Ainley & Associates Limited
195 County Court Boulevard, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172 Fax: (705) 445-0968
E-mail: brampton@ainleygroup.com

October 30, 2019

File No. 115157

Town of Erin
5684 Trafalgar Rd. Hillsburgh,
ON, N0B 1Z0

Attn: **Nick Colucci, P.Eng.**
Director of Infrastructure Services

Ref: **Town of Erin, Urban Centre Wastewater Servicing**
Class Environmental Assessment
Environmental Study Report

Dear Mr. Colucci:

We are pleased to attach one (1) hard copy and one (1) PDF copy of the final Environmental Study Report (ESR) for the Urban Centre Wastewater Servicing Schedule 'C' Municipal Class Environmental Assessment (EA).

This report documents Phases 1 through 4 of the Class EA process, including the establishment and evaluation of alternative solutions, a description of the recommended alternative solution, details of public consultations, and required mitigation measures during implementation of the project. The report also discusses project implementation and provides an opinion of cost.

The final ESR report incorporates the responses to all comments received during the formal 30-day public review period, which concluded with the Minster's Aug. 29, 2019 decision denying the three (3) requests for Part II Orders.

This concludes the Class EA process and the Town can now proceed with the design and ultimate construction of the project as set out in the ESR, subject to any other permits or approvals required.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan, P.Eng.
President and CEO

Town of Erin
Urban Centre Wastewater Servicing
Class Environmental Assessment

Environmental Study Report

FINAL REPORT
Volume 1 of 3

Environmental Study Report & Appendix A

CONSULTING
ENGINEERS
PLANNERS

Town of Erin Urban Centre Wastewater Servicing Class Environmental Assessment

Environmental Study Report

Project No. 115157

Prepared for:
The Town of Erin

Prepared By:

Preya Balgobin, P. Eng.

Reviewed By:

Gary Scott, P.Eng.

Ainley Group
195 County Court Blvd., Suite 300
Brampton, ON L6W 4P7

Phone: (905) 452 – 5172
www.ainleygroup.com

The preparation of this feasibility study was carried out with assistance from the Green Municipal Fund, a Fund financed by the Government of Canada and administered by the Federation of Canadian Municipalities. Notwithstanding this support, the views expressed are the personal views of the authors, and the Federation of Canadian Municipalities and the Government of Canada accept no responsibility for them.

EXECUTIVE SUMMARY

ES-1 Background and Objective

The Town of Erin is located north east of Guelph, Ontario in Wellington County. The main urban centres within the Town, are Erin Village and Hillsburgh. Currently, almost all of the properties in these two communities are serviced by individual private septic systems. In 2014, The Town of Erin completed a Servicing and Settlement Master Plan (SSMP) to address servicing, planning, and environmental issues within the Town and to establish a recommended approach for wastewater management for both of the urban communities in order to address the wastewater issues within the communities and to facilitate growth, which is limited by the lack of wastewater servicing.

In 2016, The Town initiated the Urban Centre Wastewater Servicing Class Environmental Assessment (UCWS EA), which has the objective of completing the Class Environmental Assessment process for wastewater servicing within Erin Village and Hillsburgh based on the general alternative solution developed during the SSMP. The UCWS EA follows the Municipal Class Environmental Assessment (Class EA) process.

ES-1.1 Background

The study area for the SSMP included Erin Village and Hillsburgh and a portion of the surrounding lands within the community boundaries. The SSMP concluded that a wastewater collection system conveying all wastewater flows to a single wastewater treatment plant (WWTP) was the preferred solution to meet the existing community's wastewater servicing needs and support future population growth. The SSMP further recommended that the WWTP be situated south east of Erin Village, with treated WWTP effluent being discharged to the West Credit River between 10th Line and Winston Churchill Boulevard.

The work covered in the SSMP constitutes Phase 1 and part of Phase 2 of the Class EA process.

ES-1.2 Study Objectives

The UCWS EA continues the Class EA process for wastewater servicing for both communities. The UCWS EA completes Phases 1 and 2 of the Class EA process to refine and confirm the results of the SSMP and also completes Phases 3 and 4 to determine the preferred design alternatives for wastewater collection, treatment, and disposal.

The UCWS EA is classified as a Schedule C EA under the Municipal Class EA process. Phases 1 and 2 of the Class EA identify the preferred general alternative solution. Phase 3 of the Class EA identifies the preferred design alternative.

Public consultation is an integral part of the Municipal Class EA process and includes consultation with all stakeholders to ensure that the actions taken through the study are reflective of the concerns and interests of the affected parties and in line with agency directives.

ES-2 Class Environmental Assessment Process

Ontario's Environmental Assessment Act (the Act) was proclaimed in 1976. The Act requires proponents to examine and document the environmental effects that might result from major projects or activities.

Municipal undertakings, such as water, wastewater, and transportation/road projects, became subject to the Act in 1981. For specific classes of projects, including wastewater projects, approval is delegated to the proponent provided they follow an approved process and satisfy the requirements of stakeholders and concerned agencies.

The Municipal Class Environmental Assessment document, prepared by the Municipal Engineers Association (MEA) outlines the procedures to be followed to satisfy Class EA requirements for water, wastewater and road projects. The process includes five phases:

- Phase 1: Problem Definition
- Phase 2: Identification and Evaluation of Alternatives to Determine a Preferred General Solution
- Phase 3: Examination of Alternative Methods of Implementation of the Preferred General Solution
- Phase 4: Documentation of the Planning, Design and Consultation Process
- Phase 5: Implementation and Monitoring

Projects subject to the Class EA process are classified into four possible "Schedules" depending on the degree of expected impacts and are set by the proponent. The Schedules are A, A+, B and C.

Public and stakeholder consultation is required in the Municipal Class EA process for Schedule A+, B and C projects. For a schedule C project, three mandatory public contacts are required including one during Phase 2, one during Phase 3 and one during Phase 4 of the process.

Concerns regarding the study can be raised to the Town for resolution through the EA process and during the 30-day review period. If a resolution cannot be achieved through discussion with the Town, a request can be made to the Ministry of Environment Conservation and Parks (MECP) for a Part II Order. If granted, a Part II Order Request would require the project to comply with Part II of the Environmental Assessment Act.

This Final Environmental Study Report (ESR) documents the Class EA work, findings and stakeholder comments received during the 30-day review period as well as resolution of all Part II Orders.

ES-3 Study Area

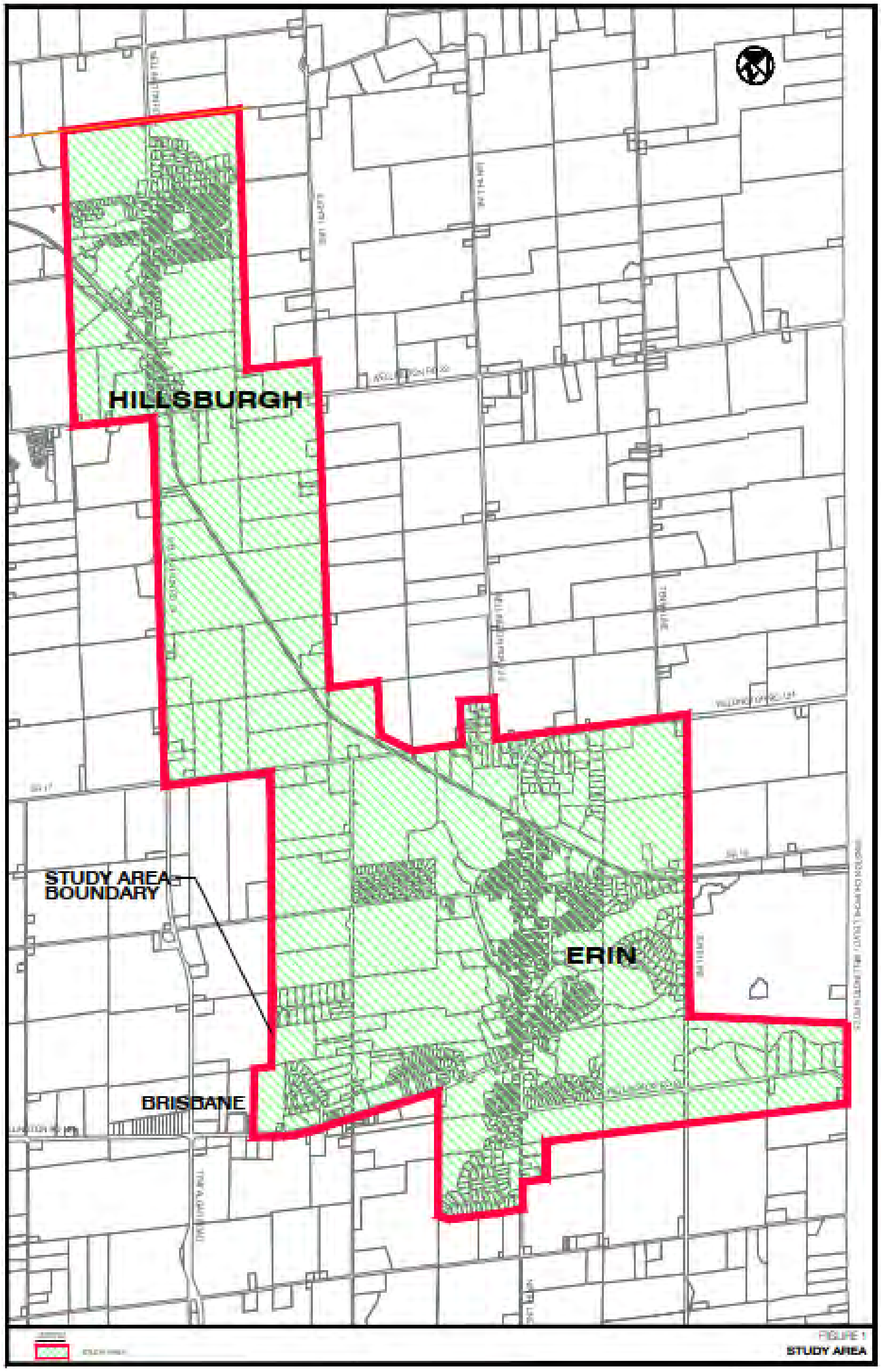
The Town of Erin is a predominately rural municipality, located in southeastern Wellington County. The Town is bordered to the east by the Town of Caledon, the Town of Halton Hills to the south, Centre Wellington Township and Guelph/Eramosa Township to the west, and the Township of East Garafraxa to the north. Located within the Town boundaries are the headwaters for the West Credit River. Generally, the Town of Erin is characterized by undulating topography, numerous wetlands and woodland areas.

The study area for the UCWS Class EA was set out in the Terms of Reference. It includes the Village of Erin and Hillsburgh, as well as a portion of the surrounding rural area. Figure 1 shows the study area.

ES-4 Class EA Phase 1 and 2 Overview

ES-4.1 SSMP

The settlement areas for Erin Village and Hillsburgh have been identified as areas of modest growth under the Places to Grow Act and by Wellington County population projections. This classification was partly a result of the wastewater servicing restrictions identified in the SSMP. The existing residential population in the two urban areas is approximately 4,500. An Assimilative Capacity Study (ACS),



completed as part of the 2014 SSMP, indicated that a treated effluent discharge to the West Credit River could support a population growth up to 6,000 persons.

The 2014 ACS concluded that the maximum flow of treated effluent that could be discharged to the West Credit River was 2,610 m^3/d; sufficient to service a population of 6,000 based on an effluent limit of 0.15 mg/L for total phosphorus, which was considered to be the limiting discharge parameter.

The SSMP identified that the Town is lacking a long term, comprehensive strategy for the provision of wastewater servicing in Erin Village and Hillsburgh. The SSMP recommended that a municipal/communal wastewater system be constructed based on a gravity wastewater collection system with treatment at a wastewater treatment plant (WWTP). The recommended WWTP location was south of Erin Village, with a discharge of treated effluent to the West Credit River between 10th Line and Winston Churchill Boulevard.

ES-4.2 Urban Centre Wastewater Servicing Class EA (UCWS EA)

The terms of reference for the UCWS EA requires investigation and refinement of the preferred general alternative identified in the SSMP and confirmation of the preferred general solution. To achieve this objective, the following work was undertaken during Phase 2 of the UCWS EA:

- An update to the 2014 West Credit River Assimilative Capacity Study;
- A more detailed septic system survey;
- An assessment of required system capacity to service full build out of the Town's Official Plan;
- An assessment of the viability of a two treatment plants alternative (one for Hillsburgh and one for Erin Village);
- An assessment of the viability for a subsurface disposal alternative.

The results of the Phase 2 work are summarized below.

Assimilative Capacity Study

In 2016, the ACS was updated to include hydrodynamic modelling and additional data collected since completion of the 2014 ACS. The updated ACS confirmed that phosphorous loading to the West Credit River was the limiting factor for the amount of treated wastewater that could be discharged to the River. However, the update demonstrated that a much higher flow could be discharged to the river based on application of "Best Available Treatment Technology" (BAT) for phosphorus removal. In fact, to service full build out of all the growth areas in the Town's Official Plan would require an effluent limit for total phosphorus of 0.046 mg/L which is achievable using BAT technologies. This resulted in a revised discharge capacity of 7,172 m^3/d; capable of servicing a residential population of 14,559.

The effluent limits and objectives recommended by the updated ACS for full build out are:

Parameter	Full Buildout Effluent Limits	Full Buildout Effluent Objectives
5-day Carbonaceous Biochemical Oxygen Demand ($cBOD_5$)	5 mg/L	3 mg/L
Total Suspended Solids	5 mg/L	3 mg/L
Total Phosphorus	0.045 mg/L	0.03 mg/L

Parameter	Full Buildout Effluent Limits	Full Buildout Effluent Objectives
Total Ammonia Nitrogen	0.6 mg/L (summer: May 15 to October 15) 2 mg/L (winter: October 16 to May 14)	0.3 mg/L (summer: May 15 to October 15) 1 mg/L (winter: October 16 to May 14)
Nitrate Nitrogen	5 mg/L	4 mg/L
Minimum Dissolved Oxygen	4 mg/L	5 mg/L
E.coli	100 cfu/100mL	100 cfu / 100mL
pH	6.5 - 8.5	N/A

The effluent limits and objectives recommended in the 2016 ACS have been accepted by the Ministry of the Environment and Climate Change (MOECC) (now Ministry of Environment, Conservation and Parks - MECP) and Credit Valley Conservation (CVC).

Septic System Survey

This study provides a survey of existing septic system and presents the data analysis used to define the recommended communal sewage servicing areas. Problems with existing septic systems are discussed, including the properties/lots serviced by holding tanks, undersized septic tanks, and properties/lots considered too small for replacement of disposal beds.

