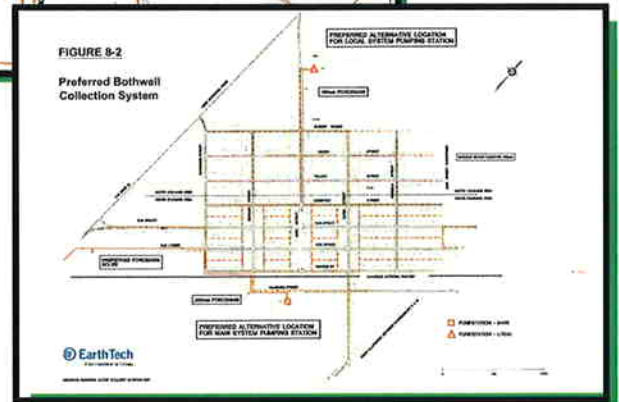
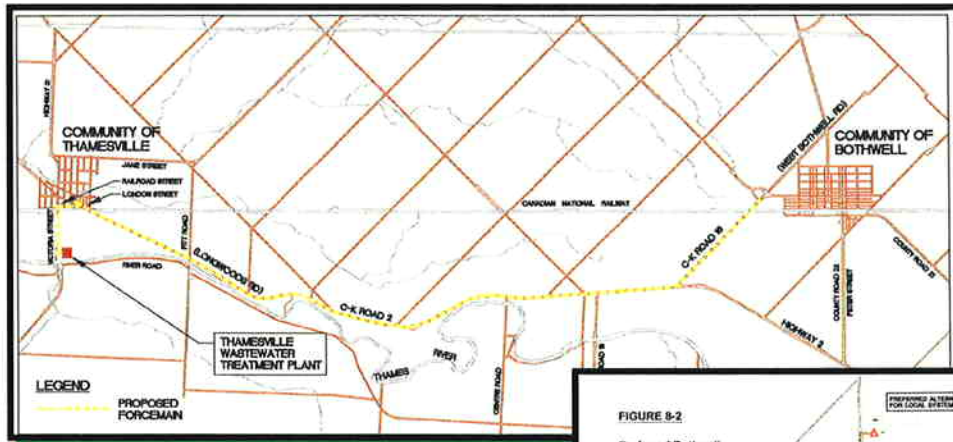




Proposed Installation of Sanitary Sewers and Wastewater Treatment for the Community of Bothwell Class Environmental Assessment

Environmental Study Report



Prepared for:
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EXECUTIVE SUMMARY

Background

The existing Community of Bothwell does not have communal sewerage works (collection and treatment). Currently sewage is disposed of by individual on-site septic systems. Studies dating back to the 1960's have revealed problems with aging and failing septic systems, inadequately sized properties for effective leaching bed disposal and elevated water tables. Sampling of groundwater, stormwater catchbasins and ditches indicated the presence of bacterial contamination of the groundwater and stormwater from sewage. Recommendations for communal water supply and sewage treatment were made in the 1960's, 1970's, 1980's and 1990's. In response to this, in 1995, a municipal water supply system was extended to the Community of Bothwell with the intent that wastewater collection and treatment would be implemented in the future. While the construction of a new water supply system protected the residents of Bothwell from contaminated drinking water, it did not address on-going contamination of the natural environment (groundwater and surface water).

The need to correct this problem is further strengthened by the recent Chatham-Kent Official Plan that places importance on the protection and enhancement of groundwater resources. The recently completed Chatham-Kent Master Plan recommended the construction of a communal sanitary sewage treatment system for the Community of Bothwell. The objective of this project is to identify and evaluate the sanitary servicing options for the Community of Bothwell. A communal sanitary servicing system would consist of a collection system and a treatment facility.

Collection System Alternatives

The following collection system alternatives were evaluated:

- Conventional gravity sewers;
- Small diameter gravity sewers;
- Low pressure sewers; and
- Vacuum systems.

Approaches to Wastewater Treatment

Two approaches to treatment were considered, a stand-alone treatment system within the Community of Bothwell and pumping to an existing municipal treatment system in another municipality. In all cases it was assumed that "dry ditch" effluent quality would be required.



Wastewater Treatment Alternatives

The following stand-alone wastewater treatment systems were considered:

- Conventional activated sludge/extended aeration;
- Rotating Biological Contactors (RBC's);
- Sequencing Batch Reactors (SBR's);
- Oxidation ditch; and
- Membrane bioreactors.

