Samsung Renewable Energy Inc. and

Pattern Energy

6A Water Body Records Review Report

For

South Kent Wind Project

SOUTH KENT WIND PROJECT
Water Body Records Review Report

Prepared for:
Hatch Ltd.
4342 Queen Street, Suite 500
Niagara Falls, Ontario Canada L2E 7J7

Project No. 1184

Date: May 2012

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

SOUTH KENT WIND PROJECT
Water Body Records Review Report

Project Team:

Staff	Role
Andrew G. Ryckman	Project Advisor
Tara Lessard	Project Manager/Biologist
Andrew E. Schiedel	Aquatic Biologist
Gina MacVeigh	Aquatic Biologist
Deanna Calhoun	Aquatic Biologist
Steve P.G. Burgin	Aquatic Biologist
Shawn W. MacDonald	GIS Technician

Report submitted on May 1, 2012

Andrew G. Ryckman

Head Office: 225 Labrador Drive, Waterloo, Ontario, N2K 4M8 **Tel:** (519) 725-2227 **Fax:** (519) 725-2575 **Web:** www.nrsi.on.ca **Email:** info@nrsi.on.ca

Water Body Records Review Report – Summary of Revisions from Layout 012 to Layout 020

Revisions to the Water Body Records Review Report were required based on modifications to the layout for the South Kent Wind Project (Layout 012 to Layout 020). These modifications included the removal of 6 proposed turbines, relocations of 39 proposed turbines (between 3m to 354m of their original locations), as well as changes to infrastructure, including access roads and cabling.

Revisions to the Water Body Records Review Report from Layout 012 to Layout 020 include:

- Four (4) out of the seven (7) waterbodies within the Baptiste Creek watershed are now located within the Project Area (compared to six (6) waterbodies that were located within the Project Area in Layout 012)
- Three (3) waterbodies within the Jeanette's Creek watershed are now located within the Project Area (compared to two (2) waterbodies that were located within the Project Area in Layout 012)
- Eleven (11) waterbodies within the McGregor Creek watershed are now located within the Project Area (compared to eight (8) waterbodies that were located within the Project Area in Layout 012)
- Graham Drain, a drain with historical records of Species at Risk, is now within 120m of proposed turbine no. P132
- Based on available DFO mapping, a total of 297 project components cross a waterbody (compared to 186 project components that crossed a waterbody in Layout 012)
- Based on mapping provided by the LTVCA, a total of 273 project components cross a waterbody (compared to 219 project components that crossed a waterbody in Layout 012)
- All references to aboveground and underground cabling were removed from the report, and were replaced with the word 'cabling' to allow for some flexibility during the construction phase of this project

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1.0 Introduction

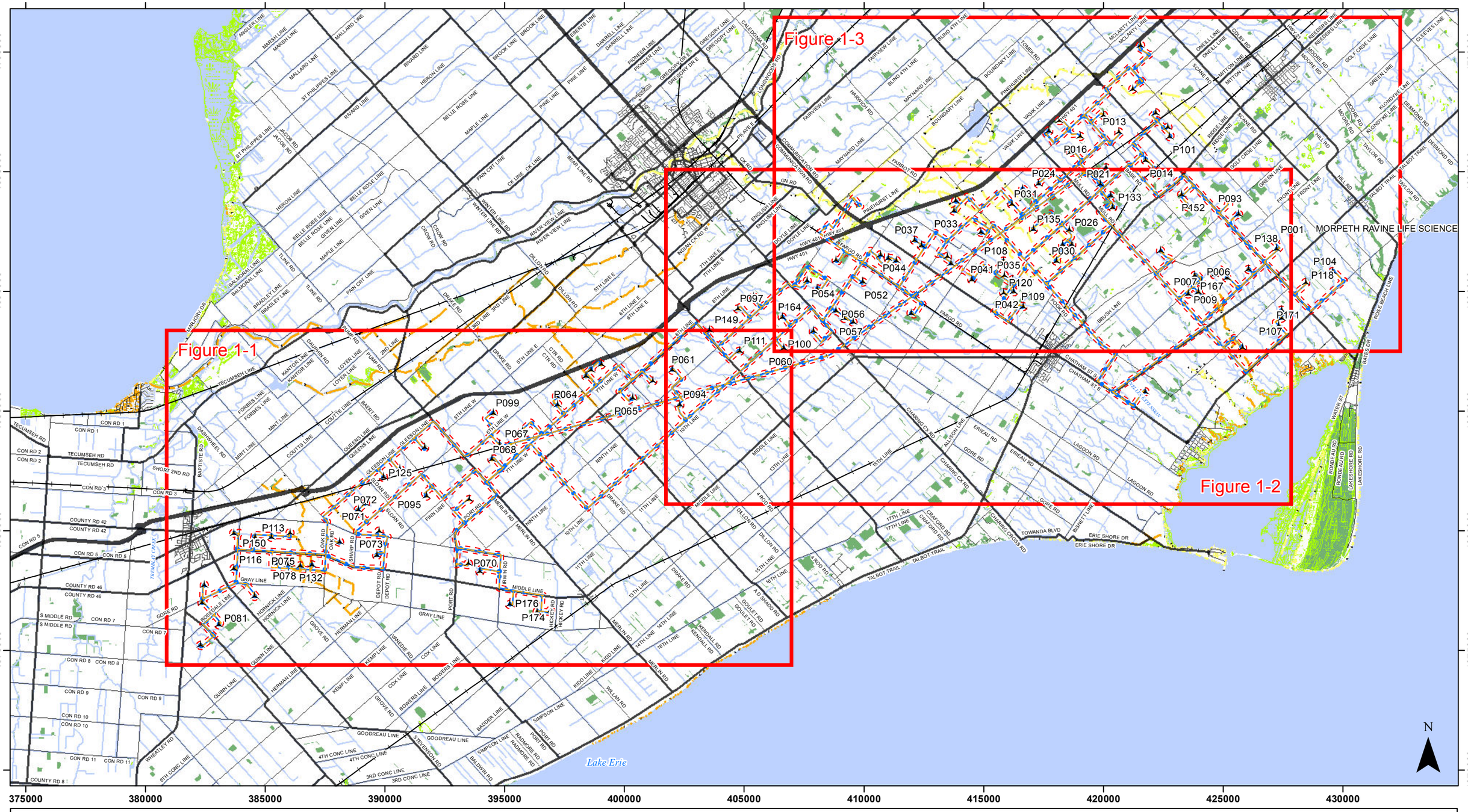
Natural Resource Solutions Inc. (NRSI) was retained in September 2010 by Hatch Ltd. ("Hatch"), on behalf of Samsung Renewable Energy Inc. and Pattern Energy (the "Proponent") to conduct a comprehensive water body records review in accordance with the Renewable Energy Approval (REA) regulations for a proposed 270 MW wind energy generating facility in the Regional Municipality of Chatham-Kent, Ontario.

The proposed South Kent Wind Project ("the Project") is located in the southern half of the Regional Municipality of Chatham-Kent between Highway 401 and the shoreline of Lake Erie, and Towns of Tilbury and Ridgetown from west to east, respectively. This wind energy generating facility is proposed to be 270 MW in size, consisting of approximately 124 operational wind proposed turbines, as well as supporting infrastructure, including access roads, and buried and/or overhead collection/transmission lines. The collection/transmission system will include an approximately 34 km, 230 kV transmission line and two (2) substations to enable step-up of the voltage from 34.5 kV to 230 kV to connect to Chatham Switching Station (SS). As identified in the Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals* under *Part V.0.1 of the Act*, (herein referred to as the REA Regulation) made under the *Environmental Protection Act* (*EPA*), the proposed layout of these features is collectively referred to as the 'Project location'.

In accordance with the REA Regulation, NRSI has conducted a thorough records review of available background resources to identify any water bodies within 120 m, or Lake Trout (*Salvelinus namaycush*) lakes within 300 m of the Project location. This assessment includes a detailed review of available background information from a variety of sources, including the Ministry of Natural Resources (MNR), Lower Thames Valley Conservation Authority (LTVCA), Department of Fisheries and Oceans (DFO), municipal files, existing biological studies, and other available online and/or published resources. This includes all areas within 120 m of proposed turbine blade tip as well as any areas proposed for construction or development activities, including access roads and distribution and transmission lines. The 'Project Area' is defined in this report as the area of 120 m surrounding the Project location. The proposed areas to be used for

development activities, including the 120 m Project Area, as identified by REA Regulation, are provided in Figures 1-1, 1-2, and 1-3.

The proposed Project development activities occur primarily within areas of active agricultural practices, including rotational crops of corn and soy beans. Other land uses, including hayfields and agricultural pasture, are also present within the general Project Area. The water bodies and associated aquatic vegetation found within the Project Area are typical of the southwestern Ontario landscape. An extensive system of drains have been established to facilitate land drainage for agricultural practices, and these drains represent a large proportion of the water bodies found throughout the Project Area, typically located alongside roads and agricultural fields. Additional permanent and intermittent streams are found as naturally vegetated tributaries that flow either northward to the Thames River and ultimately into Lake St. Clair or southward into Rondeau Bay or Lake Erie.



Key Map

South Kent Wind Project

Project Area and Aquatic Features

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

April 23, 2012. Project No: NRSI-1184.
UTM Zone 17, NAD 83 Scale: 1:150,000 (at 11x17")

Legend

- Project Area (April, 2012)
- Constructible Area
- Proposed Turbine (L020)
- Substation
- Cabling
- Access Road
- Railway
- Highway
- Primary Road
- Secondary Road
- Fish Species at Risk
- Mussel Species at Risk
- Watercourse
- Wooded Area
- Waterbody
- Wetland Area
- Mussel Species at Risk
- Fish Species at Risk

Path: X:\1184_ChathamKentWF\NRSI_1184_Fig1-1to1-3_ProjectArea_AquaticFeaturesKeyMap_150K_2012_04_23_SWM.mxd

Figure 1-1

South Kent Wind Project

Project Area and Aquatic Features

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 0.5 1 2 km

April 23, 2012. Project No: NRSI-1184.
UTM Zone 17, NAD 83 Scale: 1:65,000 (at 11x17")

Legend

- Project Area (April, 2012)
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Path: X:\1184_ChathamKentWF\NRSI_1184_Fig1-1to1-3_ProjectArea_AquaticFeatures_65K_2012_04_23_SWM.mxd

Figure 1-2

South Kent Wind Project

Project Area and Aquatic Features

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 0.5 1 2 km

April 23, 2012. Project No: NRSI-1184.
UTM Zone 17, NAD 83 Scale: 1:65,000 (at 11x17")

Legend

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- Fish Species at Risk

Path: X:\1184_ChathamKentWF\NRSI_1184_Fig1-1to1-3_ProjectArea_AquaticFeatures_65K_2012_04_23_SWM.mxd

Figure 1-3

South Kent Wind Project

Project Area and Aquatic Features

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

0 0.5 1 2 km

April 23, 2012. Project No: NRSI-1184.
UTM Zone 17, NAD 83 Scale: 1:65,000 (at 11x17")

Legend

- Project Area (April, 2012)
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Path: X:\1184_ChathamKentWF\NRSI_1184_Fig1-1to1-3_ProjectArea_AquaticFeatures_65K_2012_04_23_SWM.mxd

2.0 REA Requirements

The REA Regulation identifies the requirements for the development of renewable energy projects in Ontario. In accordance with the REA Regulation, the Project is classified as a Class 4 wind facility and is required to complete a REA submission.