Based on the results of the septic survey, service areas for a communal wastewater system were recommended for Erin Village and Hillsburgh.

This survey concluded that all existing areas should be connected to the communal system, except for Northeast Erin, part of South Erin and Upper Canada Drive in Hillsburgh. Refer to Figures 2 and 3 below for delineation of the service areas.

System Capacity and Flows Review

This study estimated wastewater flows from the urban areas of Erin Village and Hillsburgh using assumptions for wastewater generation rates for residents, inflow and infiltration, schools, industrial and commercial establishments.

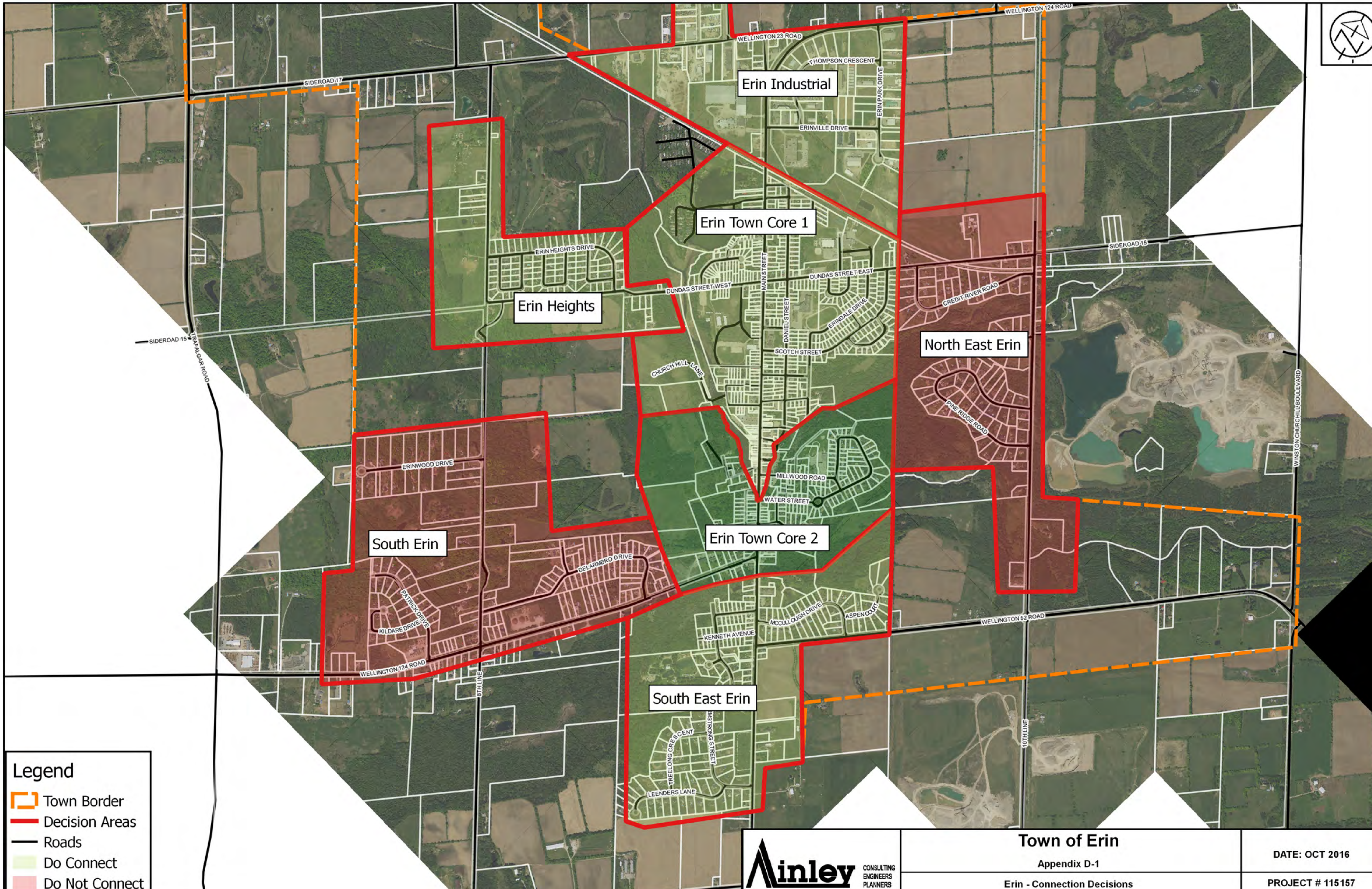
The average wastewater flow from 4,616 residents would be approximately, 2,844 m^3/d.

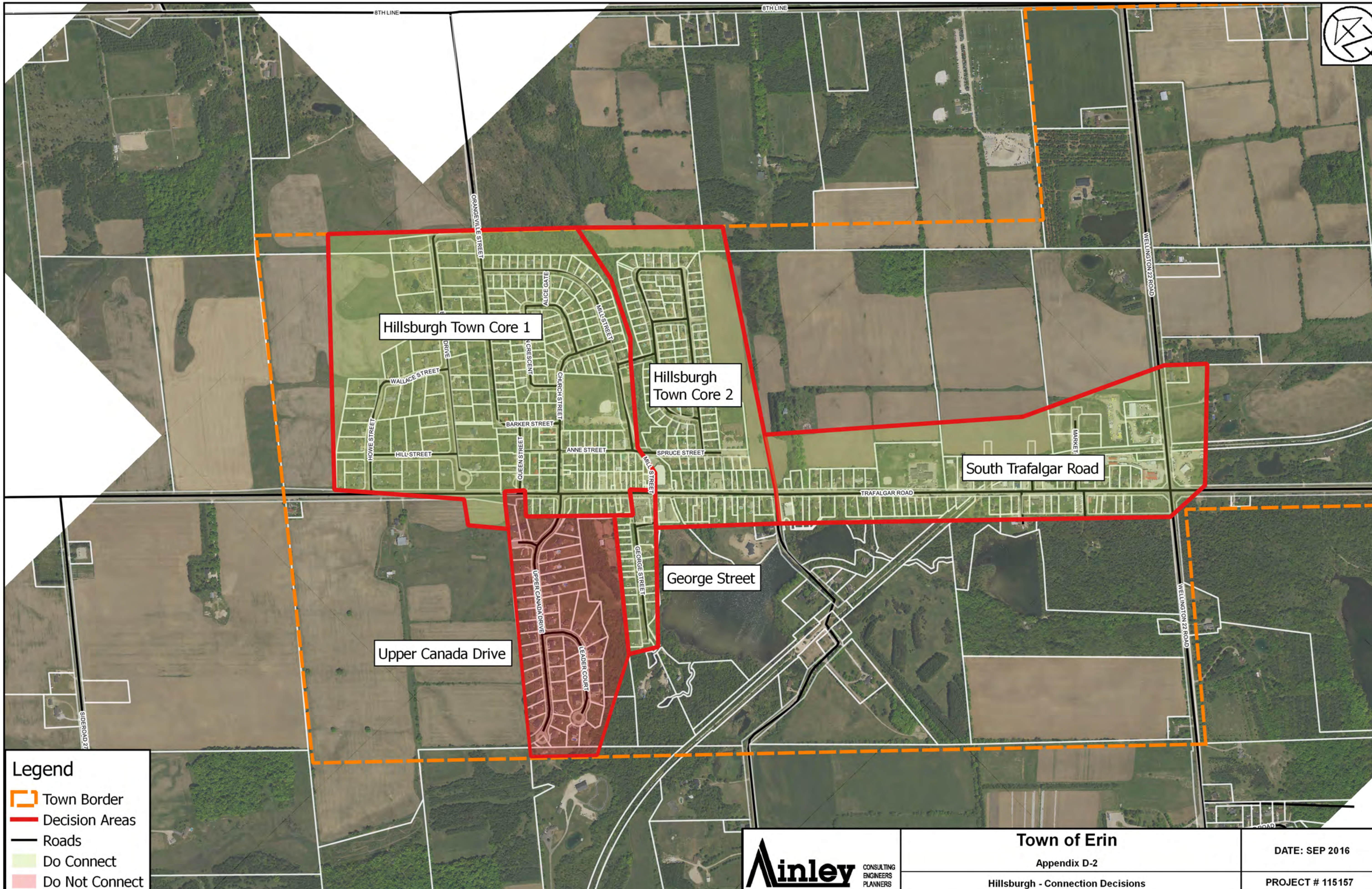
The findings of this review established that the new growth areas, as defined by the Town Official Plan, would contribute an estimated 4,328 m^3/d of wastewater flow to the system. The projected wastewater flow associated will full development would be 7,172 m^3/d, corresponding to a residential population of 14,559.

Two Treatment Plants Alternative (One Hillsburgh and One Erin)

This evaluation examined the feasibility of having a WWTP dedicated to Hillsburgh and one dedicated to Erin Village, rather than a single plant servicing both communities. Capital costs and operating and maintenance costs of both options over a 50-year period were included in the evaluation.

The results of the evaluation showed that, for the full buildout flow, the net present value for two WWTPs was $104M versus $70M for the single-plant alternative and concluded that the single-plant option was the preferred solution.


Erin Industrial
Erin Town Core 1
Erin Heights
North East Erin
South Erin
Erin Town Core 2
South East Erin
WELLINGTON 124 ROAD
WELLINGTON 23 ROAD
THOMPSON CRESCENT
ERIN PARK DRIVE
ERINVILLE DRIVE
SIDEROAD 17
SIDEROAD 15
ERIN HEIGHTS DRIVE
DUNDAS STREET WEST
DUNDAS STREET EAST
MAIN STREET
DANIEL STREET
ERINDALE DRIVE
SCOTCH STREET
CREDIT RIVER ROAD
CHURCH HILL LANE
TRAFALGAR ROAD
PINE RIDGE ROAD
ERINWOOD DRIVE
MILLWOOD ROAD
WATER STREET
DELARMBRO DRIVE
PATRICK DRIVE
KILDARE DRIVE
MCCULLOUGH DRIVE
ASPEN COURT
KENNETH AVENUE
WELLINGTON 52 ROAD
WINSTON CHURCHILL BOULEVARD
8TH LINE
10TH LINE
TREELONG CRESCENT
ARMSTRONG STREET
LEENDERS LANE
Legend
Town Border
Decision Areas
Roads
Do Connect
Do Not Connect
Ainley CONSULTING ENGINEERS PLANNERS
Town of Erin
Appendix D-1
Erin - Connection Decisions
DATE: OCT 2016
PROJECT # 115157


8TH LINE
ORANGEVILLE STREET
ALICE GATE
MILL STREET
Hillsburgh Town Core 1
Hillsburgh Town Core 2
WALLACE STREET
CRESCENT
CHURCH STREET
BARKER STREET
HOWE STREET
HILL STREET
QUEEN STREET
ANNE STREET
SPRUCE STREET
MARKET
WELLINGTON 22 ROAD
South Trafalgar Road
TRAFALGAR ROAD
GEORGE STREET
George Street
UPPER CANADA DRIVE
LEADER COURT
Upper Canada Drive
SIDEROAD 27
Legend
Town Border
Decision Areas
Roads
Do Connect
Do Not Connect
Ainley CONSULTING ENGINEERS PLANNERS
Town of Erin
Appendix D-2
Hillsburgh - Connection Decisions
DATE: SEP 2016
PROJECT # 115157

Subsurface Disposal Alternative

An outcome of the public consultation process was an agreement that the SSMP did not adequately investigate the option of subsurface disposal. Subsequently, the study team reviewed the feasibility of a subsurface disposal alternative.

The study concluded that subsurface disposal is not viable for Erin Village, due to the lack of land space and elevated risks associated with disposal bed failure. For Hillsburgh, subsurface disposal would cost 10% to 20% more in capital and offers no advantage over surface water discharge. Subsurface disposal was therefore eliminated as a viable solution.

The results of Phase 1 and Phase 2 of the Class EA confirmed that the preferred solution for wastewater servicing of the study area, is a communal wastewater collection system, with treatment in a single wastewater treatment plant, and discharge to the West Credit River between the 10th line and Winston Churchill Boulevard.

ES-5 Class EA Phase 3 Overview

Phase 3 of this Class EA evaluated design alternatives for the major components of the wastewater collection and treatment system. The components evaluated were:

1. Wastewater Collection System;
2. Pumping Stations and Forcemains;
3. Wastewater Treatment Plant Outfall Location;
4. Wastewater Treatment Plant Location;
5. Wastewater Treatment Technologies

ES-5.1 Phase 3 Evaluation Methodology

The evaluation methodology used to select the preferred design alternatives was established in a manner consistent with the principles of environmental assessment planning and decision-making, as outlined in the Municipal Class Environmental Assessment.

In general, the evaluation process involved identification of potentially viable alternatives followed by conceptual design, sizing, and costing of each alternative and a detailed evaluation using screening criteria. The screening criteria were chosen to reflect key aspects of the component being evaluated. Four primary screening categories were used for the evaluation:

- Social/Cultural Impacts;
- Environmental Impacts;
- Technical Performance;
- Economic Impacts

Each category was given a weighting to capture its importance relative to the other categories used to evaluate each component.

A two-step process was used to narrow down the list of alternatives to those viable alternatives that would proceed to detailed evaluation. The two-step evaluation involved:

1. Identification of a long list of potentially feasible alternatives and screening this list down to a short list using “long-list screening criteria”.
2. Performing detailed evaluations of the short-listed alternatives, using “short-list screening criteria”, to identify a recommended preferred alternative.

ES-5.2 Phase 3 Evaluation and Results

To support evaluation of all Phase 3 alternatives, a series of background studies were completed to assist with establishment of Social/Cultural, Environmental, Technical and Economic impacts associated with each alternative. These studies included:

- Updated Assimilative Capacity Study (ACS) to confirm water quality limits for the WWTP effluent discharge to the river;
- West Credit River Fluvial Geomorphological Assessment to confirm potential physical impacts to the river bed and channel from the effluent discharge to the river;
- Natural Environment Study to confirm potential impacts to the natural environment from all components of the wastewater system;
- Stage 1 Archeological Assessment to assist in defining potential archaeological impacts from all components of the wastewater system;
- Cultural Heritage Resource Assessment to define potential impacts to community and built heritage resources and cultural heritage landscapes;
- Preliminary Geotechnical Investigation to define potential impacts on existing soils and groundwater and to define cost impacts associated with ground conditions;
- Topographic Survey to assist with conceptual design of all components.

Having defined each alternative and their potential impacts, the evaluation process was completed and documented in a series of technical memoranda prepared as part of Phase 3 of the Class EA. The results of the evaluation process are summarised in the table below.

