

NATURAL ENVIRONMENT LEVELS 1 AND 2 TECHNICAL REPORT

FREYMOND LUMBER LTD. QUARRY

FARADAY TOWNSHIP, HASTINGS COUNTY

November 2016

**Prepared for:
Freymond Lumber Ltd.**

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1.0 INTRODUCTION

This report will provide natural environment technical information (Levels 1 and 2) to support an application as required by the Aggregate Resources Act of Ontario (ARA) and Official Plan and Zoning By-law. The report was commissioned by Freymond Lumber Ltd. who will be referred to throughout this report as “the proponent”.

The property is located at 2287 Bay Lake Road, south of the town of Bancroft on lands described as Part Lots 51 and 52, Concession WHR, Township of Faraday and County of Hastings (Figure 1).

The property lies within the administrative jurisdictions the Township of Faraday, the County of Hastings and the Bancroft District of the Ontario Ministry of Natural Resources and Forestry (OMNRF).

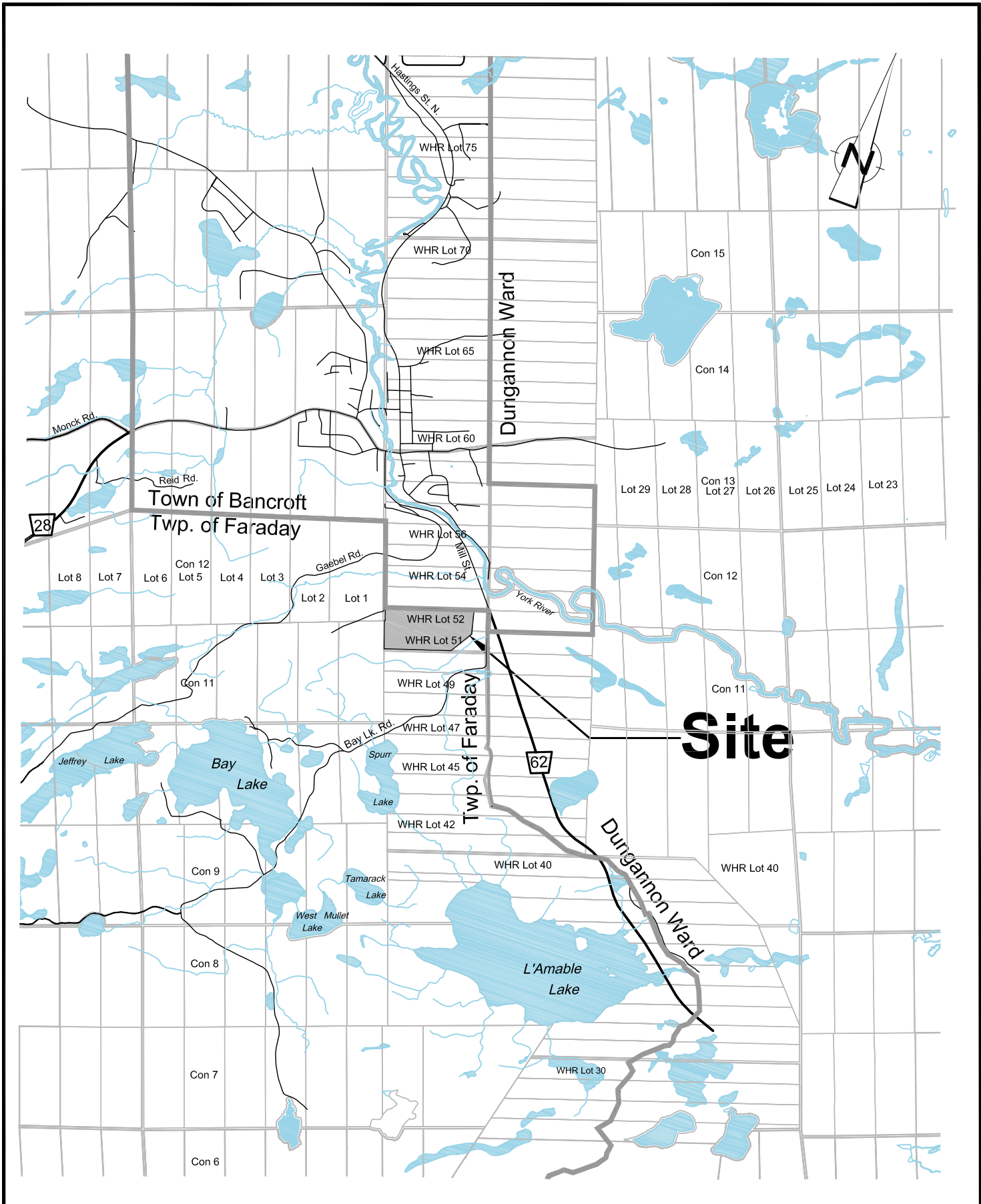
The information provided in this report will be as described in OMNR Policy A. R. 2.01.07 License Applications: Natural Environment Report Standards March 15, 2006. The purpose of the Level 1 component of this natural environment report is to document the presence of significant natural heritage features and fish habitat on the study area and on the adjacent lands within 120m. The Level 2 component is to assess the negative impacts of a aggregate operation on all identified natural features and ecological functions and to propose preventative, mitigative or remedial measures.

The natural heritage features that will be discussed include the following:

- a) significant wetlands
- b) habitat of endangered and threatened species
- c) significant Areas of Natural and Scientific Interest (ANSIs)
- d) significant woodlands (south and east of the Canadian Shield)
- e) significant valley lands (south and east of the Canadian Shield)
- f) significant wildlife habitat and
- g) fish habitat

2.0 REVIEW OF EXISTING BACKGROUND INFORMATION

All accessible natural heritage information was reviewed prior to on site surveys. An up to date species at risk list was consulted prior to field work beginning in May 2009 and on a regular basis after. In 2010 OMNRF Bancroft District staff provided a comprehensive list of species at risk for the Bancroft area. The provincial list was reviewed again in September 2015 during field data analysis and finally again in January 2016 at the time of report writing. Prior to analysing the field data, the following were consulted. The OMNRF Natural Heritage Information Centre (NHIC) web site and “make-a-map” feature were consulted to determine Species at Risk in Ontario (SARO) and significant natural features that have been previously reported on and near the site. The Ontario Breeding Bird Atlas (OBBA) web data summaries (2001 – 2005) were consulted to determine avian species at risk that have been previously reported on and near the site. The Ontario Reptile and Amphibian Atlas (ORAA) was consulted through the Ontario Nature website to determine species at risk that have been reported on or near the property. The



Site

Site Location - Freymond Lumber Limited
Part of Lots 51 and 52, Concession W.H.R.
Township of Faraday
Figure 1

Scale 1:50,000

Ontario Butterfly Atlas (OBA) was consulted on the Toronto Entomologist's Association web site to determine species at risk butterflies that have been reported on or near the property and those that have the potential to be found on the site.

The County of Hastings Official Plan (2009) was reviewed to determine natural heritage policies and existing land use and environmental designations. The County of Hastings Interactive Mapping site was also reviewed on several dates between 2010 – 2016. The 2014 Provincial Policy Statement was consulted regarding natural heritage policies.

Other information reviewed included;

- Site plans prepared by MHBC Planning, Urban Design and Landscape Architecture. 2016.
- Freymond Proposed Quarry Level 1 and 2 Hydrogeological Investigation Proposed Category 2 Class 'A' Quarry Below-Water-Table, prepared by MTE Consultants Inc. 2016.
- Natural Heritage Reference Manual, 1999".
- Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition 2010.
- Significant Wildlife Habitat Technical Guide, 2000.
- Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E, 2015.
- Significant Wildlife Habitat Mitigation Support Tool, Version 2014.
- Natural Heritage Assessment Guide for Renewable Energy Projects, Second Edition. OMNR, 2012.
- OMNR Policy A. R. 2.01.07 Licence Applications: Natural Environment Report Standards, March 15, 2006.

2.1 OMNRF Species at Risk Information

The Ontario Species at Risk list (SARO) was reviewed prior to the initial surveys. The list has been regularly updated since and has been consulted throughout the information gathering period. It was most recently consulted in January 2016. The following species are listed and because of the forest community on the site were considered to have potential to be found;

Vascular Plants

- Butternut (*Juglans cinerea*) - tree – endangered
- American Ginseng (*Panax quinquefolius*) – forb – endangered

Mammals

- Eastern Small-footed Bat (*Myotis leibii*) – endangered
- Little Brown Bat (*Myotis lucifugus*) – endangered
- Northern Bat (*Myotis septentrionalis*) – endangered

Birds

- Eastern Whip-poor-will (*Anstrostromus vociferous*) – threatened
- Common Nighthawk (*Chordiles minor*) – special concern
- Redheaded Woodpecker (*Melanerpes erythrocephalus*) – special concern
- Eastern Wood-Pewee (*Contopus virens*) – special concern
- Olive-sided Flycatcher (*Nuttallornis borealis*)
- Wood Thrush (*Hylocichla mustelina*) – special concern
- Cerulean Warbler (*Setophaga cerulean*) - threatened
- Louisiana Waterthrush (*Parkesia motacilla*) - special concern
- Canada Warbler (*Cardellina canadensis*) – special concern

Reptiles

- Eastern Hog-nosed Snake (*Heterodon platyrhincus*) – snake - threatened
- Common Five Lined Skink – Southern Shield Population (*Plestiodon fasciatus*) – lizard – species of concern
- Eastern Milksnake (*Lampropeltis triangulum*) – snake – species of concern

2.2 OMNRF NHIC Web Information

To catalogue natural heritage information OMNRF has divided the provincial land base into 1 sq. km units indentified by a specific NAD 83 number. A 2016 review of the OMNRF Make-a-Map on the OMNRF web site indicated that the property is located in parts of two adjacent 1 sq km quadrants, 18TQ7691 and 18TQ7591. Species at risk and rare species were the same for both squares and are listed as follows:

- Ogden's Pondweed (*Potamogeton ogdenii*) - plant - Endangered
- Eastern Milksnake (*Lampropeltis triangulum*) – snake – species of concern
- *Rhizocarpon oederi* – lichen/plant – rare species S2S3

2.3 The Atlas of Ontario Breeding Birds (OBBA)

To survey breeding birds across all of Ontario the provincial land base was divided by OBBA into 10 sq. km units indentified by a specific NAD 83 number. The property is located within the NAD 83 10 sq km survey square 18TQ79. The data summary from the atlas survey was

compared with the current SARO list to determine the potential for at risk birds to be found on the site and are listed as follows;

- Eastern Whip-poor-will (*Antrostomus vociferous*) – threatened
- Common Nighthawk (*Chordeiles minor*) – special concern
- Redheaded Woodpecker (*Melanerpes erythrocephalus*) – special concern
- Eastern Wood-Pewee (*Contopus virens*) – special concern
- Olive-sided Flycatcher (*Nuttallornis borealis*) – special concern
- Wood Thrush (*Hylocichla mustelina*) – special concern
- Golden-winged Warbler (*Vermivora chrysoptera*) – species of concern
- Canada Warbler (*Cardellina canadensis*) – special concern

2.4 Ontario Reptile and Amphibian Atlas (ORAA)

The ORAA was reviewed to determine species at risk that had potential to be found on or within 120 m of the site. The following species have been found in the general area and have potential to be found on the property;

- Eastern Hog-nosed Snake (*Heterodon platyrhincus*) – snake - threatened
- Eastern Milksnake (*Lampropeltis triangulum*) – snake – species of concern
- Common Five-lined Skink – Southern Shield Population (*Plestiodon fasciatus*) – lizard – species of concern

2.5 Ontario Butterfly Atlas (OBA)

The OBA was reviewed to determine species at risk that had potential to be found on or within 120 m of the site. There has been one at risk butterfly that has been reported from 18TQ79, the 10 sq km area in which the property is located and that is the following:

- Monarch (*Danaus plexippus*) - species of concern

2.6 Dragonflies

At risk Dragonfly species have been reported from very few and only isolated locations in Ontario. No at risk dragonfly species have been reported from the property or anywhere in Hastings County.

2.7 County of Hastings Environmental Designations

The property is zoned “Rural” except for an area on the eastern edge of the proposed licence which is zoned “Industrial” in the County of Hastings Official Plan (2009). There are no

environmental designations for the property. There is a stream within 120 m south-east of the licence boundary which would be designated “Environmentally Sensitive” and the area of sensitivity would also include the area within 30 m of either stream bank.

3.0 EXISTING SITE CONDITIONS

3.1 Property Description

The lands owned by the proponent are about 128 ha of which 33.3 ha are proposed to be licenced and 27.5 ha are proposed for extraction. Detailed natural heritage information was collected on the 33.3 ha proposed to licenced (Figure 2). The site is bounded on the north, south and east by lands owned by the proponent. It is bounded on the west by private lands and a municipal roadway.

The topography of the property is hilly (MTE 2016). Elevations vary for 392 (mAMSL) along the west boundary of the site to 335 (mAMSL) along the eastern boundary. There are no caves, cliffs or mines on the site or known within 120 m of the site.

There is only one small building on the site, a sugar shack, located within the forested area.

