R
Cornus stolonifera	Red-osier Dogwood		X			X	X	X			X	X			X	X		X		X		2	-3		S5		G5	X
Crassulaceae	**Stonecrop Family**																											
Sedum telephium	Live-forever													X											SNA		GNR	
Ericaceae	**Heath Family**																											
Chamaedaphne calyculata	Leatherleaf															X						9	-5		S5		G5	X
Kalmia polifolia	Bog Laurel															X	X					10	-5		S5		G5	X
Fabaceae	**Pea Family**																											
Coronilla varia	Variable Crown-vetch			X																			5	-2	SE5		G?	
Lotus corniculatus	Bird's-foot Trefoil		X	X	X	X																	1	-2	SE5		G?	
Medicago lupulina	Black Medick									X													1	-1	SE5		G?	
Medicago polymorpha	Multi-formed Medick																						5	-1	SEH		G?	
Medicago sativa ssp. sativa	Alfalfa					X		X															5	-1	SE5		G?T?	
Melilotus alba	White Sweet-clover		X	X																			3	-3	SE5		G?	
Trifolium pratense	Red Clover					X		X															2	-2	SE5		G?	
Vicia cracca	Tufted Vetch		X	X	X	X	X	X		X		X		X	X								5	-1	SE5		G?	
Fagaceae	**Beech Family**																											

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Fagus grandifolia	American Beech											X										6	3		S5		G5	X
Geraniaceae	**Geranium Family**																											
Geranium robertianum	Herb-robert											X											5	-2	SE5		G5	
Grossulariaceae	**Currant Family**																											
Ribes americanum	Wild Black Currant											X										4	-3		S5		G5	X
Ribes oxyacanthoides ssp.	Bristly Wild Gooseberry															X									S5		G5T?	
Guttiferae	**St. John's-wort Family**																											
Hypericum perforatum	Common St. John's-wort		X	X	X						X							X					5	-3	SE5		G?	
Juglandaceae	**Walnut Family**																											
Juglans cinerea	Butternut											X										6	2		S3?	E	G4	X
Juglans nigra	Black Walnut											X										5	3		S4		G5	X
Lamiaceae	**Mint Family**																											
Clinopodium vulgare	Wild Basil							X								X						4	5		S5		G?	X
Galeopsis speciosa	Hemp-nettle			X																					SE1		G?	
Leonurus cardiaca ssp. car	Common Motherwort	X																					5	-2	SE5		G?T?	
Lycopus uniflorus	Northern Water-horehound					X										X				X		5	-5		S5		G5	X
Mentha arvensis ssp. borea	American Wild Mint				X	X																3	-3		S5			X
Nepeta cataria	Catnip	X																					1	-2	SE5		G?	
Prunella vulgaris ssp. vulga	Common Heal-all		X	X	X			X															0	-1	SE3		G5T?	
Scutellaria lateriflora	Mad-dog Skullcap					X										X						5	-5		S5		G5	X
Lentibulariaceae	**Bladderwort Family**																											
Utricularia minor	Lesser Bladderwort															X						8	-5		S5		G5	X
Nymphaeaceae	**Water-lily Family**																											
Nuphar variegata	Bulhead Pond-lily					X														X		4	-5		S5		G5	X
Oleaceae	**Olive Family**																											
Fraxinus americana	White Ash										X											4	3		S5		G5	X
Fraxinus pennsylvanica	Green Ash															X						3	-3		S5		G5	X
Onagraceae	**Evening-primrose Family**																											
Circaea alpina	Smaller Enchanter's Nightshade											X										6	-3		S5		G5	X
Epilobium ciliatum ssp. glar	Northern Willow-herb														X							6	3		SU		G5T?	

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Oenothera biennis	Common Evening-primrose		X					X														0	3		S5		G5	
Paeoniaceae	**Peony Family**																											
Paeonia officinalis	Peony													X											SE1		G?	
Plantaginaceae	**Plantain Family**																											
Plantago lanceolata	Ribgrass		X			X		X		X													0	-1	SE5		G5	
Plantago major	Common Plantain							X					X										-1	-1	SE5		G5	
Polygonaceae	**Smartweed Family**																											
Persicaria amphibia	Water Smartweed					X										X						5	-5		S5		G5	X
Rumex crispus	Curly-leaf Dock			X				X															-1	-2	SE5		G?	
Rumex obtusifolius ssp. ob	Bitter Dock							X															-3	-1	SE5		G5	
Primulaceae	**Primrose Family**																											
Lysimachia ciliata	Fringed Loosestrife					X																4	-3		S5		G5	X
Ranunculaceae	**Buttercup Family**																											
Anemone canadensis	Canada Anemone		X			X	X	X							X	X		X		X		3	-3		S5		G5	X
Anemone cylindrica	Thimbleweed										X											7	5		S4		G5	X
Clematis virginiana	Virgin's-bower																	X				3	0		S5		G5	X
Ranunculus acris	Tall Buttercup		X	X												X							-2	-2	SE5		G5	
Rhamnaceae	**Buckthorn Family**																											
Rhamnus cathartica	Common Buckthorn		X	X		X	X	X		X		X			X		X	X					3	-3	SE5		G?	
Rosaceae	**Rose Family**																											
Agrimonia eupatoria	Medicinal Agrimony							X										X							SE1		G?	
Amelanchier laevis	Smooth Juneberry							X														5	5		S5		G4G5Q	X
Aronia melanocarpa	Black chokeberry															X						7	-3		S5		G5	X
Comarum palustre	Marsh Cinquefoil															X						7	-5		S5		G5	X
Crataegus species	Hawthorn species			X				X			X																	
Fragaria vesca ssp. americ	Woodland Strawberry					X		X				X						X				4	4		S5		G5T?	X
Fragaria virginiana	Wild Strawberry		X	X	X		X	X		X					X										S5		G5	
Malus pumila	Common Apple		X	X							X												5	-1	SE5		G5	
Potentilla norvegica	Rough Cinquefoil		X																						S5		G5	
Potentilla recta	Rough-fruited Cinquefoil		X																				5	-2	SE5		G?	
Prunus serotina	Black Cherry		X	X							X	X				X						3	3		S5		G5	X
Prunus virginiana ssp. virgi	Choke Cherry		X													X						2	1		S5		G5T?	X