Section 29 of the REA Regulation requires proponents of Class 4 wind projects to undertake a water assessment which involves a records review in order to identify whether the project location is:

1. in a water body;
2. within 120 meters of the average annual high water mark of a lake, other than a lake trout lake that is at or above development capacity;
3. within 300 meters of the average annual high water mark of a lake trout lake that is at or above development capacity;
4. within 120 meters of the average annual high water mark of a permanent or intermittent stream; or
5. within 120 meters of a seepage area.

Section 1.1 of the REA Regulation defines a "water body" as a lake, a permanent stream, an intermittent stream and a seepage area but does not include,

a) grassed waterways;
b) temporary channels for surface drainage, such as furrows or shallow channels that can be tilled and driven through;
c) rock chutes and spillways;
d) roadside ditches that do not contain a permanent or intermittent stream;
e) temporary ponded areas that are normally farmed;
f) dugout ponds; and
g) artificial bodies of water intended for storage, treatment or recirculation of runoff from animal yards, manure storage facilities and sites and outdoor confinement areas

Subsection 2 of Section 30 of the REA Regulation requires the proponent to prepare a report "setting out a summary of the records searched and the results of the analysis" (O. Reg. 359/09). This *Water Body Records Review Report* has been prepared Project to meet these requirements.

3.0 Terrain, Soils, and Drainage

3.1 Geology and Topography

The Project Area lies within the Essex Clay Plain and the Chatham Flats, two (2) physiographic subregions of the St. Clair Clay Plain which broadly includes the area adjoining Lake St. Clair in Essex and Kent Counties, and the St. Clair River in Lambton County (Chapman and Putnam 1984). The majority of the Project Area is comprised of beveled till plain, which covers the western half of the Project Area and extends southeast to the corner of Howard County. This region is described as having a fairly uniform topography with little relief. The northeast section is characterized by sand plain and pockets of terminal moraine that extend through the centre of the Project Area falling within Raleigh and Harwick Counties (LTVCA 2010). This area of terminal moraine roughly extends northeast from the Town of Blenheim to the Town of Ridgetown and experiences an elevation that is 50 to 100 feet higher than the surrounding landscape (Chapman and Putnam 1984).

3.2 Surface Deposits and Drainage

Drainage throughout the Project Area is generally characterized as poor due to the lack of relief in the physiology of the area. Clay soils characterize the region, and beds of silt that occur immediately south and east of the City of Chatham overlap with the Project Area (Chapman and Putnam 1984). As a result of the clay soils, most of the aquatic habitat in the Project Area is located in agricultural drains, which have been created to facilitate drainage of agricultural lands. The southern half of the Regional Municipality of Chatham-Kent exhibits a more varied soil regime consisting of Brookston clay, Beverly loam, fox gravelly loam, Haldimand loam and muck in the low lying areas near Rondeau Bay, making the soil highly fertile and good for horticulture (Chapman and Putnam 1984).

The Project Area is split by a drainage divide on which the Town of Blenheim is situated. The divide is oriented in a northeast to southwest direction, generally following the Talbot Trail (County Roads 3 and 19). Drainage to the northwest of the divide flows to the Lower Thames River via linear agricultural drains and larger south-north oriented

tributaries, which outlet into Lake St. Clair. Drainage to the southeast flows into Rondeau Bay and Lake Erie.

4.0 Ministry of Natural Resources

The Ministry of Natural Resources (MNR), as per the REA, was consulted during the conduct of the records review process for this Project. An e-mail was sent to the Aylmer District MNR office on October 5, 2010, requesting provision of any available fisheries information and/or fish collection records for the Project Area. Additional background information was requested for specific information regarding aquatic Species at Risk (SAR) that may be present (if available), as identified by the DFO redline mapping. Applicable fisheries and aquatic information was received from the Aylmer District MNR on November 1, 2010 (Jong 2010, pers.comm.).

In addition to direct consultation with MNR, several on-line resource databases were consulted by NRSI biologists, including the Biodiversity Explorer (OMNR 2010), Natural Heritage Information Centre (NHIC 2010), and natural feature mapping layers available through Land Information Ontario (LIO) (GNC 2010). The results of these queries and reviews are provided in the following sections.

4.1 Lakes

Following a detailed review of available background information, NRSI biologists have concluded that no lakes exist within the Project Area.

The presence of several isolated ponds used for agricultural and/or recreational purposes are expected throughout the Project Area, however they are not considered to be a “water body”, as stated in Section 1.1 of the REA Regulation even though they may provide aquatic habitat of varying quality. These isolated ponds are therefore considered of secondary importance and are not discussed within this report.

4.2 Lake Trout Lakes

NRSI biologists have reviewed available background information, including the Inland Ontario Lakes Designated for Lake Trout Management (OMNR 2006), and have confirmed that no lake trout lakes (natural or put-grow-take) are present within the Aylmer District of the MNR. Therefore, no lake trout lakes are present within the Project Area.

4.3 Permanent or Intermittent Streams

A comprehensive records review was conducted through a variety of sources including available mapping obtained from the MNR, but also through the LTVCA, Regional Municipality of Chatham-Kent, and DFO to identify permanent and intermittent watercourses within the Project Area. Drainage from the Project Area occurs through a series of permanent and intermittent watercourses, including Trembley Creek, Baptiste Creek, Jeanette's Creek, and McGregor Creek, all of which drain from the centre of the Project Area northward into the Thames River and/or Lake St. Clair. Several other watercourses located south of the drainage divide near the Town of Blenheim flow south into Rondeau Bay and ultimately Lake Erie. Descriptions of these watercourses are provided in the following subsections. Refer to Appendix II for a list of all drainage features existing within the boundaries of the Project Area. See Figures 1-1, 1-2, and 1-3 for exact locations of each of the drainage features within the Project Area. All of the major watercourses, and their associated tributaries, identified within the Project Area through background review have been described in more detail in the following sections.

4.3.1 Trembley Creek

Trembley Creek lies outside the boundaries of the Project Area west of the Town of Tilbury and drains a portion of the Project Area from Wheatley Road to Sloan Road. A number of drains flow into this including Thompson Paulus Drain, South Middle Road Drain, Branch Drain, Burgess Drain (East Branch and West Branch), Hornick Drain, Milner Drain, Deneau Drain, 7th Concession Road Drain and King and Whittle Drain. No occurrences of SAR are known to occur within the Trembley Creek drainage system.

4.3.2 Baptiste Creek

Baptiste Creek drains the northwest portion of the Project area into the Thames River and Lake St. Clair. Drains flowing into Baptiste Creek include Ivison Drain, Powell Drain, Gagner Drain, Norval Davis Drain, Davis Drain, Davidson Drain, Hope Drain, Struthers Drain, Graham Drain, Graham Extension Drain, Grant Drain, McLeod Drain and Ross Norry Drain.

Distribution mapping of SAR provided by the DFO indicates that the Baptiste Creek watershed, including portions of Baptiste Creek, Graham Drain, Hope Drain, Graham Extension, Struthers Drain, Kelly Drain, and Ross Norry Drain, has been designated as

having the potential for fish SAR (DFO 2010). As a result, any other drains with direct connectivity also have the potential to contain SAR, provided that individual species habitat requirements are met. Four (4) of these seven (7) water bodies are located within the boundaries of the Project Area.

4.3.3 Jeanette's Creek

Jeanette's Creek occurs outside the Project Area and flows from east to west, running parallel to the northern boundary. This large feature drains the central and northern portions of the Project Area into the lower Thames River at the outlet to Lake St. Clair. Drainage for Jeanette's Creek is facilitated by the Raleigh Plains Drain, which also occurs outside the boundaries of the Project Area. The higher order watercourses flowing northward into the Raleigh Plains Drain and Jeanette's Creek through the Project Area include Deary Drain, Finn and Cooper Drain, Lecoco Drain, Roy Dillon Drain, Ball Drew Drain, West Drain, Bell Drain, Carter Drain, Symon Drain, O'Rourke Drain, Shea Drain, Doyle Drain, Vail Drain, Horne Drain, Waddick Drain, Flook and Hinton Drain, and Locke Drain. Many of these smaller watercourses collectively drain the numerous agricultural drains dispersed across the northern portion of the Project Area.

The SAR distribution mapping provided by DFO indicates that portions of the Jeanette's Creek watershed, including portions of the Raleigh Plains Drain, Deary Drain, West Drain, Sampson Drain #2, Chase Drain, and Bell Drain, have been designated as having the potential for fish SAR (DFO 2010). As a result, any other drains with direct connectivity also have the potential to contain SAR providing the species habitat requirements are met. West Drain, Chase Drain and Raleigh Plains Drain are the only three (3) watercourses that are found within the boundaries of the Project Area.

4.3.4 McGregor Creek

McGregor Creek is located in the central region of the LTVCA and effectively drains the northeastern portion of the Project Area. It flows west and outlets into the Thames River in the City of Chatham. The majority of the watercourses located north of the Blenheim moraine drain into McGregor Creek. The most prominent of these watercourses include the Lucas Drain, Proctor Drain, Morrison Drain, Morrow Drain, Tedford Drain, McCallum Drain, Whitiebread Drain, Mull Drain, Nicholson Drain, Rushton Drain, Taff Creek Drain, McKoy Drain, West Drain Outlet, and Gilbert Tile Drain. These watercourses collectively

drain the majority of numerous agricultural drains dispersed across the north central and northeastern portions of the Project Area.

The SAR distribution mapping also indicates that the McGregor Creek drainage, including the Morrow Drain, Tedford Drain, McCallum Drain, McKoy Drain, West Drain Outlet, East Branch West Drain, West Drain, Ingram Drain, Gilbert Tile Drain, Edward Smith Drain, Gobert Drain, White Drain, Cyrus Huffman Drain, Campbell Drain, and three (3) unnamed drains have been designated as having the potential for mussel SAR (DFO 2010). As a result, other drains with direct connectivity to those mentioned above also have the potential to contain SAR, provided that suitable species habitat requirements are met. Eleven (11) of the drains stated above fall within the boundaries of the Project Area (see Figure 1-3). These watercourses collectively drain several agricultural watercourses found throughout the north central and northeastern portions of the Project Area.

4.3.5 Rondeau Bay and Lake Erie Tributary Drains

The Project Area south of the Blenheim moraine drain into Rondeau Bay and Lake Erie through a number of tributaries. The most prominent watercourses include Buchanan Drain, McDougall Drain, Neve Drain, Indian Creek, Coleman Drain, Holdaway Drain, Bates Bloomfield Drain, McLean Drain and Morpeth Creek. These watercourses collectively drain the southeastern portion of the Project Area.

The DFO SAR distribution mapping indicates that two (two) of these drains, Mill Creek (McDougall Drain) and Indian Creek (Clendening Drain), have been designated as having the potential for fish and mussel SAR (DFO 2010). McDougall Drain outlets into Rondeau Bay, southwest of Indian Creek, and has been designated as a mussel SAR waterbody. Likewise, Indian Creek is designated as potential fish SAR habitat. As a result, any other watercourses with direct connectivity to those mentioned above also have the potential to contain SAR, provided that suitable species habitat requirements are met. Indian Creek (Clendening Drain) stated above fall within the boundaries of the Project Area.

4.4 Seepage Areas

An in-depth review of background information provides no indication of seepage areas within the boundaries of the Project Area. Site investigations will be conducted by NRSI biologists to obtain additional information pertaining to seepage areas within the Project Area. The detailed results of the site investigation will be provided under separate cover in a report titled *South Kent Wind Project: Water Body Site Investigation Report* (NRSI 2012b).