3.2 Existing Land Use

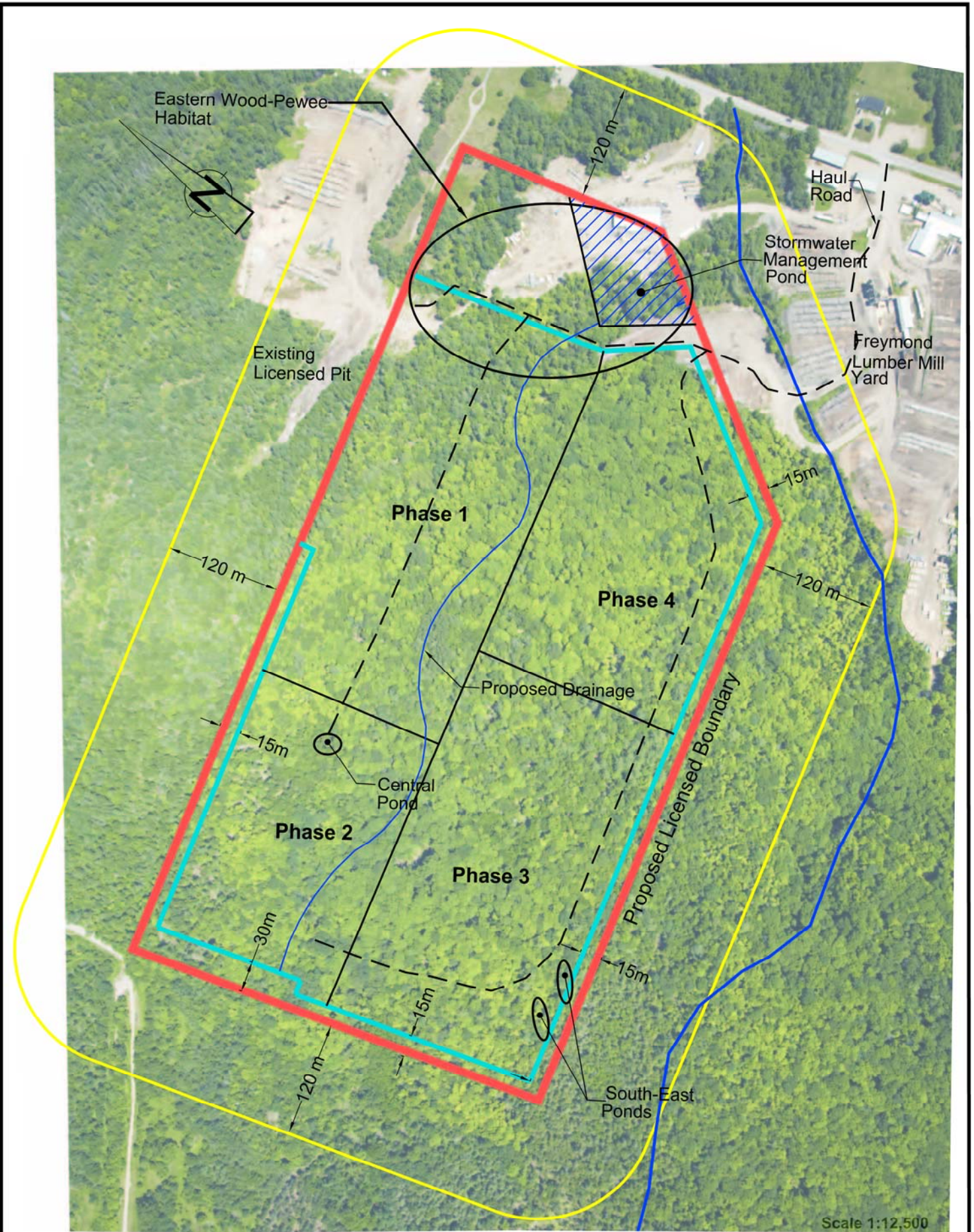
The property is currently forested and managed as a forest reserve. Selective timber harvest occurs when the proponent’s mill needs wood and/or there is sufficient market demand. Past harvesting has not resulted in significant openings in the forest canopy. There are open, cleared and gravelled areas at the east end of the site, occupied by buildings and parking areas for equipment and vehicle storage.

3.3 Adjacent Land Use

The Freymond Lumber Ltd. mill is located south-east of the proposed licence area. Areas to the north, south and west are forested. There is a licenced pit area north-east of the site that is owned and operated by the proponent. Lands to the east are cleared and occupied by buildings and parking areas associated with the proponent’s lumber mill operation. A municipal road passes the north-west property boundary within 120 m of the proposal.

3.4 Watersheds and Surface Water

The drainage characteristics of the site are described in “Freymond Proposed Quarry Final Level 2 Hydrogeological Investigation” (MTE, 2016). The site is within the York River watershed. There are no streams on the site. There are 3 woodland ponds on the site, one is located in the west central area and the other 2 are located along the south-west boundary. The pond in the west central area, which is roughly circular in shape, has a maximum diameter of about 40 m and a maximum area of 1256 sq. m which occurs in spring after snow melt. The ponds along the south-west boundary are each linear and about 50 - 60 m long by 30 m wide and each has an area of about 1500 sq. m. There are no inlets or outlets to or from any of the ponds. Water in the ponds remains all summer but all of the ponds decrease in area over the season.



Proposed Boundaries and Operational Plan
Freymond Lumber Limited
 Part of Lots 51 and 52, Concession W.H.R.
 Township of Faraday
 Figure 2

Legend	
—	Proposed Licensed Boundary
—	Proposed Extraction Limit
—	Water Course

GRAPHIC SCALE
 (IN METERS)

1:5,000

A permanent, unnamed stream flows within 120 m south-east of the site. The stream flows through the existing mill grounds eventually entering the York River about 500 m east of the site. The stream is about 1 m wide and 15 to 25 cm deep. The bottom substrate is organic.

The water temperatures ranged from a low of 14° C on June 30, 2009 to a high of 25° C in early August, 2009 (Table 2). Generally, however, the stream was about 20° C indicating a coolwater system.

3.5 Groundwater

Detailed ground water information is contained in a hydrogeological report prepared by MTE (2016).

In summary, the ground water level varies over the site because water is actually contained in fractures within the bedrock. The vertical gradient is downward with ground water migrating from shallow to deeper systems.

Both the shallow and deep ground water systems move in a north-east direction towards the York River. The ground water systems do not contribute to the unnamed stream south-east of the site.

4.0 FIELD STUDY METHODS

A reconnaissance visit was made on June 2, 2008 to get a general sense of the natural heritage information needs and to begin data collection. Later a review of available background information was completed. After considering all the information, appropriate survey protocols were determined for site specific natural heritage information gathering. Because the report was being completed for a 2016 application, additional field work was completed in 2015 to ensure that species at risk information was up to date. Field surveys were completed on 11 different dates between April 2009 and October 2015 (Table 1).

Data were collected using the following protocols and guidelines.

- Ontario Breeding Bird Atlas survey protocol (OBBA) (Anon., 2001, 2003),
- Marsh Monitoring Protocol, Bird Studies Canada, (2011)
- Bat maternity habitat protocol from Natural Heritage Assessment Guide for Renewable Energy Projects (NHAGREP) (OMNR, 2011)
- Field guide to forest Ecosystems of Central Ontario, (Chambers, B. et al. 1997)
- Butternut Health Assessment Protocol (BHA) (OMNRF, 2014)

To conduct a thorough biological survey, all areas of the property were visited and walked through to ensure that the maximum numbers of wildlife and plant species and all vegetation communities were documented. Visits occurred only when the weather was calm and generally clear to maximize opportunities of seeing and hearing wildlife.

Table 1; Field Study Details

Dates - 2008	Observer(s)	Purpose of visit	Times	Time spent (person hours)	Weather
June 2	R. Craig	Reconnaissance	11:00 am – 1:00 pm	2.0 hrs	Sunny, light breeze, air temp. 9° C
Dates – 2009					
April 24	R. Craig/ C. Craig	Amphibians and other wildlife including raptor nesting	6:00 pm – 8:00 pm	2.0 hrs x2 = 4.0 hrs	Sunny, light breeze, air temp. 16° C
May 29	R. Craig/	Early season vegetation data, amphibians, birds including raptors and other evening wildlife	6:30 pm – 8:30 pm	2.0hrs	Sunny, calm, air temp. 15° C
May 30	R. Craig	Breeding birds including raptors, other wildlife, vegetation	10:00 am - 11:30 am	1.5 hr	Overcast, light rain overnight, light breeze air temp. 6° C
June 29	R. Craig	Off site stream temperatures, vegetation, birds amphibians and other evening wildlife	4: 30 pm – 5:30 pm 7:30 pm – 8:30 pm,	1.0 hr 1.0 hr	Sunny, light breeze, air temp 13° C
June 30	R. Craig	Breeding birds, other wildlife and main season vegetation survey, EL Communities	6:00 am- 10:30 am	4.5 hrs	Overcast, light mist, calm, air temp. 14° C
June 30	Proponent	Stream temperatures and fish sampling	Mid day	-	Overcast, calm, air temp. 14° C
July 5	Proponent	Stream temperatures and fish sampling	-	-	Air temp. 21° C
July 9	Proponent	Stream temperatures and fish sampling	-	-	Air temp. 22° C
July 16	Proponent	Stream temperatures and fish sampling	-	-	Air temp. 23° C
July 23	Proponent	Stream temperatures and fish sampling	-	-	Air temp. 17° C

July 30	Proponent	Stream temperatures and fish sampling	-	-	Air temp. 21° C
August 6	Proponent	Stream temperatures and fish sampling	-	-	Air temp. 20° C -
August 13	Proponent	Stream temperatures and fish sampling	-	-	Air temp. 27° C
September 2	R. Craig	Late season vegetation, late season butterflies and dragonflies and other wildlife	9:30 am – 4:30 pm	7.0 hr	Sunny, calm, air temp. 13° C
Dates - 2010					
April 22	R. Craig/ C. Craig	Amphibians and other wildlife	6:00 pm – 8:30 pm	2.5 hrs x 2 = 5.0 hrs	Sunny, calm, air temp. 6.0° C
Dates - 2015					
October 23	R. Craig/ R. Bowles	Bat habitat survey reconnaissance	3:00 pm – 4:00 pm	1.0 hr x2 = 2.0 hrs	Sunny, calm, 3.0° C
October 26	R. Craig/ R. Bowles	Bat maternity habitat and raptor stick nest search	9:30 am – 3:30 pm	6.0 hr x2 = 12 hrs	Sunny, clear, calm Temp. - 1° to + 9° C

4.1 Vegetation Including Species at Risk

To survey vegetation, initial habitat scoping was done from a reconnaissance visit to give an idea of the habitat(s) to be studied and to determine species that could potentially be present and their potential locations. Three time periods for field trips were chosen to cover early, mid and late season in 2009. These were May 29-30, June 29-30 and September 2. The entire property was circumnavigated and then was surveyed along random transects until no new species were encountered. Vegetation information was also collected on other site visits if previously undocumented species were encountered. Adjacent lands were visited if owned by the proponent or viewed from property boundaries.

4.2 Birds Including Species at Risk

In 2009 early morning breeding bird surveys were conducted using the OBBA Protocols on May 30 and June 30. The area search and stop and listen method was followed for surveys over the entire property. Stick nests were searched for and noted if encountered. The property was also visited on 2 evenings in 2009, May 29 and June 29 to survey for birds that are active at that time.

Morning surveys were conducted within the first 5 hours after sunrise which on average was approximately 5:30 – 10:30 am. These survey dates and times are in accordance with the protocols for Southern Ontario.

4.3 Bat Maternity Habitat Surveys

4.3.1 Survey Protocol

Since there are no caves, cliffs or mines present on or within 120 m of the property there are no potential winter hibernacula on or within 120 m of the site. As a result of the deciduous woodlands present and lack of caves etc. only bat maternity habitats were considered to be potentially on the site or on adjacent lands. The protocols for surveying bat maternity habitats outlined in “Bats and Bat Habitats: Guidelines of Wind Power Projects” were followed.

4.3.2 Dates and Search Effort

A reconnaissance visit to the site on October 23, 2015 revealed that the leaves had fallen from most deciduous trees by this date. The survey was then conducted on October 26, 2015. This followed survey protocol which requires surveys to be completed during the leaf off season to prevent tree leaves from obscuring potential maternity cavities in trees.

For areas greater than 10 ha the protocol requires that a minimum of 1 plot per hectare be surveyed. The plots are to be randomly selected across the survey area (Appendix 3). Each plot should be circular with a radius of 12.6 m which creates a survey area of 0.05 ha. Because the proposed area of extraction is 27.8 ha, 27 plots were selected with the location of each randomly selected and distributed across the area to ensure complete coverage (Figure 4). Within each plot all snags/cavity trees were identified and the diameters at breast height (dbh) were measured. Snags/cavity trees greater than 25 cm in diameter were counted, identified to species and assigned a decay class. Each snag/cavity tree identified was then examined to determine the presence and number of cavities and state of the bark (loose, % coverage). These data were then used to calculate the number of snag/cavity trees per ha across the proposed extraction area.

4.4 Amphibians

The site was visited on evenings in April, May and June of 2009 and in April of 2010 to conduct amphibian surveys near potential amphibian breeding sites on the property following the amphibian Marsh Monitoring Protocols (Table 2). The 3 ponds on the property were all visited during each survey date. The survey dates were all warm and moist with little or no wind, therefore conducive to monitoring amphibians. The protocol requires 3 minutes per station but each pond was visited for 30 minutes. Species and call level were recorded. Ponds were also searched for individual amphibians and egg masses. The presence of amphibians was also noted if encountered at other times on other dates.

4.5 Reptiles

In 2009 and especially, on 2 dates in June including 1 early morning and one evening date, turtles and evidence of turtles was searched for. These included turtles nesting, signs of carapace drag marks and predated eggs in sandy areas at the east end of the property and along boundary roads. Snakes were searched for on all survey dates.

4.6 Butterflies and Dragonflies

Butterflies and dragonflies were captured and or identified on the wing on all dates whenever they were encountered. The areas around the ponds were searched specifically for dragonflies.

4.7 Fish and Fish Habitat Sampling

The proponent collected fish and fish habitat information from the stream that flows through the mill yard within 120 m of the south-east boundary of the licence area. Samples were collected on 8 dates through June to August 2009. Stream temperatures were collected at mid day and fish were collected using standard minnow traps.

4.8 Adjacent Lands

Information about adjacent lands within 120 m of the study area was determined from a review of background information, air photo interpretation; direct site visits if the lands were owned by the proponent, observations from property boundaries.

5.0 FIELD STUDY RESULTS

5.1 Nomenclature

The generally accepted common names of all plant and animal species are used throughout this report. Corresponding scientific names of species encountered are listed in appendices at the end of the report. All vegetation naming is from Flora Ontario (Newmaster, S.G. and S. Ragupathy. (2012)). Avian common and scientific naming follows the 7th edition (1998) of the American Ornithological Union (AOU) “Check-list of North American Birds”, and the 56th supplement (2015). Mammal naming is from Dobbyn, “Atlas of the Mammals of Ontario” (1994). Amphibians and reptile naming is from Harding, “Amphibians and Reptiles of the Great Lakes Region (1997).” Dragonfly naming is from Jones et. al., “Field Guide to The Dragonflies and Damselflies of Algonquin Park and Surrounding Area” (2008). Butterfly naming is from the Ontario Butterfly Atlas.

5.2 Vegetation

Vegetation surveys were completed during three seasons in 2009. All species encountered on the property are listed in Appendix 1.

A total of 218 vascular plant species were found on the site including 18 trees, 13 shrubs and vines and 187 other vascular plants. A total of 164 (75%) were native species while 54 (25%) were non-native or species considered by OMNRF “as not suitable targets for conservation activities” (SNA). These SNA species are essentially introduced species.

No endangered, threatened or species of concern were encountered on or within 120 m of the site.

5.3 Vegetation Community

The entire site is forested and the canopy is dominated by deciduous tree species. Forest communities have variable site conditions but they all have more than 60% tree cover and the canopies of deciduous forests are made up of more than 75 % deciduous species.