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Pyrus communis	Common Pear			X						X		X											5	-1	SE4		G5	
Rubus idaeus ssp. idaeus	Red Raspberry	X	X	X			X	X				X				X									SE1		G5T5	
Rubus occidentalis	Thimble-berry			X														X				2	5		S5		G5	X
Sorbus aucuparia	European Mountain-ash										X												5	-2	SE4		G5	
Spiraea alba	Narrow-leaved Meadow-sweet															X	X					3	-4		S5		G5	X
Rubiaceae	**Madder Family**																											
Galium aparine	Cleavers															X						4	3		S5		G5	X
Galium mollugo	White Bedstraw									X													5	-2	SE5		G?	
Galium triflorum	Sweet-scented Bedstraw		X													X						4	2		S5		G5	X
Salicaceae	**Willow Family**																											
Populus balsamifera ssp. b	Balsam Poplar		X				X	X		X						X	X	X	X			4	-3		S5		G5T?	X
Populus deltoides	Eastern Cottonwood				X					X															S5		G5	
Populus tremuloides	Trembling Aspen					X		X										X				2	0		S5		G5	X
Salix species	Willow species											X																
Salix bebbiana	Long-beaked Willow															X						4	-4		S5		G5	X
Salix discolor	Pussy Willow					X										X						3	-3		S5		G5	X
Salix eriocephala	Heartleaf Willow					X										X						4	-3		S5		G5	X
Salix exigua	Sandbar Willow		X																			3	-5		S5		G5	X
Salix lucida	Shining Willow			X												X						5	-4		S5		G5	X
Salix petiolaris	Slender Willow			X		X									X	X						3	-4		S5		G4	X
Scrophulariaceae	**Figwort Family**																											
Linaria vulgaris	Butter-and-eggs			X																			5	-1	SE5		G?	
Verbascum thapsus	Common Mullein	X	X	X	X					X			X										5	-2	SE5		G?	
Solanaceae	**Nightshade Family**																											
Physalis alkekengi	Chinese Lantern													X									5	-1	SE2		G?	
Solanum dulcamara	Bitter Nightshade			X		X										X				X			0	-2	SE5		G?	
Tiliaceae	**Linden Family**																											
Tilia americana	American Basswood										X	X		X		X						4	3		S5		G5	X
Ulmaceae	**Elm Family**																											
Ulmus americana	White Elm		X								X	X				X	X		X			3	-2		S5		G5?	X
Ulmus thomasii	Rock Elm															X						6	-1		S4?		G5	X

BOTANICAL NAME	COMMON NAME	Within Licence Boundary								Outside of Licence Boundary												COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	COSEWIC STATUS	GLOBAL STATUS	LOCAL STATUS GREY
	SOURCE:	OAGM1	MEFM1	FOCM6-3	*Incl. MEMM3*	MAMM1-3	*Incl. WODM5-1*	MEMM3	IAGM1	MEGM3	FOCM6-3	FODM5-1	CVC_4	CVR_4	MASM1-1	SWTO2	SWCO2-2	WOCM2	SWCO2-3	OAO (Pond)	IAGM1	OLDHAM ET AL	OLDHAM ET AL	OLDHAM ET AL	MNR RARE 4th Ed. 2009	SARA Registry	MNR RARE 4th Ed. 2009	
Urticaceae	**Nettle Family**																											
Urtica dioica ssp. gracilis	American Stinging Nettle									X												2	-1		S5		G5T?	X
Valerianaceae	**Valerian Family**																											
Valeriana officinalis	Common Valerian			X	X	X		X		X	X				X								2	-1	SE3		G?	
Violaceae	**Violet Family**																											
Viola bicolor	Field Pansy									X												8	3		S1		G5	
Viola pedata	Bird's-foot Violet				X			X		X												10	5		S1	E	G5	
Viola pubescens	Downy Yellow Violet											X										5	4		S5		G5	X
Viola sororia	Woolly Blue Violet											X										4	1		S5		G5	X
Vitaceae	**Grape Family**																											
Parthenocissus inserta (or	Woodbine			X									X		X							3	3		S5		G5	X
Vitis riparia	Riverbank Grape						X	X			X				X	X						0	-2		S5		G5	X
MONOCOTYLEDONS	**MONOCOTS**																											
Alismataceae	**Water-plantain Family**																											
Alisma plantago-aquatica	Common Water-plantain					X																3	-5		S5		G5	X
Araceae	**Arum Family**																											
Arisaema triphyllum ssp. tri	Small Jack-in-the-pulpit											X										5	-2		S5		G5T5	X
Cyperaceae	**Sedge Family**																											
Carex blanda	Woodland Sedge											X										3	0		S5		G5?	
Carex canescens ssp. can	Silvery Sedge															X						7	-5		S5		G5T?	X
Carex crinita	Fringed Sedge															X						6	-4		S5		G5	X
Carex hystericina	Porcupine Sedge					X																5	-5		S5		G5	X
Carex lacustris	Lake-bank Sedge														X	X						5	-5		S5		G5	X
Carex scoparia	Pointed Broom Sedge															X						5	-3		S5		G5	
Carex stipata	Awl-fruited Sedge															X						3	-5		S5		G5	X
Carex vulpinoidea	Fox Sedge				X	X																3	-5		S5		G5	X
Eleocharis smallii	Small's Spike-rush					X																6	-5		S5		G5?	X
Schoenoplectus tabernaem	American Great Bulrush				X	X										X						5	-5		S5		G?	X
Scirpus atrovirens	Dark-green Bulrush																			X		3	-5		S5		G5?	X
Scirpus cyperinus	Wool-grass				X	X										X						4	-5		S5		G5	X
Iridaceae	**Iris Family**																											
Iris versicolor	Multi-coloured Blue-flag															X						5	-5		S5		G5	X