Component Evaluated	Design Alternatives Evaluated	Evaluation Results (Preferred Design Alternative)
Wastewater Collection System Alternatives	▪ Traditional Gravity Sewers ▪ Blended Gravity / Low-Pressure Sewers ▪ STEG/STEP (Septic Tank Effluent Gravity Tank / Septic Tank Effluent Pump) ▪ Low-Pressure Sewers ▪ Vacuum Sewers	• Blended Gravity / Low-Pressure Sewers
Pumping Stations and Forcemains	▪ Total of 10 sewage pumping stations would be needed, located at low points within the	• Preferred sites for all SPS's were established

Component Evaluated	Design Alternatives Evaluated	Evaluation Results (Preferred Design Alternative)
	gravity portion of the collection system. ▪ Hillsburgh to Erin forcemain route evaluation: - Elora-Cataract Trail: Along the Elora-Cataract Trail: Total length of 5.2 km - Wellington Road 22: Aligned east along Wellington Road 22 and diverting along 8th Line towards Erin Village: Total length of 6.9 km - Trafalgar Road: Aligned along Trafalgar Road and diverting east along Sideroad 17 towards Erin Village: Total length of 7.0 km	• Hillsburgh to Erin forcemain along the Elora-Cataract Trail
Treated Effluent Outfall Site Selection	▪ 10th Line West Side ▪ 10th Line East Side ▪ Winston Churchill Boulevard West Side	• Winston Churchill Boulevard West Side
Wastewater Treatment Plant Site Selection	▪ Solmar Site, North Side of Wellington Road 52 and west of 10th Line ▪ Halton Crush Stone (HCS) South of Solmar Site (south side of Wellington Road 52) ▪ Halton Crushed Stone at southwest corner of 10th Line and Wellington Road 52 ▪ Halton Crushed Stone at southeast corner of 10th Line and Wellington Road 52	• Solmar Site (if land required prior to aggregate extraction at the HCS sites) **OR** • Halton Crushed Stone at southwest corner of 10th Line and Wellington Road 52 (if land required after aggregate extraction at the HCS sites)
Treatment Technologies (Liquid Treatment)	<u>Primary Treatment</u> ▪ Conventional Primary Clarifier ▪ Enhanced Primary Treatment	• Enhanced Primary Treatment
	<u>Secondary Treatment</u> ▪ Modified Conventional Activated Sludge Process (CAS) ▪ Sequencing Batch Reactor (SBR)	• Membrane Bioreactor

Component Evaluated	Design Alternatives Evaluated	Evaluation Results (Preferred Design Alternative)
	▪ Membrane Bioreactor (MBR)	(MBR)
	Tertiary Treatment ▪ Adsorptive Deep Bed Filtration ▪ Two-Stage Continuous Up-Flow Filtration ▪ Tertiary Membranes	• Not required since MBR can achieve tertiary treatment
	Disinfection ▪ Chlorination / Dechlorination ▪ UV Disinfection	• UV Disinfection
	WWTP Effluent Re-Oxygenation ▪ Coarse Bubble Aeration ▪ Fine Bubble Aeration ▪ Side Stream Dissolved Oxygen Injection ▪ Natural Aeration via Engineered Waterfall from WWTP to Outfall	• Fine Bubble Aeration (using upsized blowers from secondary treatment)
Treatment Technologies (Sludge/Biosolids Treatment)	▪ Conventional Aerobic Digestion ▪ Autothermal Thermophilic Aerobic Digestion (ATAD)	• Autothermal Thermophilic Aerobic Digestion (ATAD)
Treatment Technologies (Septage Treatment)	▪ Direct Co-Treatment of Raw Septage ▪ Design Main Plant MBR process to Include Septage Treatment ▪ Pre-Treat Raw Septage by Dewatering with GeoTube Followed by Co-Treatment	• Pre-Treat Raw Septage by Dewatering with GeoTube Followed by Co-Treatment

ES-6 Opinion of Costs

The UCWS EA has identified the opportunity to service a residential population of 14,559 which will involve servicing of the existing communities, as well as new development areas. All costing has been completed on the basis of servicing to this higher population level representing full build out of the Town's present Official Plan. The Town intends to revisit community growth through an Official Plan review following completion of the UCWS EA, however project implementation will require Provincial and Federal government funding for the existing community portion of the project along with a cost sharing agreement between the Town and developers for any new development areas.

The study identifies that connected properties will have to pay for 3 separate cost components:

- Municipal System Capital Cost
- Private Property Connection Cost
- System Operating Cost

Municipal System Capital Cost

This category comprises the cost to construct the entire wastewater system up to the street line/property line outside each property. The costs will be financed by the Town and paid for by all connected properties.

The municipal capital costs for the proposed wastewater system for the study area is approximately $118.2M. This estimate includes the collection system, treatment system (WWTP and site purchase), and the outfall. The table below summarizes the cost estimates for these three capital cost components

System Component	Estimated Cost (2017 CAD$)
Collection System	$ 55,211,000
Treatment System	$ 61,381,500
Outfall	$ 1,606,760
Total	**$ 118,199,260**

It is recommended that the municipal system capital cost be shared between the existing communities and developers, based on capacity/flow proportioning. However, it is recognised that system capital cost sharing will also depend on project financing and implementation.

Based on a review of the preferred alternative identified in this Class EA study, it is likely that the Town's share of the system capital cost would be between $50 million and $60 million, representing 40% to 50% of the total cost. This will leave the balance of the $118.2 million between $58 million and $68 million to be paid by developers, representing 50% to 58% of the total cost

Private Property Connection Cost

This consists of the cost to connect the system from the street into each property. It would be paid for directly by the property owner at the time of connection.

A survey of the community was conducted and a range of the expected private property connection costs was developed for piping and landscaping required to connect to the municipal system. These estimates include costs to safely decommission septic tanks on each property.

- Piping costs range from $3,200 – $14,700, with the typical lot paying $4,500.
- Landscaping costs range from $600 - $5,500, with the typical lot paying $1,500.
- On average most properties can expect to pay between $4,000 and $8,000 with the average cost being approximately $6,000 to connect to the system

System Operating Cost

This consists of the ongoing operation and maintenance cost that will be paid by serviced properties through user rates, similar to the existing water rates.

The cost of operating a municipal wastewater treatment plant depends on the treatment technologies used, the type of collection system, and the size/capacity of the system. In general, operating costs per cubic metre of wastewater treated at a WWTP decrease as the number of residents served increases. This is because the costs are distributed amongst a greater number of people and the benefits associated with economies of scale can be realized.

Based on data obtained from other local municipalities with similar sized wastewater systems, it is anticipated that the annual operating costs per customer range from $600 in the early years to under $500 per year as the system approaches full build-out.

User rates must be developed to cover the full cost of operating and maintaining the system with due allowance for future equipment replacement. Municipalities in Ontario are required to implement an asset management system for their municipal assets and to develop sustainable rates that provide for the long-term operation and maintenance of the system.

ES-7 Impacts and Mitigation Measures

Potential impacts resulting from constructing and operating the wastewater system were identified in the study, along with suggested mitigation measures aimed at minimising these impacts. The background studies identified potential risks to the natural environment, natural cultural/heritage of the study area and archaeological resources during construction and operation. Evaluation of the design alternatives also incorporated factors such as climate change, energy efficiency, overflow and spills, odour, noise, and environmental management.

To protect the natural environment, the following mitigation measures are recommended:

- Performing construction activities outside the breeding or spawning season of identified sensitive species or species at risk;
- Limiting the construction footprint to only the lands that need to be disturbed in order to protect existing wildlife and vegetation;
- Performing construction activities in such times to minimize environmental damage, such as outside high runoff periods in spring;
- Implementing an environmental management plan, that defines regulatory approvals and permits, environmental protection and mitigation measures, environmental inspections and monitoring and contingency planning;
- Using trenchless technologies for river crossings where possible.

To protect archaeological interests in the areas to be disturbed by this undertaking, a Stage 2 archaeological assessment will be required at the selected WWTP site and identified sewage pumping station sites.

There were no significant cultural/heritage impacts identified in the study and the preferred collection system avoids construction along Main Street in Erin Village through the commercial/business section.

To mitigate the potential for odour and noise emissions from the WWTP, the preferred site for the WWTP will be at least a 200-metres from the nearest receptor / residence. This is greater than the MECP's recommended distance of between 100 to 150 m for a plant of this size.

The WWTP would incorporate odour control systems, designed to meet the MECP's regulated limits for odour emissions. The larger pumping stations would also include odour control systems.

There would be minimal noise emissions from the pumping stations and WWTP since most of the process equipment would be housed indoors. For pumping stations that require a standby generator, the generator would be housed in a noise attenuating enclosure, designed to reduce noise output to the regulated limits.

Energy efficiency criteria were included in the detailed evaluation of the collection system, forcemain, and treatment technologies. Alternatives that had lower energy requirements scored higher for this criterion and recommendations have been included to minimise energy use.

Due to concern regarding the discharge of chlorides to the West Credit River it is recommended that the Town initiate an education programme and require installation of high efficiency softeners in new developments.

This study also recommended that an environmental inspector be retained during the construction stage to monitor the work and ensure construction activities are carried out in accordance with the Environmental Management Plan.

ES-8 Public Consultation

This Class EA incorporated several mechanisms to communicate information to and receive feedback from the public and other stakeholders throughout the study. A project site was created on the Town of Erin's website, dedicated to this Class EA. Throughout the study, completed documents were posted on this webpage for easy access by interested parties. An email address was also created to receive feedback and comments about the study. The contact name and phone number of the project manager was also provided for stakeholders who preferred to submit feedback via phone.

A list of the stakeholders, including public contacts, review agencies, and first nations was created and regularly updated throughout the study. All stakeholders were contacted with three (3) separate notices through Phase 1 to Phase 3 of the Class EA process, including the Notice of Commencement, Notice of Public Information Centre (PIC) #1, and PIC #2.

PIC #1 presented the findings of Phases 1 and 2 of this Class EA and PIC #2 presented findings of Phase 3. Both PICs solicited and received comments from stakeholders.

Two committees were created as additional mechanisms to facilitate the public consultation process. The committees were the Core Management Team Committee (CMT) and the Public Liaison Committee (PLC).

The CMT was formed to coordinate and provide strategic advice for the project and to review and provide input on the studies. Members of the CMT consisted of Town staff, the consulting team, and representatives from Wellington County, MECP and CVC. There were four meetings held with the CMT during the Class EA.

The PLC was established as an advisory committee comprised of interested public stakeholders appointed by Council representing a cross-section of the community. The PLC served as a sounding board for the project findings before they were released at the PICs. This committee also helped the project team determine the optimal formation of presentation materials for public release. Four PLC meetings were held during the course of the Class EA.

Some key design considerations that were incorporated into the study based on feedback from the public consultation process were:

- Full review of the feasibility of subsurface disposal as a potential solution;
- Investigation of the option of having two WWTPs (one for Erin Village and one for Hillsburgh);
- A review and defense of the per capita flow rate that was used to calculate the amount of wastewater generated within the urban centres;
- A review and computer modelling of thermal impacts on the West Credit River from the WWTP discharge;
- A review of the effect of chlorides on the West Credit River and potential requirement for chloride control measures;
- The need for additional spawning studies in the River prior to implementation;
- A review and defense of the selection of Winston Churchill Boulevard as the preferred outfall location alternative;
- Preparation of an "Overflow Risk Management" assessment to address concerns about the potential for spills and proposed mitigation measures.
- Preparation of a Capital Cost Summary Report due to address comments related to the overall system costs, particularly with respect to direct costs to existing residents.

All documentation arising from public consultation activities, including presentation materials, comments from members of the public and agencies, along with responses to all comments, is included in this Environmental Study Report.

ES-9 Recommended Alternative Design

The table below summarizes the recommended alternative designs for the five major components of the communal wastewater collection and treatment system proposed for the Town of Erin.

System Component	Preferred Design Alternative
Collection System	Blended Gravity and Low-Pressure Sewers
Hillsburgh to Erin Forcemain Route	Along the Elora-Cataract Trail
WWTP Outfall Location	West Side of Winston Churchill Boulevard
Wastewater Treatment Plant Site	▪ North of Wellington Road 52 (Solmar) if land acquisition required before gravel extraction on HCS lands. ▪ Southwest corner of Wellington Road 52 and 10th Line if Halton Crushed Stone (HCS) have extracted gravel before land acquisition is required.
Wastewater	*Primary Treatment*

System Component	Preferred Design Alternative
Treatment Technologies	• Advanced Primary Treatment, including fine screens to facilitate membrane bioreactors in secondary treatment
	Secondary and Tertiary Treatment
	• Membrane Bioreactor (MBR)
	Disinfection
	• UV Disinfection
	Effluent Re-Oxygenation
	• Fine Bubble Aeration (using upsized secondary treatment blowers)
	Sludge/Biosolids Management
	• Auto-thermal Thermophilic Aerobic Digestion with Land Application of Liquid Biosolids
	Septage Receiving and Management
	• Pre-Treat Raw Septage by Dewatering with GeoTube Followed by Co-Treatment at the Main Plant and Land Application of Stabilized, Dewatered Biosolids

ES-10 ESR Public and Agency Review

Three Part II Order requests were received by the MECP during the ESR 30-day review period. At the request of the MECP, the study team provided background information regarding where in the ESR each concern raised is addressed. The MECP issued their response to all three Part II Orders on August 29, 2019 and concluded that all concerns had been adequately dealt with in the ESR and that an individual environmental assessment would not be required as a result of any of the Part II Order requests.

ESR Review comments were received by several review agencies during the 30-day review period. Responses were issued by the study team for all agency comments. All comments have been addressed to the satisfaction of the agencies or otherwise incorporated into the ESR as recommendations for the implementation stage.