The property is located in Site District 5E9 and ecosite ES27.1 as described in Chambers et. al. (1997). Forest stands in this ecosite are typically dominated by Sugar Maple, White Birch, Poplar and White Pine on dry to moderately fresh soils. Soils are generally sandy to coarse loamy.

5.3.1 Forest Community “V 12”

A forest management plan was prepared in 1998 for the site (Freymond, 1998). It lists the soils as “sandy” the drainage “good” and the topography “hilly”. It describes the natural forest community as having been disturbed by selective logging for many years. The history of the site includes the harvesting of timber for the nearby mill and removal of lower grade trees for firewood. The plan inventory describes the forest as composed of “Hard Maple” 50%, “Poplar” 20%, “White Birch” 10% and “White Pine” 10%. The average age of the stand in 1998 was 70 years, therefore in 2016 it would be between 85 and 90 years of age.

Although the Chambers et. al. (1997) classification system should ideally be applied to mature, undisturbed stands, it can cautiously be applied to partially managed sites such as this one. With this in mind the vegetation community on the site most closely resembles “V 12”. A V 12 community is described as a Sugar Maple-White Birch dominated stand with associates in the main canopy including Red Maple, White Pine and Red Oak. The understory includes high levels of hardwood regeneration and moderate levels of conifer regeneration. There are also moderate levels of hardwood shrubs and herbs.

This is not an at risk community.

5.4 Vegetation Communities – Adjacent to the Site

Natural forest vegetation is present adjacent to the site on the north, west and south boundaries. The community type is Sugar Maple-White Birch, “V 12” which is consistent with the forest community found on the site. There is no natural vegetation community east of the site because this area is part of the lumber mill yard and used for equipment and vehicle storage.

5.5 Wildlife – On Site

Wildlife surveys were completed during three seasons including both morning and evening hours. Wildlife species encountered on the property are listed in Appendix 2.

There were 38 bird species, 7 mammal, 4 amphibians (3 frogs and 1 salamander), 6 butterfly, and 3 dragonfly species observed on the site. No snakes or turtles were observed.

5.5.1 Birds

Of the 38 bird species observed, 37 were potentially breeding on or within 120 m of the site. One species, the Red Shouldered Hawk, was seen flying over the site and no evidence of nesting was found on the site such as loudly calling defensive adults or a stick nest.

No endangered or threatened species were encountered on or within 120 m of the site but 1 species of concern, the Eastern Wood-Pewee, was observed at the east boundary.

5.5.2 Mammals

The 7 mammals observed or evidence of their presence observed included Star-nosed Mole, Eastern Chipmunk, Red Squirrel, Porcupine, Coyote, Black Bear and White-tailed Deer.

No at risk species were encountered on or within 120 m of the site.

5.5.2.1 Bat Habitat Survey Results

The site was visited on October 26, 2015 to conduct a bat maternity habitat survey following the survey protocol. The proposed extraction area is about 27 ha therefore a total of 27 survey plots were surveyed (Appendix 3). Eleven snags and/or cavity trees or 0.4 per plot with diameters (dbh) greater than or equal to 25 cm were found. Since plot size was 0.05 ha the number of snag/cavity trees would be $0.4/0.05 = 8.0$ per ha.

5.5.3 Amphibians

Northern Spring Peepers and Wood Frogs were documented calling in the central pond in 2009 but only Spring Peepers were heard in 2010. In 2009 an egg mass was observed that indicated breeding of Blue-spotted Salamanders in the central pond. No evidence of amphibian breeding activity was found in the 2 south-west area ponds. Eastern Gray Tree Frogs were heard calling in the woodland but were not documented at any of the ponds.

In total 4 amphibians were found on the site including Blue Spotted Salamander, Gray Tree Frog, Spring Peeper and Wood Frog.

No at risk species were encountered on or within 120 m of the site.

Table 2: Amphibian Monitoring

Date	Species	Code *	Estimated Numbers
April 24, 2009	Spring Peeper	2	20 - 30
	Wood Frog	2	10 - 20
	Blue Spotted Salamander	-	Egg mass found
May 29, 2009	No frogs calling	-	-
June 29, 2009	No frogs calling	-	-
April 22, 2010	Spring Peeper	2	10 - 20

* Code 1: individual calls do not overlap and calling individuals can be discretely counted;

Code 2: calls of individuals sometimes overlap, but numbers of individuals can still be estimated;

Code 3: overlap among calls seems continuous (full chorus), and a count estimate is impossible;

5.5.4 Butterflies and Dragonflies

Because the site is forested there were few butterflies and dragonflies encountered. In total 6 butterfly species and 3 dragonfly species were seen.

No endangered or threatened species were encountered but the Monarch, a species of concern was observed on or within 120 m of the site.

5.5.5 Reptiles

Reptiles including turtles and snakes were searched for on all site visits. Evidence of turtle nesting and other activity on the site was also investigated.

No turtles or snakes were encountered and no evidence of turtle nesting or other activity was observed on or within 120 m of the site.

5.6 Wildlife and Species at Risk on Adjacent Lands

The lands within 120 m of the property were examined during the background information checks.. Property boundaries were included during wildlife surveys so that species within 120 m on adjacent lands could be noted.

No at risk wildlife was encountered within 120 m of the site.

5.7 Fish Habitat on Adjacent Lands

There is no fish habitat on the site but there is a stream within 120 m south-east of the site, referred to as the "South Stream" by MTE Section 6.7 (2016). Temperature and fish sampling were conducted at 3 accessible sites on the mill property from June 30 to August 13, 2009 (Table 3). Water temperatures over the period ranged from 14 C to 25 C with the majority of samples between 18 C and 21 C, in the coolwater habitat range. The only species of fish caught was Brook Stickleback but it was caught at each sample station and the number of individuals caught on each sampling date ranged from 0 to 5.

Table 3: Water Temperatures and Fish Sampling of the "South Stream"

Date 2009	Location	Temperature	Fish Caught
June 30	East Culvert (EC)	20 C	-
	West Culvert (WC)	20 C	-
	Chip Loop (CL)	14 C	-
July 5	EC	-	5 Brook Stickleback (BS)
July 9	EC	20 C	1 BS
	WC	20 C	-
	CL	18 C	2 BS
July 16	EC	20 C	4 BS
	WC	19 C	1 BS
	CL	21 C	2 BS
July 23	EC	20 C	4 BS
	WC	19 C	1 BS
	CL	21 C	2 BS
July 30	EC	20 C	-
	WC	25 C	1 BS
	CL	20 C	2 BS
August 6	EC	25 C	1 BS
	WC	20 C	-
	CL	20 C	-
August 13	EC	20 C	-
	WC	21 C	1 BS
	CL	20 C	-

6.0 LEVEL 1 - NATURAL HERITAGE FEATURES

6.1 Provincially Significant Wetlands (PSW)

A review of all background information and numerous site visits confirm that there is not a PSW on or within 120 m of the site.

6.2 Endangered and Threatened Species

A number of background sources provided a comprehensive list of endangered and threatened species that potentially may be found on the site.

6.2.1 Discussion

Habitat descriptions for species at risk are from information provided by OMNRF on each species at <https://www.ontario.ca/environemntandenergy/sepcies-risk-ontario-list> unless otherwise noted.

6.2.1.1 Butternut - Endangered

Butternut usually grows alone or in small groups in well drained soil often on gravel sites. It is often found along streams, near forest edges and along fencerows.

Butternut were not reported in any background data reviewed including NHIC records. Few of the above noted conditions are found on the property. The property is entirely forested with few open areas that would support Butternut. The eastern boundary of the site is adjacent to an open yard and would therefore offer a forest edge habitat. This area was searched during field surveys but no Butternut were encountered on or adjacent to the site.

Therefore, there is no Butternut or Butternut habitat found on or within 120 m of the site.

6.2.1.2 American Ginseng - Endangered

Suitable habitat for American Ginseng is found under low light conditions in relatively undisturbed, mature Sugar Maple dominated deciduous forests. It is restricted to areas with moist but well drained conditions. Ground water sources such as seeps and intermittent streams are important. Because of its intolerance of excessive light it is found in interior forest habitats 100 m from an edge.

Ginseng was not reported in any background data reviewed including NHIC records. Although there are Sugar Maple dominated woodlands with mature trees on the property, there are no seeps or intermittent streams and no Ginseng were found during vegetation surveys.

Therefore, there isn't American Ginseng or any habitat for American Ginseng on or within 120 m of the site.

6.2.1.3 Ogden's Pondweed - Endangered

Ogden's Pondweed is a linear leaved pondweed that inhabits alkaline (hard) waters of slow moving streams.

Ogden's Pondweed was reported in NHIC information for the 1 sq. km square in which the property is located. There are only 3 reports of this species in Ontario and all occur in Eastern Ontario. Two of the reports (1974 and 1987) relate to specimens from the Rideau system where the water was probably hard (alkaline) as both were found in marble bedrock areas. The third report is very general with no specific location identified and is based on an 1873 reference which only lists the plant being found in Hastings County (COSEWIC 2007). This dated report is likely the basis that Ogden's Pondweed is identified on NHIC background information for the 1 sq km area in which the property is located.

There are no streams on the site. The stream within 120 m and south-east of the site is not likely alkaline because of its location flowing over precambrian rock. No vegetation was seen in the stream and therefore Ogden's Pondweed was not considered to be present.

Therefore, there isn't any Ogden's Pondweed or any significant habitat for Ogden's Pondweed on or within 120 m of the site.

6.2.1.4 Bat Species – Endangered

The species considered were Eastern Small-footed Bat, Little Brown Bat and Northern Bat. Significant habitat for these species would consist of hibernation roosts or hibernacula and maternity roosts. Hibernation roosts for all species are found in caves or abandoned mines. These three bats usually choose maternity roosts in woodlands with appropriate tree cavities but also use caves, crevices and cracks in cliffs.

- **Hibernacula**

There are no caves, cliffs or mines present on or within 120 m of the site.

Therefore, there are no hibernation habitats for bat species on or within 120 m of the site.

- **Maternity Roosts**

Because the site is forested potential maternity roosts could be present on the site or in the woodlands adjacent to the site. The protocol for candidate significant bat maternity colony roosts in woodlands is 10 snag/cavity trees each with a dbh greater or equal to 25 cm per ha. With 8.0 snag/cavities per ha, the study area does not meet the 10 snag/cavity tree per ha criterion for significant bat maternity habitat. The lack of snags and cavity trees may be explained by the past forest management practices of removing dead and dying trees on the site. Many of the snags did not have any cavities and the bark was intact on many of the trees thus not offering much in potential bat maternity habitat. Five of the snags/cavity trees had 1 or two cavities but these consisted of Pileated Woodpecker probing efforts and offered no protective cover. One Sugar Maple was hollow. The potential for bat maternity habitats on the site appeared limited. Bats also prefer open areas for foraging and a source of water for drinking. The site has no open foraging areas and only 3 small ponds and this may reduce the attractiveness of the site to bats. No bats were observed on the site during any of the 3 evening wildlife surveys.

Therefore, there are no confirmed bat maternity habitats on or within 120 m of the site.

6.2.1.5 Eastern Whip-poor-will – Threatened

The Eastern Whip-poor-will is not found in either completely open spaces or dense forests but rather in rock or sand barrens with scattered trees, savannahs, disturbed areas in a state of early to mid-forest succession or open conifer plantations (COSEWIC, 2009). Upland areas with little ground cover are preferred for nesting. Breeding habitat is more dependent on forest structure and not tree species present. They will often feed over shrubby pastures, wetlands and power line and roadway corridors.

No EWPW were reported in background information including OBBA information for the 10 sq km survey square 18TQ79 in which the property is located. The forest cover on the property is about 85 to 90 years of age and not early to mid successional. The canopy is closed and there are no open shrubby areas, wetlands or right-of-way corridors that would be suitable for aerial foraging. No Eastern Whip-poor-wills were encountered on or within 120 m of the site during evening avian surveys.

Therefore, there are no Eastern Whip-poor-wills or their habitat on or within 120 m of the site.

6.2.1.6 Cerulean Warbler - Threatened

Cerulean Warblers nest in mature deciduous forests generally within interior sites which are at least 200 m from a forest edge.

While there are areas within the deciduous forest on site that are 200 m or greater from an edge no Cerulean Warblers have been reported on the property or within 120 m of the property in any background information for the site including OBBA information for the 10 sq km survey square 18TQ79 in which the property is located. No Cerulean Warblers were encountered on or within 120 m of the site during breeding bird surveys.

Therefore there are no Cerulean Warblers or their habitats on or within 120 m of the site.

6.2.1.7 Eastern Hog-nosed Snake - Threatened

Eastern Hog-nosed Snakes live in habitats where their main food source, the American Toad (*Bufo americana*) is abundant. They prefer sandy, well drained locations such as beaches and dry forests where they can lay their eggs and burrow to hibernate in winter.

There are exposed sandy areas at the east boundary of the site but no Hog-nosed Snakes have been reported on the property in any background information. ORAA background information, however, indicates that Eastern Hog-nosed Snakes have been reported south and west of the site.

No toads, the snakes preferred food, and no hog-nosed snakes were found during field surveys or have been observed on the site or adjacent to the site by property owner, Mr. L. Freymond.

Therefore, there isn't any Eastern Hog-nosed Snakes or their habitats on or within 120 m of the site.

6.2.2 Endangered and Threatened Species Conclusion

The significant wildlife habitats for endangered and threatened species with potential to be found on or within 120 m of the site have been discussed in detail in the previous Sections and no endangered or threatened species or their habitats are found on or within 120 m of the site.

6.3 Areas of Natural and Scientific Interest (A.N.S.I.'s)

A review of all background information confirms that there are no A.N.S.I.'s on or within 120 m of the site.

6.4 Significant Woodlands

The site is on the Canadian Shield therefore significant woodland policies do not apply.

6.5 Significant Valley Lands

The site is on the Canadian Shield therefore significant valley land policies do not apply.

6.6 Significant Wildlife Habitat

Significant wildlife habitat (SWH) can be determined by two methods, either by municipal designation or by using OMNRF criteria. The County of Hastings has not designated any SWHs therefore OMNRF criteria contained in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (OMNRF, 2015) (SWHCS) were used to determine significant wildlife habitat that may be on or adjacent to the site. The OMNRF criteria suggest that significant wildlife habitat can be divided into four broad categories.

- Seasonal concentration areas
- Rare vegetation communities or specialized habitats for wildlife
- Habitats of species of conservation concern, excluding the habitats of endangered and threatened species.
- Animal movement corridors.