BOTANICAL NAME	COMMON NAME	Within Licence Boundary								Outside of Licence Boundary												COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	COSEWIC STATUS	GLOBAL STATUS	LOCAL STATUS GREY
	SOURCE:	OAGM1	MEFM1	FOCM6-3	*Incl. MEMM3*	MAMM1-3	*Incl. WODM5-1*	MEMM3	IAGM1	MEGM3	FOCM6-3	FODM5-1	CVC_4	CVR_4	MASM1-1	SWTO2	SWCO2-2	WOCM2	SWCO2-3	OAO (Pond)	IAGM1	OLDHAM ET AL	OLDHAM ET AL	OLDHAM ET AL	MNR RARE 4th Ed. 2009	SARA Registry	MNR RARE 4th Ed. 2009	
Sisyrinchium montanum	Montane Blue-eyed-grass		X							X													-1		S5		G5	X
Lemnaceae	**Duckweed Family**																											
Lemna minor	Lesser Duckweed					X			X							X	X					2	-5		S5		G5	X
Lemna trisulca	Star Duckweed					X																	4	-5		S5		G5	X
Liliaceae	**Lily Family**																											
Allium burdickii	Wild Leek											X										9	3		S1?		G5T4T5	
Erythronium americanum s	Yellow Dog's-tooth Violet											X	X									5	5		S5		G5T5	X
Hemerocallis fulva	Orange Day-lily													X									5	-3	SE5		G?	
Maianthemum canadense	Wild Lily-of-the-valley																	X				5	0		S5		G5	X
Trillium grandiflorum	White Trillium											X										5	5		S5		G5	X
Poaceae	**Grass Family**																											
Agrostis gigantea	Red-top				X			X								X							0	-2	SE5		G4G5	
Bromus inermis ssp. inermi	Awnless Brome			X			X	X		X	X												5	-3	SE5		G4G5T?	
Calamagrostis canadensis	Blue-joint Grass							X														4	-5		S5		G5	X
Dactylis glomerata	Orchard Grass		X	X				X		X	X												3	-1	SE5		G?	
Danthonia spicata	Poverty Oat Grass		X																			5	5		S5		G5	X
Dichanthelium acuminatum	Acuminate Panic Grass		X																			2	0		S5		G5T	
Digitaria sanguinalis	Large Crabgrass									X													3	-1	SE5		G5	
Elymus repens	Quack Grass			X	X																		3	-3	SE5		G?	
Festuca pratensis	Meadow Fescue			X	X							X											4	-1	SE5		G5	
Glyceria striata	Fowl Meadow Grass					X																3	-5		S5		G5	X
Leersia oryzoides	Rice Cut Grass															X						3	-5		S5		G5	X
Phalaris arundinacea	Reed Canary Grass				X	X		X	X			X			X	X				X		0	-4		S5		G5	X
Phleum pratense	Timothy		X	X	X	X		X		X			X										3	-1	SE5		G?	
Phragmites australis	Common Reed				X											X						0	-4		S5		G5	R
Poa compressa	Canada Blue Grass		X			X																0	2		S5		G?	X
Poa pratensis ssp. pratens	Kentucky Bluegrass		X					X														0	1		S5		G5T	X
Sporobolus vaginiflorus	Ensheathed Dropseed		X																			1	5		S4		G5	X
Sparganiaceae	**Bur-reed Family**																											
Sparganium emersum ssp.	Green-fruited Bur-reed					X										X						5	-5		S5			X
Sparganium eurycarpum	Broad-fruited Bur-reed															X						3	-5		S5		G5	R
Typhaceae	**Cattail Family**																											
Typha angustifolia	Narrow-leaved Cattail																			X		3	-5		S5		G5	X
Typha latifolia	Broad-leaved Cattail					X										X			X	X		3	-5		S5		G5	X

BOTANICAL NAME	COMMON NAME	Within Licence Boundary							Outside of Licence Boundary											COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	COSEWIC STATUS	GLOBAL STATUS	LOCAL STATUS GREY
	SOURCE:	OAGM1	MEFM1	FOCM6-3	*Incl. MEMM3*	MAMM1-3	*Incl. WODM5-1*	MEMM3	IAGM1	MEGM3	FOCM6-3	FODM5-1	CVC_4	CVR_4	MASM1-1	SWTO2	SWCO2-2	WOCM2	SWCO2-3	OAO (Pond)	IAGM1	OLDHAM ET AL	OLDHAM ET AL	OLDHAM ET AL	MNR RARE 4th Ed. 2009	SARA Registry	MNR RARE 4th Ed. 2009	

FLORISTIC SUMMARY:

Species Diversity

Total Species:	**200**	
Native Species:	**138**	69.00%
Exotic Species	**62**	31.00%

Percentage of Species

LEGEND

X = Species was found to be present within the ELC Polygon

Wetness Index

All plants in Southern Ontario have been assgined a wetland category, based on the designations developed for use by the United States Fish and

OBL (Obligate Wetland): occurs almost always in wetlands under natural conditions (estimated >99% probability)
FACW (Facultative Wetland): usually occurs in wetlands, but occasionally found in non-wetlands (estimated 67-99% probability)
FAC (Facultative): equally likely to occur in wetlands or non-wetlands (estimated 34-66% probability)
FACU (Facultative Upland): occasionally occurs in wetlands, but usually occurs in non-wetlands (estimated 1-33% probability)
UPL (Upland): occurs almost never in wetlands under natural conditions (estimated <1% probability)

Each Wetland category has been assigned a numerical value to facilitate the quantification of the wetness index. The wetland categories and their corresponding values are as follows:

OBL : -5	FACW-: -2	FAC-: 1	FACU-: 4
FACW+: -4	FAC+: -1	FACU+: 2	UPL: 5
FACW: -3	FAC: 0	FACU: 3	

Weediness Index

-1: little or no impact on natural areas (most non-native plants are in this category)
-2: occasional impacts on natural areas, generally infrequent or localized
-3: major potential impacts on natural areas

S-Rank (Provincial Rank)

SX- Presumed Extirpated
SH- Possible Extirpated
S1- Critically Imperiled
S2- Imperiled
S3- Vulnerable
S4- Apparently Secure
S5- Secure
SU- Unrankable
SNA- Not Applicable

Local Status: Grey County

X = Species has been confirmed to be present within the County
R = Species is considered to be rare within the County

APPENDIX 3

Butternut Health Assessment,
Watson Pit Site,
2023

BHA Tree Analysis (version: December 2013)

This table is to be completed by a designated Butternut Health Assessor (BHA).

BHA Report #	D23	Assessment Date(s)	Aug. 11, 2023	Total # Butternut Trees in BHA Report	6
BHA ID #	486	BHA Name	Kevin Dance		
Landowner / Client Name			Teeswater Concrete		
Property Location			Watson Pit, Mount Forest		

