

## **3.0 Environmental Features in the Study Area**

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### **3.1 DATA SOURCES AND MAPPING**

Information provided by various agencies, residents and other stakeholders within the City of Thorold was used to identify environmental and socio-economic features within the Study Area.

By necessity, the analysis, integration, and synthesis of data are iterative processes, as information becomes available at various stages of the study and at different mapping scales. The level of detail of data and mapping increases as the study progresses from analysis of the Study Area, to analysis of route alternatives, and finally, to a site-specific survey of features along the Preferred Route.

The base for features mapping (**Appendix C1, Figures C1-1 through C1-3**), has been generated from air photos provided by Google Earth (2007). Scales have been adjusted from the original to better represent the features mapped. Further mapping sources are identified in **Section 11 and Appendix C2**. Stantec has digitally reproduced features added to the base map.

The environmental and socio-economic information presented in this ER is based on data provided by individuals and agencies during the Public Consultation Program, documented in published reports cited throughout the ER, and collected through ground surveys conducted by Stantec and Enbridge. Where agencies requested that information remain confidential, such as the precise location of rare, threatened, vulnerable or endangered species and archaeological sites, such information has been withheld from the report or mapped in such a way that specific site locations are not identified.

A field survey of specific locations within the Study Area was completed prior to preparation of the ER. This information was used to confirm that the background information was sufficient to select a route and develop the mitigation measures presented in the report.

### **3.2 STUDY AREA**

The Study Area for the Pipeline to Serve the Proposed Thorold CoGen L.P. Project is located in the City of Thorold, Ontario. Municipal zoning within the Study Area ranges from residential to general agricultural.

The Study Area encompasses approximately 28.5 km<sup>2</sup>. Watersheds, existing linear corridors, and environmental and socio-economic features were considered when establishing the Study Area boundaries. The Study Area accommodates enough area for the generation of a reasonable number of alternative routes of reasonable length.

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Study Area boundaries were also established by considering the potential impacts of the proposed pipeline. The northern boundary is established by the banks of the Beaver Dams inlet for the Welland Canal; the southern boundary incorporates the lots on the south side of Lundy's Lane (Highway 20); the western boundary is west of Allanburg Road to incorporate some of the businesses and residences along that road; and, the eastern boundary is east of Thorold Townline Road (**Appendix A, Figure A-1**). The locations of existing natural and socio-economic features within the Study Area are illustrated on **Appendix C1, Figure C1-2**.

### **3.3 SUMMARY OF SIGNIFICANT ENVIRONMENTAL FEATURES IN STUDY AREA**

The environmental and socio-economic inventory of the Study Area is described in detail in **Appendix C2**. The most significant features in the Study Area, including physical, biophysical, and socio-economic features are summarized below.

#### **3.3.1 Physical Features**

The Study Area is located in the Haldimand clay plain physiographic region of Southern Ontario (Chapman and Putnam, 1984). Lying between the Niagara Escarpment and Lake Ontario, the Study Area has little topographic relief. The Study Area lies at approximately 180 meters ("m") above sea level.

The surficial soils of the Study Area consist mainly of glaciolacustrine clays over till with relatively poor drainage. Bedrock underlying these surficial deposits consists of Paleozoic bedrock of the Lockport Formation from the Silurian period. This formation consists of various forms of dolostone, limestone and shale (Ontario Geological Survey, 2006).

Climate in the Study Area is influenced by the proximity to Lake Erie and Lake Ontario, which moderates temperature and provides moisture-laden air to adjacent lands. Summers tend to be humid and warm to hot while winters are relatively mild and snowy. The average yearly temperature is 8.4 degrees Celsius with average temperatures above freezing occurring for eight to nine months of the year.

#### **3.3.2 Agricultural Features**

The Soil Capability Classification for Agriculture (Canada Land Inventory ("CLI")) is an interpretative classification that groups mineral soils with similar limitations or similar productivities into seven classes. Class 1 to 3 soils are considered to be suitable for sustained productions of common field crops, hay and pasture. Class 4 soils are marginal for sustained production of common field crops but capable of use for hay and pasture. Class 5 soils are capable for use only for permanent pasture and hay, whereas Class 6 soils can be used only for wild pasture. Class 7 soils have no capability for agriculture.