The following have potential to be found on the site. Specifically they are:

- Seasonal Concentration Areas
 - Bat Maternity Colonies (not species at risk)
- Specialized Habitat for wildlife
 - Woodland raptor nesting habitat
 - Amphibian Breeding Habitat - woodlands
- Habitats of species of conservation concern including;

- Special concern and rare wildlife species

The following are the species that are considered;

Plants

- *Rhizocarpon oederi* – lichen – rare species S2S3

- Birds

- Common Nighthawk – special concern
- Redheaded Woodpecker – special concern
- Eastern Wood-Pewee – species of concern
- Olive-sided Flycatcher – species of concern
- Wood Thrush – special concern
- Louisiana Waterthrush - special concern
- Golden-winged Warbler – species of concern
- Canada Warbler – special concern

- Reptiles

- Common Five Lined Skink – Southern Shield Population (*Plestiodon fasciatus*) – lizard – species of concern
- Eastern Milksnake – snake – species of concern
- Insects – butterflies
- Monarch - species of concern

Each of these categories listed above will be discussed in detail in the following sections.

6.6.1 Seasonal Concentration Areas

6.6.1.1 Bat Maternity Colonies

The SWHCS lists Big Brown Bat (*Eptesicus fuscus*) and Silver-haired Bat (*Lasionycteris noctivagans*) as the two species considered. Maternity colonies for these species are found in forested areas including ES27 which is the forest type found on the property. Colonies are found in mature greater than 80 year old deciduous and mixed forest stands with greater than 10/ha of

large (greater than 25 cm dbh) wildlife trees (snags). Female Big Brown Bats prefer dead trees in early stages of decay (class 1-3). Silver-haired Bats prefer older forests with at least 21 snags per ha and find cover in abandoned woodpecker holes. Both species prefer locations near open areas insect foraging and a water source for drinking.

The site was surveyed for potential maternity roosts as described in Section 4.3. The forest on the property is more than 80 years old but the survey results indicated an estimated 8 snag/cavity trees per ha. Past forest management practices have likely reduced the number of older decayed trees on the site. The number of snag/cavity trees on the site is below the 10/ha required for significant Big Brown Bat colony habitat and the 21/ha required for Silver-haired Bat colony habitat. With respect to Big Brown Bats, there was only 4 early decay stage trees (36%) found. With respect to Silver-haired Bats, although there was evidence of Pileated Woodpecker probing on some of the surveyed trees there were no cavities large enough for woodpecker nesting or bat cover. The site has no open foraging areas and only 3 small ponds and this may reduce the attractiveness of the site to bats. No bats were observed on the site during any of the 3 evening wildlife surveys.

Therefore, there isn't any significant bat maternity colony habitat on or within 120 m of the site.

6.6.2 Specialized Habitat for Wildlife

6.6.2.1 Woodland Raptor Nesting

The SWHCS describes significant woodland raptor nesting habitat as a forested area with at least 1 active nest of 1 of 7 listed raptor species. Field investigations to confirm nesting must be completed from mid March to the end of May. As described above, the entire site is forested. Site visits were made on April 24, May 29 and May 30 2009 and on April 22, 2010. No active raptor nests were found. The site was also visited on October 26, 2015 during the leaf off season by 2 experienced observers who were on the site for a total of 12 man hours conducting bat maternity habitat surveys. During this time the entire site was visited and tree tops were searched for stick nests. No stick nests were observed. Only 1 raptor species was observed during site visits. On May 30, 2009 a Red-shouldered Hawk was seen flying north from the property. A recorded Red-shouldered Hawk call was broadcast but there was no response. Later on June 30, 2009 a Red-shouldered Hawk was heard calling along the north boundary, possibly the same bird as seen earlier or its mate.

Red-shouldered Hawks prefer to nest in moist woodlands, along rivers and on the borders of swamps (Harrison, 1975). The study area supports a dry Sugar Maple community and does not meet the characteristics of a preferred Red-shouldered Hawk nesting habitat. There is, however, a wetland along a tributary to the York River about 500 m north of the property and this is where the hawk that was observed along the north boundary may have been nesting.

Therefore, there is no woodland raptor nesting habitat on or within 120 m of the site.

6.6.2.2 Amphibian Breeding Habitat – woodlands

The SWHCS describes significant amphibian breeding habitat – woodlands as a pond or similar water body with a minimum diameter of 25 m or area of 500 sq m that is found within or

adjacent to a woodland. To confirm the pond as significant breeding habitat 1 of the listed salamander species must be present or 2 or more of the listed frog and toad species with a minimum of 20 individuals present.

There are 3 ponds on the property within the forested lands. One in the central area is circular, about 40 m diameter with an area of about 1256 sq. m. The other 2 are at the south-west edge of the site and are about 50 m x 30 m or about 1500 sq. m each. The 3 ponds on the site were visited on 3 evenings from April to June in 2009 and again in April 2010 to monitor amphibian breeding activity. A Blue-spotted Salamander egg mass was found in the central pond in 2009 and 20 - 30 Spring Peepers and 10 - 20 Wood Frogs were heard calling. In 2010 10 - 20 Spring Peepers were heard calling from the central pond. No frogs were heard calling from the ponds at the south-west edge of the site and no salamanders or evidence of salamanders were observed on any date. No amphibian calling was heard on adjacent lands within 120 m of the site, therefore, there is no amphibian breeding habitat within 120 m of the site. Later visits confirmed that water in central pond remained well into the summer months and that the hydroperiod was adequate for the maintenance of local frog populations.

The ponds all would meet the size requirements but only the central pond supported amphibian breeding. Therefore only the central pond could be considered significant. Two frog species were only confirmed in 2009 but the Wood Frog were likely present in 2010, just not documented. There was a maximum of 50 individual frogs, thus the 20 individuals required for significance would be achieved. The presence of the Blue-spotted Salamander egg mass would confirm presence of this species and qualify the central pond as a candidate significant wildlife habitat.

The "Natural Heritage Reference Manual" (OMNR, 2010) suggests that what constitutes significant wildlife habitat will vary across the province. In Section 9.3.1 it notes that wildlife habitat that is poorly represented in one area may be considered significant while the same habitat in another area where it is well represented may not be considered significant.

In Section 8.5.5 of the "SWHTG" OMNR (2000), it is noted that when assessing amphibian habitats, the greatest significance should be given to ponds that support a high diversity and number of amphibians as well as species of conservation concern.

The landscape in the area of the proposal has been described as controlled by bedrock topography (KBM, 2002). The low permeability of the granitic bedrock controls ground water flow by limiting infiltration creating many wetlands and lakes. These provide abundant breeding habitat for local amphibian populations.

While traveling to and from the site during evenings, the author was very aware of the abundant wetlands and amphibian breeding habitat as calling Spring Peepers could be heard from most roads. The numbers of Spring Peepers was Code 3 in many wetlands and the numbers of individuals calling was well beyond estimation. The presence of Spring Peepers was also likely a good indication of the breeding presence of other amphibian species. A riparian wetland about 300 - 500 m north of the site was visited in both 2009 and 2010 and the intense sound of so many Spring Peepers masked the calls of any Wood Frogs or other species that may have been calling.

Amphibian breeding habitat appears well represented in Faraday and neighbouring Townships. Compared with the pond in the central area of the site, there are many other ponds and wetlands supporting larger numbers of amphibians. The on site pond supports a minimum of 4 amphibian species but none are species of conservation concern and their numbers are low. Although a single egg mass of the Blue Salamander was found, no other salamander egg masses were observed on subsequent visits.

Therefore, the woodland amphibian breeding pond on the site should not be considered a significant wildlife habitat and there is no amphibian breeding habitat within 120 m of the site.

6.6.3 Habitats of Species of Conservation Concern - Special Concern and Rare Species

6.6.3.1 *Rhizocarpon oederi* – lichen – rare species S2S3

Rhizocarpon oederi is a lichen that grows in upland environments on exposed, sedimentary, siliceous rock that is enriched with iron (www.lichensmaritimes.org, 2016).

It has been identified in NHIC background information as occurring within the 1 sq km area around the property but it has not specifically been identified as occurring on the site. There are few exposed rock surfaces on the site because the site is entirely forested. The rock on the site is metamorphic and not sedimentary or siliceous (P. Gray, P. Geo., pers. com.). The property would, therefore, not provide suitable growing conditions for this rare lichen.

Therefore, there is no *Rhizocarpon oederi* significant wildlife habitat on or within 120 m of the site.

6.6.3.2 Common Nighthawk – Special Concern

Traditional Common Nighthawk habitat includes woodlands and consists of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Although the species also nests in cultivated fields, orchards, urban parks, mine tailings and along gravel roads and railways, they tend to occupy natural sites.

Common Nighthawks were reported in background information provided by the OBBA. Although there are woodlands on the property there are few open areas that have little or no vegetation. No Common Nighthawks were encountered during either early morning or evening avian surveys on or within 120 m of the site.

Therefore, there isn't any Common Nighthawk significant wildlife habitat on or within 120 m of the site.

6.6.3.3 Red-headed Woodpecker – Special Concern

The Red-headed Woodpecker lives in open woodlands and woodland edges. These areas typically have many dead trees, which the bird uses for nesting and perching.

Red-headed Woodpeckers were reported in OBBA background information for the 10 sq. km area in which the property is located. Although there is woodland edge on the eastern

boundary of the property, dead trees are minimal and no Red-headed Woodpeckers were encountered during avian surveys.

Therefore, there isn't any Red-headed Woodpecker significant wildlife habitat on or within 120 m of the site.

6.6.3.4. Eastern Wood-Pewee – Species of Concern

The Eastern Wood-Pewee is found in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests.

Eastern Wood-Pewees were reported in OBBA background information for the 10 sq km area in which the property is located. Eastern Wood Pewee were encountered during field surveys within the forest edge habitat along the east boundary of the site.

Therefore the woodlands on the eastern boundary on the property are Eastern Wood-Pewee significant wildlife habitat (Figure 2).

6.6.3.5 Louisiana Waterthrush – Special Concern

The Louisiana Waterthrush is usually found in steep, forested ravines with fast-flowing streams. Although it prefers to be near running water, especially clear, coldwater streams, it also less frequently inhabits heavily wooded, deciduous swamps having large pools of open water.

Louisiana Waterthrush were not reported in background information reviewed including that provided by the OBBA and NHIC. Although the site is forested there are no steep ravines, streams or deciduous swamps. No Louisiana Waterthrush were encountered during avian surveys,

Therefore, there isn't any Louisiana Waterthrush significant wildlife habitat on or within 120 m of the site.

6.6.3.6 Olive-sided Flycatcher – Special Concern

The Olive-sided Flycatcher is usually found along forest edges and openings. Its breeding habitat consists of coniferous or mixed forest adjacent to rivers or wetlands where it usually nests in coniferous trees.

Olive-sided Flycatchers were reported in OBBA background information for the 10 sq km area in which the property is located. No Olive-sided Flycatchers were encountered during field surveys. The only forest edge on the site is along the east boundary adjacent to the mill yard but this area and nowhere else on the site is close to a river or wetlands.

Therefore, there is no Olive-sided flycatcher significant wildlife habitat on or within 120 m of the site.

6.6.3.7 Wood Thrush – Special Concern

The Wood Thrush is usually found in mature deciduous and mixed (conifer-deciduous) forests. It prefers moist stands of trees with well developed undergrowth.

Wood Thrush were reported in OBBA background information for the 10 sq km area in which the property is located. No Wood Thrush were encountered during field surveys. Although the on site forest is deciduous and mature it is dry not moist. Because of a dense canopy the undergrowth is not well developed.

Therefore, there isn't any Wood Thrush significant wildlife habitat on or within 120 m of the site.

6.6.3.8 Golden-winged Warbler – Special Concern

The Golden-winged Warbler prefers to nest in areas of young shrubs close to mature forests. These are usually areas that have recently been disturbed by clearing for hydro right-of-ways and logged lands.

Golden-winged Warblers were reported in OBBA background information for the 10 sq km area in which the property is located. No Golden-winged Warblers were encountered during field surveys. Although the forest on site is mature there are no shrub areas that would offer suitable nesting habitat for Golden-winged Warblers. Adjacent lands are also forested except for the mill yard along the eastern boundary, but none of these lands would provide suitable nesting habitat for this warbler.

Therefore, there is no Golden-winged Warbler significant wildlife habitat on or within 120 m of the site.

6.6.3.9 Canada Warbler– Special Concern

The Canada Warbler breeds in a range of deciduous and coniferous woodlands, usually wet forest types with a well developed and dense shrub layer. Dense shrub and understory vegetation help conceal Canada Warbler nests that are usually located on or near the ground on mossy logs or roots.

Canada Warblers were reported in OBBA background information for the 10 sq km area in which the property is located. No Canada Warblers, however, were encountered during avian surveys. There are no wet forest communities or well developed shrub layers preferred by this species found on the property.

Therefore there isn't any Canada Warbler significant wildlife habitat on or within 120 m of the site.

6.6.3.10 Eastern Milksnake – Special Concern

The milksnake can be found in a range of habitats including rocky outcrops, fields and forest edges. It is often found in old farm fields and farm buildings where there is an abundance of mice. The Milksnake hibernates underground, in rotting logs or in the foundations of old buildings.

Eastern Milksnakes were reported in NHIC background information for the 1 sq km area in which the property is located. It was also reported in ORAA background information for north Hastings County. No milksnakes or any snakes were found during wildlife surveys on the site. The site is forested with no buildings, rocky outcrops or fields but there is a forest edge along the east boundary. The edge is next to the mill yard and there is limited vegetation to support prey populations.

Therefore, there is no Eastern Milksnake significant wildlife habitat on or within 120 m of the site.

6.6.3.11 Common Five-lined Skink – Species of Concern

The Five-lined Skink is found in open bedrock areas within forested areas. They prefer moist woodland openings and edges over dry habitats.

Five-lined Skinks were reported in ORAA background information for north Hastings County. No skinks were found during wildlife surveys on the site. The site is completely forested except for the eastern boundary. The site is upland and dry not moist. There are no open bedrock areas, clearings or other forest openings. The forest edges are adjacent to an active mill yard, sandy and dry.

Therefore, there isn't Common Five-lined Skink significant wildlife habitat on or within 120 m of the site.

6.6.3.12 Monarch – Species of Concern

Throughout their life cycle, Monarchs use three different types of habitat. Only the caterpillars feed on milkweed plants and they are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers.

Monarchs were reported in OBA background information for north Hastings County. A single Monarch was observed on the site on September 2, 2009 and it was considered to be migrating. Common Milkweed, the main plant that supports Monarch caterpillars, was found on the site but in scattered locations but only along the forest edge at the east boundary of the site. No evidence of Monarch use was found on the milkweed.