4.5 Fish Community

A comprehensive review of fisheries data was conducted to provide an indication of the fish communities within and in the vicinity of the Project Area. Records from the Chatham Area MNR indicate the presence of 40 different fish species identified as likely to occur within the Project Area. These species are listed in Table 1. It should be noted that no indication of sampling effort or duration was available from these sources, however sampling was conducted through a variety of methods including electrofishing and seine netting. S-Rank and other status information were incorporated from the MNR (Chatham Area) and the Ontario Freshwater Fishes Life History Database (Eakins 2010).

Table 1. MNR Fish Species Records within the South Kent Wind Project

Scientific Name	Common Name	S-Rank	SARO Status	COSEWIC Status
Notropis buchanani	Ghost Shiner[2]	S2	NAR	NAR
Dorosoma cepedianum	Gizzard Shad[1,2]	S4	-	-
Amia calva	Bowfin[1]	S4	-	-
Carpiodes cyprinus	Quillback[1]	S4	-	-
Pomoxis annularis	White Crappie[1,2]	S4	-	-
Pomoxis nigromaculatus	Black Crappie[1,2]	S4	-	-
Morone chrysops	White Bass[1,2]	S4	-	-
Ictalurus punctatus	Channel Catfish[1,2]	S4	-	-
Noturus gyrinus	Tadpole Madtom[1,2]	S4	-	-
Lepomis cyanellus	Green Sunfish[1,2]	S4	NAR	NAR
Notropis umbratilis	Redfin Shiner[1,2]	S4	NAR	NAR
Cyprinella spiloptera	Spotfin Shiner[1,2]	S4	-	-
Notropis stramineus	Sand Shiner[1]	S4	-	-
Ameiurus melas	Black Bullhead[1,2]	S4	-	-
Ameiurus natalis	Yellow Bullhead[1,2]	S4	-	-
Etheostoma microperca	Least Darter[1]	S4	NAR	NAR
Percina maculate	Blackside Darter[2]	S4	-	-
Fundulus diaphanous	Banded Killifish[1]	S5	NAR	NAR
Umbra limi	Central Mudminnow[1]	S5	-	-
Notropis atherinoides	Emerald Shiner[1]	S5	-	-
Notemigonus crysoleucas	Golden Shiner[1]	S5	-	-
Notropis volucellus	Mimic Shiner[1,2]	S5	-	-
Notropis cornutus	Common Shiner[1,2]	S5	-	-
Notropis hudsonius	Spottail Shiner[1]	S5	-	-
Micropterus salmoides	Largemouth Bass[1,2]	S5	-	-
Perca flavescens	Yellow Perch[1]	S5	-	-
Percina caprodes	Logperch[2]	S5	-	-
Ambloplites rupestris	Rock Bass[2]	S5	-	-
Esox lucius	Northern Pike[2]	S5	-	-
Lepomis gibbosus	Pumpkinseed[1,2]	S5	-	-
Lepomis macrochirus	Bluegill[1,2]	S5	-	-
Pimephales notatus	Bluntnose Minnow[1,2]	S5	NAR	NAR
Pimephales promelas	Fathead Minnow[1,2]	S5	-	-
Catostomus commersonii	White Sucker[1,2]	S5	-	-
Ameiurus nebulosus	Brown Bullhead[1,2]	S5	-	-
Etheostoma nigrum	Johnny Darter[1,2]	S5	-	-
Semotilus atromaculatus	Creek Chub[1,2]	S5	-	-
Carassius auratus	Goldfish[1]	SNA	-	-
Alosa pseudoharengus	Alewife[1,2]	SNA	-	-
Cyprinus carpio	Common Carp[1,2]	SNA	-	-

[1]OMNR Chatham Area (2007)
[2] OMNR Chatham Area (2009)

Provincial Rank (S-Rank)
S2: Imperilled
S3: Vulnerable
S4: Apparently Secure
S5: Secure
SNA: Not applicable

COSEWIC and MNR
NAR: Not at Risk

4.6 Species of Conservation Concern

Species of conservation concern include all species that have been designated as a Species of Special Concern according to the Species At Risk in Ontario (SARO), or have been given a provincial S-Rank of S1-S3, but does not included those that have been designated as either Endangered or Threatened within Ontario.

The S-Rank and status information provided through existing species records and background sources provided by MNR indicate that one (1) species of conservation concern, the ghost shiner (*Notropis buchanani*) has been confirmed in the vicinity of the Project Area. This species is further discussed in more detail in Section 10.1.

Records reviewed from the NHIC and Biodiversity Explorer identified an additional four (4) aquatic (fish) species of conservation concern that have been documented within the reference squares overlapping the Project Area (refer to Tables 5 and 6). The reference squares reviewed for the purposes of this records review included a total of 11 reference squares, each 10 km x 10 km in size (17LG86, 17LG87, 17LG97, 17LG98, 17MG07, 17MG08, 17MG09, 17MG18, 17MG19, 17MG28, and 17MG29). These records include several historic sightings prior to 1980 that are expected to represent historical populations that are unlikely to be present within the Project Area. The remaining two (2) current species (1980-2010) are Ghost Shiner and Warmouth (*Lepomis gulosus*). These species, and other species of conservation concern, are discussed in more detail in Section 9.0 of this report. The full list of species of conservation concern records obtained through the Biodiversity Explorer has been included in Appendix I of this report.

4.7 Species At Risk

Species At Risk (SAR) include those species that have been designated as Threatened or Endangered within the province of Ontario, and are therefore warranted protection under the *Endangered Species Act* (*ESA* 2007). Eleven (11) reference squares, each 10 km x 10 km in size (17LG86, 17LG87, 17LG97, 17LG98, 17MG07, 17MG08, 17MG09, 17MG18, 17MG19, 17MG28, and 17MG29) were reviewed for the identification of any aquatic SAR that may be present within the Project Area. The results of this query indicate that nine (9) aquatic SAR, representing four (4) fish and five (5) mussel species, have been documented within the vicinity of the Project Area.

Species at Risk (SAR) are protected under the *ESA* (2007) and are therefore not discussed in detail in this report. Section 9.0 provides a brief discussion on SAR with additional detail provided in a separate *Approval and Permitting Requirements Document* to be submitted at a later date.

5.0 Lower Thames Valley Conservation Authority

As outlined in Section 30(2) of the REA regulations, LTVCA was consulted as part of the studies conducted for the Project records review report. An e-mail, dated October 14, 2010, was sent to LTVCA to request any available background information for the Project Area. The majority of the available information relevant to the Project Area had been collected by NRSI as a result of several other projects that have already been examined in the LTVCA jurisdiction. Most of this information relates to aquatic resources, including drain classifications, fish species, and SAR occurrences.

As of the date of this report, no further information has been provided by the LTVCA specific to the Project Area.

5.1 Fish Community

Records reviewed from the LTVCA indicate the presence of thirty-nine (39) different fish species have been identified as likely occurring within the Project Area. Several of these species coincide with the species records obtained from other background sources, including the local MNR office. These species are listed in Table 2. It should be noted that no indication of sampling effort or duration was available from these sources, however sampling was conducted through a variety methods which included electrofishing and seine netting. Provincial S-Rank and other status designation information have been incorporated from LTVCA records and the Ontario Freshwater Fishes Life History Database (Eakins 2010).

Table 2. LTVCA Fish Species Records within the South Kent Wind Project

Scientific Name	Common Name	S-Rank	SARO Status	COSEWIC Status
Notropis buchanani	Ghost Shiner	S2	NAR	NAR
Percina shumardi	River Darter	S3	NAR	NAR
Dorosoma cepedianum	Gizzard Shad	S4	-	-
Carpiodes cyprinus	Quillback	S4	-	-
Pomoxis annularis	White Crappie	S4	-	-
Pomoxis nigromaculatus	Black Crappie	S4	-	-
Ictiobus cyprinellus	Bigmouth Buffalo	S4	NAR	NAR
Morone chrysops	White Bass	S4	-	-
Noturus gyrinus	Tadpole Madtom	S4	-	-
Lepomis cyanellus	Green Sunfish	S4	NAR	NAR
Cyprinella spiloptera	Spotfin Shiner	S4	-	-
Luxilus chrysocephalus	Striped Shiner	S4	NAR	NAR
Ameiurus melas	Black Bullhead	S4	-	-
Ameiurus natalis	Yellow Bullhead	S4	-	-
Etheostoma microperca	Least Darter	S4	NAR	NAR
Percina maculate	Blackside Darter	S4	-	-
Etheostoma flabellare	Fantail Darter	S4	-	-
Lepisosteus osseus	Longnose Gar	S4	-	-
Noturus flavus	Stonecat	S4	-	-
Notropis atherinoides	Emerald Shiner	S5	-	-
Notropis cornutus	Common Shiner	S5	-	-
Micropterus salmoides	Largemouth Bass	S5	-	-
Perca flavescens	Yellow Perch	S5	-	-
Percina caprodes	Logperch	S5	-	-
Ambloplites rupestris	Rock Bass	S5	-	-
Esox lucius	Northern Pike	S5	-	-
Lepomis gibbosus	Pumpkinseed	S5	-	-
Lepomis macrochirus	Bluegill	S5	-	-
Pimephales notatus	Bluntnose Minnow	S5	NAR	NAR
Pimephales promelas	Fathead Minnow	S5	-	-
Catostomus commersonii	White Sucker	S5	-	-
Ameiurus nebulosus	Brown Bullhead	S5	-	-
Etheostoma nigrum	Johnny Darter	S5	-	-
Semotilus atromaculatus	Creek Chub	S5	-	-
Moxostoma spp.	Redhorse spp.	SNA	-	-
Morone americana	White Perch	SNA	-	-
Neogobius melanostomus	Round Goby	SNA		
Carassius auratus	Goldfish	SNA	-	-
Cyprinus carpio	Common Carp	SNA	-	-

Lower Thames Valley Conservation Authority (LTVCA 2009)

Provincial Rank (S-Rank)
S2: Imperilled
S3: Vulnerable
S4: Apparently Secure
S5: Secure
SNA: Not applicable

COSEWIC and MNR
NAR: Not at Risk

5.2 Species of Conservation Concern

Species of conservation concern include all species that have been designated as a Species of Special Concern according to SARO, or have been given a provincial S-Rank of S1-S3, but does not included those that have been designated as either Endangered or Threatened within Ontario.

The S-Rank and status information provided through existing species records and background sources provided by LTVCA indicate that two (2) species of conservation concern, Ghost Shiner and River Darter (*Percina shumardi*), have been collected near the Project Area. These two (2) species are discussed in more detail in Section 10.1.

5.3 Drain Classification

The class authorization system for agricultural drains in the southern Ontario region was reviewed by NRSI biologists in order to provide a classification for all watercourses within the Project Area. This system, developed by DFO in conjunction with Conservation Ontario, was developed in an attempt to "strike a balance between the need to protect fish habitat and the need to provide drainage to agricultural lands". Ultimately, it was intended to streamline the process of reviewing the effects of drain maintenance activities on fish habitat under the *Fisheries Act* (DFO 1999), however it also provides a means by which to characterize the sensitivity of a watercourse as it relates to fish and fish habitat. Table 3 provides watercourse requirements for each of the drain classifications.

Table 3. Drain Classification System as Developed by the Department of Fisheries and Oceans (DFO 1999).