Pumping Alternatives

The following pumping to an existing municipal treatment system were considered:

- Pump to Thamesville;
- Pump to Wardsville; and
- Pump to Newbury.

The Thamesville facility is within the Municipality of Chatham-Kent and is operated by the Chatham-Kent PUC. The Wardsville and Newbury facilities are located in the Municipality of Southwest Middlesex.

June 30th, 2004 Public Information Centre #1

Public Information Centre (PIC) #1 was held in Bothwell on June 30th 2004. The purpose of the PIC was to present the proposed project to the public including need for the project and options being considered and to obtain input from the public. Some key outcomes of the PIC include:

- The public/residents were split on the need for the project;
- Residents were concerned about the potential cost of the project;
- Residents wished to have options for paying, including spreading the cost over a period of years;
- Residents did not want a collection system similar that installed in Wardsville; and
- Residents preferred that the collection system be installed in alleys, where feasible.

Recommended Wastewater Treatment Strategy

Following a detailed review of the options it was recommended that a traditional gravity sewer collection system be constructed, making use of alleys where possible and that the sewage collected be pumped to



Thamesville for treatment at the existing wastewater treatment plant. Figure 1 illustrates the preferred collection system while Figure 2 shows the preferred forcemain route from Bothwell to the Thamesville Wastewater Treatment Plant. Some upgrades to the Thamesville plant will be required to meet current standards.

The proposed system will consist of the following components:

- Gravity sewers, complete with catchbasins and private drain connections;
- Collection system pumping station(s);
- Main transfer pumping station;
- Forcemain from Bothwell to Thamesville; and
- Upgrades to the existing Thamesville Wastewater Treatment Plant (WWTP).

Total Project Costs

The following table summarizes the total project costs for construction of the sewage collection system (including pumping station), Main Transfer Pumping Station, Forcemain from Bothwell to Thamesville and upgrades to the Thamesville WWTP. The upgrades to the Thamesville WWTP that would be required regardless of the need to service Bothwell are identified separately.

It should be noted that at this stage of design the cost estimates are accurate to +/- 25% and that the additional upgrades to the Thamesville WWTP may be identified during detailed design. In addition as the cost estimates are based on 2004 construction costs, some escalation should be allowed for assuming construction in 2005 or 2006

Project Component	Capital Costs	Responsibility
A. Local Collection Sewers and Pumping Stations	\$5,740,000	Homeowner Fixed one time charge
B. Main Transfer Pumping Station	\$970,000	Chatham-Kent PUC
C. Forcemain from Bothwell to Thamesville	\$2,910,000	Chatham-Kent PUC
D. Thamesville WWTP Upgrades	\$1,350,000 (\$485,000 required at some point regardless of accepting Bothwell flows)	Chatham-Kent PUC
Total Capital Costs	\$10,970,000	



The capital cost estimate developed prior to the Class EA was \$7.4 million (treatment \$5.0M and collection \$2.4M). The updated capital cost estimate is consistent with the preliminary cost estimate for treatment. The local sewage collection system (including pumping station, engineering etc.) cost estimate of \$5.74M is significantly higher than the preliminary cost estimate for collection.

February 16th, 2005 Public Information Centre #2

A second Public Information Centre (PIC) was held in Bothwell on February 16th, 2005. The purpose of this PIC was to present for review and comment the design concepts including evaluation of forcemain routes and sewage collection/pumping station alternatives, project implementation including estimated project cost and schedule. The PIC incorporated a formal presentation and question and answer session.

Questions and feedback generally related to:

- Cost to property owners including payment methods and impact on property values
- Timing and amount of funding
- Possibility of consolidating building lots
- Experience in other jurisdictions
- Cost for private connections and septic system decommissioning including suitable contractors

Construction Related Impacts-Mitigation Measures

Based on project components (i.e. local sewage collection system, sewage pumping stations, forcemain to existing Thamesville WWTP). Impacts primarily relate to construction and will be short term and minor. By incorporating established best management practices/construction techniques and controls, these impacts (e.g. impacts to traffic, property access, roadside vegetation and forcemain water crossings) can be avoided or minimized.