input field data										automatic calculations from field data						Categories: 1: non-retainable, 2: retainable, 3: archivable				
			# bole cankers				# root flare (RF) cankers													
Tree #	Live Crown %	Tree dbh (cm)	sooty (S) (will be assigned 2.5 cm per canker)		open (O) (will be assigned 5 cm per canker)				<40 m from cankered tree? (Y or N)	Circ. (cm) = Pi x dbh	total bole canker width (sooty x 2.5 + open x 5)	total RF canker width (sooty x 2.5 + open x 5)	bole canker % of circ.	RF canker % of circ.	total bole & root canker % of 2xCirc	LC% >/= 50 & BC% = 0	LC% >70 & BRC % <20	LC% >70 & BC % <20	Preliminary tree call	FINAL TREE CALL a Cat 2, dbh>20cm <40m from a Cat 1
			S <2 m	S >2 m	O <2 m	O >2 m	RF S	RF O		Circ (cm)	BC (cm)	RC (cm)	BC%	RC%	BRC%					
1	90	47	6	6	1	2	4	0	Y	147.6	45.0	10.0	**30.5**	**6.8**	**18.6**	1	2	1	**2**	**3**
2	0	21							Y	65.94	0.0	0.0	**0.0**	**0.0**	**0.0**	1	1	1	**1**	**1**
3	100	6	0	0	0	0	0	0	N	18.84	0.0	0.0	**0.0**	**0.0**	**0.0**	2	2	2	**2**	**2**
4	100	5	1	2	2	0	0	0	N	15.7	17.5	0.0	**111.5**	**0.0**	**55.7**	1	1	1	**1**	**1**
5	100	3	0	0	0	0	0	0	N	9.42	0.0	0.0	**0.0**	**0.0**	**0.0**	2	2	2	**2**	**2**
6	100	3	0	0	0	0	0	0	N	9.42	0.0	0.0	**0.0**	**0.0**	**0.0**	2	2	2	**2**	**2**

Butternut Data Collection Form 1 - 2010 Edition

Surveyor ID or BHA #: 486

(PLEASE USE BLOCK LETTERS)

Date (dd/mm/yyyy): 11 - 08 - 2023

Shaded fields are mandatory for Butternut Health Assessments

Surveyor Contact

First: Kevin Last: Dance

Email: Kevin_dancenu@rogers.com

Telephone: (519) 463-6156 Telephone Other: ( ) - x

Property Owner (check if same as surveyor) ☐

First: Last:

or Company: Teeswater Concrete Ltd.

Email: aaron@teeswaterconcrete.com

Telephone: (519) 392-6776 Telephone Other: ( ) - x

Property Owner's Mailing address

Address: 1201 Bruce County Road 6 Postal Code: N0G2S0 Prov.: ON

City: Teeswater

Tree Location *(if different from mailing address)*

Address/(911#): 311804 Highway #6

Township: West Grey Lot: 19 Con: 2

City: Mount Forest

Directions

☑ Yes ☐ No Can Share Location Information with other Butternut Recovery Organizations?

☑ Yes ☐ No Site visits OK? (prior arrangments will always be made for a site vist)

> (Greater than)
< (Less than)

Butternut Trees Tally by Diameter Class

(Do a dot tally in blank space; write total# in box for each)

Tree Condition	< 3 cm	3-15 cm	16-30cm	>30 cm
Vigorous: > 50% Live Crown Minor or no cankers		4		
Poor Vigor: <50% Live Crown or >50% Live Crown + heavily cankered stem				1
Dead			1	

Historically, do some trees produce seeds? ☑ Y ☐ N ☐ Unkown

Estimated area containing butternut for properties > 1 acre (0.4 hectares): 0.2 ☐ Acres ☒ Hectares

Overall Property Description (area(s) containing Butternut)

☐ Rolling Upland ☐ Bottomland
☐ Valley Slope ☐ Variable
☒ Tableland ☐ Unknown

Vegetation Community/ies

☐ Open ☐ Fencerow
☐ Shrubland ☐ Roadside
☒ DeciduousForest ☐ Quary
☐ ConiferForest ☐ UrbanYard
☐ MixedForest ☐ UrbanPark

Other

Soil Drainage

☒ Well Drained
☐ Moderately Drained
☐ Poorly Drained
☐ Unknown

Soil Texture

☐ Clay ☐ Sand
☐ Clay Loam ☐ Variable
☒ Loam ☐ Unknown
☒ Loamy Sand

Soil Depth

☐ > 1metre
☐ 30 - 99cm
☐ < 30cm
☐ Variable
☒ Unknown

Please enter matching numerical page link code on forms 1 and 2

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49731

Butternut Data Collection FORM 2 (2010 Edition) (PLEASE USE BLOCK LETTERS)

Shaded fields are mandatory for Butternut Health Assessments

Fill when Form 1 indicates canker is well established. The information opn Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Site Code(A,B,...Z, AA...): A

Surveyor ID or BHA #: 486

Date (dd/mm/yyyy): 11-08-2023

Surveyor Last Name: DANCE KEV.

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree 1

Field	Value
Tree #	1
Zone	17
Easting	515598
Northing	4876284
Crown Class	1
Live Crown %	90
Main Stem Length(m) Below crown	8
Twig Dieback	☒
Branch Dieback	☒
Defoliation	☐
Discolouration	☐
#Stems	1
DBH(cm)	47
Butternut Origin	☒ Natural ☐ Planted ☐ Unknown
Seed Signs	☐ Male Flowers ☐ Female Flowers ☒ Seed Set ☐ None
#Epic-Live	0
#Epic-Dead	0
Bark Type	D
# Callused Wounds	10
Root #Open / #Sooty	0 / 4
=<2m #Open / #Sooty	1 / 6
>2m #Open / #Sooty	2 / 6
Metres from badly cankered tree	☒ < 40 ☐ > 40 ☐ None Found
Competing Species	ACESACH

Handwritten note (right margin): To a small dead Butternut offsite to S. 10m±

Pith, nut + leaf scar all indicate pure Butternut Tree Tag # 0259

Tree 2

Field	Value
Tree #	2
Zone	17
Easting	515553
Northing	4876301
Crown Class	2
Live Crown %	0
Main Stem Length(m) Below crown	
Twig Dieback	☐
Branch Dieback	☐
Defoliation	☐
Discolouration	☐
#Stems	1
DBH(cm)	21
Butternut Origin	☐ Natural ☐ Planted ☐ Unknown
Seed Signs	☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None
#Epic-Live	
#Epic-Dead	
Bark Type	
# Callused Wounds	
Root #Open / #Sooty	
=<2m #Open / #Sooty	
>2m #Open / #Sooty	
Metres from badly cankered tree	☒ < 40 ☐ > 40 ☐ None Found
Competing Species	ACESACH

Dead completely. Approx 4m N of fence (old) Tree Tag # 0260.