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Applying the CLI system of soil classification, the entire Study Area falls under the class 2d. The number 2 implies that soils have moderate limitations that restrict the range of crops or require moderate conservation practices. The letter “d” indicates that undesirable soil structure and/or low permeability are limitations for agriculture (OMAFRA, 1983). As can be seen on **Appendix C1, Figure C1-1**, there are four soil types in the Study Area. The Ontario Ministry of Food and Rural Affairs (OMAFRA) soil information (Ontario Institute of Pedology, 1989) separates the area further into polygons containing varying degrees of two soil types.

None of the agricultural lands in the Study Area have been artificially drained for agricultural use (OMAFRA, 1981).

**3.3.3 Biophysical Features**

The Study Area is located in the Deciduous Forest Region. Forest type is mixed deciduous with few coniferous species (MNR, 2002).

A portion of a Provincially Significant Wetlands (“PSW”) exists in the Study Area. The Welland Canal Turn Basins are identified as a PSW by the Ministry of Natural Resources (“MNR”) (MNR, 2007). There are 21 plant and animal species of national concern, as listed under the Species at Risk Act (“SARA”), which have habitats that overlap with the Study Area (Environment Canada, 2004). There are four plant and animal species found within the Study Area that have been identified by the MNR as species exhibiting some level of concern (NHIC, 2005). No Areas of Natural or Scientific Interest (“ANSI”) exist within the Study Area. Refer to **Appendix C2, Tables 3-1, 3-2 and 3-3** for more information on the species found in the Study Area.

The Preferred Route crosses Beaver Dams Creek twice. Beaver Dams Creek itself serves as a displacement basin for the Welland Canal in that it receives water being displaced from the canal by freight ships as they pass. All of the watercourses in the Study Area have been designated as Type 2: Important. Type 2 habitats are moderately sensitive to development and, although important to the fish population, are not considered critical (e.g. feeding areas and open water habitats of lakes). These watercourses are all part of the Beaver Dams Creek Subwatershed (NPCA pers. comm., 2007) and the Lake Ontario Waterfront Watershed.

**3.3.4 Socio-Economic Features**

The Study Area is located within the Municipality of the City of Thorold, Ontario, in a neighbourhood called Thorold South. Planning is accomplished by the City of Thorold who are responsible for maintaining and constructing roads. The population of the City of Thorold was 18,244 in 2006, a 1% increase from 1996 (Statistics Canada, 2006). The Rolling Meadows Development has 350 residential lots in their plans, which would result in a 2% increase in population from the 2006 census.

There are three churches, one school, one community centre, and the Niagara Detention Centre in the Study Area.

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Aside from the community centre, there are other recreation and tourism opportunities in the Study Area. The Welland Canal is one of Ontario's most impressive man-made structures. Over 3,000 vessels pass through the canal each year. The canal also offers recreational pleasure, as it links the many lakes and waterways in the area and also has a multi-use trail that parallels it.

Existing Natural and Socio-Economic Features within the Study Area are illustrated in **Appendix C1, Figure C1-2.**

According to the City of Thorold Official Plans (City of Thorold, 2005, 2007), land use designations in the Study Area includes Dry Industrial, Employment (Highway Industrial, Light Industrial, Prestige Industrial), Environmental Protection Area, General Agriculture, Highway Commercial, Institutional, Natural Environment, Open Space and Recreation, Residential, Rural Residential, Serviced Industrial, Stormwater Management Facility, and Village Square Industrial. The area east of Davis Road (Highway 58) is planned to become a housing development called Rolling Meadows. The land use in this community is designated as residential, industrial and commercial, among others, and includes plans for a golf course and village centre. **Appendix C1, Figure C1-3** depicts land use, as documented by the City of Thorold's Official Plans (2005 and 2007).

The Study Area is located in South Thorold which is a neighbourhood within the City of Thorold, Ontario. Thorold supports a diversified economic base with a range of manufacturing, industry, service, government and tourism activities. Major employers include the RM of Niagara, Dana Canada Corp., ACCC, E. Spencer Fox, Lafrate Machine Works and Georgia-Pacific Canada Inc. Industries within the Study Area include the Abitibi Consolidated inc. – Thorold Division recycled paper mill, and several mechanic and scrap metal shops.