Table of Contents

VOLUME 1 OF 3 – ESR and Appendix A
VOLUME 2 OF 3 – Appendix B to J
VOLUME 3 OF 3 – Appendix K to W

List of Tables

List of Figures

List of Appendices

Glossary of Terms

ACS	Assimilative Capacity Study: see assimilative capacity.
ADF	Average Daily Flow, typically expressed throughout the report in units of cubic metres per day (m^3/d)
Assimilative Capacity	Assimilative capacity refers to the ability of a body of water to cleanse itself; its capacity to receive waste waters or toxic substances without deleterious effects and without damage to aquatic life or humans who consume the water.
Ainley	Primary engineering consultant for the Class EA process.
Air Lock	Air lock occurs in pressurized pipes when a pocket of air develops and obstructs flow. The air pocket will not allow the water to flow freely through the pipe.
Air Release Valve	Air release valves function to release air pockets that collect at each high point of a full pressured pipeline.
Alternative Solution	A possible approach to fulfilling the goal and objective of the study or a component of the study.
Assimilative Capacity	The ability of receiving water (lake or river) to receive a treated effluent discharge without adverse effects on surface water quality, eco-system and aquatic life.
ATAD	Autothermal Thermophilic Aerobic Digester
BAF	Biological Aerated Filters
Benthic	Of, relating to, or occurring at the bottom of a body of water.
BOD	Biological Oxygen Demand.
BOD_5	Biochemical oxygen demand
Bore Hole	A deep, narrow hole made in the ground, used to determine the local geology and ground water elevations.
Build-out	Refers to a future date where all vacant and underdeveloped lots have been fully developed in accordance with the Town's Official Plan.
Catchment	The collection of water over a drainage area due to the ground's natural topography.
CAS	Conventional Activated Sludge.
Class EA	Municipal Class Environmental Assessment, a planning process approved under the EA Act in Ontario for a class or group of municipal undertakings. The process must meet the requirements outlined in the "Municipal Class Environmental Assessment" document (Municipal Engineers Association, October 2000, as amended). The Class EA process involves evaluating the environmental effects of alternative solutions and design concepts to achieve a project objective and goal and includes mandatory requirements for public consultation.
Cover	The depth of a buried pipeline measured from the ground surface to the obvert of the pipe.
CVC	Credit Valley Conservation Authority
Design Concept	A method of implementing an alternative solution(s).
Dewatering	Remove water from an area under consideration, usually for construction purposes, in order to avoid potential contamination.
DO	Dissolved Oxygen
Drain, Waste and Vent (DWV)	A piping system that removes sewage and greywater from a building and regulates air pressure in the waste-system pipes in order to aid free flow. Negative pressure is relieved and odours are expelled through the utilization of an air vent.

Dynamic Head-Loss	Additional pumping pressure required to overcome an increase in friction loss within a pipeline.
EA Act	Environmental Assessment Act, R.S.O. 1990, c.E.18 (Ontario)
Easement	An easement is a nonpossessory right to use and/or enter onto the real property of another without possessing it.
Environmental Compliance Approval (ECA)	This approval covers emissions and discharges related to air, noise, waste or sewage.
Effluent	Liquid after treatment. Effluent refers to the liquid discharged from the WWTP to the receiving water.
Environmental Impact Assessment (EIA)	Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account interrelated socio-economic, cultural and human-health impacts, both beneficial and adverse.
Equivalent Population	Equivalent Population represents Residential Population plus Institutional/ Commercial/Industrial wastewater flow sources expressed as the equivalent number of residents, while Residential Population represents the “actual” population exclusive of Institutional/ Commercial/ Industrial wastewater flows.
ESR	Environmental Study Report, a report prepared at the culmination of Phase 4 of the Class EA process under a Schedule C planning process.
Evaluation Criteria	Criteria applied to assist in identifying the preferred solution(s).
Flood Plain	A flood plain is an area of land adjacent to a stream or river which stretches from the banks of its channel to the base of the enclosing valley walls and which experiences flooding during periods of high discharge.
Fluvial	Related to or found within a river.
Forcemain	A pressurized pipe used to convey pumped wastewater from a sewage pumping station.
Geotechnical Investigation	Study of the engineering behavior of earth materials such as soil properties, rock characteristics, natural slopes, earthworks and foundations, etc.
Gravity sewer	A pipe that relies on gravity to convey sewage.
Gravity Line	The energy grade line of water without external pressure applied to it, which is a dependent on its elevation.
Grinder Pump	A grinder pump is a wastewater conveyance device. Once the wastewater inside the tank reaches a specific level, the pump will turn on, grind the waste into a fine slurry, and pump it to the central sewer system or septic tank. Grinder pumps can be installed in the basement or in the yard.
HESL	Hutchinson Environmental Sciences Limited
Horizontal Directional Drilling (HDD)	A trenchless technology method of pipeline construction that could be used for the construction of sewage forcemains or for small diameter sewer construction under watercourse crossings.
Hydrogeological	Study of the distribution and movement of groundwater in soil or bedrock.
IFAS	Integrated Fixed-Film Activated Sludge
Infill	A process of development within urban areas that are already largely developed. Refers specifically to the development of vacant or underdeveloped lots.
Infiltration/Inflow (I&I)	Rainwater and groundwater that enters a sanitary sewer during wet weather events or due to leakages, etc.
Intensification	A process of development within existing urban areas that are already largely developed. Refers specifically to the redevelopment of lots to increase occupancy.

Interceptor tanks	A tank intercepting effluent from the house to the main, such as a septic tank.
kWh	Kilowatt Hour, a composite unit of energy equivalent.
Lifecycle Cost	The total cost of facility ownership. It takes into account all costs of acquiring, owning, operating, and disposing of an asset.
Lift Station	See Sewage Pumping Station.
Local Conservation Authority	A conservation authority is a local, community-based natural resource management agency based in Ontario, Canada. Conservation authorities are mandated to develop programs to further the conservation, restoration, development and management of Ontario's natural resources.
LPS System	Low-Pressure Sewer System refers to a network of grinder pump units installed at each property pumping into a common forcemain.
Master Plan	A comprehensive plan to guide long-term development in a particular area that is broad in scope. It focuses on the analysis of a system for the purpose of outlining a framework for use in future individual projects.
MBR	Membrane Bioreactors
MBBR	Moving Bed Bioreactors
MEA	The Ontario Municipal Engineers Association (MEA) is an association of public sector Professional Engineers in the full time employment of municipalities performing the various functions that comprise the field of municipal engineering.
Minimum Scouring Velocity	The minimum velocity in a gravity sewer that allows self-cleansing of the pipe.
MLSS	Mixed Liquor Suspended Solids
MNR	Ministry of Natural Resources, the provincial agency responsible for the promotion of healthy, sustainable ecosystems and the conservation of biodiversity in Ontario.
MOECC/MECP	Ministry of the Environment and Climate Change, the provincial agency responsible for water, wastewater and waste regulation and approvals, and environmental assessments in Ontario. The Ministry changed its name to Ministry of Environment, Conservation and Parks in 2018.
Negative Line Pressure	The negative pressure required for fluids to be sucked to a vacuum station.
NPV	Net Present Value is the value in the present of a sum of money, in contrast to some future value it will have when it has been invested at compound interest.
O&M	Operation and maintenance
Obvert	The interior top of a pipe or culvert.
Official Plan (OP)	An official plan describes your upper, lower or single–tier municipal council's policies on how land in a community should be used. It is prepared with input from members in a community and helps to ensure that future planning and development will meet the specific needs of the community.
Open-cut Construction	Method of constructing a pipeline by open excavation of a trench, laying the pipe, and backfilling the excavation.
PDF	Peak Daily Flow, typically expressed throughout the report in units of cubic metres per day (m^3/d)
Peaking Factor	The Harmon Peaking Factor is applied to the average daily flow in order to account for the possibility of uncertainty or underestimation. This factor reduces as contributing population increases and vice versa.

Peak Flow	An estimation of the maximum volume of wastewater generated over a single day. The peak day flow is calculated by multiplying the ADF by the Harmon Peaking Factor.
PHF	Peak Hourly Flow
Preferred Alternative	The alternative solution which is the recommended course of action to meet the objective statement based on its performance under the selection criteria.
Private Treatment System	Lot-level or communal sewage treatment methods, such as septic systems or aerobic treatment systems, which remain in private ownership.
PWQO	Provincial Water Quality Objectives (PWQO) are numerical criteria which serve as chemical and physical indicators representing a satisfactory level for surface waters (i.e. lakes and rivers). The PWQO are set at a level of water quality which is protective of all forms of aquatic life and all aspects of the aquatic life cycles during indefinite exposure to the water.
RAS	Return Activated Sludge
RBC	Rotating Biological Contractor:
Receiving Pit	A shaft or vehicle excavation used for receiving a drill in a tunneling operation.
Road Allowance	An allowance (normally 66 feet in width) for a road laid out by a Crown surveyor.
ROW	Right-of-way applies to lands which have an access right for highways, roads, railways or utilities, such as wastewater conveyance pipes.
SBR	Sequencing Batch Reactor
Scour	Hard rubbing of a surface with an abrasive.
Screening Criteria	Criteria applied to identify the short-list of alternative solutions from the long-list of alternative solutions.
Sewage Pumping Station (SPS)	A facility containing pumps to convey sewage through a forcemain to a higher elevation.
Sanitary Sewer	Sewer pipe that conveys sewage to a sewage pumping station or sewage treatment plant. Part of the sewage collection system.
Septic Waste	Wastewater characterised by the absence of dissolved oxygen and high concentration of sulphides and odours.
Service Area	The area that will receive sewage servicing as a result of this study.
Service Life	The length of time that an infrastructure component is anticipated to remain in use assuming proper preventative maintenance.
Sending Pit	A shaft or vehicle excavation used for sending a drill in a tunneling operation.
Sewage	The liquid waste products of domestic, industrial, agricultural and manufacturing activities directed to the wastewater collection system.
Sewage Treatment Plant (STP)	A plant that treats urban wastewater to remove solids, contaminants and other undesirable materials before discharging the treated effluent back to the environment. Referred to in this Class EA as a Wastewater Treatment Plant.
Slurry	A semiliquid mixture of fine particles of manure suspended in water.
Small Bore Sewer	A sewer system that collects all household wastewater from septic tanks into small-diameter pipes laid at fairly flat gradients.
SSMP	Servicing and Settlement Master Plan – the master plan for Erin which was conducted by B.M. Ross in 2014 and establishes the general preferred alternative solution for wastewater.

STEP/STEG	Septic Tank Effluent Pumping/ Septic Tank Effluent Gravity, refers to a method of wastewater collection which collects the liquid portion of waste from the septic tanks while the solids remain for removal and treatment by a separate method.
Study Area	The area under investigation in which construction may take place in order to provide servicing to the Service Area.
SSMP	Servicing and Settlement Master Plan – the master plan for Erin which was conducted by B.M. Ross in 2014 and establishes the general preferred alternative solution for wastewater.
Storm Water Management Facility	A Facility that gathers rainfall and surface water runoff to help reduce the possibility of flooding and property damage. They are specifically designed to collect runoff from streets, the ground surface and storm sewers.
Surficial Geology	Surficial geology refers to the study of landforms and the unconsolidated sediments that lie beneath them.
SWD	Side wall depth – The depth of a particular process tank.
TAN	Total Ammonia Nitrate:
Terms of Reference (TOR)	The Terms of Reference define the purpose and structures of a project, committee, meeting, negotiation, or any similar collection of people who have agreed to work together to accomplish a shared goal.
Thalweg	A line connecting the lowest points of successive cross-sections along the course of a valley or river.
Threatened Species	A species likely to become endangered in Canada if the factors affecting its vulnerability are not reversed.
TM	Technical Memorandum
TP	Total Phosphorous
Transient Pressure Condition	A pressure wave that is short lived (i.e. not static pressure or pressure differential due to friction/minor loss in flow)
Trenchless technology	Methods of installing a utility, such as a sewer, without excavating a trench, including directional drilling, microtunneling etc.
Triton	Town of Erin engineering consultant
Trunk Sewer	A sewer that collects sewage from a number of tributary sewers.
TSS	Total Suspended Solids
UCWS Class EA	Urban Centre Wastewater Servicing Class Environmental Assessment
UV	Ultra-Violet
Vacuum Sewer System	A vacuum sewer system is a method of transporting sewage from its source to a sewage treatment plant. It uses the difference between atmospheric pressure and a partial vacuum maintained in the piping network and vacuum station collection vessel
WAS	Waste Activated Sludge
Wastewater	See Sewage
Wastewater Treatment Plant (WWTP)	See Sewage Treatment Plant.
Wet Well	The basin of a sewage pumping station where wastewater is collected before pumping.

1.0 Introduction

This Municipal Class Environmental Assessment (Class EA) was undertaken to confirm the recommended general alternative solution for Wastewater Collection, Treatment and Disposal for Erin Village and Hillsburgh as identified in the Servicing and Settlement Master Plan (SSMP) completed in 2014. The purpose of the study is to identify and evaluate design alternatives and recommend a preferred alternative solution. This Environmental Study Report (ESR) outlines the planning process, activities and findings of the Class EA. The report documents Phase 1 through Phase 3 activities conducted to fulfill the requirements for a Schedule “C” Municipal Class Environmental Assessment. The public consultation process carried out at various stages of the study is also documented herein. Feedback arising from public consultation was integrated into the study findings; the specific feedback received on the study and the influence imparted on the results of the study is summarised in this report.

In 2014, the Town of Erin completed a Servicing and Settlement Master Plan (SSMP) to address servicing, planning and environmental issues within the Town. The study area for the SSMP included the Erin Village and Hillsburgh as well as a portion of the surrounding lands of these urban centres. The SSMP considered servicing and planning alternatives for wastewater and identified a preferred wastewater servicing strategy for the existing population and future development in the study area. The SSMP concluded that a wastewater collection system and a single wastewater treatment plant was the preferred solution to meet the existing community’s wastewater servicing needs and to support future growth up to a population of 6,000 persons.

The work covered in the SSMP constitutes Phase 1 and part of Phase 2 of the Class EA process. In 2016, the Town of Erin initiated the Urban Centres Wastewater Servicing Environmental Assessment (UCWS EA) to continue the Class EA process for wastewater servicing for both communities. The UCWS EA completes Phases 2, 3 and 4 of the Class EA process. Phase 2 of the UCWS EA reviewed and confirmed the preferred solution as developed by the SSMP and also confirmed the viability of servicing the urban areas of both communities up to a full build out of the Town’s Official Plan representing a residential population of over 14,500 persons.

Phase 3 and 4 of the UCWS EA evaluated design alternatives for the major components of the collection, treatment, and outfall systems and recommended a preferred design alternative for each component.

1.1 Authorization

Following the completion of the SSMP, the Town of Erin retained the Ainley Group to complete the UCWS EA. The Town gave the authorization to proceed with the study in March 2016.

1.2 Purpose and Study Background

The UCWS EA is a continuation of the SSMP study and closes out Phase 2 of the study and then completes Phases 3 and 4 of the Class EA process to determine the preferred design alternative for wastewater collection, treatment, and discharge to the West Credit River. The study initially envisaged a planning process to accommodate wastewater servicing for the existing community and future growth up to a population of approximately 6,000. Through the updated analysis on the amount of treated wastewater that can safely be discharged to the West Credit River within the UCWS EA, it was determined that there is potential to grow the community to a residential population of over 14,500 people representing full build out of both Erin Village and Hillsburgh. The UCWS EA therefore proceeded with planning for the community on this basis. The aforementioned SSMP concluded that the preferred solution for both communities is a municipal wastewater collection system conveying sewage to a single wastewater treatment plant located south east of Erin Village with treated effluent being discharged to the West Credit River. Within the UCWS EA, and as documented in this ESR report, this recommendation has been confirmed.