Tree 3

Field	Value
Tree #	3
Zone	17
Easting	515553
Northing	4876700
Crown Class	2
Live Crown %	100
Main Stem Length(m) Below crown	1.5
Twig Dieback	☐
Branch Dieback	☐
Defoliation	☐
Discolouration	☐
#Stems	1
DBH(cm)	6
Butternut Origin	☒ Natural ☐ Planted ☐ Unknown
Seed Signs	☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None
#Epic-Live	0
#Epic-Dead	0
Bark Type	S
# Callused Wounds	0
Root #Open / #Sooty	0 / 0
=<2m #Open / #Sooty	0 / 0
>2m #Open / #Sooty	0 / 0
Metres from badly cankered tree	☐ < 40 ☐ > 40 ☒ None Found
Competing Species	ACESACH, PRUSERO, RHACATH

Flagging tape B3. Recomm. clear C. Buckth. adjacent. Trunk 5m± in from field edge.

Tree 4

Field	Value
Tree #	4
Zone	17
Easting	515464
Northing	4876972
Crown Class	4
Live Crown %	100
Main Stem Length(m) Below crown	0.7
Twig Dieback	☐
Branch Dieback	☐
Defoliation	☐
Discolouration	☐
#Stems	1
DBH(cm)	5
Butternut Origin	☒ Natural ☐ Planted ☐ Unknown
Seed Signs	☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None
#Epic-Live	0
#Epic-Dead	0
Bark Type	S
# Callused Wounds	2
Root #Open / #Sooty	0 / 0
=<2m #Open / #Sooty	2 / 1
>2m #Open / #Sooty	0 / 2
Metres from badly cankered tree	☐ < 40 ☒ > 40 ☐ None Found
Competing Species	ACESACH

Flag tape B4. Outer crown 1m from tilled field.

Tree 5

Field	Value
Tree #	5
Zone	17
Easting	515470
Northing	4877106
Crown Class	4
Live Crown %	100
Main Stem Length(m) Below crown	1.6
Twig Dieback	☐
Branch Dieback	☐
Defoliation	☐
Discolouration	☐
#Stems	2
DBH(cm)	3
Butternut Origin	☒ Natural ☐ Planted ☐ Unknown
Seed Signs	☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None
#Epic-Live	0
#Epic-Dead	0
Bark Type	S
# Callused Wounds	5
Root #Open / #Sooty	0 / 0
=<2m #Open / #Sooty	0 / 0
>2m #Open / #Sooty	0 / 0
Metres from badly cankered tree	☐ < 40 ☒ > 40 ☐ None Found
Competing Species	ACESACH

Handwritten note (right margin): Hop Hrnb

Two suckers from dead base Each sucker 157 cm tall = Flag tape used.

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Butternut Data Collection FORM 2 (2010 Edition) (PLEASE USE BLOCK LETTERS)

Shaded fields are mandatory for Butternut Health Assessments

Fill when Form 1 indicates canker is well established. The information opn Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Site Code(A,B,...Z, AA...): A

Surveyor ID or BHA #: 486

Date (dd/mm/yyyy): 11-08-2023

Surveyor Last Name: DANCE KEV.

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree #	Zone	Easting	Northing
6	17	515470	4877106

Crown Class: 4 | Live Crown %: 100 | Main Stem Length(m) Below crown:

☐ Twig Dieback ☐ Branch Dieback ☐ Defoliation ☐ Discolouration

#Stems: 1 | DBH(cm): 3

Butternut Origin: ☐ Natural ☐ Planted ☐ Unknown

Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None

Assess below live crown

#Epic-Live: 0
#Epic-Dead: 0
Bark Type: 5
Callused Wounds: 3

	#Open	#Sooty
Root	0	0
=<2m	2	0
>2m	0	0

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species: ACESACC

157 cm tall total. Closest crown is 3m from tilled field; near NW site corner

---

Tree # | Zone 1 | Easting | Northing

Crown Class | Live Crown % | Main Stem Length(m) Below crown

☐ Twig Dieback ☐ Branch Dieback ☐ Defoliation ☐ Discolouration | #Stems | DBH(cm)

Butternut Origin: ☐ Natural ☐ Planted ☐ Unknown | Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None

Assess below live crown: #Epic-Live | #Epic-Dead | Bark Type | # Callused Wounds | #Open #Sooty: Root, =<2m, >2m

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found | Competing Species

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Please enter matching page link code on forms 1 and 2

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APPENDIX 4

Bird Inventory Results,
Watson Pit Site,
2023

Appendix 4. Avian Speceis Observed in Proposed Watson Pit Study Area, 2023.

Scientific Name	Common Name	Dance Environmental Biologist Observations - Highest Breeding Evidence								SRANK	COSEWIC	SARO
		A	B	C	D	E	F	G	H			
	Ducks, Geese & Swans											
Branta canadensis	Canada Goose	S(o), A(o)		B	S		S, B	S	S	S5		
Aix sponsa	Wood Duck								S	S5		
Anas platyrhynchos	Mallard	B(o)			S,B					S5		
Anas crecca	Green-winged Teal				S					S4		
	Partridges, Grouse & Turkeys											
Bonasa umbellus	Ruffed Grouse				A	B				S4B, S4N		
Meleagris gallopavo	Wild Turkey		S		S	B		S, B		S5		
	HERONS & BITTERNS											
Ardea herodias	Great Blue Heron	B(o)					B			S4B		
Butorides virescens	Green Heron				B, A					S4B		
	VULTURES											
Cathartes aura	Turkey Vulture				A					S5B		
	HAWKS, KITES & EAGLES											
Circus cyaneus	Northern Harrier	B(o)			B(o)					S4B	NAR	NAR
	CARACARAS & FALCONS											
Falco sparverius	American Kestrel	S								S4		
Falco columbarius	Merlin				B(o)					S5B	NAR	NAR
	PLOVERS											
Charadrius vociferus	Killdeer	B(o)		B	B		B(o)	B	B(o)	S5B, S5N		
	SANDPIPERS & PHALAROPES											
Gallingo delicata	Wilson's Snipe								S	S5B		
Scolopax minor	American Woodcock				S				S	S4B		
	PIGEONS & DOVES											
Columba livia	Rock Pigeon	B(o)		B			B			SNA		
Zenaida macroura	Mourning Dove	B	B(o)	B				B(o)	B	S5		
	CUCKOOS & ANIS											
Coccyzus erythropthalmus	Black-billed Cuckoo							B		S5B		
	TYPICAL OWLS											
Bubo virgianus	Great Horned Owl				A					S4		
	HUMMINGBIRDS											
Archilochus colubris	Ruby-throated Hummingbird							B		S5B		
	KINGFISHERS											
Ceryle alcyon	Belted Kingfisher				B					S4B		
	WOODPECKERS											
Sphyrapicus varius	Yellow-bellied Sapsucker							S		S5B		
Picoides pubescens	Downy Woodpecker				A	B		B		S5		
Picoides villosus	Hairy Woodpecker							S, B		S5		
Colaptes auratus	Northern Flicker							B	B	S4B		
	TYRANT FLYCATCHERS											
Contopus virens	Eastern Wood-Pewee							B, A		S4B	SC	SC
Empidonax alnorum	Alder Flycatcher				B					S5B		
Empidonax traillii	Willow Flycatcher				B					S5B		
Empidonax minimus	Least Flycatcher		B							S4B		
Sayornis phoebe	Eastern Phoebe				B					S5B		
Myiarchus crinitus	Great Crested Flycatcher		B		B	B		S, B, A		S4B		
Tyrannus tyrannus	Eastern Kingbird				B, A		B	B	B	S4B		
	VIREOS											
Vireo gilvis	Warbling Vireo				B		B		B	S5B		
Vireo olivaceus	Red-eyed Vireo					B		S, B		S5B		
	CROWS & JAYS											
Cyanocitta cristata	Blue Jay		B		B	B		S, B, A	B	S5		
Corvus brachyrhynchos	American Crow		S, B	B	B, A	S, B	B	S, B	B	S5B		
Corvus corax	Common Raven	B(o), A(o)		B				B	B(o)	S5		
	SWALLOWS											
Tachycineta bicolor	Tree Swallow	B(o)		B(o)		B	B(o)	B(o)		S4B		
Hirundo rustica	Barn Swallow	B(o)		B			B		B(o)	S4B	T	**THR**
	CHICKADEES & TITMICE											
Poecile atricapillus	Black-capped Chickadee		S, B		A	B	B	S, B, A		S5		
	NUTHATCHES											
Sitta canadensis	Red-breasted Nuthatch				B				B	S5		
Sitta carolinensis	White-breasted Nuthatch					B				S5		
	WRENS											
Troglodytes aedon	House Wren		B			S, B		B		S5B		
Troglodytes troglodytes	Winter Wren				D					S5B		
	THRUSHES											
Sialia sialis	Eastern Bluebird		S					S, B		S5B	NAR	NAR
Catharus fuscescens	Veery				B					S4B		
Turdus migratorius	American Robin	B	S, B	B	B, A	B	B	S, B	B	S5B		
	MOCKINGBIRDS & THRASHERS											
Dumetella carolinensis	Gray Catbird				S	B		B	B	S4B		