Class	Flow	Temperature	Species Present
A	Permanent	Cold/Cool/Unknown	No trout or salmon
B	Permanent	Warm	Top predators (Bass, Pike, Muskie, Crappie)
C	Permanent	Warm	Baitfish
D	Permanent	Cold/Cool/Unknown	Trout and/or salmon
E	Permanent	Warm	Top predators (Bass, Pike, Muskie, Crappie)
F	Intermittent	Unknown	N/A

Sources: DFO (1999)

Drain classification mapping was obtained by NRSI on previous projects overlapping the current Project Area. Mapping for this area was made available through the LTVCA with

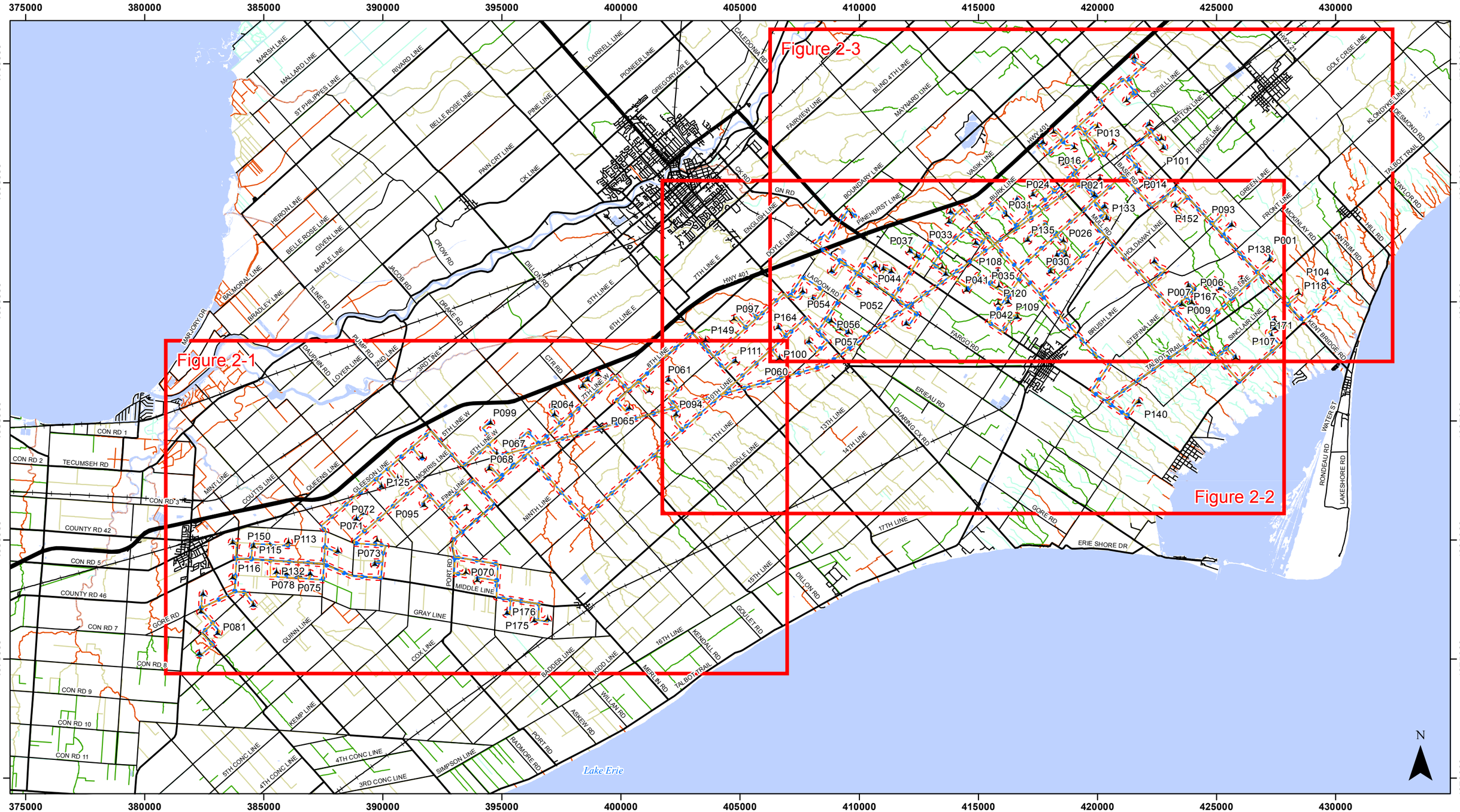
data supplied under License with the MNR and other members of the Ontario Geospatial Data Exchange (OGDE) (2009). A review of watercourses and their associated DFO drain classifications has been reviewed for an area roughly extending from the Town of Merlin to approximately 7 km east of the Town of Blenheim. Both reference points extend north to Highway 401 and south to Lake Erie and Rondeau Bay, respectively. Drain classifications can be seen on Figures 2-1, 2-2, and 2-3. Please note that differing labels were found for each drain when comparing DFO maps to that of the LTVCA. All drain labels used in these figures were adapted from LTVCA maps and labels found on the figures correspond to names listed in the table and in this report.

Drainage throughout the Project Area occurs in two (2) directions. Watercourses that are situated across the northern portion of the Project Area flow in a northwest direction into Lake St. Clair, while those situated southeast of Blenheim flow south into Lake Erie and Rondeau Bay. DFO drain classification mapping indicates that these watercourses throughout the Project Area are considered C-Class, F-Class, and E-Class, in addition to several unclassified watercourses (see Figures 2-1, 2-2, and 2-3).

Smaller tributaries and many of the interconnected agricultural drains situated from the Town of Blenheim towards the western extent of the Project Area include Class-C, generally characterized as warm water, and providing habitat for baitfish only; and Class-F watercourses (DFO 1999). Many of these drains appear as linear water features on maps indicating that they are either manmade drains or streams that have been dredged and straightened in order to facilitate drainage for agricultural purposes. The majority of these watercourses flow into higher level tributaries that drain north. Many of these higher order drains are designated as E-Class watercourses that provide permanent warm water habitat suitable for fish species that are considered to be top predators. E-Class drains present across the northern portion of the Project Area include Trembley Creek, Baptiste Creek, Finn and Cooper Drain, Kersey Drain, Symon Drain, Vail Drain, Horne Drain, and Waddick Drain. These flow into the Raleigh Plains Drain (Class-E), Jeanette's Creek (Class-E), and McGregor Creek (Class-E) located north of Hwy 401 largely outside the boundaries of the Project Area, ultimately connecting to the lower Thames River where it flows into Lake St. Clair (see Figures 2-1, 2-2, and 2-3).

In contrast to the many agricultural drains found across the western and central sections of the Project Area, the majority of tributaries occurring south of the Blenheim moraine do not appear as linear features. Drainage throughout this area is historically better due to the topography provided by the moraine. As a result constructed linear drains are not as prevalent here as they are throughout the western or central sections of the Project area where relief is lower. Watercourses across this area are generally considered to be Class-C, Class-F, or Unclassified. Class-E watercourses throughout this region include the McDougall Drain, McLean Drain, Ross Drain, and Morpeth Creek. These water bodies drain into Rondeau Bay and Lake Erie (see Figures 2-1, 2-2, and 2-3).

A full list of watercourses occurring in and around the Project are provided in Appendix II, including names, associated wind turbines and access roads, DFO drain classifications, and SAR designations.



Key Map

South Kent Wind Project

Drain Classifications

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

April 23, 2012. Project No: 1184.
UTM Zone 17, NAD 83 Scale: 1:150,000 (at 11x17")

Legend

- Project Area (April, 2012)
- Constructible Area
- Proposed Turbine (L020)
- Substation
- Cabling
- Access Road
- Highway
- Primary Road
- Secondary Road
- Railway
- Waterbody

DFO Drain Classifications

- Class C
- Class D
- Class E
- Class F
- Unclassified

Path: X:\1184_ChathamKentWF\NRSI_1184_Fig2-1to2-3_DrainClassificationKeyMap_150K_2012_04_23_SWM.mxd

Figure 2-1

South Kent Wind Project

Drain Classifications

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 0.5 1 2 km

April 23, 2012. Project No: 1184.
UTM Zone 17, NAD 83 Scale: 1:65,000 (at 11x17")

Legend

- Project Area (April, 2012)
- Constructible Area
- Proposed Turbine (L020)
- Substation
- Cabling
- Access Road
- Highway
- Primary Road
- Secondary Road
- Railway
- Waterbody

DFO Drain Classifications

- Class C
- Class D
- Class E
- Class F
- Unclassified

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Figure 2-2

South Kent Wind Project

Drain Classifications

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 0.5 1 2 km

April 23, 2012. Project No: 1184.
UTM Zone 17, NAD 83 Scale: 1:65,000 (at 11x17")

Legend

- Project Area (April, 2012)
- Constructible Area
- Proposed Turbine (L020)
- Substation
- Cabling
- Access Road
- Highway
- Primary Road
- Secondary Road
- Railway
- Waterbody

DFO Drain Classifications

- Class C
- Class D
- Class E
- Class F
- Unclassified

Path: X:\1184_ChathamKentWF\NRSI_1184_Fig2-1to2-3_DrainClassification_65K_2012_02_23_SWM.mxd

Figure 2-3

South Kent Wind Project

Drain Classifications

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 0.5 1 2 km

April 23, 2012. Project No: 1184.
UTM Zone 17, NAD 83 Scale: 1:65,000 (at 11x17")

Legend

- Project Area (April, 2012)
- Constructible Area
- Proposed Turbine (L020)
- Substation
- Cabling
- Access Road
- Highway
- Primary Road
- Secondary Road
- Railway
- Waterbody

DFO Drain Classifications

- Class C
- Class D
- Class E
- Class F
- Unclassified

Path: X:\1184_ChathamKentWF\NRSI_1184_Fig2-1to2-3_DrainClassification_65K_2012_02_23_SWM.mxd

6.0 Regional Municipality of Chatham-Kent

The Project is located entirely within the Regional Municipality of Chatham-Kent. The Municipality has prepared an Official Plan (2010) that contains natural heritage mapping, including the locations of watercourses throughout the entire municipality (Regional Municipality of Chatham-Kent 2010). Natural heritage mapping provided through the municipality was reviewed and cross-referenced with available mapping obtained through the DFO, MNR, and LTVCA in order to identify watercourses existing within the Project Area and to ensure that all watercourses within the Project Area were accounted for within this report. These figures have also been compared with available mapping of proposed development activities, including turbine locations, access roads, and crane paths. Additionally, natural heritage maps were reviewed to determine the relative size and potential importance of watercourses as they relate to drainage and fish habitat.

Section 4.4.2.2.6 of the Official Plan (2010) indicates that no fish habitat is identified on any of the natural heritage mapping for the aforementioned Township schedules to the Official Plan (2010), and therefore no fish habitat data has been extracted from this source. This section does, however, mention that a development application that includes land within or adjacent to fish habitat will require an Environmental Impact Statement (EIS) in accordance with Section 4.8 of the Official Plan (2010). Lands within 30 m of the seasonal high water mark are deemed to be adjacent lands.

When compared with other available mapping of aquatic resources, it was determined that mapping available through the Municipality does not provide any additional information on watercourses within the Project Area.

7.0 Other Background Sources

In addition to knowledgeable agencies and municipal files, NRSI biologists have reviewed several existing published and/or online resources to identify species that may be present within the vicinity of the Project Area. These resources include DFO, Ontario Freshwater Fishes Life History Database (Eakins 2010), and Freshwater Fishes of Canada (Scott and Crossman 1998).