Therefore, there is no Monarch significant wildlife habitat on or within 120 m of the site.

6.6.4 Significant Wildlife Habitat Conclusion

The significant wildlife habitats with potential to be found on or within 120 m of the site have been discussed in detail in the previous Sections.

Only one significant wildlife habitat was found to occur and that is for the Eastern Wood Pewee.

6.6.5 Fish Habitat

There is no fish habitat on the site but there is fish habitat in the stream within 120 m south of the site (South Stream). Ground water flows are to the north-east and do not contribute to the South Stream (MTE, 2016).

Therefore, there will be no negative impacts to the quality and quantity of the ground water to the South Stream.

Surface water flows from the site will be altered by the proposed quarry (MTE, 2016). To ensure no negative impact a SWP facility will be designed to passively discharge to the south stream (See Section 8.2).

7.0 PROPOSED DEVELOPMENT

The natural heritage information contained in this report was used in developing the operational and site plans for this proposal. This section will provide a summary of the proposal to assist with natural environment impact assessment. For more specific details refer to the site plans prepared by MHBC Planning, Urban Design & Landscape Architecture that accompany this application.

The applicant is seeking an aggregate licence to operate a Category 2 Class A “Quarry Below Water” on about 33.3 ha within Lots 51 and 52, Concession WHR, Township of Faraday, County of Hastings (Figure 1). The proposed extraction area is 27.5 ha (Figure 2). The proposal is to extract material in 4 phases beginning on the east side of the site in Phase 1 (8.1 ha) and proceeding west along the north half of the site into Phase 2 (5.1 ha), then moving south into Phase 3 (8.0 ha) and finally moving east into Phase 4 (6.3 ha). Overburden will initially be stored at the east and west areas of phase 1 until used for rehabilitation. As the operation moves into Phase 2, overburden will be stored where space is available or used for rehabilitation in Phase 1. Access will be located along the east boundary of the site. A haul road will pass through the existing mill yard to Mill Street which will provide a connection to Highway 62. The existing south entrance to the mill yard will be used for shipping.

Since extraction will be below the water table, ground water and precipitation collecting on the quarry floor will be diverted along a constructed water course through Phase 1 and 2 lands to a storm water management (SWM) facility in the east boundary area to keep the operation in the dry. Collected waters will then infiltrate or during high flow periods be passively discharged through a controlled outlet to the “South Stream”. Each phase of the quarry will be excavated and graded so that excess water will be diverted to the SWM facility. Although the operation will be below water there will not be a “lake” formed nor will a “lake” remain after the quarry operations are completed. See the MTE (2016) hydrogeological report for a more detailed explanation.

There will be a 30 m setback along the north portion of the west boundary adjacent to the township road and a residentially zoned property. There will be a 15 m setback along the south portion of the west boundary, along the south boundary, along the south-east boundary and along the west portion of the north boundary. There will be no setback along the east portion of the north boundary because it is adjacent to lands owned by the proponent and under an existing aggregate licence. A separate ARA amendment application will be submitted to reduce the 15 m setback on the adjacent Class B pit.

Rehabilitation will be progressive. Phase 1 (8.1 ha) will be planted with a grass/legume mixture and will be used for log storage for the adjacent mill. The other 3 Phases (19.7 ha) or about 71% of the site will be restored to a natural forest system. Initially Red Pine will be planted and then natural succession will assist in restoring the site over time. A woodland pond/wetland will be placed adjacent to the constructed water course in the Phase 2 area. Rehabilitated areas will be maximized and disturbed areas minimized during the life of the operation.

8.0 LEVEL 2 – IMPACT ASSESSMENT AND MITIGATION

All mitigation recommended in this section will be included on the site plans that accompany the application and are listed in Appendix 4.

8.1 Significant Wildlife Habitat

8.1.1 General Wildlife Habitat Impact and Mitigation

The site is currently forested and supports a forest ecosystem. The impact of land clearing for extraction will be a short term disruption. The forest community will be restored on the site in the long term by replanting native forest species and by natural regeneration. The quarrying process will create new vertical habitats that do not currently exist on the site. With the forest restoration and these new vertical surfaces, the habitats on the site will become more diverse in the long term.

To protect and minimize the impacts to wildlife habitat on the site the following general mitigation is recommended;

- To minimize the short term impact of forest removal on wildlife, vegetation clearing will be conducted in phases over time in anticipation of future extraction needs.
- No removal of vegetation or clearing of land will occur from April 1 to July 31.
- A shallow pond/wetland will be created on the quarry floor during Phase 2 rehabilitation.
- The site will be graded to create a watercourse and SMW facility that will also benefit wildlife.

8.1.2 Significant Wildlife Habitat - Eastern Wood-Pewee Habitat

The Eastern Wood-Pewee prefers to nest and forage in forest edge habitats. Most of the site is forested and the only edge occurs along the east boundary where this species was found. As the quarry develops and lands are cleared more forest edge will be created over time, thereby increasing potential Eastern Wood-Pewee habitat as well.

- To ensure compliance with Provincial Planning Policy (2014) the mitigation described under “General Wildlife Management”, Section 8.1.1, will protect Eastern Wood-Pewee habitats during the critical nesting and brood rearing periods.

Therefore, there will be no negative impacts to significant Eastern Wood-Pewee habitat.

8.2 Fish Habitat

There is no surface water or fish habitat on the site. There is, however, a permanent stream flowing within 120 m south-east of the proposed quarry site (“South Stream”) which flows through the Freymond Lumber Ltd. mill yard.

Ground water flows as determined by MTE (2016) are to the west, north and north-east and do not contribute to the stream.

During the quarry operation, surface and ground water will be collected in a SWM facility. The collected water will then be allowed to infiltrate to be added to the existing shallow ground water table or, during periods of high flow, surface water will passively discharge to the “South Stream” through an emergency outflow. MTE (2016) predicts that the SWM facility will increase flows in the South Stream by 7.8 %. Because the changes to flow are small no negative impacts to the quantity or temperature of water in the stream are expected. The SWM facility will also treat water leaving the site and will be subject to MOECC approval. The quality of the ground and surface water leaving the site will, therefore, be required to meet Provincial standards.

The mitigation and monitoring program recommended in the Hydrogeological report (MTE, 2016) will ensure that there will be no negative impacts to the quality and quantity of water flowing from the site, therefore there will be no negative impacts to fish or fish habitat.

9.0 REHABILITATION

All rehabilitation is described in detail on the site plans that are included as part of the licence application.

The site will be progressively rehabilitated. Rehabilitation has been designed to include the following:

- The quarry floor will be contoured using on-site soils and designed with a watercourse to convey water to the proposed SWM facility located along the eastern boundary of the site;
- The quarry floor in Phase 1 will be vegetated with a grass / legume mixture and will be used to store logs from the Freymond Lumber business;
- The quarry floor in Phases 2, 3 and 4 will be planted with Red Pine to create a forested condition;
- A shallow amphibian pond/wetland will be developed adjacent to the proposed watercourse on the quarry floor in Phase 2;
- Talus slopes will be created at the base of the quarry faces by backfilling 2:1 side slopes with on-site material. These slopes will be planted with Red Pine and native shrubs. Logs, stumps and rocks will be placed among the plantings to increase habitat diversity;

- Adjacent to the proposed amphibian pond/wetland on the quarry floor in Phase 2 and adjacent to the SWM facility located along the eastern boundary of the site several Barn Swallow nesting structures and bat boxes will be installed;

The rehabilitation plan developed for the site will ensure that a variety of habitats will occur, thus increasing biodiversity of the site. The plan will also ensure that ecological functions of the site will be restored in the long term.

10.0 CONCLUSIONS

This report provides Level 1 and 2 natural environment technical information, impact assessment and mitigation to accompany Aggregate Resources Act and Planning Act applications being submitted by Freymond Lumber Ltd. for a property located in the Lots 51 and 52, Concession WHR, Township of Faraday, County of Hastings.

No Provincially significant wetlands, habitats of endangered or threatened species, or significant Areas of Natural and Scientific Interest (ANSIs) are found on or within 120 m of the site. Significant wildlife habitats as outlined in OMNRF SWHCS (2015) that would potentially occur on the site were discussed and only habitat for Eastern Wood-Pewee was considered to be found on or within 120 m of the property. Mitigation is recommended to ensure that there will be no negative impacts to local wildlife populations by minimizing the amount of the lands cleared at one time, timing land clearing to avoid breeding seasons and restoring a forest community as quickly as possible. Although no significant amphibian breeding habitats were considered to be present, the development of a SWM facility and a shallow pond/wetland on the rehabilitated quarry floor of Phase 2 will provide future amphibian habitats and water for other wildlife. No fish habitat is found on the site but fish habitat is found within 120 m south of the site and water leaving the site could impact fish habitats as far away as the York River. Mitigation and a monitoring plan proposed in the Hydrogeological report (MTE, 2016) will ensure that there will be no negative impact to surface or ground water leaving the site and therefore there will be no negative impact to fish or fish habitats.

Progressive rehabilitation is proposed to restore the site to a forest ecosystem and forest habitats in the long term. The new vertical cliff and talus habitats created by the quarry operation will combine with the rehabilitated forest community to create more diverse habitats for plants and wildlife. Restored areas will be maximized and disturbed areas minimized during the life of the quarry operation. The planting of native tree seedlings and the natural colonization by trees and shrubs will initially create open, early successional habitats that are preferred by many wildlife species. Both a pond/wetland that will be developed in Phase 2 and the SWM facility will provide water for wildlife and breeding habitat for amphibians on the rehabilitated site. It is also proposed that Barn Swallow (threatened species) and bat (endangered species) structures be erected near the created pond/wetland and the SWM facility to encourage these species. Therefore, the long term ecological functions will be restored and potentially enhanced.

The proposal, therefore, meets the test of OMNR Policy A. R. 2.01.07 License Applications: Natural Environment Report Standards March 15, 2006 that no existing natural feature will be negatively impacted by the proposal. The proposal also meets the test and the intent of the 2014

Provincial Policy Statement Natural Heritage Policy 2.1.2 “The diversity and connectivity of natural features in an area, and the long-term *ecological functions* and biodiversity of *natural heritage systems*, should be maintained, restored or, where possible, improved, recognizing linkages between and among *natural heritage features and areas, surface water features and ground water features*.

Respectively submitted

Robin Craig BSc., MSc.
Certified Wildlife Biologist

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APPENDIX 1: VEGETATION SPECIES LIST

<u>TREES</u>			
<u>Common Name</u>	<u>Scientific Name</u>	<u>G Rank*</u>	<u>S Rank*</u>
<u>CONIFEROUS TREES</u>			
<u>PINOPSIDA</u>			
<u>CYPRESS FAMILY</u>			
<u>CUPRESSACEAE</u>			
Eastern White Cedar	<i>Thuja occidentalis</i>	G5	S5
<u>PINE FAMILY</u>			
<u>PINACEAE</u>			
Balsam Fir	<i>Abies balsamea</i>	G5	S5
Red Pine	<i>Pinus resinosa</i>	G5	S5
Eastern White Pine	<i>Pinus strobus</i>	G5	S5
Eastern Hemlock	<i>Tsuga canadensis</i>	G5	S5
<u>DECIDUOUS TREES</u>			
<u>MAGNOLIOPSIDA</u>			
<u>MAPLE FAMILY</u>			
<u>ACERACEAE</u>			
Striped Maple	<i>Acer pensylvanicum</i>	G5	S5
Sugar Maple	<i>Acer saccharum</i>	G5T5	S5
<u>BIRCH FAMILY</u>			
<u>BETULACEAE</u>			
Speckled Alder	<i>Alnus incana</i>	G5T5	S5
Yellow Birch	<i>Betula alleghaniensis</i>	G5	S5
White Birch	<i>Betula papyrifera</i>	G5	S5
Ironwood	<i>Ostrya virginiana</i>	G5	S5
<u>BEAN FAMILY</u>			
<u>FABACEAE</u>			
Black Locust	<i>Robinia pseudo-acacia</i>	G5	SNA
<u>BEECH FAMILY</u>			
<u>FAGACEAE</u>			
American Beech	<i>Fagus grandifolia</i>	G5	S5
Red Oak	<i>Quercus rubra</i>	G5	S5
<u>ROSE FAMILY</u>			
<u>ROSACEAE</u>			
Choke Cherry	<i>Prunus virginiana</i>	G5	S5
<u>WILLOW FAMILY</u>			
<u>SALICACEAE</u>			
Balsam Poplar	<i>Populus balsamifera</i>	G5	S5
Large-tooth Aspen	<i>Populus grandidentata</i>	G5	S5
Trembling Aspen	<i>Populus tremuloides</i>	G5	S5

<u>SHRUBS AND VINES</u>			
<u>Common Name</u>	<u>Scientific Name</u>	<u>G Rank</u>	<u>S Rank</u>
<u>FLOWERING SHRUBS & VINES</u>			
<u>MAGNOLIOPSIDA</u>			
<u>HONEYSUCKLE FAMILY</u>			
<u>CAPRIFOLIACEAE</u>			
Fly Honeysuckle	<i>Lonicera canadensis</i>	G5	S5
Maple-leaved Viburnum	<i>Viburnum acerfolium</i>	G5	S5
Common Hobblebush	<i>Viburnum alnifolium</i>	G5	S5

SHRUBS AND VINES			
<u>Common Name</u>	<u>Scientific Name</u>	<u>G Rank</u>	<u>S Rank</u>
<u>DOGWOOD FAMILY</u>	<u>CORNACEAE</u>		
Red Osier Dogwood	<i>Cornus stolonifera</i>	G5	S5
<u>GOOSEBERRY FAMILY</u>	<u>GROSSULARIACEAE</u>		
Prickly Gooseberry	<i>Ribes cynosbati</i>	G5	S5
Smooth Gooseberry	<i>Ribes hirtellum</i>	G5	S5
<u>ROSE FAMILY</u>	<u>ROSACEAE</u>		
Red Raspberry	<i>Rubus idaeus</i>	G5T	S5
White-flowering Raspberry	<i>Rubus parviflorus</i>	G5	S4
<u>WILLOW FAMILY</u>	<u>SALIACEAE</u>		
Slender Willow	<i>Salix petiolaris</i>	G4	S5
<u>NIGHTSHADE FAMILY</u>	<u>SOLANACEAE</u>		
Climbing Nightshade	<i>Solanum dulcamara</i>	G?	SNA
<u>CARRION-FLOWER FAMILY</u>	<u>SMILCACEAE</u>		
Herbaceous Carrion-flower	<i>Smilax herbacea</i>	G5	S4
<u>MEZEREUM FAMILY</u>	<u>THYMELAECEAE</u>		
Leatherwood	<i>Dirca palustris</i>	G4	S4?
<u>GRAPE FAMILY</u>	<u>VITACEAE</u>		
Inserted Virginia Creeper	<i>Parthenocissus inserta</i>	G5	S5