Scientific Name	Common Name	Dance Environmental Biologist Observations - Highest Breeding Evidence								SRANK	COSEWIC	SARO
		A	B	C	D	E	F	G	H			
	STARLINGS											
Sturnus vulgaris	European Starling			B	B(o)		S, B	B		SNA		
	WAXWINGS											
Bombycilla cedrorum	Cedar Waxwing				B, A	B		B		S5B		
	WOOD-WARBLERS											
Parula americana	Northern Parula							B		S4B		
Dendroica petechia	Yellow Warbler				S, B		B		B	S5B		
Dendroica pensylvanica	Chestnut-sided Warbler				B			B		S5B		
Dendroica pinus	Pine Warbler		B			B				S5B		
Mniotilta varia	Black-and-white Warbler				B					S5B		
Setophaga ruticilla	American Redstart		B		B					S5B		
Oporornis philadelphia	Mourning Warbler					B		B, A		S4B		
Geothlypis trichas	Common Yellowthroat		B		S, B	B	B	B		S5B		
	SPARROWS											
Pipilo erythrophthalmus	Eastern Towhee				A					S4B		
Spizella passerina	Chipping Sparrow		S, B	B		B	B	B		S5B		
Spizella pusilla	Field Sparrow							B		S4B		
Pooecetes gramineus	Vesper Sparrow	B							B	S4B		
Passerculus Sandwichensis	Savannah Sparrow	B	S			B			B	S4B		
Melospiza melodia	Song Sparrow	B	S, B	S, B	B	S, B	B	S, B, A	S, B	S5B		
Melospiza georgiana	Swamp Sparrow				S, B					S5B		
Zonotrichia albicollis	White-throated Sparrow				S, B, A			A		S5B		
	CARDINALS & ALLIES											
Cardinalis cardinalis	Northern Cardinal				B	B				S5		
Passerina cyanea	Indigo Bunting		S, B		B	S, B		B		S4B		
	BLACKBIRDS											
Agelaius phoeniceus	Red-winged Blackbird	B		B	S, B		B		S, B	S4		
Sturnella magna	Eastern Meadowlark								B	S4B	THR	**THR**
Quiscalus quiscula	Common Grackle	S(o), B(o)			S, B	B(o)	B	B	B	S5B		
Molothrus ater	Brown-headed Cowbird							B		S4B		
Icterus galbula	Baltimore Oriole							B	B	S4B		
	FINCHES											
Carduelis tristis	American Goldfinch	B(o)	B	B	B, A	B	B	S, B, A	B	S5B		
	OLD WORLD SPARROWS											
Passer domesticus	House Sparrow			B			B			SNA		
Anthus rubescens	American Pipit									S4		

LEGEND

S= Spring 2023(April 13; May 26)
B= Breeding 2023 (June 3, 8, 21, 23; July 8 & 26)
A= Autumn 2023 (August 2, 11; Oct 6)
(o)= Observed overhead

Polygons	Description
A	On Site -cropland
B	On Site -conifer plantation
C	On Site -agricultural buildings
D	Off Site -wetland
E	Off Site -north of Grey Rd. 9
F	Off Site -east of Hwy 6
G	Off Site -to the west
H	Off Site -south of exisitng pit access lane

S-Rank (Provincial):

SNA = A status rank is not applicable because the species is not a suitable target for conservation activities.
S4 (Apparently Secure) = Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 (Secure) = Common, widespread, and abundant in the nation or state/province.
B = "B" after S-Rank code indicates the species rank is based on whether it is present breeding.

COSEWIC:

T (Threatened) = A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

SARO:

TH (Threatened) = A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.

NAR = Species is currently not at risk of extripation or extinction.

APPENDIX 5

C.V.'s of E.I.S.
Authors:
K.W. Dance, M.Sc.
K.S. Dance, M.E.S.

DANCE ENVIRONMENTAL INC.

KEVIN DANCE, M.E.S.
TERRESTRIAL BIOLOGIST
AND PARTNER

EDUCATION

- M.E.S., Masters of Environment and Resource Studies, 2011; University of Waterloo.
  Thesis Title: "Raptor Mortality and Behavior at Wind Turbines Along the North Shore of Lake Erie During Autumn Migration 2006-2007"
- B.E.S., Honours Bachelor of Environment and Resource Studies with Parks Option, 2006; University of Waterloo.