7.1 Department of Fisheries and Oceans

The DFO SAR distribution mapping of fish and mussel species was obtained through the LTCVA website (DFO 2010) and identified two (2) additional fish species and two (2) additional mussel species. The lines on this mapping represent aquatic habitats with historic (pre-2000) and current records of these SAR. Green lines have been used to indicate fish SAR while yellow lines indicate mussel SAR. These lines have been used to signify the following:

1. Threatened, Endangered, and Extirpated species that are listed on Schedule 1 of the *Species At Risk Act* (SARA);
2. Threatened and Endangered species that will be listed on Schedule 1 of the SARA within 1 year;
3. Species designated as Special Concern.

The mapping for the Project Area shows the historic occurrences of fish and mussel SAR throughout watercourses within the boundaries and in the vicinity of the Project Area (see Figures 1-1, 1- 2, and 1-3). Fish species of conservation concern and SAR occurrences have been documented in nine (9) drains while mussel SAR occurrences have been documented in fourteen (14) drains. These occurrences can generally be seen in Class-E drains for fish species, and F-Class drains for mussel, with few exceptions. A list of these watercourses can be found in Table 4, below indicating the potential for SAR occurrence.

Table 4. Drains within the South Kent Wind Project Area with Historic SAR records

Watercourse	Turbine within 120 m	Drain Classification	SAR Designation
Graham Drain	P132	E	Fish
Baptiste Creek	P075	E	Fish
Graham Extension		F	Fish
Ross Norry Drain		E	Fish
Raleigh Plains Drain		E	Fish
West Drain		E	Fish
Chase Drain	P063	E	Fish
Clendenning Drain	P139	C/F	Fish
Campbell Drain		E	Mussel
McGregor Creek		E/C	Mussel
No Name Drain		E	Mussel
Morrow Drain		E	Mussel
Cyrus Huffman Drain	P033	F	Mussel
White Drain		F	Mussel
Tedford Drain	P030	Unclassified	Mussel
No Name	P028	F	Mussel
McCallum Drain		F	Mussel
Edward Smith Drain	P135	F	Mussel
Gobert Drain		F	Mussel
Pilotte Drain		F	Mussel
McKoy Drain		F/Unclassified	Mussel

7.2 Habitat

Fish habitat is defined as “the spawning and nursery areas, food supply (including inputs via terrestrial systems – allochthonous inputs) and migration areas on which fish depend directly or indirectly for their life processes” (DFO 2010). For the purpose of the *Fisheries Act* (DFO 1999), a watercourse may be a natural creek or river, municipal drain, agricultural drain or drainage ditch, which flows year round or for at least some portion of the year.

The majority of habitat within the Project Area is provided through permanent and intermittent agricultural drains and drainage ditches, as well as the various tributaries that flow into Lake St. Clair, Lake Erie, and Rondeau Bay. The location of these drains in relation to their outlets will ultimately determine their habitat quality. Habitat quality includes available littoral cover, water temperature, turbidity, substrate etc. and will greatly influence the presence or absence of fish species (Scott and Crossman 1998). This is especially important to consider for potential SAR that have historically occurred

within the Project Area boundaries (DFO SAR mapping 2010; see Figures 1-1, 1-2, and 1-3) and that may currently exist.

8.0 Existing Studies

Several other proposed wind energy generating facilities overlap with the proposed Project Area due to the large size of the Project. A number of existing studies previously conducted for these individual projects are now part of the Project. Existing studies included as part of this records review include the Merlin-Buxton Wind Farm Environmental Screening Report (ESR), Kent Centre Wind Farm ESR, and Erieau-Blenheim Wind Farm ESR. Each of these studies have been described in more detail below, including general project locations and summary of environmental studies completed. Specific information pertaining to aquatic features, fish communities, and species lists has also been compiled for each study.

8.1 Merlin-Buxton Wind Farm ESR

The Merlin-Buxton Wind Farm was proposed for an area located between the Towns of Chatham and Merlin to the north and south respectively, and the Towns of Tilbury and Charing Cross to the west and east respectively. The South Kent Wind Project area overlaps with the area that was identified for the South Kent Wind Project. The ESR for the Merlin-Buxton Wind Farm (Helimax 2009a) considered lands bounded by Highway 401 to the north, Davidson Road to the west, Gray Line and 16th Line, Middle Line to the south, and Charing Cross Road to the east. This area encompasses 21,000 ha, and consisted or thirty-five (35) proposed turbines. The ESR was completed by Helimax Energy Inc. (2009), and prepared for Boralex.

Fish information was received from the Chatham Area MNR on January 23, 2009. This data included fish species information for four (4) water bodies found within or in the vicinity of the Project Area. This included eight (8) fish species from Baptiste Creek, 15 species from Government Drain #3, 18 species from Jeanette's Creek, and 23 species from the Raleigh Plains Drain. Source information cited by the MNR included Chatham Area MNR collection records (1980 and 1982), National Museums of Canada Ichtyology Collection Records (1982), and Royal Ontario Museum (R.O.M.) collection records (1979). Species information from these four (4) watercourses can be found in Table 2.

8.2 Kent Centre Wind Farm ESR

The Kent Centre Wind Farm was proposed for an area between the towns of Chatham and Blenheim (north-south) and from approximately the town of North Buxton to the west to the town of Ridgetown to the east. The Kent Center Wind Farm was owned by Pattern Energy and included 72 turbines and associated infrastructure. Several proposed turbine locations for the South Kent Wind Project are found within the area examined for the Kent Centre Wind Farm Project. The ESR for the Kent Centre Wind Farm (Helimax 2009b) considered lands bounded by Highway 401 and Hitchcock Road to the north; Wellwood Road to the west; 11th Line, Middle Line, Stefina Line, and Holdaway Line to the south; and just east of Kent Bridge Road. The ESR was completed by Helimax Energy Inc. for the Kent Centre Wind Farm Inc. (Pattern Energy Group).

A review of background information received from the LTVCA for the Kent Centre Wind Farm indicates that fish sampling was conducted at 19 locations within the vicinity of the Kent Centre Wind Farm (refer to Appendix III for sampling locations). Watercourses sampled included Calhoun Drain, Finn and Cooper Drain, Government Drain #2, Howard Drain, Jeanette's Creek Tributary, Kersey Drain, McGregor Creek, Raleigh Plains Drain, Symon Drain, Thames River and Vail Drain, in addition to an unnamed pond. Sampling results were reviewed for a number of years (1967, 1980, 1982, 1983, 1989, 1991, 2001, and 2004) during which time a total of 39 fish species were collected (see Table 2).

8.3 Erieau-Blenheim Wind Farm ESR

The Erieau-Blenheim Wind Farm is located in an area bounded by the towns of Dealtown to the west and Guilds to the east, Blenheim to the north and Shrewsbury to the south. The 7,474 ha area examined for this proposed project is in close proximity to a number of the proposed turbine locations for the South Kent Wind Project, although no direct overlap occurs. The ESR for the Erieau-Blenheim Wind Farm (Helimax 2008) considered lands bounded approximately by 16th Line and Brush Line to the north, Bloomfield Road to the west, the Lake Erie shoreline to the south, and Mull Road to the east. The ESR was completed by Helimax Energy Inc. for AIM PowerGen Corporation.

Fish sampling results from Lake Erie tributary drains and SAR data was obtained from the Erieau-Blenheim Wind Farm report. The MNR Aylmer District office provided fish

collection records for ten (10) creeks and drains within the area, or nearby tributaries to Rondeau Bay. The collections took place in 1983 and 1990 and the drains that were sampled were: Bloomfield-Bates Drain, Buchanan Drain, Coleman Drain, Glendening Drain (Indian Creek), Cumming Drain, McDougall Drain (Flat Creek), Georgie Creek (Whiltington Drain), Harris Burke Warriner Clarke Ditch (The Lagoon), Nelles Drain, Willow Creek Drain, and a number of drains with unknown names (refer to Appendix III for sampling locations). Results indicate the presence of 35 fish species within the area, none of which were considered to be SAR.

Background information from the Erieau-Blenheim Wind Farm report has identified six (6) aquatic SAR that have the potential to occur within the area. These species include four (4) fish species, warmouth, lake chubsucker (*Erimyzon sucetta*), spotted gar (*Lepisosteus oculatus*), and eastern sand darter (*Ammocrypta pellucida*), and two (2) mussel species, snuffbox (*Epioblasma triquetra*) and round pigtoe (*Pleurobema sintoxia*). Each of these species have also been identified by NRSI biologists as having the potential to occur within the Project and are discussed in more detail in Section 9.0 of this report.

8.4 Other Existing Studies

In addition to these three (3) existing studies, NRSI has also noted several other existing Projects and the resulting documentation that overlaps with the Project. These include the Raleigh Wind Energy Centre (Dillon 2009), Port Alma Wind Farm (Stantec 2007), and the smaller Flat Creek and Harwich Wind Farms (Wind Prospect 2009a; Wind Prospect 2009b). Locations and general descriptions of these studies have been provided in the following sections.

A review of these additional existing studies and reports has revealed no additional information than what has already been collected through the review of available agency files and review of the three (3) existing studies identified in Sections 8.1, 8.2, and 8.3, however each of these projects, including general location and relevance to the Project, has been introduced in the following sections.

8.4.1 Raleigh Wind Energy Centre: ERR/EIS

The Raleigh Wind Energy Centre was constructed in an area just west of the community of Merlin, ON. The 12 982 ha project area is primarily located south of the lands being considered for turbine placement for the Project, although the lands surveyed contain 7 proposed Project turbines. The Environmental Review Report (ERR) / ESR for the Invenergy Raleigh Wind Energy Centre (Dillon Consulting Ltd. 2009) considered lands bounded by 7th Line W to the north, Pollard Line to the west, 16th Line to the south, and Bloomfield Road to the east. The ERR/ESR was completed by Dillon Consulting Ltd. and prepared for Invenergy Wind Canada ULC and Raleigh Wind Power Partnership.

8.4.2 Port Alma Wind Power Project: ESR/EIS

The Port Alma Wind Farm is an operational facility in an area between the towns of Coatsworth to the west, Dealtown to the east, Glenwood to the north, and the Lake Erie Shoreline to the south. A total of 24 proposed wind turbine locations for the South Kent Wind Project are located within the 34 200 ha area examined for the Port Alma Wind Power Project. The ESR for the Port Alma Wind Farm (Stantec 2007) considered lands bounded by Highway 401, Morris Line, 11th Line and Middle Line to the north, Davidson Road and Campbell Road to the west, the Lake Erie shoreline to the south, and Bloomfield Road to the east. The ESR was completed by Stantec Consulting Ltd., for Kruger Energy Port Alma Limited Partnership. This project is currently operational.

8.4.3 Flat Creek Wind Farm Proposal: EIS/ESR

The Flat Creek Wind Farm was proposed for an area located approximately 6 km east of the Town of Blenheim, ON. The 287 ha project area is now included in the South Kent Wind Project and contains a total of seven (7) turbine locations. The Environmental Impact Study/Environmental Screening Report (EIS/ESR) for the Flat Creek Wind Farm (Wind Prospect Inc. 2009) examined lands bounded by Front Line to the north, Mull Road to the west, Ed's Line to the south, and Kent Bridge Road to the east. The EIS/ESR was completed by Wind Prospect Inc. for the BWP Wind Limited Partnership, consisting of Wind Prospect Inc. and Babcock and Brown.

8.4.4 Harwich Wind Farm Proposal: EIS/ESR

The Harwich Wind Farm was proposed for an area approximately 2 km north of the Town of Blenheim, ON. The project area examined as part of this comprised 283 ha

which are now included in the Project and within which seven (7) proposed turbines for the Project are included. The EIS/ESR for the Harwich Wind Farm (Wind Prospect Inc. 2009) considered lands bounded by Drury Line to the north, Communication Road to the west, Allison Line to the south, and Harwich Road to the east. The EIS/ESR was completed by Wind Prospect Inc., and prepared for the BWP Wind Limited Partnership, consisting of Wind Prospect Inc. and Babcock and Brown.