1.3 Study Objectives

The Class EA study outlines a problem or opportunity and identifies and evaluates potential solutions through examination of the benefits and drawbacks of each solution. The approach taken within the UCWS EA is described as follows:

1.3.1 Identify Alternative General Solutions (Phase 1 and 2)

Refinement of the problem was undertaken through defining the extent of the service area within the existing communities and future development areas. The development of a feasible set of alternatives is critical to ensuring a thorough evaluation prior to recommendation of a preferred solution. A comprehensive review of wastewater servicing alternatives was described in the SSMP and has been refined as a part of this study. Confirmation of treated wastewater effluent conditions was undertaken to define a disposal solution for the wastewater. In addition, supplementary information pertaining to each alternative was identified, reviewed and documented within the findings of the study. A Public Information Centre and meetings with selected agencies were undertaken to obtain essential stakeholder input.

1.3.2 Identify and Evaluate Alternative Designs (Phase 3 and 4)

Alternative design solutions were developed for each component of the recommended general alternative solution during this stage of the study. Each of the alternative design solutions identified has associated technical, environmental, social, economic and cultural impacts. Within the evaluation, the impacts associated with each individual alternative were identified and documented. Technical feasibility and potential constructability issues were reviewed in the study through literature review and examination of their application in the context of the study area. A Public Information Centre and meetings with selected agencies were undertaken to obtain essential stakeholder input. The impacts associated with each alternative design concept were assessed and evaluated to determine which solution has the least overall impact. After conducting a thorough evaluation of each alternative design, one preferred design solution was presented to the public and ultimately recommended for implementation.

1.4 Related Documents and Projects

Several documents were relied on to support this Class EA Study. Each document was reviewed for pertinent information related to this project. They are described in brief in the following subsections.

1.4.1 Terms of Reference

The study is being conducted in accordance with the Terms of Reference (TOR) as outlined in the Request for Proposal issued by the Town of Erin on December 18, 2015.

1.4.2 Town of Erin Official Plan

The Official Plan of the Town of Erin contains information pertaining to the Town's land use designations and policies for the physical development and redevelopment of the Town.

1.4.3 Zoning Bylaw

The Town of Erin's Zoning Bylaw (No. 07-67) provides detailed information to control the development of properties within the Town. The bylaw regulates many aspects of development, including the permitted uses of property, the location, size, and height of buildings, as well as parking and open space requirements.

1.4.4 Servicing and Settlement Master Plan (SSMP)

The SSMP was completed B.M. Ross and Associates Limited (2014) with the goal to develop appropriate strategies for community planning and municipal servicing, consistent with current provincial, county and municipal planning policies. The SSMP process followed the Master Plan approach, as defined in the Municipal Class Environmental Assessment (Class EA) document, dated October 2000 (as amended in 2007 and 2011). SSMP addresses the first two phases of the Class EA planning and design process, following Approach 1 of the Master Plan process.

1.4.5 Municipal Class EA Document

The Environmental Assessment Act codifies a planning process that requires the evaluation of potential environmental effects and benefits of a project before decisions are made about implementing the project. It applies to activities or projects of public agencies, and major commercial or business undertakings of non-public entities, if designated by regulation.

The Municipal Class EA document outlines the approach to planning water and wastewater servicing that the Town must follow, in order to comply with the Environmental Assessment Act, including the types of impacts that must be assessed and the need to consult with stakeholders and incorporate stakeholder input into the planning process.

1.5 Study Area

The Town of Erin is a predominately rural municipality, located in southeastern Wellington County. The Town is bordered to the east by the Town of Caledon, the Town of Halton Hills to the south, Centre Wellington Township and Guelph/Eramosa Township to the west, and the Township of East Garafraxa to the north. Located within the Town boundaries are the headwaters for the West Credit River. Generally, the Town of Erin is characterized by undulating topography, numerous wetlands and woodland areas.

The study area for the UCWS Class EA was set out in the TOR. It includes the urban centres of Erin Village and Hillsburgh, as well as a portion of the surrounding rural area. Figure 1 shows the study area.

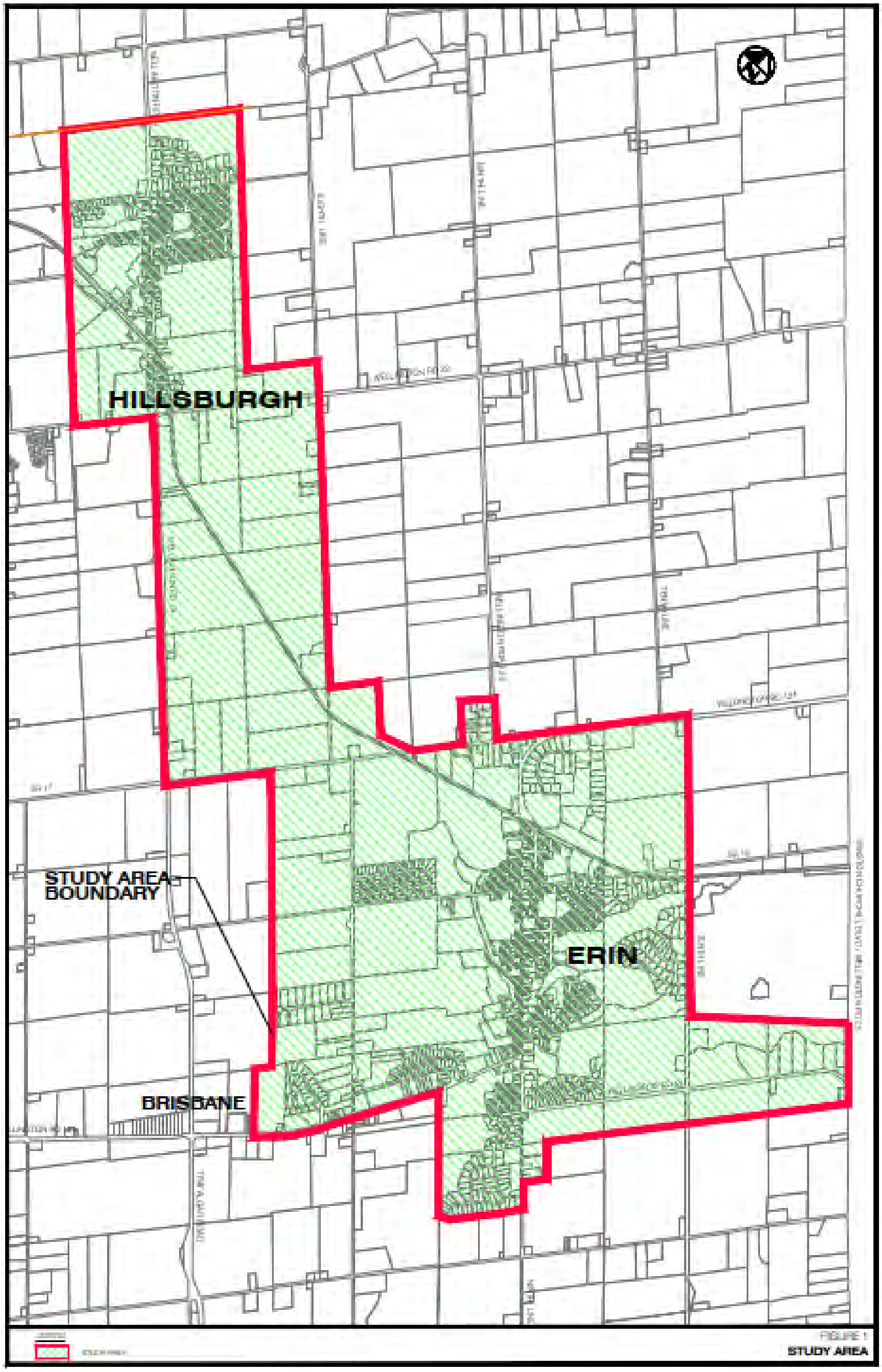


Figure 1 – Study Area

2.0 Environmental Assessment Process

This section describes the Environmental Assessment process and the specific requirements associated with this study.

2.1 Environmental Assessment Act

Ontario's Environmental Assessment Act (henceforth referred to as "the Act") was proclaimed in 1976. The Act requires proponents to examine and document the environmental effects that might result from major projects or activities. Municipal undertakings became subject to the Act in 1981.

The Act defines the environment broadly as:

- Air, land or water
- Plant and animal life, including man
- The social, economic and cultural conditions that influence the life of man or a community
- Any building, structure, machine or other device or thing made by man
- Any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirect from activities of man
- Any part or combination of the foregoing and the interrelationships between any two or more of them.

The purpose of the Act is the betterment of the people in the whole or any part of Ontario by providing for the protection, conservation and wise management of the environment in the Province.

As set out in Section 5(3) of the Act, an EA document must include the following:

- A description of the purpose of the undertaking including:
    - The undertaking
    - The alternative methods of carrying out the undertaking-
    - Alternatives to the undertaking

A description of:

- The environment that will be affected or that might reasonably be expected to be affected, directly or indirectly, by the undertaking or alternatives to the undertaking
- The effects that will be caused or that might reasonably be expected to be caused to the environment by the undertaking or alternatives to the undertaking
- The actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment by the undertaking or alternatives to the undertaking

- An evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking

2.2 Principles of Environmental Planning

The Act sets a framework for a systematic, rational and replicable environmental planning process that is based on five key principles, as follows:

- **Consultation with affected parties:** Consultation with the public and government review agencies is an integral part of the planning process. Consultation allows the proponent to identify and address concerns cooperatively before final decisions are made. Consultation should begin as early as possible in the planning process.
- **Consideration of a reasonable range of alternatives:** Alternatives include functionally different solutions to the proposed undertaking and alternative methods of implementing the preferred solution. The "do nothing" alternative must also be considered.
- Identification **and consideration of the effects of each alternative on all aspects of the environment:** This includes the natural, social, cultural, technical, and economic environments.
- **Systematic evaluation of alternatives in terms of their advantages and disadvantages, to determine their net environmental effects:** The evaluation shall increase in the level of detail as the study moves from the evaluation of alternatives to the proposed undertaking to the evaluation of alternative methods.
- **Provision** of **clean and complete documentation of the planning process followed -** This will allow traceability of decision-making with respect to the project. The planning process must be documented in such a way that it may be repeated with similar results.

2.3 Municipal Class Environmental Assessment

Class Environmental Assessments (EAs) were approved by the Minister of the Environment in 1987 for municipal projects having predictable impacts that can be mitigated. The Class EA approach streamlines the planning and approvals process for municipal projects which have the following characteristics:

- Recurring
- Similar in nature
- Usually limited in scale
- Predictable range of environmental impacts
- Environmental impacts are responsive to mitigation

The Municipal Class Environmental Assessment document, prepared by the Municipal Engineers Association (MEA) (October 2000, as amended in 2007, 2011, and 2015), outlines the procedures to be followed to satisfy Class EA requirements for water, wastewater and road projects. The process includes five phases:

- Phase 1: Problem Definition
- Phase 2: Identification and Evaluation of Alternative Solutions to Determine a Preferred Solution
- Phase 3: Examination of Alternative Methods of Implementation of the Preferred Solution
- Phase 4: Documentation of the Planning, Design and Consultation Process
- Phase 5: Implementation and Monitoring.

Public and agency consultation are integral to the Class EA planning process. Projects subject to the Class EA process are classified into four possible "Schedules" depending on the degree of expected impacts. It is important to note that the Schedule assigned to a particular project is proponent-driven. For example, if a project has been designated as Schedule "A", the proponent can decide to comply with the requirements of a Schedule "B" or "C" of the MEA process based on the magnitude of anticipated impacts or the special public and agency consultation requirements specific to that particular project.

For Schedule "B" and "C" projects the public has the opportunity to request additional investigation by filing a Part II Order Request to the Ministry of the Environment.

The Class EA process flowchart is provided in Figure 2.

Schedule "A" Projects

Schedule "A" projects are minor, operation and maintenance activities and are pre-approved without the need for further assessment. Projects with this designation are typically limited in scale and have minimal adverse environmental impacts. An example of a Schedule "A" wastewater project is the establishment of a sewage collection system and all necessary works to connect the system to an existing sewage outlet, where it is required as a condition of approval on a site plan, consent plan of subdivision or plan of condominium approved under the Planning Act prior to construction. This type of project is pre-approved and the proponent may proceed without following the procedures set out in any other part of the Class EA process.

Schedule "A+" Projects

Schedule "A+" projects were introduced by MEA in 2007. Similar to Schedule "A", these projects are also pre-approved. However, the difference is that for Schedule "A+" projects, the public must be advised prior to project implementation. An example of a Schedule "A+" wastewater project would be the establishment, extension or enlargement of a sewage collection system and all necessary works to connect the system to an existing sewage or natural drainage outlet, provided all such facilities are in either an existing road allowance or an existing utility corridor, including the use of Trenchless Technology for water crossings.