Summary

It is recognized that through the communications and consultation program, the principle issues relate to perceived need, funding and cost to property owners. Chatham-Kent is committed through its evaluation of alternative solutions and funding applications, to reducing the burden on property owners as much as possible. Nevertheless, in order to address the problem this project must move forward in a timely manner.



Proposed Installation of Sanitary Sewers and
Wastewater Treatment for the Community of Bothwell:
Class EA Environmental Study Report

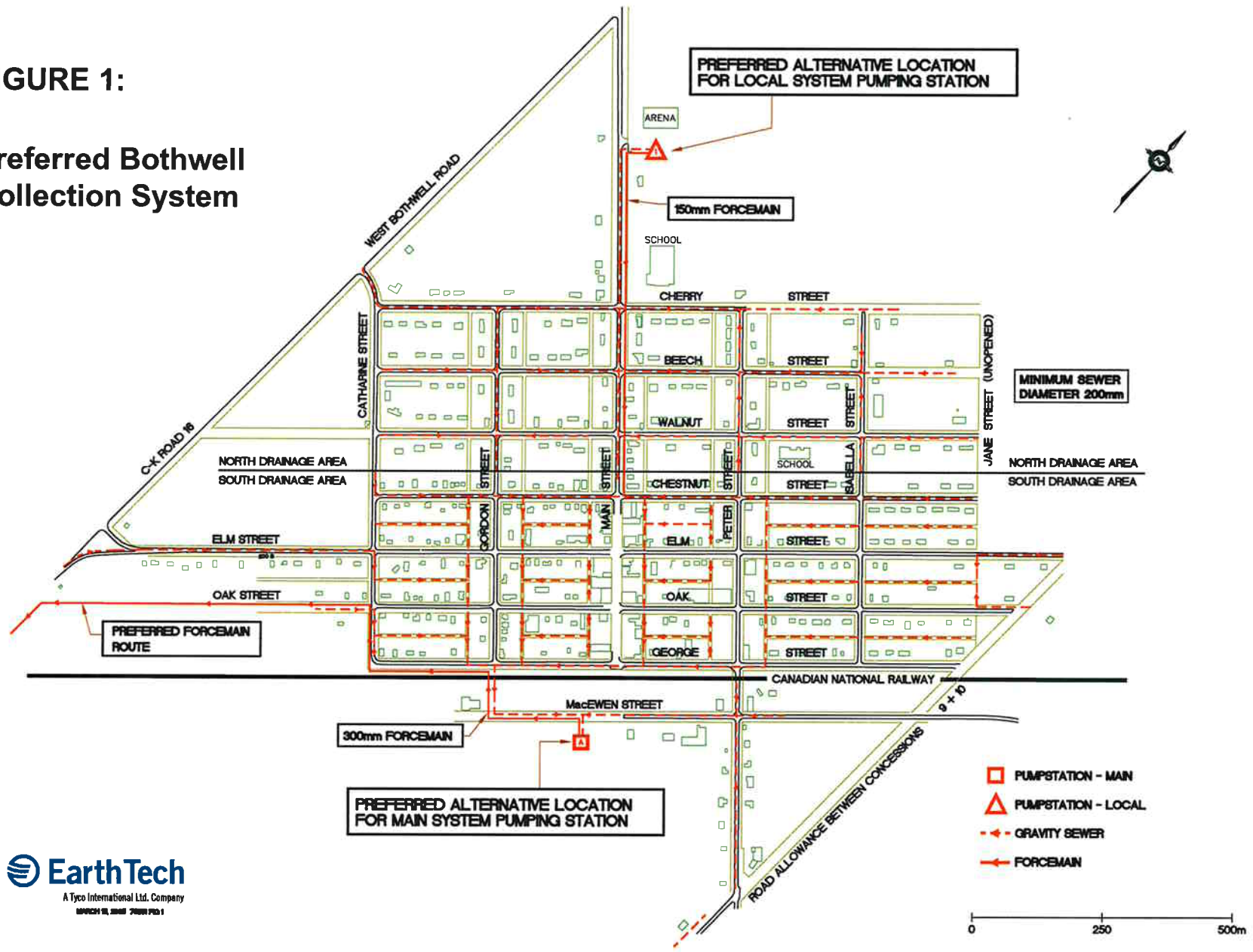
This Class EA Environmental Study Report covers the process required to ensure that the proposed installation of sanitary sewers and wastewater treatment for the Community of Bothwell project meets the requirements of the Environmental Assessment Act.