Figure 3

South Kent Wind Project

Existing Study Boundaries

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 1 2 3 4 5km

April 23, 2012
Project No: NRSI-1184
UTM Zone 17, NAD 83
Scale: 1:150,000 (at 11x17")

- Project Area (April, 2012)
- Constructible Area
- Proposed Turbine (L020)
- Substation
- Cabling
- Access Road
- Railway
- Highway
- Primary Road
- Secondary Road
- Watercourse (Permanent)
- Wooded Area
- Waterbody
- Wetland Area
- South Kent Wind Project
- Flat Creek Wind Farm
- Harwich Wind Farm
- Merlin-Buxton Wind Farm
- Kent Centre Wind Farm
- Bisnett Line Wind Farm
- Merlin Wind Farm (Wind Prospect Inc.)
- Merlin Wind Farm (Acciona Wind Energy Canada Inc)
- Quinn (Acciona) Wind Farm
- Raleigh Wind Farm
- Swanton Line Wind Farm
- Front-Line Wind Farm
- Port Alma Wind Farm
- Erieau-Blenheim Wind Farm

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9.0 Species of Conservation Concern and Species at Risk

9.1 Species of Conservation Concern

The LTVCA, NHIC and Biodiversity Explorer records reviewed identified seven (7) fish species of conservation concern that have been previously documented within the vicinity of the Project Area (refer to Table 5). These species are provincially ranked as Special Concern or S1-S3, but are not protected under the *Endangered Species Act*. Descriptions of each species status, habitat requirements, and occurrence are provided below.

Table 5. Fish Species of Conservation Concern Identified in the Vicinity of the South Kent Wind Project.

Scientific Name	Common Name	S-Rank	SARO Status	COSEWIC Status
Lepomis gulosus	Warmouth[1,2]	S1	SC	SC
Notropis buchanani	Ghost Shiner[1,3]	S2	NAR	NAR
Opsopoeodus emiliae	Pugnose Minnow[2]	S2	SC	SC
Macrhybopsis storeriana	Silver Chub[1]	S2	SC	SC
Minytrema melanops	Spotted Sucker[1,2]	S2	SC	SC
Noturus miurus	Brindled Madtom[1]	S2	NAR	NAR
Percina shumardi	River Darter[3]	S3	NAR	NAR

[1] Biodiversity Explorer Record (OMNR 2010)
[2] Lower Thames Valley Conservation Authority (DFO 2010)
[3] Lower Thames Valley Conservation Authority (LTVCA 2009)

Provincial Rank (S-Rank)
S1: Critically Imperiled
S2: Imperiled
S3: Vulnerable

COSEWIC and SARO Status
SC: Special Concern
NAR: Not at Risk

Warmouth

The Warmouth is a member of the sunfish family (Centrarchidae). It has an S-Rank of S1 (critically imperilled), and is considered Special Concern by the MNR and Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (OMNR 2009, Gov. of Can. 2010). The Warmouth is a warm-water species, and a generalist feeder that prefers "shallow vegetated waters (<1 m) of lakes, ponds, oxbows and quiet water areas of streams with clear water and mud substrate." This species spawns from May through August in water temperatures of 21℃ to 22℃ (Eakins 2010).

The Warmouth was first recorded in Canada when it was collected in Rondeau Provincial Park in 1966. A total of only ten (10) individual fish have been captured in Rondeau Bay since then with the last collection occurring in 1999. Intensive sampling in 2004 did not find any Warmouth, but preferred habitat less than 1m deep was not sampled. As a result, it remains in question whether an established population exists in this location (COSEWIC 2005a). The Warmouth may be expanding its range since the last period of glaciation, and/or in conjunction with

the recent period of global warming (Crossman et al 1996, as cited in COSEWIC 2005a). Potential limiting factors are the loss of its preferred heavily vegetated habitats, siltation and turbidity (COSEWIC 2005a).

Ghost Shiner

The Ghost Shiner is a fish species of the minnow family (Cyprinidae). It is ranked S2 (imperilled in Ontario), but is currently designated as not at risk by SARO or COSEWIC (OMNR 2010). The Ghost Shiner prefers a habitat of "quiet pools and backwaters of small to large rivers or creeks near their confluence with larger rivers, and lakes, with sand or clean gravel substrates and some aquatic vegetation" (Eakins 2010), and is also considered tolerant of turbidity.

Its range includes various locations in southwestern Ontario, within drainage systems that outlet to Lake Huron, Lake St. Clair, and Lake Erie (Eakins 2010). Two (2) historic records of Ghost Shiner (dated 1982) are located within the Project Area. Although sandy and gravel substrates may be limited, there is potential for Ghost Shiner to occur in the watercourses in the Project Area, particularly in the large drains and creeks along the northern boundary of the Project Area.

Pugnose Minnow

The Pugnose Minnow *(Opsopoeodus emiliae)* is a member of the carp and minnow family (Cyprinidae). It is ranked as S2 (imperilled) in Ontario and is considered a species of Special Concern by MNR and COSEWIC (OMNR 2010, Gov. of Can. 2010). The Pugnose Minnow is a warmwater species, and a detritivore that prefers "clear, slow-moving rivers, lakes and stream with abundant aquatic vegetation. Spawning occurs through June and July; however no preferred spawning temperatures are currently known (Eakins 2010).

In Canada, the Pugnose Minnow is at the northern edge of its range and is restricted to a small area in southwestern Ontario. Only 12 small populations in Ontario are believed to exist in the drainages of Lake St. Clair, and the Detroit River (Parker *et al.* 1987). The siltation of rivers and streams, caused by urbanization and agricultural practices, is believed to be the main reason for the small size of Pugnose Minnow populations in Canada (Gov. of Can 2010).

Silver Chub

The Silver Chub *(Macrhybopsis storeriana)* is a member of the carp and minnow family (Cyprinidae). It is ranked as S2 (imperilled) in Ontario and is considered Special Concern by the MNR and COSEWIC (OMNR 2010, Gov. of Can. 2010). The Silver Chub is a coolwater species, and a detritivore that prefers "sandy, silty pools and backwaters of small to large rivers, river mouths and warm shallows (<20 m) of lakes." Spawning occurs through June and July in water temperatures between 19℃ and 23℃ (Eakins 2010).

The range information and mapping provided with the SARO List (2010) indicates that the Silver Chub's range includes Lake Erie, with limited distribution in Ontario to Lake Erie and Lake St. Clair (Eakins 2010). The DFO SAR Distribution Mapping (2010) indicates that the Silver Chub potentially inhabits the lower reaches of Kettle Creek near the outlet to Lake Erie, with historic NHIC historically records

(1960) also documenting the sighting of Silver Chub near the outlet of Kettle Creek.

Spotted Sucker

The Spotted Sucker *(Minytrema melanops)* is a member of the sucker family (Catostomidae). It is ranked as S2 (imperilled) in Ontario and is considered a Species of Special Concern by MNR and COSEWIC (OMNR 2010, Gov. of Can. 2010). The Spotted Sucker is a warm water species, and an invertivore that prefers "nearshore of lakes and deep pools of creeks and small to medium rivers with firm sandy, gravelly or rocky substrates with a preferred water temperature range of between 25℃ and 27℃." Spawning occurs t hrough May and June in water temperatures between 12℃ and 19.5℃ (Eakins 2010).

The Spotted Sucker was first reported in Lake St. Clair in 1962. It also occurs across western Lake Erie, Detroit River, Lake St. Clair tributaries, St. Clair River, Sydenham River, and the Thames River (Eakins 2010). Since 1992, more than 67 specimens have been collected. These collections include four (4) new locations in southern Ontario: Canard River, Maxwell Creek (Lake St. Clair drainage), Whitebread Drain (Lake St. Clair drainage) and Bear Creek (North Sydenham River drainage) (COSEWIC 2005c).

Brindled Madtom

The Brindled Madtom *(Minytrema melanops)* is a member of the sucker family (Catostomidae). It is ranked as S2 (imperilled) in Ontario but is considered to be Not at Risk by SARO and COSEWIC (OMNR 2010, Gov. of Can. 2010). The Brindled Madtom is a warm water species, and an invertivore that prefers "shallow lake environments and low gradient streams over sand, clay, detritus and soft mud substrates; often in weedy areas below riffles." Spawning occurs from June through August in water temperatures between 24℃ a nd 27℃ (Eakins 2010).

Within Ontario, this species is distributed throughout the Sydenham River, Lake St. Clair, Thames River, Lake Erie (Long Point, Turkey Point, Wheatley Harbour), Grand River, and Niagara River (Eakins 2010).

River Darter

The River Darter is a fish species belonging to the perch family (Percidae). It is ranked as S3 (vulnerable) in Ontario but is considered Not at Risk by SARO as well as COSEWIC (Gov. of Can. 2010). The River Darter is considered to be a warm-water species, and an invertivore that prefers "cobble- or boulder-strewn gravel-bottomed riffles with fair to moderate current in small to large rivers and clear sandy channels in lakes" (Eakins 2010). This species is known to spawn in the spring from April to June in preferred water temperatures of 9℃ to 13℃ (Eakins 2010, Gov. of Can. 2010).

The River Darter is found in northwestern Ontario and a few small areas in southwestern Ontario including Lake Ct. Clair, Sydenham River, and Thames River. This species was first recorded in Ontario in 1931 (Eakins 2010).

No mussel species of conservation concern were identified as potentially occurring within the limits of the Project.

9.2 Species at Risk

The REA regulation requires that a separate report, *Approval and Permitting Requirements Document*, be prepared to address the requirements of the *Endangered Species Act* (2007). As such, the review and reporting pertaining to provincially Endangered or Threatened species that may occur within the limits of the Project Area will be addressed in a separate document. Each of these species will be addressed in more detail, including habitat requirements, potential presence within the Project Area, and potential impacts and mitigation measures, in the *Approval and Permitting Requirements Document* which will be submitted under a separate cover.

10.0 Summary of Records Review

In accordance with REA regulations, NRSI biologists have conducted a comprehensive records review of the water bodies within the Project Area. The water bodies examined as part of this *Records Review Report* are summarized in Table 6, below.

Table 6. Summary of Water Body Records Review

Criteria	Yes/No	Result
i. In a water body	Yes	Based on available DFO mapping, a total of 297 project components were found to intersect with a water body. Based on mapping provided by the LTVCA, a total of 273 project components cross a water body.
ii. Within 120 m of the average annual high water mark of a lake, other than a lake trout lake that is at or above development capacity	No	No Project components are found within 120 m of the average annual high water mark of a lake, other than a lake trout lake that is at or above development capacity.
iii. Within 300 m of the average annual high water mark of a lake trout lake that is at or above development capacity	No	No Project components are found within 300 m of the average annual high water mark of a lake trout lake that is at or above development capacity.
iv. Within 120 m of the average annual high water mark of a permanent or intermittent stream	Yes	The South Kent Wind Project is located within 120 m of the average annual high water mark of 216 permanent and intermittent watercourses (refer to Appendix II). The majority of watercourses that fall within this 120 m boundary occur as linear agricultural drains which parallel roads and fields; and facilitate drainage for agricultural practices. The vast majority of these drains have been classified as Class-C and Class-F drains (DFO 2010). However there are several larger watercourses which actively drain water north of the Project Area into the Thames River, or south into Rondeau Bay and Lake Erie. Many of these larger drains have been classified as E-Class and C-Class.
iv. Within 120 m of a seepage area	No	No Project components are found within 120 m of any seepage areas.