Schedule "B" Projects

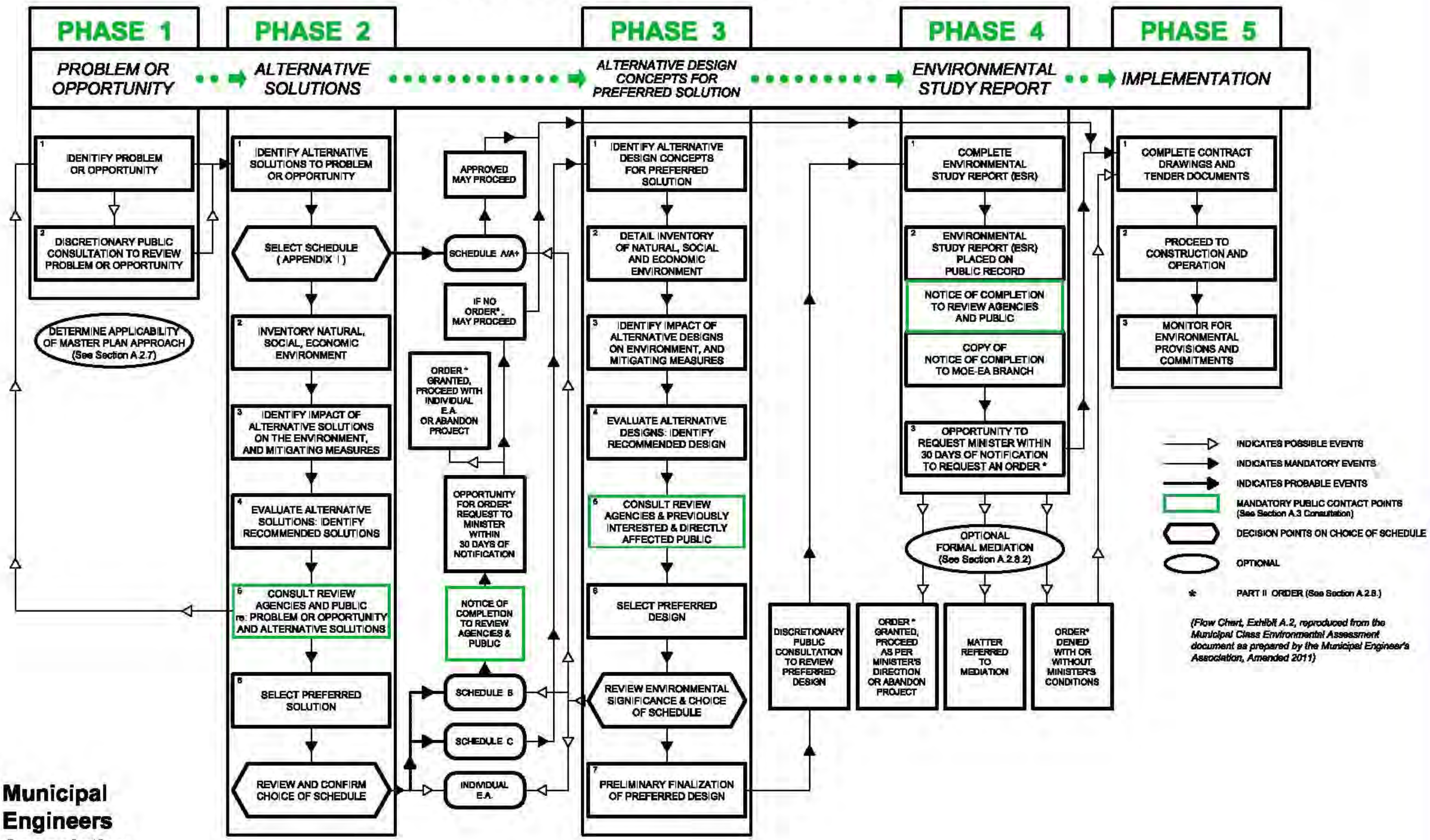
Schedule "B" projects generally include improvements and minor expansions to existing facilities where there is potential for some adverse environmental impacts. These projects require screening of alternatives for their environmental impacts and completion of Phases 1 and 2 of the Class EA planning process and public filing of the project file. If outstanding issues remain after the public review period, any party may request that the Minister of the Environment and Climate Change consider a Part II Order (also known as bumping-up the project) to elevate the project to a more stringent process (Schedule "C" or an Individual Environmental Assessment). Provided no significant impacts are identified and no requests for a Part II order are received, Schedule "B" projects are approved and may proceed directly to Phase 5: Implementation. An example of a Schedule "B" wastewater project would be the establishment, extension or enlargement of a sewage collection system and all works necessary to connect the system to an existing sewage outlet where such facilities are not in an existing road allowance or an existing utility corridor.

Schedule "C" Projects

Schedule "C" projects generally include the construction of new facilities and major expansions to existing facilities. These projects are typically more complex and have the potential for significant environmental effects. As a result, they proceed under full planning and documentation procedures and satisfy all five phases of the Class EA planning process. Phase 3 involves the assessment of alternative methods of

MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA



Municipal Engineers Association

210099 FEB. 2011

carrying out the project, as well as public consultation on the preferred conceptual design. Phase 4 is the preparation of an Environmental Study Report which is filed for public review. Provided no significant impacts are identified and no requests for Part II Order or “bump-up” to an Individual Environmental Assessment are received, Schedule “C” projects are then approved and may proceed to Phase 5: Implementation. An example of a Schedule “C” wastewater project would be construction of a new sewage system, including the construction of treatment and an outfall to a receiving water body and/or a constructed wetland for treatment.

3.0 Existing Conditions

In the Town of Erin, wastewater is managed exclusively by private, on-site wastewater systems. Types of systems within the Town include Class 4, Class 5 and Class 6 sewage systems. Class 4 sewage systems are the most common in the town and are typically composed of a two-compartment septic tank and a leaching bed. The septic tank collects the raw sewage and helps in settling and digestion. Class 5 systems use a holding tank for the retention of sewage at the site where it is produced prior to its collection by a licensed hauled sewage system. A number of Class 5 systems are located in the downtown area of Erin Village due to a lack of adequate space for leaching beds. Class 6 systems are tertiary septic systems which include a filter to provide a higher level of treatment before the effluent reaches the leaching bed. The Class 6 systems are distributed throughout the Town where older Class 4 systems have failed or where they are required in new subdivisions. Within the Built Boundary of the settlement areas (Hillsburgh and Erin Village), private property investment and redevelopment is restrained by setbacks required for septic systems, small lot sizes, and the presence of private wells. Several areas have septic systems within the wellhead protection areas of municipal wells. Additionally, there are limited facilities in the area accepting septage from private systems for treatment.

The settlement areas (Erin Village and Hillsburgh) have been identified as areas of modest growth under the Places to Grow Act and by Wellington County population projections partly as a result of the wastewater servicing restrictions identified in the SSMP. While there is over 200 Ha of lands identified in the Town Official Plan for future development, all of these lands cannot be serviced with a municipal wastewater system within the 6,000 population limit identified in the SSMP wherein the existing population of over 4,500 would also be serviced. Credit Valley Conservation (CVC) has also indicated that future development should not occur on lots sized to include septic systems due to the cumulative impacts these systems may have on the environment.

4.0 Servicing and Settlement Master Plan

4.1 Problem / Opportunities

The Town of Erin Official Plan highlights a community based process for completing a Servicing and Settlement Master Plant (SSMP) to address servicing, planning and environmental issues within the Town. B.M Ross was retained to develop the initial SSMP report. The first phase of this SSMP report, the Data Collection and Review Phase highlighted the information regarding community design, form and function, community planning, the environment and existing infrastructure. The information gathered was used to derive and identify the Problem/ Opportunity Statement for the SSMP. It was found from this information that the Town of Erin lacked a long term, comprehensive strategy for the provision of water and wastewater servicing in Erin Village and Hillsburgh. It was found that wastewater is treated by private on-site wastewater treatment systems and there are limited facilities in the area accepting septage from private systems for treatment. Erin Village and Hillsburgh have been identified as areas of modest growth however the existing infrastructure is inadequate to meet future demands. There is limited stormwater management infrastructure as well as limited water servicing, which gives rise to the need to assess existing conditions and address the need for future development.

4.2 Community Planning Alternatives and Evaluation

The SSMP report defined information regarding community planning, form and function which led to the development of planning alternatives for the future of the Town. The four planning scenarios were:

Scenario 1: Planning based on municipal services for existing residents and future development in both Hillsburgh and Erin Village

Scenario 2: Planning based on providing municipal services for the existing residents and future developments in Erin Village only

Scenario 3: Planning based on providing municipal services for the existing residents and future developments in Hillsburgh only

Scenario 4: Planning based on no municipal wastewater services in the Town.

Each of the four identified scenarios were evaluated based on their social, economic and natural impacts as well as on the availability of municipal services.

4.3 Assimilative Capacity Study

An Assimilative Capacity Study (ACS) was completed by B.M Ross in 2014 to determine if the West Credit River had the capacity to accept treated wastewater effluent for various population scenarios. The investigation considered projected effluent discharge from 3,087 to 6,000 people. The analysis focused on the assimilative capacity of the river at the intersection with 10th Line. This location was the focus of the study since the CVC had a flow gauge at the site and a history of flow data had already been established. In addition, it was known that the river had a higher flow rate and improved background water quality in this location compared to alternative locations upstream of Erin Village or Hillsburgh. The flow history gathered by the CVC was used to develop the 7Q20 flow required for the assimilative capacity analysis.

The ACS concluded that surface water discharge would be viable for a service population up to 6,000 people, while not impacting aquatic life. The major limiting factor in the discharge potential was found to be the resulting phosphorus concentration. The West Credit River is a Policy 1 receiver, meaning that the water quality in the river is of better quality than the Provincial Water Quality Objectives. The Provincial guidelines state that: “In areas which have water quality better than the Provincial Water Quality Objectives, water quality shall be maintained at or above the Objective”. With respect to phosphorus, this requirement dictates that the concentration must be kept at or below 0.03 mg/L. It was assumed within this analysis that the phosphorus limit in the treated effluent from the proposed treatment facility would be 0.15 mg/L and based on the ACS this resulted in a capacity of 2,610 m^3/d servicing 6,000 people.

4.4 Sewage Collection and Wastewater Treatment and Disposal

As indicated in the Servicing and Settlement Master Plan Final Report (B.M Ross 2014), there are no municipally owned communal sewage systems servicing communities in the Town of Erin, however the Town is typically serviced by Class 4 and Class 6 individual private septic systems. There have been numerous studies investigating and identifying issues with this form of servicing. Studies have been conducted by Wellington-Dufferin-Guelph Health Unit in 1995, by the Ministry of Environment in 2005 and an existing Conditions Repot in 2011 by B.M Ross. These studies concluded that septic systems are contributing to nutrient loading in the groundwater and subsequently in the West Credit River. Other issues and constraints include lot sizing, age of systems and the inability to replace systems on small lots.

It is noted that not all wastewater treatment plants located in the vicinity of Erin accept septage. Septage has several distinctive characteristics that can result in complications in the biological processes of a wastewater treatment plant if it is not designed to receive septage. Currently, septage is hauled to Collingwood or Hamilton which increases the cost of disposal. Given the servicing potential identified under the ACS of 6,000 people, and the large amounts of vacant developable land in both Hillsburgh and Erin Village, it is unlikely that growth will extend outside the existing built communities. Conceptual level planning was conducted to establish the feasibility of providing wastewater collection and treatment for the urban areas.

4.5 Sewage Collection System

The SSMP prepared by B.M Ross presented conceptual level planning related to sewage servicing for the Town of Erin. The intent was to establish a better understanding of the possible constraints and costs associated with sewage servicing. The concept presented was created on the basis that sewage would be conveyed from both Erin Village and Hillsburgh to a common wastewater treatment plant. A number of different conveyance systems were considered, with each systems advantages and disadvantages evaluated. For the purpose of a conceptual level design, a gravity sewer system with the series of pumping stations was utilized.

A conceptual gravity sewer plan was completed to confirm details on pipe layout, possible sewer routes, servicing boundaries and pumping station locations. It is noted that the majority of both communities would be serviced by gravity conveyance with the main sewage pumping station situated in the lower end of the Erin Village. The report selects the Elora Cataract Trail as the optimal route for the connection of collection systems between Hillsburgh and Erin Village.

4.6 Conceptual Wastewater Treatment and Disposal

The SSMP provides a brief overview of available technologies at each level of treatment and proposes a series of potential treatment options for consideration under future planning processes. A preliminary investigation was conducted to confirm that a sewage treatment technology exists that is capable of producing the effluent quality suggested in the ACS. A conceptual WWTP using membrane filtration was developed in order to establish a better understanding of the costs associated with the provision of sewage servicing to the Town of Erin. The report concludes that a wastewater treatment facility, utilizing membrane filtration, would produce effluent of sufficient quality to maintain the health of the receiving stream. The conceptual membrane facility was determined to be an economically feasible alternative for the Town. In addition, it was established that the treatment facility should also incorporate septage unloading facilities and specialized treatment equipment as required to manage the additional loadings received from septic system pump-outs throughout the Town. It was noted that a review of alternative collection systems and sewage treatment technologies will be completed during Phase 3 of the Municipal Class EA.

4.7 Conceptual WWTP Location

Given the improved water quality and increased flow rate in the West Credit River, it was determined that the location of a future waste water treatment facility is better suited somewhere along the County Road 52 corridor between Ninth Line/Main Street and Winston Churchill Boulevard.

The exact location of the proposed treatment facility was to be established during Phase 3 of the Municipal Class EA.

5.0 Participation by Public, Review Agencies and Others

Public and agency consultation is mandatory during a Class EA planning process. For this project, public and agency participation was integral to the development and evaluation of the servicing alternatives at different points in the planning process.

In order to establish a direct line of communication between the public and the UCWS Class EA project team, a project email address was established (erin.urban.classea@ainleygroup.com). The project email served as an avenue for interested parties to contact the project team with any questions or comments outside of the formal Public Information Centres (PIC).

The public, review agencies, and Aboriginal communities were contacted with three (3) separate notices through Phase 1 to Phase 3 of the Class EA process. Table 1 lists the review agencies and groups to whom notices were directly sent.

Throughout the study, the Credit Valley Conservation Authority (CVC) and the MOECC were regularly consulted. All study findings presented to the Public Liaison Committee (PLC) were first presented to representatives from the Core Management Team (CMT) including CVC and MOECC to ensure the study approach was consistent with the requirements of these agencies. Prior to the finalisation of all project reports, review was requested from the full set of project stakeholders listed in Table 1.

Table 1 – List of Public Contacts and Review Agencies

Public & Review Agencies		
Provincial & Federal Agencies		
Environment Canada - Environmental Protection Operations Division - Ontario Region	Ministry of Economic Development, Employment and Infrastructure	Ministries of Tourism - Culture & Sport
Ministry of the Environment and Climate Change	Ministry of Municipal Affairs and Housing	Ministry of Natural Resources and Forestry
Canadian Environmental Assessment Agency	Ontario Clean Water Agency	Ontario Ministry of Agriculture - Food and Rural Affairs
Fisheries & Oceans Canada	Ministry of Transportation - Corridor Management Section, West Region	
Local Government & Other Stakeholders		
Wellington County Planning	Town of Caledon	SOLMAR Development Group
Centre Wellington	R.J. Burnside and Associates	Milton
Region of Peel	Carson Reid Homes	Dufferin County
Wellington (East) Chamber of Commerce	Region of Halton	East Garafraxa
Credit Valley Conservation Authority	Fire Department Erin	Guelph/ Eramosa
Grand River Conservation Authority	Upper Grand District Schoolboard	Erin Village Business Improvement Association
Aboriginal Consultation		
Ministry of Aboriginal Affairs	Haudenosaunee Confederacy	Six Nations of the Grand River Territory
Aboriginal Affairs & Northern Development Canada Consultation Unit	Mississauga of the New Credit First Nation	
Utilities		
Rogers Communications Inc.	Caneris	Hydro One
Bell Communications	Internet Access Solutions	Enbridge Gas
Vianet (Zing) Networks Inc. Internet Services	Primus	

5.1 Core Management Team

During the study a Core Management Team (CMT) was formed to coordinate and provide strategic advice for the project and to review and provide input on various studies. Members of the CMT consisted of Town staff, the consulting engineering team, the PIC facilitation team, staff from the agencies responsible for preparing environmental studies, and representatives from the MOECC and CVC. Members of the Core Management Team were:

- Mayor Allan Alls - Town of Erin
- Kathyrn Ironmonger (CAO) – Town of Erin
- Derek McCaughan (Interim CAO) - Town of Erin
- Nathan Hyde (CAO) – Town of Erin
- Christine Furlong - Triton Engineering
- Gary Cousins - Wellington County
- Dave Hardy - Hardy Stevenson
- Noah Brotman - Hardy Stevenson
- Joe Mullan - Ainley Group
- Gary Scott - Ainley Group
- Simon Glass - Ainley Group
- Ray Blackport - Blackport Hydrogeology
- Deborah Sinclair - Hutchinson Environmental
- Tara Roumeliotis - Hutchinson Environmental
- Neil Hutchinson - Hutchinson Environmental
- Jennifer Dougherty - Credit Valley Conservation Authority
- Craig Fowler - MOECC
- Barbara Slattery - MOECC
- Rick Neubrand – MOECC
- Lisa Williamson - MOECC

Additional agencies were invited to attend the CMT meetings but declined, including Ministry of Natural Resources and Forestry (MNRF); Ministry of Municipal Affairs and Housing (MMAH); Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA); and Federal Department of Fisheries and Oceans (DFO).