CERTIFICATIONS & PROFESSIONAL ASSOCIATIONS

Workshops/Certifications:

- Wildlife Acoustics: Kaleidoscope In-depth Seminar for Bat Research. Royal Ontario Museum, Toronto, Ontario. March 29, 2019. Instructor: Ian Agranat (creator of Kaleidoscope Pro).
- Wildlife Acoustics: Kaleidoscope In-depth Seminar for Non Bat Research. Royal Ontario Museum, Toronto, Ontario. March 28, 2019. Ian Agranat (creator of Kaleidoscope Pro).
- Ontario Bat Working Group, Spring 2017, Toronto Zoo.
- Bat Survey Solutions LLC. Bat Acoustic Fieldwork and Data Management Workshop. Instructors: Janet D. Tyburec and Joseph M. Szewezak (creator of SonoBat and Professor at Humbolt State University, California). February 2016, Punta Gorda, Florida.
- Wildlife Acoustics: Bat Acoustics Training with Dr. Lori Lausen, February 2015, Miami, Florida
- Butternut Health Assessment Workshop, BHA #486, July 16, 2014, re-certified in 2019.
- Dragonfly and Damselfly Identification Workshop, 2013, Guelph Arboretum.
- OMNR, Ontario Wetland Evaluation System, Northern Manual and Southern Manual. North Bay, 2012
- OMNR Ecological Land Classification for Southern Ontario, Lindsay, 2010
- Diploma of Environmental Assessment, University of Waterloo, 2006
- Member, Ontario Field Ornithologists (OFO)
- Member, Waterloo Region Nature
- Member, Canadian Herpetological Society
- Member, The Orianne Society –Reptile and Amphibian Conservation
- Member, North American Society for Bat Research (NASBR)
- Member, Bat Conservation International (BCI)
- Member, Northeast Naturalist
- Member, Canadian Field Naturalist

AREAS OF PROFESSIONAL EXPERIENCE

Kevin Dance has over 10 years of consulting experience on a wide range of projects throughout Ontario. Kevin specializes in inventories, evaluations, research, and impact studies of natural resources. He is experienced in identifying important natural features and evaluating the significance and sensitivity of these features. Kevin regularly works with multidisciplinary study teams focusing on the management of terrestrial and wetland ecosystems.

Terrestrial Vegetation and Wildlife Studies

Kevin has worked on various studies investigating a variety of wildlife habitats, determining wildlife populations including numbers and seasonal trends and monitoring of long-term impacts of

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developments on species. Kevin has conducted a wide range of monitoring surveys and inventories to identify the presence of wildlife on study sites as well as species specific guided surveys for Species at Risk and Species of Conservation Concern including:
Bobolink, Barn Swallow, Bank Swallow, Eastern Meadowlark, American Badger, Milksnake, Blanding's Turtle, Wood Turtle, Jefferson Salamander, Common Nighthawk, Whip-poor-will, Henslow's Sparrow, Short-eared Owl, Least Bittern, and all Endangered *Myotis* bat species.

He has completed numerous detailed vegetation community mapping inventories and conducted vegetation monitoring at permanent sample plots, as well as transects and random sample quadrats to assess short-term and long-term impacts of developments on vegetation. Kevin is trained and experienced in applying the Ecological Land Classification System in projects in Southern Ontario to delineate, describe and map vegetation communities.

Kevin's specific terrestrial expertise includes:

- wildlife and vegetation habitat mapping, evaluations, and research.
- surveys of plants, birds, mammals: including bats, reptiles, amphibians, dragonflies and butterflies.
- identification of rare and sensitive species and habitats.
- bat acoustic monitoring and data analysis for Ontario bat species
- development of monitoring methodologies for Species at Risk
- preparing Overall Benefit Plans and Management Plans for Species at Risk
- obtaining permitting from MNR to conduct Jefferson Salamander trapping surveys, and snake coverboard surveys
- over 15 years of bird identification experience
- identification and analysis of potential wildlife corridors.
- short-term and long-term monitoring techniques for flora and fauna

Wetland Studies

Kevin is certified to conduct Ontario Wetland Evaluations and has worked in habitats throughout Ontario using the Ontario Wetland Evaluation System for Wetlands in Southern and Northern Ontario. Kevin has also participated in numerous studies focusing on the impact of development on wetland ecology and function.

Kevin's specific wetland expertise includes:

- inventories and mapping of wetland flora and fauna.
- wetland evaluations using the Ontario Wetland Evaluation System (OWES).
- wetland boundary delineation, and regularly working with relevant Conservation Authority staff to obtain approval of boundaries
- wetland Environmental Impact Studies (EISs).

Aquatic Studies

Kevin has assisted with numerous long-term fish monitoring programs using electrofishing to sample reaches of streams to assess and monitor development impacts to cold water streams. Kevin has experience collecting fish during electrofishing sampling, fish identification, marking and measuring. He also has experience identifying aquatic and wetland vegetation as well as collection of aquatic habitat data including stream depth, temperature, stream bed composition, flow speed and invertebrate sampling. Kevin has assisted with electrofishing surveys and aquatic habitat assessments within Wellington County and the Region of Waterloo.

Renewable Energy Projects:

Kevin has extensive experience conducting and organizing both pre-construction and post-construction studies at wind farms in Ontario, Manitoba and Alberta. Kevin has been developed monitoring methodologies for mortality searches, scavenger removal trials and searcher efficiency studies. Kevin has been involved in post-construction studies at four large scale wind farms and has conducted pre-construction studies at over a fifteen wind farms throughout Ontario, Manitoba

and Alberta.

Kevin's specific renewable energy expertise includes:

- development of mortality search methodologies and conducting mortality searches, organizing and conducting scavenger removal studies and searcher efficiency trials
- identification of bird and bat fatalities
- developing study methods for pre-construction wind farm studies, including: migration surveys (dawn and dusk), daytime soaring surveys, waterfowl surveys, shorebird surveys, winter raptor and diurnal owl surveys, walking transect surveys, and driving transect surveys.

EMPLOYMENT HISTORY

Terrestrial Biologist and Project Manager
Dance Environmental Inc., Drumbo, Ontario. 2011 to present

Terrestrial and Wetland Biologist
Natural Resource Solutions Inc., Waterloo, Ontario. 2008 to 2011

Environmental Scientist
Stantec Ltd., Guelph, Ontario. 2006 to 2007

Avian Field Technician –Breeding ecology and impacts of urban development on Wood Thrush in the Region of Waterloo. Bird banding crew leader, nest searcher, nest monitoring.
Canadian Wildlife Service and University of Waterloo, Waterloo, Ontario 2003 to 2005

Terrestrial Biologist
Dance Environmental Inc., Drumbo, Ontario 2001 to 2003

PUBLICATIONS, PRESENTATIONS, AWARDS

Dance, K.S. 2019. Finding Bats Based on Their Calls (Pittock Reservoir, Woodstock). Outing for the Woodstock Field Naturalist Club. Outing leader.