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Appendix I
Biodiversity Explorer Species Records

Unique Identifier (Element ID)	EO ID	Scientific Name	English Name	G-rank	S-rank	Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Status	Species At Risk in Ontario (SARO) Status	Canada General Status	Ontario General Status	UTM Zone	Easting (nearest km)	Northing (nearest km)	EO Rank	EO Rank Date	First Observed Date	Last Observed Date
180512	13709	Lepisosteus oculatus	Spotted Gar	G5	S1	THR	THR	At risk	At Risk	17	425000	4682000	H	1/1/2009	4/21/1955	10/2/1986
180512	13713	Lepisosteus oculatus	Spotted Gar	G5	S1	THR	THR	At risk	At Risk	17	400000	4670000	H	1/14/1998	1925-06	9/5/1938
180587	16898	Macrhybopsis storeriana	Silver Chub	G5	S2	SC	SC	Sensitive	Sensitive	17	427000	4681000	H	1/7/1998	5/13/1921	5/28/1921
180587	16899	Macrhybopsis storeriana	Silver Chub	G5	S2	SC	SC	Sensitive	Sensitive	17	401000	4669000	H	1/7/1998	1920------	11/25/1920
180562	15724	Notropis anogenus	Pugnose Shiner	G3	S2	END	END	At risk	At Risk	17	425000	4679000	H	12/29/1997	8/31/1940	6/16/1963
180565	860	Notropis buchanani	Ghost Shiner	G5	S2	NAR	NAR	Secure	Sensitive	17	390000	4686000	H	1/26/2004	12/3/1982	12/3/1982
180565	865	Notropis buchanani	Ghost Shiner	G5	S2	NAR	NAR	Secure	Sensitive	17	398000	4688000	H	1/26/2004	12/1/1982	12/1/1982
180565	14620	Notropis buchanani	Ghost Shiner	G5	S2	NAR	NAR	Secure	Sensitive	17	405000	4698000	H	1/26/2004	6/12/1980	6/12/1980
180593	15715	Erimyzon sucetta	Lake Chubsucker	G5	S2	END	THR	At risk	At Risk	17	393000	4687000	H	12/23/1997	8/5/1965	8/5/1965
180593	15444	Erimyzon sucetta	Lake Chubsucker	G5	S2	END	THR	At risk	At Risk	17	426000	4683000	H	1/26/2004	4/12/1955	7/7/1983
180597	15573	Minytrema melanops	Spotted Sucker	G5	S2	SC	SC	Sensitive	Sensitive	17	379000	4661000	H	1/15/1998	1976	1977
180608	32090	Noturus miurus	Brindled Madtom	G5	S2	NAR	NAR	Secure	Sensitive	17	378000	4657000	H	3/1/2001	10/23/1969	10/23/1969
180630	15411	Lepomis gulosus	Warmouth	G5	S1	SC	SC	Sensitive	Sensitive	17	426000	4680000	E	4/24/2001	6/5/1966	5/4/1999
180645	16583	Ammocrypta pellucida	Eastern Sand Darter	G3G4	S2	THR	THR	At risk	At Risk	17	426000	4680000	H	12/16/1997	9/2/1975	9/2/1975
181402	32760	Epioblasma triquetra	Snuffbox	G3	S1	END	END			17	402000	4695000	H	1/14/2004	1894	1894
181402	32751	Epioblasma triquetra	Snuffbox	G3	S1	END	END			17	424000	4682000	H	5/7/2001	1894	8/12/1961
181404	22589	Lampsilis fasciola	Wavy-rayed Lampmussel	G5	S1	END	END			17	405000	4697000	H	2/3/1999	12/17/1902	12/17/1902
181418	67941	Obovaria subrotunda	Round Hickorynut	G4	S1	END	END			17	402000	4695000	H	10/8/2003	1894	1894
181419	67466	Pleurobema sintoxia	Round Pigtoe	G4G5	S1	END	END			17	425000	4679000	H	1/1/2009	6/28/1988	6/28/1988
181421	67985	Ptychobranchus fasciolaris	Kidneyshell	G4G5	S1	END	END			17	402000	4695000	H	10/15/2003	1894	1894

Appendix II
Existing Permanent and Intermittent Streams

Table 1. Existing Permanent and Intermittent Streams within the South Kent Project Area.

Watercourse Name	Turbine within 120 m	Drain Classification	SAR Designation
Thompson Paulus Drain		Unclassified	-
South Middle Road Drain	P080	E	-
Branch		Unclassified	-
Burgess Drain		E	-
Burgess Drain E. Branch		F	-
Burgess Drain W. Branch		F	-
Hornick Drain		F	-
7th Concession Road Drain		C	-
Norval Davis Drain		C	-
King & Whittle Drain	P116	C	-
Gagner Drain	P116	C	-
Powell Drain		C	-
Graham Drain		E	Fish
Ivison Drain	P115,P150	C	-
Anesser Drain		C	-
Grant Drain		Unclassified	-
Hope Drain		E	Fish
Davis Drain		C	-
Davidson Drain		C	-
Struthers Drain		E	Fish
Graham Extension		F	Fish
McLeod Drain	P075	C	-
Ross Norry Drain		E	Fish
Jessop Drain	P072	C	-
McDougall Drain W. Branch		C	-
McHardy Drain		C	-
Mazan Drain		C	-
Skipper Drain		F	-
McDougall Drain		E	Mussel
Gardner Drain		Unclassified	-
Macnell Drain		Unclassified	-
Government Drain No. 1		C	-
Campbell Drain		C	-
Auxilary Drain		C	-
Lewis Drain	P164,P100	C	-
Pollard Drain		Unclassified	-
Closson Drain		C	-
Eight Creek Drain	P087,P070	C	-
Farquharson Drain		C	-
Moffat Outlet Drain		C	-
Mancell Drain		C	-
Griffin Drain		C	-
Ball Drew Drain		C	-
Roy Dillon Drain		C	-
Beattie Drain		C	-
Deary Drain		C	-
Rice Drain		C	-
Souligny Drain		C	-

Shadd Drain		C	-
Finn and Cooper Drain		E	-
Webb Drain		E	-
Lecoco Drain		E	-
West Drain		E	Fish
Bell Drain		E	Fish
Prince and Deechan Drain		Unclassified	-
Carter Drain	P065	C	-
Wallace Drain		Unclassified	-
Symon Drain		E	-
Deechan		E	-
O'Rourke Drain	P094,P098	C	-
Shea Drain		C	-
Laurie Drain	P056,P057	Unclassified	-
Doyle Drain	P098	C	-
Vail Drain		E	-
Waddick Drain		C	-
Miller Drain		C/E	-
Horne Drain		E	-
Vince Doyle Drain	P149	Unclassified	-
Mummery Drain	P060	C	-
Lewis Drain	P164,P100	C	-
Flook and Hinton Drain	P097,P164	C	-
Ferguson Drain	P056,P057	E	-
Laurie Drain		C/F	-
Gales Drain		C	-
Knott Creek Drain		C	-
Barfoot Drain		F	-
Drewery Branch		F	-
Locke Drain	P055	C	-
Lorne English Drain		Unclassified	-
Gregory Drain		C	-
Jackson & Nash Drain		C	-
Corlett Drain		F	-
McGregor Creek		E/C	Mussel
Coltart Drain		Unclassified	-
Geo Smyth Drain		Unclassified	-
R.I. Smyth Drain	P037,P038,P039	F	-
Un-named Drain		E	Mussel
McCorkell Drain		C	-
Lucas Drain		C/F	-
W.M. Walker Drain		C	-
Fargo Drain		Unclassified	-
Appleford Drain		Unclassified	-
Jackson Drain		F	-
Mosey Drain	P044	C	-
Spisani Drain		C	-
Vester Drain		Unclassified	-
Brooksbank Drain		Unclassified	-
Proctor Drain	P039,P040,P041,P120	F	-
Lucas Drain Extension		F	-

Sample Drain	P109	F	-
Watts Drain	P035,P108	F	-
Morrison Drain	P036	F	-
Hedgedus Drain		F	-
Cantlay Drain		F	-
Kneebone Drain	P034	E	-
Morrow Drain		E	Mussel
Centre Line Drain		Unclassified	-
Tedford Drain	P030	Unclassified	Mussel
White Drain		F	Mussel
Unnamed W		F	Mussel
Cyrus Huffman Drain	P033	F	Mussel
Nichol Drain	P109	F	-
Pilotte Drain		F	Mussel
Edward Smith Drain	P028	F	Mussel
Gobert Drain		F	Mussel
Newcomb Drain		F	Mussel
McMillan Drain		Unclassified	-
McCallum Drain		F	Mussel
McPhail Drain	P155	F	-
WhitieBread Drain		F	-
Baird Drain Open		C	-
Watson Drain		C/F	-
Donald Campbell Drain		F	-
Mull Drain		C	-
McLachlan Drain		C	-
Cooper Drain		F	-
McEachren Drain		F	-
Mull Branch Drain		C	-
Enos Smith Drain		F	-
Unnamed V		Unclassified	-
Nicholson Drain	P152	C	-
Taff Creek Drain		C	-
Gilbert Tile Drain		F	Mussel
West Drain Outlet		F	Mussel
PFAFF Creek Drain	P012	C	-
Rushton Drain		C	-
Ingram Drain		Unclassified	-
Mervin Drain		Unclassified	-
Nicholson Drain		C	-
Woofenden Drain		F	-
Cleveland Drain		C	-
Union Drain		C	-
Woodlife Drain		Unclassified	-
Rowe Drain	P009	F	-
Clunis Drain	P006	F	-
McKay Drain	P004	F	-
Simmons Drain		Unclassified	-
Neve Drain		C	-
Indian Creek		C/F	Fish
Hastings Drain		Unclassified	-

Warwich Drain		F	-
Arachie Campbell Drain		E/F	-
Brush Drain		F	-
Cumming Drain		C	-
Shanks Drain		F	-
Flood Drain		Unclassified	-
McArthur East Drain		C	-
Willow Creek Drain		C	-
Ward Drain		Unclassified	-
Nelles Extension Drain	P140	Unclassified	-
Hobbard Drain	P006,P007	F	-
Clendenning Drain		C/F	Fish
Nesbitt Drain		F	-
Coleman Drain		C/F	-
East Lake Drain		F	-
Arnold Davis Drain	P106	Unclassified	-
Debrouwer Drain		Unclassified	-
Fraser Drain	P106	F	-
Holdaway Drain		C	-
Haugh Drain		C	-
Bates Bloomfield Drain		C	-
Bates Drain	P138	F/Unclassified	-
McLean Drain		E	-
Branch Number 1 Drain		E/Unclassified	-
Ross Drain		E	-
Craig Stinson Drain	P166	Unclassified	-
Wiebenga Drain		Unclassified	-
Bisner Drain		F	-
Un-named Drain		Unclassified	-
Shipp Drain		Unclassified	-
Townline Drain		Unclassified	-
McKoy Drain		F/Unclassified	Mussel
East Branch Drain	P132	F	-
Sinnett Drain		F	-
Alexander Drain	P145	C	-
Berry Fletcher Drain	P099	Unknown	-
Bolohan Craig Drain Extension	P166	Unknown	-
Brown Drain	P152	Unclassified/C	-
Busted Drain	P019	Unclassified	-
Carless Drain	P082	F	-
Chase Drain	P063	E	Fish
Clifford Ashton Drain		Unclassified/E	-
Garen & Young	P100	C	-
Grist Drain	P120	F	-
Linnen Drain	P148	Unclassified/E	-
Moody and Earley Drain	P149,P111	C	-
Welles Drain	P140	Unclassified	-
Newham Drain	P068	C	-
No Name 1	P071	Unclassified	-
No Name 2	P052	Unclassified	-
No Name 3	P058	Unknown	

No Name 4	P007	F	-
No Name 5	P028	Unclassified	-
No Name 6	P171	F	-
Sampson Drain	P121	Unclassified/E	-
Tompkins Drain	P135	F	Mussel
Willis Drain Number 2	P104	Unknown	-
Pepper Drain	P174	Unknown	-
Scafe Drain	P145	Unknown	-
Saddington Drain	P155	F	-
Kenedone Drain	P034	E/F	-
Gagnier Drain	P116	C	-
Eastlake Drain	P093	Unclassified	-
Duke Drain	P164,P097	C	-
Baptise Creek Drain	P075	E	-

Appendix III
Fish Sampling Locations
Lower Thames Valley Conservation Authority Sampling Locations
Ministry of Natural Resources Sampling Locations

Fish Records
Kent Centre Wind Farm

Legend

- Fish Records
- Drains
- Roads
- Highways
- Lots
- Concessions
- Subwatersheds
- Municipal Boundary
- Kent Centre Wind Farm

Draft

LTVCA records indicate that Special Concern species are found in the study area.