During the project, the Core Management Team met on five occasions to discuss the study progress and planning. CMT meetings and topics are shown in Table 2:

Table 2 – CMT Meeting Dates and Topics

Meeting No.	Meeting Date	Topics
CMT #1	March 8, 2016	▪ Introductions ▪ Project background ▪ Consulting team structure ▪ Workplan and schedule review ▪ Overview of public consultation plan ▪ Discussion of challenges and opportunities ▪ Planning issues ▪ Environmental issues ▪ Establishing the Assimilative Capacity Study (ACS) effluent requirements ▪ Technical discussion about available data sources ▪ Next steps
CMT #2	October 3, 2016	▪ Project status update ▪ Field work update ▪ Flows and discharge memorandum update ▪ Presentation on ACS results ▪ Presentation of Septic Survey results ▪ Presentation on Projected Flows and Service Population ▪ Collection system evaluation ▪ Public consultation update and discussion
CMT #3	October 31, 2016	▪ Project status update ▪ Public consultation update ▪ Technical work update ▪ Discussion on Septic Survey results ▪ Presentation on recommended downstream total phosphorus (TP) target ▪ Presentation on Assimilative Capacity Study results ▪ Presentation on Projected Flows and Service Population ▪ Collection system evaluation status
CMT #4	December 11, 2017	▪ Project status update ▪ Overview of status of reports / technical memoranda ▪ Highlighting key report findings ▪ WWTP Site Selection ▪ Collection System Alternatives ▪ Outfall Alternatives ▪ Cultural Heritage Assessment ▪ Stage 1 Archeological Assessment

Meeting No.	Meeting Date	Topics
		▪ Natural Environment Report ▪ Pumping Stations and Forcemains memo ▪ Wastewater Treatment Technology Evaluation ▪ Geotechnical / Hydrogeological Report ▪ Preliminary cost analysis ▪ Discussion of high level report conclusions ▪ Review schedule and next steps

5.2 Public Liaison Committee

As part of the public consultation program a Public Liaison Committee (PLC) was established. On April 14, 2016, a Terms of Reference was issued to establish an advisory committee comprised of interested public stakeholders. The purpose of the PLC was to provide a forum to obtain input and to address questions from residents in an ongoing way throughout the EA process. This allowed for a more detailed discussion of project issues with a smaller group of stakeholders, while still allowing for a range of perspectives from across the community.

The advisory committee, henceforth referred to as the Public Liaison Committee (PLC), served as a sounding board for the project findings before they were released at the PIC and helped the project team determine the optimal formation of presentation materials for public release.

PLC members were provided with drafts of technical memoranda for review prior to the meetings. The meetings consisted of a presentation by the project team and a Q&A/comment period in which PLC members could ask for additional information.

In addition, the PLC provided key insight into potential gaps in the study analyses.

The members of the PLC committee were:

- Mayor Allan Alls - Town of Erin
- Dave Doan – SepTech Wastewater Systems
- Jamie Cheyne - Heritage Committee and Economic Development, Erin Agricultural Society
- Derek McCaughan - Interim Chief Administrative Officer
- Nathan Hyde - Chief Administrative Officer
- Deanne Mckay - General public
- Jay Mowat - Environment Committee
- Justin Morrow - Copper Hills Development
- Linda Rosier - General public
- Lloyd Turbitt - Let's Get Hillsburgh Growing Committee
- Maurizio Rogato - Solmar
- Melodie Rose - Riverwalk Trails Committee

- Nancy Shoemaker - Black, Shoemaker, Robinson and Donaldson Limited
- Roy Val - General public
- Valerie Bozanis - General public
- Don Fysh
- Donna Revell
- Erik Mathieson
- Josie Wintersinger
- Brian Halfpenny

During the UCWS EA, a total of 4 PLC meetings were held. The date and purpose of each PLC meeting are presented in Table 3.

Table 3 – PLC Meetings and Purpose of Meetings

Meeting No.	Meeting Date	Topics
PLC #1	June 7, 2016	▪ Project team introductions ▪ PLC member introductions ▪ Project overview - Background and context - Project goals and approach - Challenges and opportunities ▪ Environmental Assessment process and technical issues ▪ Public consultation and communications - Consultation objectives
PLC #2	November 24, 2016	▪ Update on the Assimilative Capacity Study - Water quality in the West Credit River - Flow rates - Assimilative capacity water quality modelling - Recommended effluent limits ▪ Septic System Survey results - Objectives of survey - Decision areas - Review of potential service area maps - Septic system analysis - Decision criteria - Recommendations ▪ Flows and Service Population - Phosphorus concentrations - Developing projected wastewater flows - Potential residential populations - Review of new growth areas in Erin and Hillsburgh - Observations and preliminary recommendations ▪ PLC input on findings

Meeting No.	Meeting Date	Topics
		▪ Next steps
PLC #3	June 7, 2017	▪ Subsurface Disposal Alternative Technical Memorandum - Purpose of memorandum - Applicable regulations - Use of subsurface disposal in Ontario - Treatment requirements - Required disposal field area - Environmental/hydrogeological overview of area - Subsurface alternatives that were evaluated - Results and findings - Comments from MOECC and CVC - Recommendations ▪ Hillsburgh Surface Water Disposal Alternative Technical Memorandum - Overview of presentation given to Council - Purpose of memorandum - Sewer Servicing Master Plan (SSMP) approach to discharge location - West Credit River through Hillsburgh - Treatment plant alternatives cost comparison - Recommendations - Next steps ▪ Preview of Public Information Centre #1 - Review of PIC boards - PIC format and layout - Purpose of PIC - List of EA materials to be covered at PIC - Assimilative Capacity Study update - Septic system review and determination of service areas - Updated Population and Flow Projections System Capacity Report - Review of two plant alternative - Large Subsurface Disposal Systems - Proposed schedule - Closing comments ▪ Next steps
PLC #4	January 24, 2018	▪ Review of Phase 3 Technical Memoranda - Natural Environment Report - Alternatives Evaluation Process - Effluent Outfall Site Selection - Wastewater Treatment Plant Site Selection - Collection System Pumping Stations and Forcemain Alternatives - Treatment Technology Alternatives - Geotechnical Investigations - Natural Heritage Study - Archaeological Investigations

Meeting No.	Meeting Date	Topics
		▪ Discussion on Costs - Overview of preliminary cost estimates - Cost analysis – cost components - System capital costs – existing community vs. full build-out - Private property connection costs - Allocation of costs - Project funding and capital financing options - Project funding – debt capacity - Estimated annual operating costs - Financial observations ▪ Schedule to Class EA completion ▪ Preview of Public Information Centre #2 - Agenda review - Room setup - PIC goals - Key messages - Upcoming key decisions ▪ Next steps

Minutes of all PLC meetings are provided in ***Appendix A.***

A result of the PLC meeting of November 24, 2016 was an understanding that a more thorough analysis of the potential for a multi-treatment plant solution and the potential for subsurface discharge of treated effluent was required. The gaps were rectified and two technical memoranda were prepared to present the findings. The two memoranda were the *Subsurface Disposal Alternative Technical Memorandum* and the *Two Plant Alternative Technical Memorandum*.

These two memoranda reaffirmed the general alternative selected through the SSMP that wastewater should be treated at a single treatment facility and discharged to surface water.

The PLC meeting of June 7, 2017 did not result in additional actions for the study team. Questions were posed and answered about the information presented for the Subsurface Disposal Alternative and the Two Treatment Plant Alternative. Additionally, suggestions for PIC #1 presentation were offered to the study team.

5.3 Notices to the Public and PICs

Notices were distributed directly to key contacts and through two local papers: The Wellington Advertiser and the Erin Advocate. Throughout the study, interested parties were encouraged to contact the project team through the project email for inclusion in a Notice List. All notices were sent directly to each person who requested inclusion in the Notice List.

Two PICs were held during the course of the study. Details of each PIC #1 and PIC #2, including design actions that resulted from public consultation, are provided in this ESR following Phase 1 and 2 details and Phase 3 details respectively. A complete record of the PICs can be found in ***Appendix A.***

Table 4 lists the notices that were provided as part of this Class EA and the date of issue.

Table 4 – List of Public Notices Issued Throughout Study

Notice	Date of Issue	Purpose of Notice
Notice of Commencement	April 13, 2016	Inform the public that the study was underway and to provide information on the study process
Notice of PIC #1	June 8, 2016	Notify the public of the details, date, and location of PIC #1, which presented the results of Phase 1 and Phase 2 of the Study
Notice of PIC #2	January 9, 2018	Notify the public of the details, date, and location of PIC #2, which presented the results of Phase 3 of the Study

PIC #1 took place on June 22, 2017 and PIC #2 took place on February 2, 2018, both from 6-9pm at the Erin Community Centre (Centre 2000). Copies of newspaper notices are also included in ***Appendix A.***

6.0 Refinement of the Servicing and Settlement Master Plan

The SSMP undertook part of Phase 1 and part of Phase 2 of the Class Environmental Assessment process and the UCWS EA completed these two phases and moved on to complete Phase 3 and Phase 4 of the Class EA process. The UCWS EA TOR requires confirmation and refinement of the preferred solution (communal wastewater collection system) presented in the SSMP by B.M Ross and further investigation to review and select a preferred general solution.

6.1 Septic System Overview

The majority of properties within Erin Village and Hillsburgh are currently serviced by individual private septic systems. The SSMP selected a communal wastewater collection system for both communities as the preferred alternative solution to deal with issues related to the private systems. A more detailed septic system survey was undertaken as part of the UCWS EA.

The Septic System survey provides an overview of the septic system information collected from the available existing sources and defines the recommended communal sewage servicing areas. The objective of this study was to conduct data analysis of the available septic tank data and present recommendations for servicing existing properties in the study area. The documents reviewed include:

- Servicing and Settlement Master Plan
- Town of Erin Mandatory Septic Re-inspection Program
- Building Department Records
- GIS data
- Ontario Building Code
- Ministry of Environment and Climate Change guidelines
- Wellhead Protection Report

MOECC requires that wastewater collection systems be designed to service all lots within a specific service area consistent with the planning designation for the area. If an area is to be designated for servicing by a municipal/communal wastewater system, then the system must be designed to meet the capacity of all of the properties within this area. It is also noted that where a communal wastewater system is to be designed to service an area, Municipalities typically pass a sewer connection by-law that requires all properties to be connected and to contribute their share of the capital and operating costs. Therefore, it is necessary to designate specific areas to be serviced by private wastewater systems or by a municipal/communal wastewater system. For the purposes of this study, Erin Village and Hillsburgh, were split into logical serviceable sections, defined as “decision areas”. Decision areas were derived from a combination of factors including location, local topography, drainage areas, proximity to sensitive receivers, and development consistency (lot sizes etc.).

The documentation reviewed was further analyzed to define factors that determine whether a decision area should connect to a municipal/communal sewage system. These factors include lot size, septic tank size, septic system age, proximity to surface water, and proximity to well head protection areas. Based on the analysis of these factors, it was found that all decision areas in Erin except for Northeast Erin and part of South Erin should be connected to the proposed communal wastewater collection and treatment system. In Hillsburgh, all decision areas should be connected except for Upper Canada Drive. Figures 3 and 4 show the recommended service areas for Erin and Hillsburgh respectively.

A detailed technical memorandum on this overview can be found in ***Appendix B.***

6.2 System Capacity and Sewage Flows

A system capacity and sewage flows study was conducted to estimate wastewater flows from the urban areas of Erin Village and Hillsburgh. In order to establish wastewater flow projections a set of flow assumptions were developed on the basis of existing water use data, flow assumptions of similar communities, and MOECC Guidelines. The flow assumptions were applied to the existing communities with additional consideration for infill potential and intensification in these existing areas. For the future community, the study reviewed the development areas established within the Town's Official Plan and assumed the growth areas would be developed in accordance with planning limitations for serviced areas. The same flow assumptions used for the existing community, outlined in Table 5, were applied to the development areas.