OTHER VASCULAR PLANTS			
<u>Common Name</u>	<u>Scientific Name</u>	<u>G Rank</u>	<u>S Rank</u>
<u>FERNS & ALLIES</u>	<u>PTERIDOPHYTA</u>		
<u>BRACKEN FERN FAMILY</u>	<u>DENNSTAEDITIACEAE</u>		
Eastern Bracken Fern	<i>Pteridium aquilinum</i>	G5	S5
<u>WOOD FERN FAMILY</u>	<u>DRYOPTERIDACEAE</u>		
Northern Lady Fern	<i>Athyrium filix-femina</i>	G5T5	S5
Spinulose Wood Fern	<i>Dryopteris carthusiana</i>	G5	S5
Crested Shield Fern	<i>Dryopteris cristata</i>	G5	S5
Marginal Shield Fern	<i>Dryopteris marginalis</i>	G5	S5
Oak Fern	<i>Gymnocarpium dryopteris</i>	G5	S5
Ostrich Fern	<i>Matteuccia struthiopteris</i>	G5	S5
Sensitive Fern	<i>Onoclea sensibilis</i>	G5	S5
Christmas Fern	<i>Polystichum acrosticoides</i>	G5	S5
<u>HORSETAIL</u>	<u>EQUISETACEAE</u>		
Field Horsetail	<i>Equisetum arvense</i>	G5	S5
<u>ROYAL FERN FAMILY</u>	<u>OSMUNDACEAE</u>		
Interrupted Fern	<i>Osmunda claytoniana</i>	G5	S5
Royal Fern	<i>Osmunda regalis</i>	G5T	S5

OTHER VASCULAR PLANTS			
<u>Common Name</u>	<u>Scientific Name</u>	<u>G Rank</u>	<u>S Rank</u>
<u>POLYPODY FAMILY</u>	<u>POLPODIACEAE</u>		
Rock Polypody	<i>Polypodium virginianum</i>	G5	S5
<u>MAIDENHAIR FAMILY</u>	<u>PTERIDACEAE</u>		
Northern Maidenhair Fern	<i>Adiantum pedatum</i>	G5	S5
Silvery Spleenwort	<i>Deparia acrostichoides</i>	G5	S4
Northern Beech Fern	<i>Thelypteris connectilis</i>	G5	S5
Marsh Fern	<i>Thelypteris palustris</i>	G5	S5
New York Fern	<i>Thelypteris noveboracensis</i>	G5	S5
<u>GRASSES, LILIES AND ORCHIDS</u>	<u>LILIOPSIDA</u>		
<u>ARUM FAMILY</u>	<u>ARACEAE</u>		
Small Jack-in-the-pulpit	<i>Arisaema triphyllum</i>	G5T5	S5
<u>SEDGE FAMILY</u>	<u>CYPERACEAE</u>		
Drooping Wood Sedge	<i>Carex arctata</i>	G5	S5
Bebb's Sedge	<i>Carex bebbii</i>	G5	S5
Woodland Sedge	<i>Carex blanda</i>	G5	S5
Brownish Sedge	<i>Carex brunnescens</i>	G5	S5
Common Beech Sedge	<i>Carex communis</i>	G5	S5
Fringed Sedge	<i>Carex crinita</i>	G5	S5
Dewey's Sedge	<i>Carex deweyana</i>	G5	S5
Northern Sedge	<i>Carex deflexa</i>	G5	S5
Graceful Sedge	<i>Carex gracillima</i>	G5	S5
Gray's Sedge	<i>Carex grayi</i>	G4	S4
Bladder Sedge	<i>Carex intumescens</i>	G5	S5
Bristle-stalked Sedge	<i>Carex leptalea</i>	G5T?	S5
Distant Sedge	<i>Carex lucorum</i>	G4	S4
Hop Sedge	<i>Carex lupulina</i>	G5	S5
Long-stalked Sedge	<i>Carex pedunculata</i>	G5	S5
Pennsylvania Sedge	<i>Carex pensylvanica</i>	G5	S5
Radiate Sedge	<i>Carex radiata</i>	G4	S5
Retorse Sedge	<i>Carex retrorsa</i>	G5	S5
Stellate Sedge	<i>Carex rosea</i>	G5	S5
Pointed Broom Sedge	<i>Carex scoparia</i>	G5	S5
Burreed Sedge	<i>Carex sparganioides</i>	G5	S5
Long-beaked Sedge	<i>Carex sprengeii</i>	G5?	S5
Blunt Broom Sedge	<i>Carex tribuloides</i>	G5	S4S5
Three-fruited Sedge	<i>Carex trisperma</i>	G5T	S5
Beaked Sedge	<i>Carex utriculata</i>	G5	S5
Fox Sedge	<i>Carex vulpinoidea</i>	G5	S5
Dark-green Bulrush	<i>Scirpus atrovirens</i>	G5?	S5
Wool-grass	<i>Scirpus cyperinus</i>	G5	S5

OTHER VASCULAR PLANTS			
<u>Common Name</u>	<u>Scientific Name</u>	<u>G Rank</u>	<u>S Rank</u>
<u>IRIS FAMILY</u>		<u>IRIDACEAE</u>	
Little Blue-eyed-grass	<i>Sisyrinchium montanum</i>	G5	S5
<u>RUSH FAMILY</u>		<u>JUNCACEAE</u>	
Soft Rush	<i>Juncus effusus</i>	G5	S5
Path Rush	<i>Juncus tenuis</i>	G5	S5
<u>LILY FAMILY</u>		<u>LILIACEAE</u>	
Bluebead Lily	<i>Clintonia borealis</i>	G5	S5
Yellow Adder's-tongue	<i>Erythronium americanum</i>	G5T5	S5
Wild Lily-of-the-valley	<i>Maianthemum canadense</i>	G5	S5
Hairy Solomon's Seal	<i>Polygonatum pubescens</i>	G5	S5
Rose Twisted-stalk	<i>Streptopus lanceolatus</i>	G5	S5
White Trillium	<i>Trillium grandiflorum</i>	G5	S5
Large-flowered Bellwort	<i>Uvularia grandiflora</i>	G5	S5
<u>ORCHID FAMILY</u>		<u>ORCHIDACEAE</u>	
Common Helleborine	<i>Epipactis helleborine</i>	G?	SNA
<u>GRASS FAMILY</u>		<u>POACEAE</u>	
Red-top	<i>Agrostis gigantea</i>	G4G5	SNA
Bearded Short-husk	<i>Brachyelytrum erectum</i>	G5	S4S5
Wood Chess	<i>Bromus ciliatus</i>	G5	S5
Awnless Brome	<i>Bromus inermis</i>	G4G5T?	SNA
Canada Blue-joint	<i>Calamagrostis canadensis</i>	G5	S5
Northern Reed Grass	<i>Calamagrostis stricta</i>	G5T5	S5
Broad-leaved Reed Grass	<i>Cinna latifolia</i>	G5	S5
Orchard Grass	<i>Dactylis glomerata</i>	G?	SNA
Common Hairgrass	<i>Deschampsia flexuosa</i>	G5	S5
Common Barnyard Grass	<i>Echinochloa crusgalli</i>	G?	SNA
Quack Grass	<i>Elymus repens</i>	G?	SNA
Red Fescue	<i>Festuca rubra</i>	G5T4	S5
Fowl Manna Grass	<i>Glyceria striata</i>	G5	S5
Wood Millet	<i>Milium effusum</i>	G5	S4S5
Rough-leaved Rice Grass	<i>Oryzopsis asperfolia</i>	G5	S5
Northern Panic Grass	<i>Panicum boreale</i>	G5	S4
Witch Grass	<i>Panicum capillare</i>	G5	S5
Reed Canary Grass	<i>Phalaris arundinacea</i>	G5	S5
Common Timothy	<i>Phleum pratense</i>	G?	SNA
Common Reed	<i>Phragmites australis</i>	G5	S5
Canada Blue Grass	<i>Poa compressa</i>	G?	S5
Wood Blue Grass	<i>Poa nemoralis</i>	G5	SNA
Bushy pasture Spear Grass	<i>Poa salutensis</i>	G5?	S4
Kentucky Bluegrass	<i>Poa pratensis</i>	G5T	S5
False Melic Grass	<i>Schizachne purpurascens</i>	G5T?	S5

OTHER VASCULAR PLANTS			
<u>Common Name</u>	<u>Scientific Name</u>	<u>G Rank</u>	<u>S Rank</u>
Green Foxtail	<i>Setaria viridis</i>	G?	SNA
<u>CATTAIL FAMILY</u>	<u>TYPHACEAE</u>		
Common Cattail	<i>Typha latifolia</i>	G5	S5
<u>TYPICAL FLOWERING PLANTS</u>	<u>MAGNOLIOPSIDA</u>		
<u>AMARANTH FAMILY</u>	<u>AMARANTHACEAE</u>		
Redroot Pigweed	<i>Amaranthus retroflexus</i>	G?	SNA
<u>CARROT FAMILY</u>	<u>APIACEAE</u>		
Wild Carrot	<i>Daucus carota</i>	G?	SNA
Fragrant Water-parsnip	<i>Sium suave</i>	G5	S5
<u>DOGBANE FAMILY</u>	<u>APOCYNACEAE</u>		
Spreading Dogbane	<i>Apocynum androsaemifolium</i>	G5	S5
<u>GINSENG FAMILY</u>	<u>ARALIACEAE</u>		
Wild Sarsaparilla	<i>Aralia nudicaulis</i>	G5	S5
<u>MILKWEED FAMILY</u>	<u>ASCLEPIADACEAE</u>		
Common Milkweed	<i>Asclepias syriaca</i>	G5	S5
<u>ASTER FAMILY</u>	<u>ASTERACEAE</u>		
Common Yarrow	<i>Achillea millefolium</i>	G5T?	SNA
Common Ragweed	<i>Ambrosia artemisiifolia</i>	G5	S5
Pearly Everlasting	<i>Anaphalis margaritacea</i>	G5	S5
Common Burdock	<i>Arctium minus</i>	G?T?	SNA
Panicled Aster	<i>Aster lanceolatus</i>	G5T?	S5
Purple-stemmed Aster	<i>Aster puniceus</i>	G5T?	S5
Flat-top White Aster	<i>Aster umbellatus</i>	G5T?	S5
Nodding Beggar-ticks	<i>Bidens cernua</i>	G5	S5
Bull Thistle	<i>Cirsium vulgare</i>	G5	SNA
Horseweed	<i>Conyza canadensis</i>	G5	S5
Lance-leaved Tickseed	<i>Coreopsis lanceolata</i>	G5	S4?
Philadelphia Fleabane	<i>Erigeron philadelphicus</i>	G5T?	S5
Large-leaved Aster	<i>Eurybia macrophylla</i>	G5	S5
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	G5	S5
Orange Hawkweed	<i>Hieracium aurantiacum</i>	G?	SNA
Yellow Hawkweed	<i>Hieracium caespitosum</i>	-	SNA
Ox-eye Daisy	<i>Leucanthemum vulgare</i>	G5	SNA
White Rattlesnake-root	<i>Prenanthes alba</i>	G5	S5
Canada Goldenrod	<i>Solidago canadensis</i>	G5	S5
Hairy Goldenrod	<i>Solidago hispida</i>	G5T?	S5
Gray Goldenrod	<i>Solidago nemoralis</i>	G5T?	S5
Rough Goldenrod	<i>Solidago rugosa</i>	G5?	S5
Lindley's Aster	<i>Symphotrichum ciliolatum</i>	G5	S5
Heart-leaved Aster	<i>Symphotrichum cordifolium</i>	G5	S5

OTHER VASCULAR PLANTS			
<u>Common Name</u>	<u>Scientific Name</u>	<u>G Rank</u>	<u>S Rank</u>
Common Dandelion	<i>Taraxacum officinale</i>	G5	SNA
Coltsfoot	<i>Tussilago farfara</i>	G?	SNA
<u>TOUCH-ME-NOT FAMILY</u>	<u>BALSAMINACEAE</u>		
Spotted Touch-me-not	<i>Impatiens capensis</i>	G5	S5
<u>BARBERRY FAMILY</u>	<u>BERBERIDACEAE</u>		
Blue Cohosh	<i>Caulophyllum thalictroides</i>	G4G5	S5
<u>BORAGE FAMILY</u>	<u>BORAGINACEAE</u>		
Viper's Bugloss	<i>Echium vulgare</i>	G?	SNA
<u>MUSTARD FAMILY</u>	<u>BRASSICACEAE</u>		
Tower Mustard	<i>Arabis glabra</i>	G5	S5
<u>BELLFLOWER FAMILY</u>	<u>CAMPANULACEAE</u>		
Creeping Bellflower	<i>Campanula rapunculoides</i>	G?	SNA
<u>HONEYSUCKLE FAMILY</u>	<u>CAPRIFOLIACEAE</u>		
Pale-spiked Lobelia	<i>Lobelia spicata</i>	G5	S4
<u>PINK FAMILY</u>	<u>CARYOPHYLLACEAE</u>		
Mouse-eared Chickweed	<i>Cerastium fontanum</i>	G?	SNA
Bladder Campion	<i>Silene vulgaris</i>	G?	SNA
<u>GOOSEFOOT FAMILY</u>	<u>CHEONPODIACEAE</u>		
Lamb's Quarters	<i>Chenopodium album</i>	G5T5	SNA
Maple-leaved Goosefoot	<i>Chenopodium simplex</i>	G5	S5
<u>MORNING-GLORY FAMILY</u>	<u>CONVOLVULACEAE</u>		
Hedge Bindweed	<i>Calystegia sepium</i>	G4G5T?	SU
<u>DOGWOOD FAMILY</u>	<u>CORNACEAE</u>		
Bunchberry	<i>Cornus canadensis</i>	G5	S5
<u>PEA FAMILY</u>	<u>FABACEAE</u>		
Bird's-foot Trefoil	<i>Lotus corniculatus</i>	G?	SNA
Black Medick	<i>Medicago lupulina</i>	G?	SNA
Alfalfa	<i>Medicago sativa</i>	G?T?	SNA
White Sweet-clover	<i>Melilotus alba</i>	G?	SNA
Yellow Clover	<i>Trifolium aureum</i>	G?	SNA
Alsike Clover	<i>Trifolium hybridum</i>	-	SNA
Red Clover	<i>Trifolium pratense</i>	G?	SNA
White Clover	<i>Trifolium repens</i>	G?	SNA
Cow Vetch	<i>Vicia cracca</i>	G?	SNA
<u>GERANIUM FAMILY</u>	<u>GERANIACEAE</u>		
Bicknell's Crane's-bill	<i>Geranium bicknellii</i>	G5	S4
<u>WATER MILFOIL FAMILY</u>	<u>HALORAGACEAE</u>		
Marsh Mermaid-weed	<i>Proserpinaca palustris</i>	G5	S4