Dance, K.S. 2017. Bats in Urban Natural Areas: A case Study of Kitchener Natural Areas. Oral Presentation. Nature in the City Speaker Series, Kitchener Public Library. November 15, 2017.

Dance, K.W., K.S. Dance, & M.B. Dance. 2012. Giant Ragweed (*Ambrosia trifida*) as a Food Source for Autumn Migrants and Winter Birds in the Grand River Basin. Ontario Birds 30(3):148-164.

Dance, K.S. 2012. Manipulation of Caterpillars for Consumption by Eastern Bluebirds. Ontario Birds 30(2):102-108.

Dance, K.W., K.S. Dance. 2012. Wetlands: What are they Good For? Oral Presentation. Princeton Historical Society. Princeton, Ontario. September 24, 2012.

Dance, K.S. 2011. "Raptors and Wind Farms". Oral Presentation. Ruthven Park 2nd Annual For The Birds Festival. September 17, 2011.

Dance, K. S. 2010. On the Wind: A Discussion of Raptors and the Wind Industry. Oral Presentation. Owen Sound Field Naturalist Club (OSFN). September 9, 2010.

Dance, K. S., Dance, K. W. 2010. "Raptors on the Wind". Oral Presentation. Kitchener-Waterloo Field Naturalist Club (KWFN). March 22, 2010.

Dance, K. S., Dance, K. W. 2010. Review of Raptor and Turbine Interaction Literature: the Case of the Erie Shores Wind Farm. Oral Presentation. RARE Charitable Research Reserve, Cambridge, ON. January 23,

2010.

Dance, K. S., R. James, L. Friesen, S. Murphy. 2009. “Raptor Behavior and Mortality (Erie Shores Wind Farm)”. Poster Presentation. Canadian Wind Energy Association Annual Conference & Exhibition. September 20-23, 2009.

Dance, K. S., R. James, L. Friesen, S. Murphy. 2009. “Migrant Raptor Behavior and Mortality (at the Erie Shores Wind Farm)”. Poster Presentation, 3rd place winner. A.D. Latornell Conservation Symposium. Nottawasaga, Ontario.

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DANCE ENVIRONMENTAL INC.

KEN DANCE
CONSULTING BIOLOGIST

EDUCATION

- M.Sc., Biology, 1977; University of Waterloo
- B.Sc., Honours Biology, 1975; University of Waterloo

COURSES

- Butternut Health Assessment Workshop & Update – OMNR, 2010 & 2013
- Preparation of E.I.S. Reports – OMNR, 1995
- Bioassessments & Biological Criteria for Warmwater Streams – AFS 1993
- Ontario Wetland Evaluation System, 3rd Edition – OMNR, 1993
- Creating and Using Wetlands – University of Wisconsin, 1992
- Fluvial Geomorphology – University of Guelph and AFS, 1992

PROFESSIONAL EXPERIENCE

1991 to date. Consulting Biologist and President, Dance Environmental Inc.
The firm has completed over 440 assignments.

Mr. Dance has been consulting for 42 years and has gained extensive experience on the following types of studies: ecological inventory, biological monitoring, environmental planning, Species at Risk Overall Benefit Plans, watershed management, no net loss of fish habitat, tree saving plans, vegetation management, wetland Environmental Impact Studies, non-game wildlife and environmental assessments.

He also has experience in biological resource inventory, impact prediction, management option development and comparison, attendance at public information centres and as an expert witness before boards and tribunals.

1988-1991 Senior Biologist, Ecologistics Limited. As Senior Biologist, Ken was responsible for review of all biological projects. He consulted to private and public sector clients on management of fish, vegetation, and wildlife resources.

1985-1988 Associate and Manager of Biological Services, Gartner Lee Limited. Mr. Dance consulted to industrial and government clients.

1982-1985 Senior Biologist and Project Manager, Gartner Lee Limited.

1977-1982 Biologist and Project Manager, Ecologistics Limited.

1975-1976 Research Technician, University of Waterloo. Mr. Dance acted as a research technician on a PLUARG contract study of two streams.

KEN DANCE
CONSULTING BIOLOGIST

PROJECT EXAMPLES

E.I.S. Reports

Undertook inventory, site assessments and reporting for over one thousand sites relating to residential, industrial, aggregate and waste management proposals.

Highways and Roads

Examples of Environmental Assessment and highway construction projects, which Mr. Dance has worked on follow.

- Parkhill Road and Bridge, Cambridge – inspection of in-water construction to minimize erosion and sedimentation and construction of fish pool habitat.
- Gordon Street Bridge, Guelph – inspection of in-water construction and placement of fish habitat rock, 2000-2002.
- Highway 60 at Huntsville – inspection of in-water work during replacement of 4 culverts, including trout habitat; inspection of tree and shrub plantings.
- Highway 35 Minden – inspection of stream habitat restoration construction and inspection of tree and shrub plantings.
- Wellington County Roads – fisheries assessments for 3 culvert replacements.

Wastewater Management

- Etobicoke and Mimico Creek Watersheds: Toronto Wet Weather Flow Management Master Plan – ecological consultant addressing fish, wildlife, forests, wetlands and Lake Ontario near shore habitat.
- Thunder Bay Water Pollution Prevention Study – biological consultant addressing fish, wildlife, forests, wetlands and Lake Superior near shore habitat.
- Cincinnati and Cleveland, Ohio – CSO Review Studies: biological consultant addressing existing impacts on aquatic ecosystems and advice regarding solution options.
- Wastewater Treatment Plant Class E.A.s: biological consultant for Ayr, Flesherton, Ingersoll, Keswick, Lambeth, Tavistock and Wellesley plant upgrades/expansions.

Water Supply

Fisheries/biological assessments regarding water taking and/or facility siting for projects in Elmira, Georgetown, Acton, Cambridge, Caledon and Brampton.

Publications

Published chapters in three books. Over forty papers on fish, wildlife, wetland and vegetation management, as well as water quality and fisheries. Articles in publications such as Ontario Birds, Ontario Field Biologist, Newsletter of the Field Botanists of Ontario, Recreation Canada, Landscape Architectural Review and the Water Research Journal of Canada.

07/19