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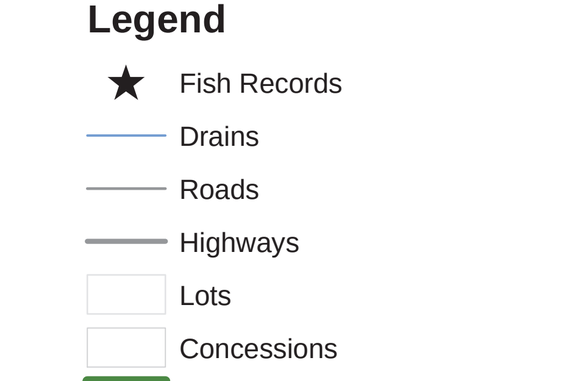
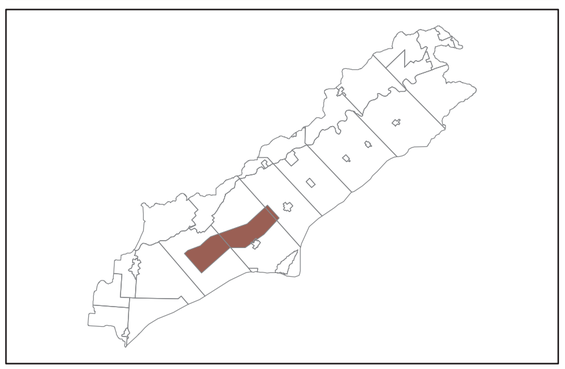
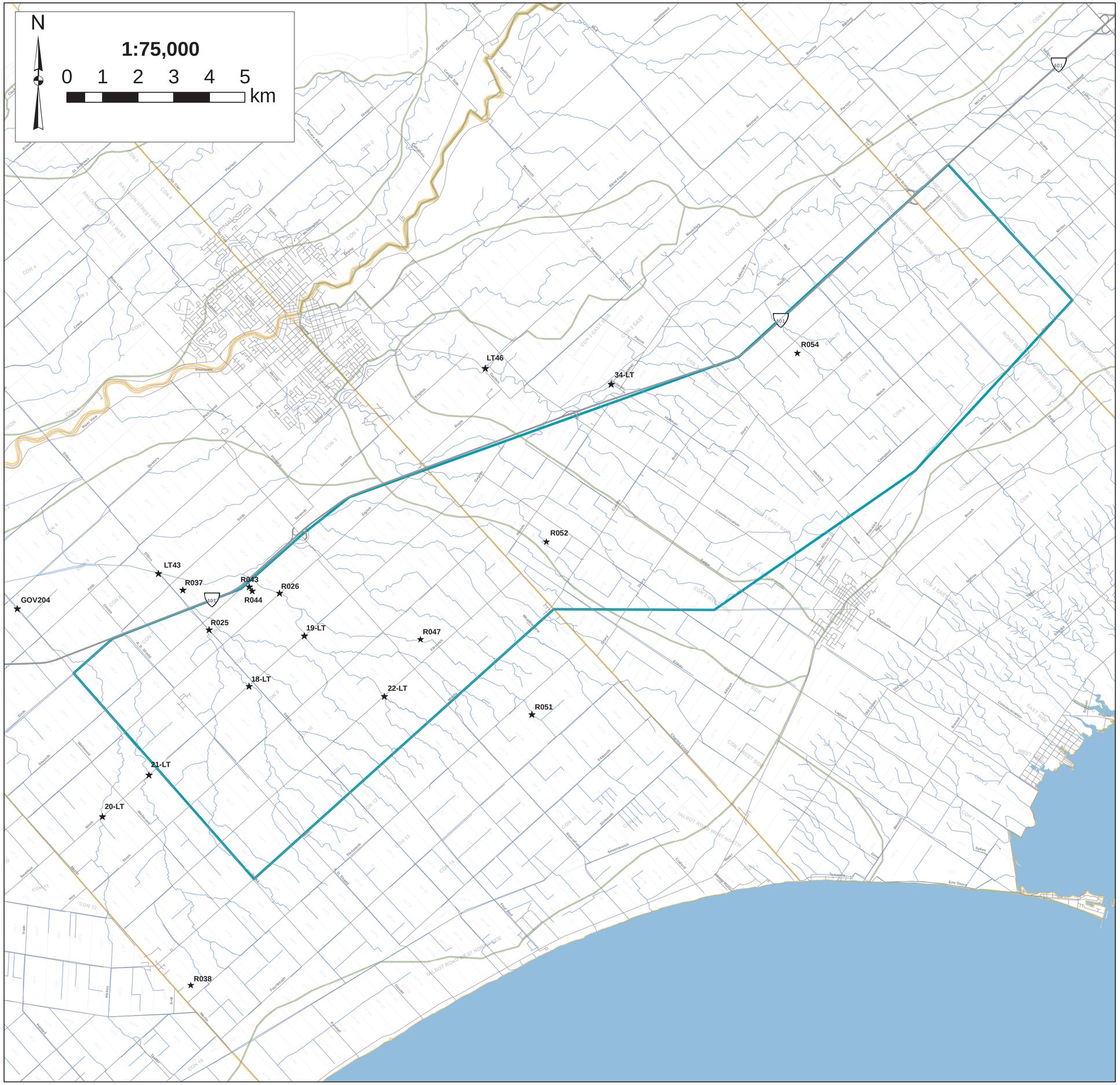
Data on this map is subject to frequent updates.
Confirm its content with the LTVCA before use for planning purposes.

2009/09/01 JW

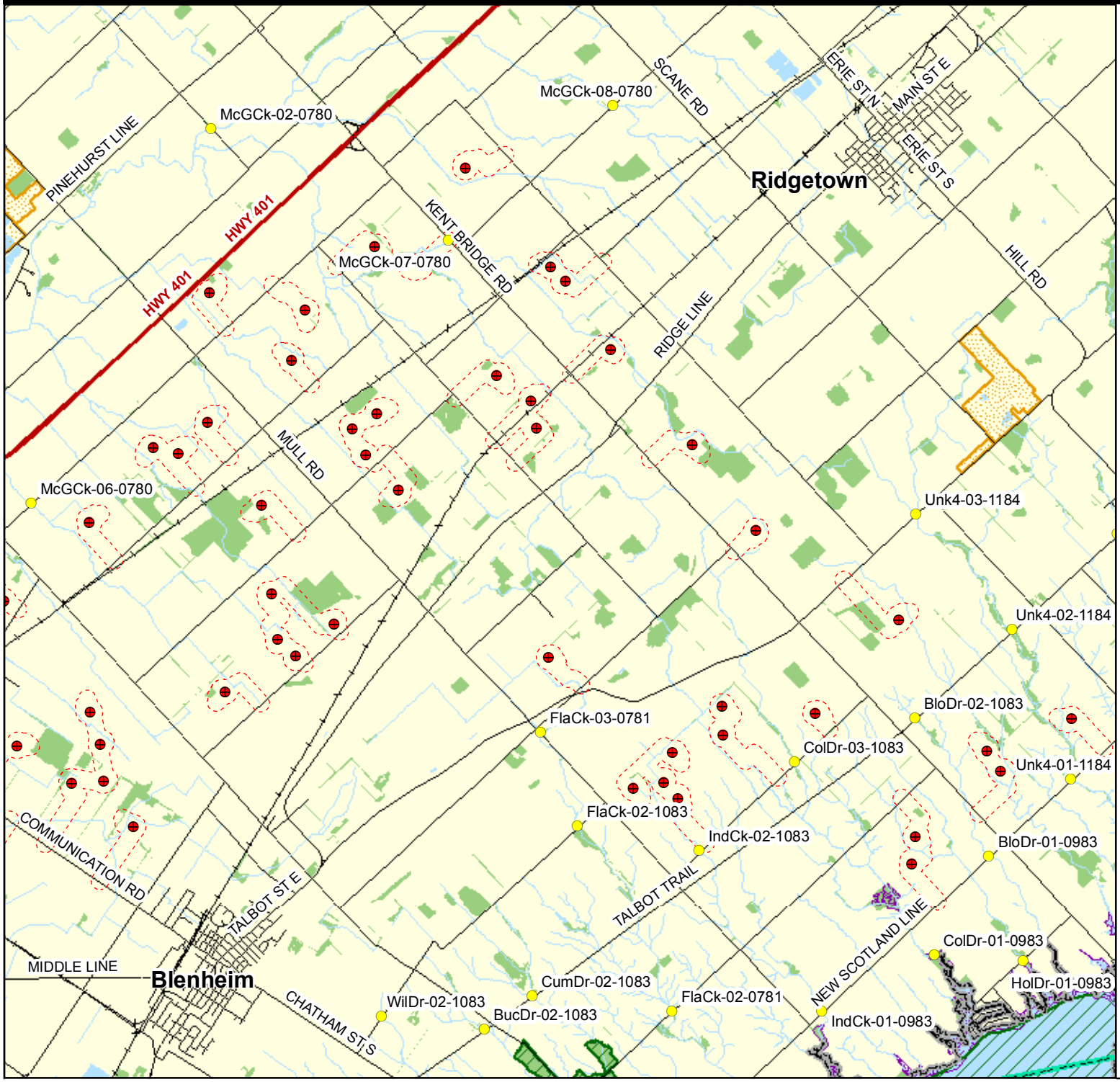






South Kent Wind Farm - Fisheries Survey

Ontario



LEGEND

- Fisheries Survey Points
- Proposed Turbine
- Project Area
- Provincial Park
- First Nations Territories
- UpperTier Municipality
- ANSI

Aggregate Site

- *Active*
- *Revoked*
- *Surrendered*

Evaluated Wetland

- *Provincially Significant*
- *Locally Significant*

- Lower Tier Municipality

N

SCALE: 1:75,000

0 750 1,500 3,000

Metres

UTM NAD83 CNT Zone 17.

Base data derived from the Natural Resource Values Information System (NRVIS), Scale 1:10 000.

2006 Southwestern Ontario Orthophotography Project (SWOOP).

This map was produced by the Aylmer District Office GIS Unit, Ministry of Natural Resources.

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