OTHER VASCULAR PLANTS			
<u>Common Name</u>	<u>Scientific Name</u>	<u>G Rank</u>	<u>S Rank</u>
<u>ST. JOHN'S-WORT FAMILY</u>	<u>HYPERICAEAE</u>		
Common St. John's-wort	<i>Hypericum perforatum</i>	G?	SNA
<u>MINT FAMILY</u>	<u>LAMIACEAE</u>		
Wild Basil	<i>Clinopodium vulgare</i>	G?	S5
Northern Water-horehound	<i>Lycopus uniflorus</i>	G5	S5
Field Mint	<i>Mentha arvensis</i>	-	S5
Heal-all	<i>Prunella vulgaris</i>	G5	S5
<u>HEATH FAMILY</u>	<u>MONOTROPACEAE</u>	G5	S5
Indian-pipe	<i>Monotropa uniflora</i>	G5	S5
<u>EVENING-PRIMROSE FAMILY</u>	<u>ONAGRACEAE</u>		
Smaller Enchanter's Nightshade	<i>Circaea alpina</i>	G5	S5
Enchanter's Nightshade	<i>Circea lutetiana</i>	G5	S5
Northern Willow-herb	<i>Epilobium ciliatum</i>	G5T?	S5
Common Evening-primrose	<i>Oenothera biennis</i>	G5	S5
<u>WOOD-SORREL FAMILY</u>	<u>OXALIDACEAE</u>		
Upright Yellow Wood-sorrel	<i>Oxalis stricta</i>	G5	S5
<u>PLANTAIN FAMILY</u>	<u>PLANTAGINACEAE</u>		
Narrow-leaved Plantain	<i>Plantago lanceolata</i>	G5	SNA
Common Plantain	<i>Plantago major</i>	G5	SNA
<u>MILKWORT FAMILY</u>	<u>POLYGALACEAE</u>		
Gay Wings	<i>Polygala pauciflora</i>	G5	S5
<u>BUCKWHEAT FAMILY</u>	<u>POLYGONACEAE</u>		
Buckwheat	<i>Fagopyrum esculentum</i>	G?	SNA
Fringed Black Bindweed	<i>Polygonum cilinode</i>	G5	S5
Pale Smartweed	<i>Polygonum lapathifolium</i>	G5	S5
Sheep Sorrel	<i>Rumex acetosella</i>	G5T	SNA
Curled Dock	<i>Rumex crispus</i>	G?	SNA
Broad-leaved Dock	<i>Rumex obtusifolia</i>	G5	SNA
<u>PRIMROSE FAMILY</u>	<u>PRIMULACEAE</u>		
Starflower	<i>Trientalis borealis</i>	G5T?	S5
<u>CROWFOOT FAMILY</u>	<u>RANUNCULACEAE</u>		
White Baneberry	<i>Actaea pachypoda</i>	G5	S5
Red Baneberry	<i>Actaea rubra</i>	G5	S5
Sharp-lobed Hepatica	<i>Anemone acutiloba</i>	G5	S5
Canada Anemone	<i>Anemone canadensis</i>	G5	S5
Thimbleweed	<i>Anemone cylindrica</i>	G5	S4
Wild Columbine	<i>Aquilegia canadensis</i>	G5	S5
Kidney-leaf Buttercup	<i>Ranunculus abortivus</i>	G5	S5
Tall Buttercup	<i>Ranunculus acris</i>	G5	SNA

OTHER VASCULAR PLANTS			
<u>Common Name</u>	<u>Scientific Name</u>	<u>G Rank</u>	<u>S Rank</u>
Tall Meadow-rue	<i>Thalictrum pubescens</i>	G5	S5
<u>ROSE FAMILY</u>	<u>ROSACEAE</u>		
Agrimony	<i>Agrimonia gryposepala</i>	G5	S5
Virginia Strawberry	<i>Fragaria virginiana</i>	G5	S5
Yellow Avens	<i>Geum aleppicum</i>	G5	S5
Rough Cinquefoil	<i>Potentilla norvegica</i>	G5T?	SNA
Rough-fruited Cinquefoil	<i>Potentilla recta</i>	G?	SNA
Barren Strawberry	<i>Waldsteinia frgarioides</i>	G5	S5
<u>MADDER FAMILY</u>	<u>RUBIACEAE</u>		
Cleavers	<i>Galium aparine</i>	G5	S5
Fragrant Bedstraw	<i>Galium triflorum</i>	G5	S5
Creeping Partridge-berry	<i>Mitchella repens</i>	G5	S5
<u>SAXIFRAGE FAMILY</u>	<u>SAXIFRAGACEAE</u>		
Naked Bishop's-cap	<i>Mitella nuda</i>	G5	S5
False Miterwort	<i>Tiarella cordifolia</i>	G5	S5
<u>FIGWORT FAMILY</u>	<u>SCROPHULARIACEAE</u>		
Canada Wood-betony	<i>Pedicularis canadensis</i>	G5	S5
Common Mullein	<i>Verbascum thapsus</i>	G5	S5
American Brooklime	<i>Veronica americana</i>	G5	S5
Common Speedwell	<i>Veronica officinalis</i>	G5	S5
<u>VIOLET FAMILY</u>	<u>VIOLACEAE</u>		
Dog Violet	<i>Viola conspersa</i>	G5	S5
Downy Yellow Violet	<i>Viola pubescens</i>	G5	S5

*** GRANK Definition**

G4 Common; usually more than 100 occurrences; usually not susceptible to immediate threats.

G5 Very common; demonstrably secure under present conditions.

T denotes that the rank applies to a subspecies variety.

G? Unranked, or if following a ranking, rank is tentatively assigned (e.g. G5?).

***SRANK Definition**

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.

SNA Not Applicable; A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

APPENDIX 2: WILDLIFE SPECIES LIST

<u>MAMMALS</u>				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Evidence</u> *	<u>G Rank</u> **	<u>S Rank</u> ***
<u>SHREWS AND MOLES</u>		<u>INSECTIVORA</u>		
Star-nosed Mole	<i>Condylura cristata</i>	SI/burrows	G5	S5
<u>RODENTS</u>		<u>RODENTIA</u>		
Eastern Chipmunk	<i>Tamias striatus</i>	OB	G5	S5
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	OB	G5	S5
Porcupine	<i>Erethizon dorsatum</i>	SI/droppings	G5	S5
<u>CARNIVORES</u>		<u>CARNIVORA</u>		
Coyote	<i>Canis latrans</i>	TK	G5	S5
Black Bear	<i>Ursus americanus</i>	SI/reported	G5	S5
<u>DEER AND BISON</u>		<u>ARTIODACTYLA</u>		
White-tailed Deer	<i>Odocoileus virginianus</i>	TK	G5	S5

<u>HERPETILES</u>				
<u>Amphibians</u>				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Evidence</u>	<u>G Rank</u>	<u>S Rank</u>
<u>MOLE SALAMANDERS</u>		<u>AMBYSTOMATIDAE</u>		
Blue Spotted Salamander	<i>Ambystoma laterale</i>	SI/egg mass	G5	S4
<u>TREEFROGS</u>		<u>HYLIDAE</u>		
Eastern Gray Tree Frog	<i>Hyla versicolor</i>	V	G5	S5
Northern Spring Peeper	<i>Pseudacris crucifer</i>	V	G5	S5
<u>TRUE FROGS</u>		<u>RANIDAE</u>		
Wood Frog	<i>Rana sylvatica</i>	V	G5	S5

<u>FISH</u>				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Evidence</u>	<u>G Rank</u>	<u>S Rank</u>
<u>STICKLEBACKS</u>		<u>GASTEROSTIDAE</u>		
Brook Stickleback	<i>Culaea inconstans</i>	OB	G5	S5

<u>BUTTERFLIES</u>				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Evidence/ Status</u>	<u>G Rank</u>	<u>S Rank</u>
<u>SKIPPERS</u>	<u>HESPERIIDAE</u>			
European Skipper	<i>Thymelicus lineola</i>	OB	G5	SNA
<u>SWALLOWTAILS</u>	<u>PAPILIONIDAE</u>			
Canadian Tiger Swallowtail	<i>Papilio canadensis</i>	OB	G5	S5
<u>WHITES AND SULPHURS</u>	<u>PIERIDAE</u>			
Clouded Sulphur	<i>Colias philodice</i>	OB	G5	S5
Cabbage White	<i>Pieris rapae</i>	OB	G5	SNA
<u>BRUSHFOOTS</u>	<u>NYMPHALIDAE</u>			
Monarch	<i>Danaus plexippus</i>	OB/ Species of concern	G4	S2N,S4B
Mourning Cloak	<i>Nymphalis antiopa</i>	OB	G5	S5

<u>DRAGONFLIES</u>				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Wildlife Evidence</u>	<u>G Rank</u>	<u>S Rank</u>
<u>SPREADWINGS</u>	<u>LESTIDAE</u>			
Spotted Spreadwing	<i>Lestes congener</i>	OB	G5	S5
<u>DARNERS</u>	<u>AESHNIDAE</u>			
Common Green Darner	<i>Anax junius</i>	OB	G5	S5
<u>SKIMMERS</u>	<u>LIBELLULIDAE</u>			
Cherry-faced Meadowhawk	<i>Sympetrum internum</i>	OB	G5	S5

* Evidence Codes from Lee et al., 1998.

OB – observed, TK – tracks, SI – other signs (specify), VO – vocalization,

**** GRANK Definition**

G4 Common; usually more than 100 occurrences; usually not susceptible to immediate threats.

G5 Very common; demonstrably secure under present conditions.

***** SRANK Definition**

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.

SNA Not Applicable; A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

B Breeding migrants/vagrants N Non-breeding migrants/vagrants

S2S3N: Between 5 and 20 significant migratory concentration areas known (largely along the shorelines of the lower Great Lakes) but others may exist thus the rank range of S2S3. Only these migratory concentration areas are tracked.

BIRDS								
<u>Common Name</u>	<u>Scientific Name</u>	<u>Breeding Evidence *</u>				<u>At Risk Status</u>	<u>G Rank</u>	<u>S Rank</u>
		<u>Ob.</u>	<u>Po.</u>	<u>Pr.</u>	<u>Conf.</u>			
Red-shouldered Hawk	<i>Buteo lineatus</i>	X				-	G5	S4B
Ruffed Grouse	<i>Bonasa umbellus</i>		H			-	G5	S5
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>		H			-	G5	S5B
Northern Flicker	<i>Colaptes auratus</i>		H			-	G5	S5B
Downy Woodpecker	<i>Picoides pubescens</i>			T		-	G5	S5
Hairy woodpecker	<i>Picoides villosus</i>		H			-	G5	S5
Pileated Woodpecker	<i>Drycopus pileatus</i>		H			-	G5	S4S5
Eastern Phoebe	<i>Sayornis phoebe</i>		H			-	G5	S5B
Great Crested Flycatcher	<i>Myiarchus crinitus</i>			T		-	G5	S5B
Least Flycatcher	<i>Empidonax minimus</i>			T		-	G5	S4B
Eastern Wood Pewee	<i>Contopus virens</i>		H			Species of concern	G5	S5B
Black-billed Cuckoo	<i>Coccyzus americanus</i>		S			-	G5	S4B
Blue Jay	<i>Cyanocitta cristata</i>		H			-	G5	S5
Common Raven	<i>Corvus corax</i>		H			-	G5	S5
American Crow	<i>Corvus brachyrhynchos</i>		H			-	G5	S5B
Tree Swallow	<i>Tachycineta bicolor</i>		H			-	G5	S5B
Black Capped Chickadee	<i>Poecile carolinensis</i>			T		-	G5	S5
Red -breasted Nuthatch	<i>Sitta canadensis</i>		H			-	G5	S5B
White -breasted Nuthatch	<i>Sitta carolinensis</i>		H			-	G5	S5
Winter Wren	<i>Troglodytes troglodytes</i>			T		-	G5	S5B
American Robin	<i>Turdus migratorius</i>			T		-	G5	S5B
Hermit Thrush	<i>Catharus guttatus</i>			T		-	G5	S5B
Philadelphia Warbler	<i>Vireo philadelphicus</i>		H			-	G5	S5B
Red-eyed Vireo	<i>Vireo olivaceus</i>			T		-	G5	S5B
Nashville Warbler	<i>Vermivora ruficapilla</i>		H			-	G5	S5B
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>		H			-	G5	S5B
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>		H			-	G5	S5B

BIRDS								
<u>Common Name</u>	<u>Scientific Name</u>	<u>Breeding Evidence *</u>				<u>At Risk Status</u>	<u>G Rank</u>	<u>S Rank</u>
		<u>Ob.</u>	<u>Po.</u>	<u>Pr.</u>	<u>Conf.</u>			
Black-throated Green Warbler	<i>Dendroica virens</i>		S			-	G5	S5B
Yellow Rumped Warbler	<i>Dendroica coronata</i>		H			-	G5	S5B
American Redstart	<i>Setophaga ruticilla</i>		S			-	G5	S5B
Black and White Warbler	<i>Mniotilta varia</i>			T		-	G5	S5B
Ovenbird	<i>Seiurus aurocapillus</i>			T		-	G5	S5B
Northern Waterthrush	<i>Seiurus motacilla</i>		S			-	G5	S5B
Rose Breasted Grosbeak	<i>Pheucticus ludovicianus</i>		S			-	G5	S5B
Indigo Bunting	<i>Passerina cyanea</i>		S			-	G5	S5B
Chipping Sparrow	<i>Spizella passerina</i>		S			-	G5	S5B
White-throated Sparrow	<i>Zonotrichia albicollis</i>		S	T		-	G5	S5B
Song Sparrow	<i>Melospiza melodia</i>		S			-	G5	S5B

* Breeding Codes from Ontario Breeding Bird Atlas, 2001, 2003.

Ob. = Observed, X = species observed in its breeding season (no evidence of breeding). Presumed migrants not recorded.

Po. = Possible Breeding, H = species observed in its breeding season in suitable nesting habitat.

S = singing male present, or breeding calls heard, in its breeding season in suitable nesting habitat.