The preferred alternative solution will address the problem statement identified in this report. A preliminary evaluation of potential impacts was included in the screening, and indicates only minor and predictable impacts, which are addressed by recommended mitigative measures.

Public notification and opportunity for comments was provided and no comments were received that could not be adequately addressed. As a result, this project is considered to meet the requirements of the Environmental Assessment Act.

FIGURE 1:

**Preferred Bothwell
Collection System**



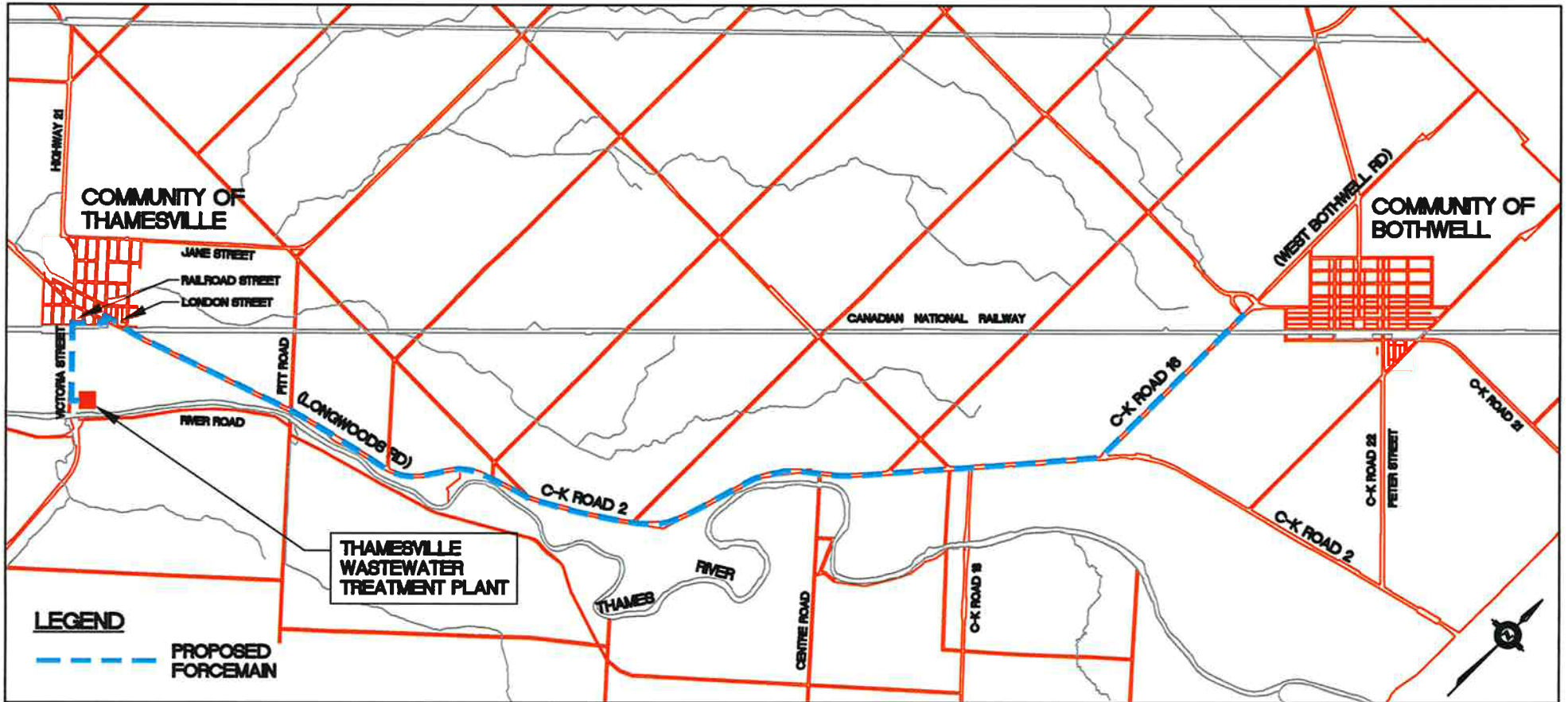


FIGURE 2:

Recommended Forcemain Route
Thamesville to Bothwell