Pr. = Probable Breeding, T = permanent territory presumed through registration of territorial song on a least 2 days, a week or more apart, at the same place.

DD = distraction display or injury feigning. FY = recently fledged young or downy young, including young incapable of sustained flight.

Conf. = Confirmed Breeding, NE = nest containing egg(s)

* **GRANK Definition** G5 Very common; demonstrably secure under present conditions.

*** **SRANK Definition**

S4 Apparently secure; uncommon but not rare; some cause for long-term concern due to declines or other factors.

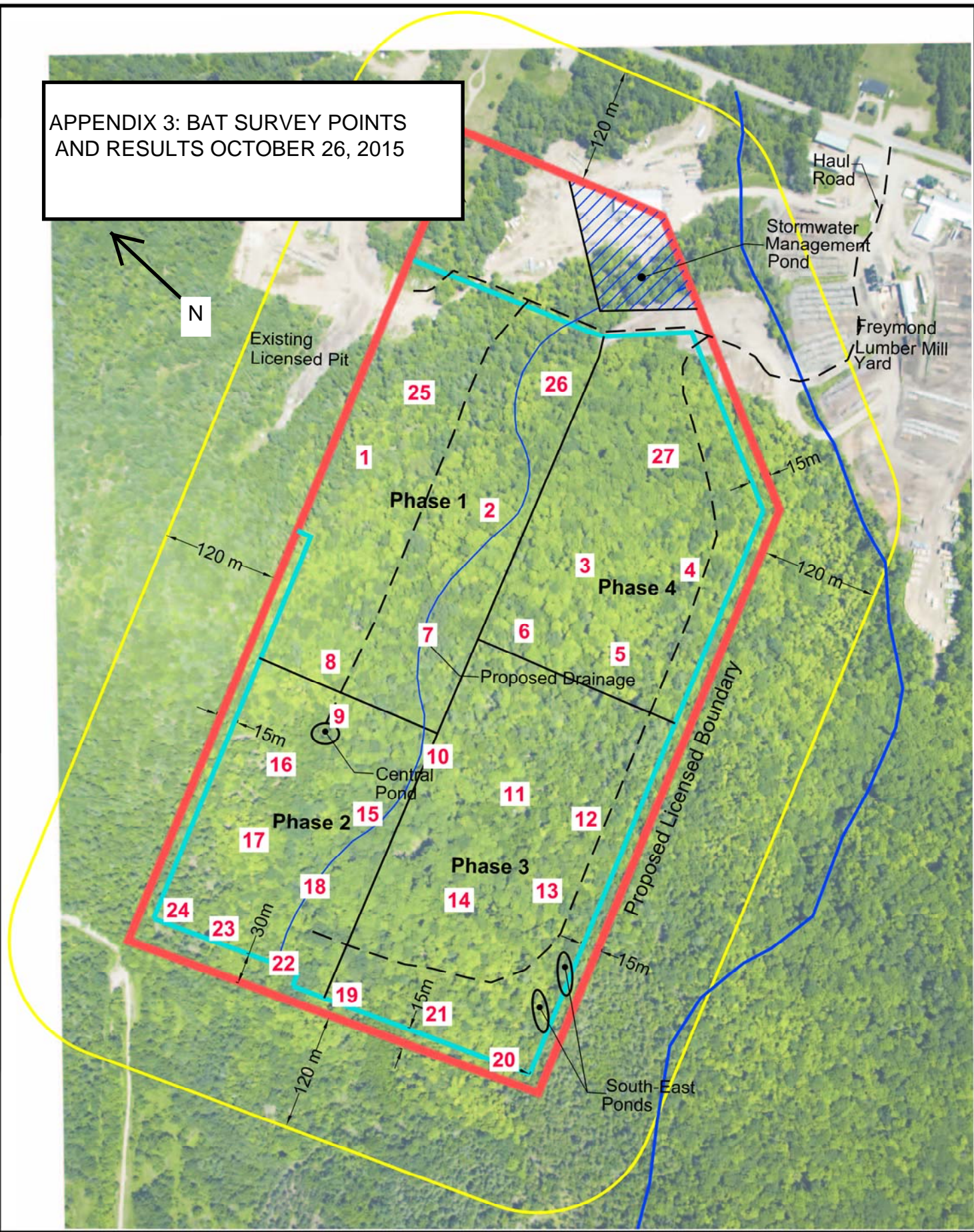
S5 Secure; common, widespread, and abundant in the nation or state/province.

S#S# Range Rank; A numeric range rank (e.g. S2S#) is used to indicate any range of uncertainty about the status of the species.

B Breeding migrants/vagrants N Non-breeding migrants/vagrants

S4B: Undoubtedly more than 100 breeding EOs of this widespread migratory species that is common in some years. Several to many protected EOs although the quality of these EOs is not known. Threats in Ontario are few and minor. Threats on the wintering grounds in Mexico are greater. Long-term trends not known.'

APPENDIX 3: BAT SURVEY POINTS AND RESULTS OCTOBER 26, 2015

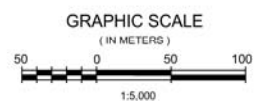


**Bat Maternity Habitat Survey Points
 Freymond Lumber Limited
 Part of Lots 51 and 52, Concession W.H.R.
 Township of Faraday**

Figure 3

Legend

- 23 Survey Point
- Proposed Licensed Boundary
- Proposed Extraction Limit
- Water Course



Results

Plot #	GPS Coordinates (18T)	Trees Species present	Understory Species Present	# Snags/Cavity Trees with dbh* > 25cm	Decay Class**	Description of Snag/Cavity Trees
1	276232 4991781	Sugar Maple, White Spruce, White Ash, Balsam fir	-	1 Snag	3	Yellow Birch, dbh = 30.0 cm, bark intact, limited loose bark, no cavities
2	276314 4991617	Sugar Maple, Ironwood, Balsam Fir	-	-	-	-
3	276314 4991578	Sugar Maple, American Beech, Balsam Fir	-	1 Snag	4	Sugar Maple, dbh = 30.6 cm, loose 25% bark, 1 cavity
4	276327 4991530	Sugar Maple, American Beech, Balsam Fir	-	1 Cavity tree	2	Sugar Maple, dbh = 35 cm, 1 live limb and 1 dead limb, bark gone from dead limb, 2 Pileated Woodpecker holes
5	276262 4991489	Sugar Maple, American Beech, Balsam Fir	Leatherwood	-	-	-
6	276233 4991536	American Beech, Sugar Maple, Ironwood, White Pine,	Leatherwood, Balsam fir and Red Oak saplings	1 Snag	4	American Beech, dbh = 36.3 cm, 2 cavities, bark intact, limited loose bark
7	276166 4991602	Sugar Maple, Red Oak, White Birch, Red Pine, Balsam Fir	-	-	-	-
8	276112 4991683	Sugar Maple, American Beech, Balsam Fir, Yellow Birch, White Birch	-	1 Snag	5	Balsam Fir, dbh = 30.6 cm, no cavities, limited loose bark
9	276047 4991635	Sugar Maple, White Ash, Balsam Fir, White Birch,	Leatherwood	-	-	-

10	276060 4991487	Sugar Maple, American Beech, Red Oak, Balsam Fir	-	1 Cavity Tree	2	Eastern White Cedar, 2 stems one dead and one living, dbh = 54.4 and 50.3 cm, 1 cavity
11	276081 4991487	Sugar Maple, American Beech, Balsam Fir, Eastern Hemlock	-	-	-	-
12	276112 4991412	Balsam Fir, Sugar Maple, American Beech, Ironwood, White Spruce, White Ash	-	-	-	-
13	276008 4991380	Sugar Maple, American Beech, White Ash, Balsam Fir	-	1 Snag	6	Sugar Maple, dbh = 27.4 cm, 75 % or bark intact and loose, no cavities
14	275988 4991453	Sugar Maple, American Beech	-	-	-	-
15	275970 4991532	Sugar Maple, American Beech	-	-	-	-
16	275948 4991609	White Birch, American Beech, Ironwood, White Spruce, White Ash	-	-	-	-
17	275847 4991584	Sugar Maple, White Ash, Balsam Fir, Ironwood	-	-	-	-
18	275849 4991508	Sugar Maple, White Ash, Balsam Fir, Ironwood	-	-	-	-
19	275842 4991410	Sugar Maple, Eastern hemlock, Balsam Fir, Yellow Birch, American Beech,	-	1 Snag	4	White Ash, dbh = 37.9 cm, woodpecker cavities present.

20	275850 4991335	Eastern Hemlock, American Beech, Balsam Fir, Sugar Maple	-		-	-
21	275824 4991417	American Beech, Yellow Birch, Balsam Fir, Sugar Maple	-	1 Snag 1 Snag	5 2	American Beech, dbh = 30.9 cm no cavities, 80 % bark Sugar Maple, 3 large trunks, 2 dead, 1 = dbh = 35.7 cm, 1 = dbh 61.5 cm 1 hollow, no other cavities.
22	275806 4991492	Sugar Maple, White Ash, American Beech, Ironwood, Red Oak	-	-	-	-
23	275796 4991562	White Ash, Sugar Maple, Balsam Fir, Ironwood		1 Snag	6	White Birch, dbh 29.9 cm, no cavities, 80 % bark
24	275764 4991615	Sugar Maple, Balsam Fir, Balsam Poplar,	-	-	-	-
25	276307 4991739	Balsam Fir, Sugar Maple, White Ash, Ironwood	-	-	-	-
26	276335 4991680	Sugar Maple, White Ash, Yellow Birch, Balsam Fir	-	-	-	-
27	276386 4991625	Sugar Maple, Red Oak, American Beech	-	-	-	-

*dbh = diameter at breast height **Decay class as presented in Watt and Caceres, 1999.

APPENDIX 4: PROPOSED MITIGATION

General Wildlife Habitat

- To minimize the short term impact of forest removal on wildlife, vegetation clearing will be conducted in phases over time in anticipation of future extraction needs.
- No removal of vegetation or clearing of land will occur from April 1 to July 31.
- A shallow pond/wetland will be created on the quarry floor during Phase 2 rehabilitation.
- The site will be graded to create a watercourse and SMW facility that will also benefit wildlife.

Significant Wildlife Habitat - Eastern Wood-Pewee Habitat

- The mitigation described above under “General Wildlife Management”, will protect Eastern Wood-Pewee habitats during the critical nesting and brood rearing periods.

Fish Habitat

- Implement the mitigation and monitoring program recommended in the MTE, Hydrogeological report (2016).

RESUME

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Qualifications and Training

- B.Sc. U. of Guelph, (1970)
- M.Sc., U. of Guelph, (1972)
- Certified Wildlife Biologist, The Wildlife Society (since 1979)
- Ontario Wetland Evaluation Training
- Aquatic Habitat Inventory Training
- Wetland Restoration Training
- Larval Fish Identification Training
- Law Enforcement Training
- Ontario Municipal Board Training
- Negotiation Training
- Stresses and Management of Cold and Warmwater Fish communities Training
- First Nations Culture Training
- Fish Culture Training
- Fish and Wildlife Population Modeling
- Ecosystem Management
- Ecological Sustainability
- Waterfowl Identification and Management
- Provincial Planning Policies
- Federal Fisheries Act Habitat Policies
- Wildlife Management Area Planning
- St. John's Ambulance CPR/First Aid
- Ontario Health and Safety Act
- Butternut Health Assessor (#180)
- NHIC Sensitivity Training 2013
- Butternut Health Assessment Workshop 2013

2001-present Environmental Consultant

- Natural Environment Reports Technical Reports for aggregate licence and other planning applications
- species at risk surveys including Bobolink, Eastern Meadowlark, Eastern Whip-poor-will, bat maternity habitats, American Ginseng, Butternut health assessments and others.
- appeared at 5 Ontario Municipal Board hearings as an expert in natural heritage issues
- Ontario's Ambassador to Canada's Recreational Fisheries Award Program (Federal Department of Fisheries and Oceans)
- assembled wildlife/fisheries data for Severn Sound Remedial Action Plan (SSRAP) de-listing report
- contracts with Ducks Unlimited and private landowners, trade shows, pond advice and wetland boundaries
- Barrie Ducks Unlimited Fund Raising Committee (Past Chairman).

1999-2001 Provincial Community Fisheries and Wildlife Involvement Program (CFWIP) Coordinator

- chair of Provincial Committee that developed program policies and procedures and annually allocated \$1.0 million to support over 500 volunteer groups with resource projects
- developed procedures to ensure CFWIP followed revised Fisheries Act protocol and assisted with review of all OMNR programs to ensure adherence to new protocols

1998-1999 Resource Liaison Officer, Midhurst District OMNR

- facilitated agreements with multi-interest volunteer groups regarding operations of Copeland Forest and 4 Simcoe County Provincial Wildlife Areas (PWA's)
- facilitated agreements with Ducks Unlimited to operate OMNR dams at Tiny and Wye Marsh PWAs
- managed SSRAP riparian Habitat restoration project including supervising staff, budgeting, approving projects, technical guidance; more than 85 projects were completed, 65 km of stream buffers created and over \$2.0 million in work completed
- worked with First Nations regarding resource issues

1973-1998 OMNR Field Biologist, Niagara and Huronia/Midhurst Districts

- SSRAP planning team member from 1986 involved with identifying issues, developing remedial options and implementing actions
- Provincial CFWIP Committee member for Southern Ontario from 1992-1999
- provided resource input to multi-agency, water quality improvement and landowner funding committees such as NVCA Lands and Waters Committee and SSRAP Non Point Source Committee
- managed various resource inventory and data collection projects such as lake, stream and wetland inventories and angler and hunter surveys
- lead development of local OMNR Fisheries Management Plan, wildlife area management plans, fish and wildlife Land Use Guidelines
- lead team that developed a Controlled Deer Hunt for Simcoe and Dufferin Counties, 1978
- member of a multi-agency Provincial team that developed guidelines for harvesting aquatic plants in Ontario
- worked with City of Barrie to develop a "Fish Habitat Study" to guide waterfront development and protect fish habitat, one result was the building of "habitat" islands by the Barrie Rotary Club in 1998
- conducted radio telemetry studies of walleye and muskellunge to determine spawning habitats in the Nottawasga River and southern Georgian Bay
- conducted workshops for contractors about Provincial Work Permit system and fish habitat protection
- accepted as an expert witness in court cases and Ontario Municipal Board hearings in issues about fish habitat and wetlands
- published papers in peer reviewed journals about wildlife diseases and fish habitat
- trained OMNR and Conservation Authority staff about Fisheries Act fish habitat protocols and procedures
- member of team that trained senior OMNR managers about sustainable development
- member of team that developed a wetland restoration training course for Ontario Biologists