Table 5 – Flow Assumptions for Preliminary Design

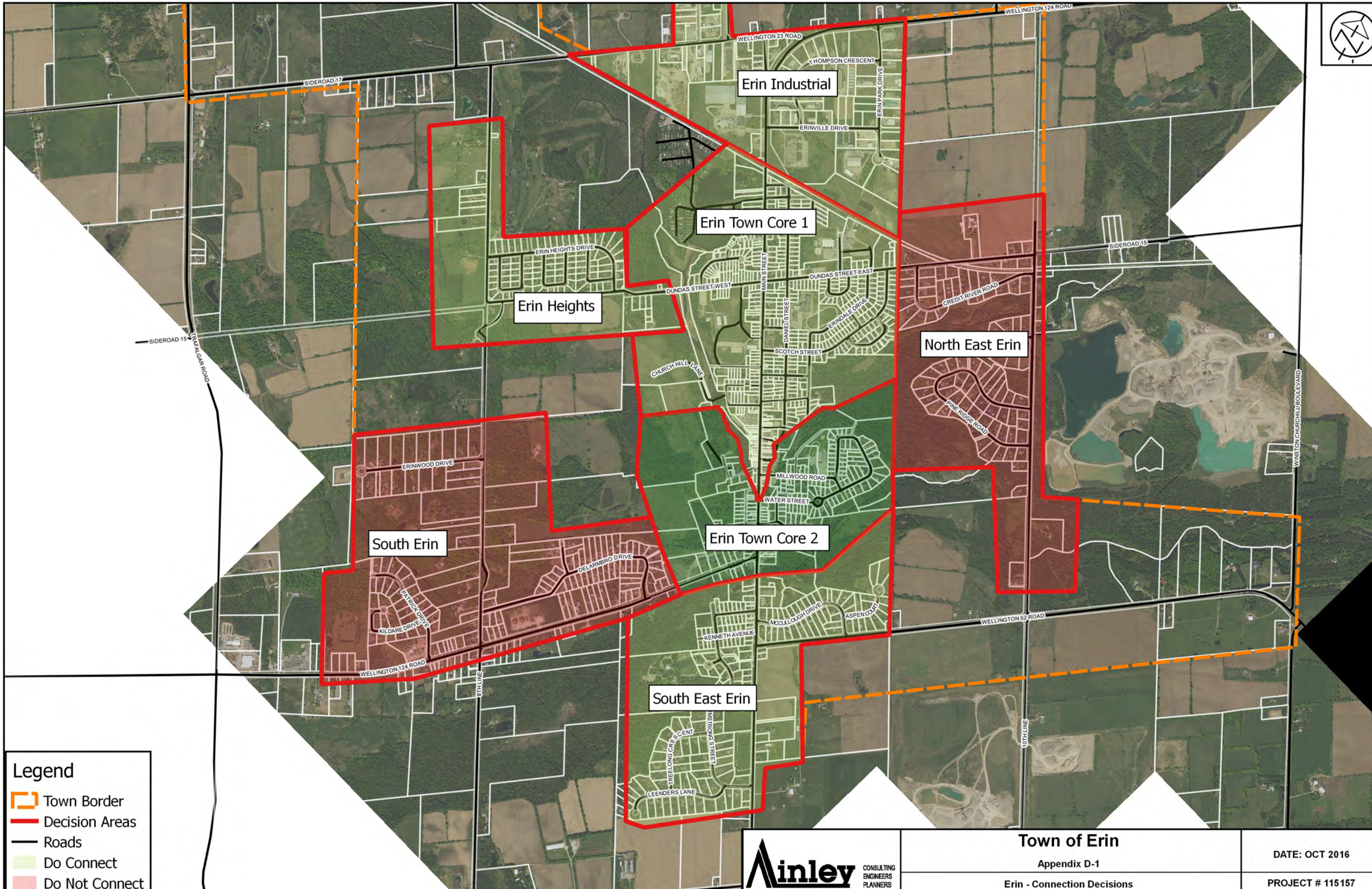
Parameter	Flow Estimate
Residential Flow	290 L/capita/d
Inflow and Infiltration	90 L/day/capita
School Flow	95 L/student/day
Industrial Flow	9 m^3/ha/d
Commercial Flow	28 m^3/ha/d

Based on a detailed assessment of the study area, it is estimate that the average day wastewater flow would be approximately 2,844 m^3/d based on a residential population of 4,616 persons. It is also determined that the new growth areas, as defined by the Town Official Plan, would contribute an estimated 4,328 m^3/d of wastewater flow, based on an additional residential population of 9,943 persons. The total estimated wastewater flow to fully develop the existing urban areas including residential, commercial, industrial and institutional flows, is 7,172 $m^{3/}$d. This represents a residential population of 14,559 persons. A summary of the flow projections is provided in Table 6.

Table 6 – Full Build Out ADF Flow Summary

	All Development (m^3/d)			Residential Development (m^3/d)		
	Erin	Hillsburgh	Total	Erin	Hillsburgh	Total
Existing Community	2,244.1	599.4	2,843.5	1,225.5	528.6	1,754.1
Growth Areas	2,523.0	1,805.7	4,328.7	2,029.2	1,749.1	3,778.3
Total	**4,767.1**	**2,405.1**	**7,172.2**	**3,254.7**	**2,277.7**	**5,532.4**

A detailed technical memorandum on System Capacity and Sewage Flows can be found in ***Appendix C***.



Ainley CONSULTING ENGINEERS PLANNERS

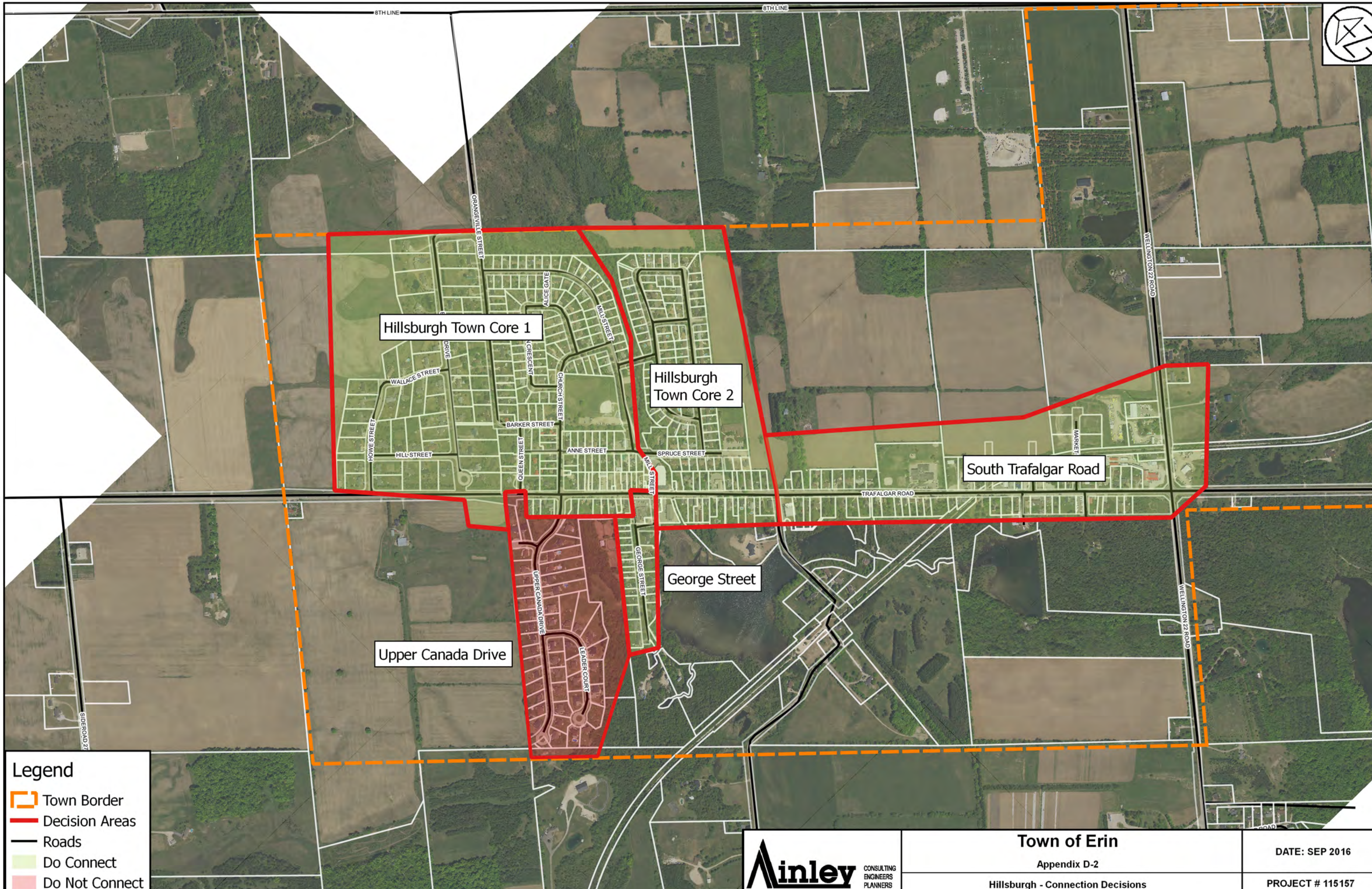
Town of Erin

Appendix D-1

Erin - Connection Decisions

DATE: OCT 2016

PROJECT # 115157



Ainley CONSULTING ENGINEERS PLANNERS

Town of Erin

Appendix D-2

Hillsburgh - Connection Decisions

DATE: SEP 2016

PROJECT # 115157

6.3 Assimilative Capacity Study Update

A preliminary Assimilative Capacity Study (ACS) was completed by B.M. Ross in 2014 as part of the SSMP, to assess the feasibility of a wastewater treatment plant with surface water discharge to the West Credit River in the reach between 10th Line and Winston Churchill Blvd. As part of this UCWS EA, the Assimilative Capacity Study was revisited. The review was conducted by Hutchinson Environmental Sciences Ltd in 2017, and updates the Preliminary ACS. The Study includes:

Recent Water Quality Data Collected for the West Credit River at 10th Line

Monthly water quality samples were collected and analyzed from the West Credit River at 10th Line from May to September 2016. The water collected represented very good quality with low concentrations of suspended sediments and nutrients. The total phosphorus and un-ionized ammonia nitrogen concentrations were well below their Provincial Water Quality Objectives (PWQO) values. Water quality data was collected from the West Credit River at Winston Churchill Blvd and compared to the data collected at 10th Line. It was found that the 75th percentile concentrations calculated for Winston Churchill Blvd were similar to the concentrations calculated for 10th Line.

An Updated 7Q20 Low Flow Statistic for the West Credit River at 10th Line

A flow gauging station was established at 10th Line in July 2013 by CVC. In an ideal situation, 10 years of data is recommended for the calculation of the 7Q20 statistic; at the conclusion of the initial ACS insufficient data was collected from this station to determine a reliable 7Q20 low flow statistic. The 7Q20 Low flow statistics for 10th Line was recalculated using updated water level and flow data from 8th and 10th Line between July 2013 and December 2015. The new 7Q20 flow statistic of 225L/s includes a 10% reduction to account for effects caused by climate change. The lowest flow was measured to be 305L/s during August 2015. This was 80L/s greater than the calculated 7Q20 flow. The revised 7Q20 flow analysis report by the CVC is included in the ACS.

Mixing Zone Modelling (Using CORMIX) to Predict the Size and Shape of the Mixing Zone

The mixing zone modelling focused on ammonia as the potentially toxic component of the effluent. The first aspect of the assessment was the requirement that the undiluted effluent be non-acutely lethal at the point of discharge. It was determined that a total ammonia effluent limit of 2.1 mg/L or less would meet the toxicity requirement. The second aspect of the assessment was the determination of the size and characteristics of the mixing zone for ammonia in the West Credit River. The size of the mixing zone is determined by modelling the physical mixing of the effluent with the river and then setting an ammonia limit for the effluent. The near-field mixing of the discharge from the Erin WWTP into the West Credit River was modelled using CORMIX version 10.0. The results from the mixing zone model can be seen in Table 7.

Table 7 – Summary of CORMIX Mixing Zone Modelling Results

Parameter	Phase 1 Pipe Discharge	Phase 1 Multiport Diffuser	Full Buildout Multipoint Diffuser
Distance to meet PWQO (m downstream of outfall)	25m	100m	153m
% of channel below PWQO when plume is mixed laterally	90%	40%	40%

Discharge Potential Based on Phosphorus Loading

The report confirms the discharge potential to the West Credit River on the basis of phosphorus concentration in the proposed WWTP effluent. The assimilation of phosphorus into the river was calculated on the basis of the estimated ADF of 7,172 m^3/d of treated effluent. It is assumed that Total Phosphorus (TP) is the limiting parameter for discharge of treated wastewater effluent to the West Credit River. The West Credit River has a TP concentration between 0.011-0.015 mg/L, which is well below the PWQO of 0.03 mg/L. Based on discussions with MOECC and CVC, and in order to protect cold water habitat and water quality, it is recommended to have a downstream TP concentration limit of 0.024 mg/L as well as adopt a 'net zero' increase in phosphorus loading between the pre-development and post development conditions for future development areas.

Based on the results from the Assimilative Capacity Study, it has been determined that the TP effluent limits from a Wastewater Treatment plant are 0.079 mg/L, to service existing communities and 0.046mg/L to service full build out of the Town Official Plan. The effluent limits for phosphorus are stringent but within the capacity of modern treatment technologies. 'Best Available Technology' (BAT) were considered in Phase 3 and 4 of this project based on meeting 0.046 mg/L effluent limit for phosphorus while maintaining the 0.024 mg/L downstream concentration limit in the river. Treatment technologies were reviewed and recommended during Phase 3 of this Class EA.

Hydrodynamic, Far-Field Modelling (using QUAL2K) to Predict Downstream Concentrations of Oxygen, Temperature, Nitrate, and Ammonia

QUAL2K is a one dimensional river and stream water quality model used to assess the environmental impact of pollution discharges along rivers. The West Credit River was modelled from a point 100 m upstream of the 10th Line to a point approximately 40 m downstream of Winston Churchill Blvd, for a total river model length of 1.7 km and the model was used to predict the downstream concentrations of dissolved oxygen, pH temperature, CBOD, nitrate, and ammonia. Modelling was limited to the summer since water temperatures are high which results in increased speciation of ammonia to its unionized form. The summer low flow Phase 1 and Full Build Out scenarios resulted in un-ionized ammonia concentrations below the PWQO at all locations in the West Credit River.

It was found that the un-ionized ammonia concentrations declined with distance from the outfall and reached concentrations between 9.3 and 9.9 µg/L downstream of Winston Churchill Blvd., which is 1.5 km from the point of discharge assumed in the model. These concentrations are well below the PWQO of 20.0 µg/L.

The maximum nitrate concentration beyond the point of complete mixing was predicted to remain below the CWQG of 3 mg/L throughout the study area. Based on all of the ACS results, effluent limits were developed as shown in Table 8.

Table 8 – Effluent Limits for Proposed Erin WWTP

Parameter	Stage 1 (Effluent Flow of 3,380 m^3/d)	Full Build Out (Effluent flow of 7,172 m^3/d)
pH	Within range of 6.5-8.5	Within range of 6.5-8.5
Total Suspended Solids	5mg/L	5mg/L

Parameter	Stage 1 (Effluent Flow of 3,380 m^3/d)	Full Build Out (Effluent flow of 7,172 m^3/d)
Total Phosphorus	0.07mg/L	0.045 mg/L*
Total Ammonia Nitrogen	1.2mg/L summer 2 mg/L winter	0.6mg/L summer 2 mg/L winter
Nitrate Nitrogen	5 mg/L	5 mg/L
E.coli	100cfu/100mL	100cfu/100mL
Dissolved Oxygen	4mg/L	4mg/L
5-day Carbonaceous Biochemical Oxygen Demand (CBOD5)	5 mg/L	5 mg/L

* Note: rounded down from ACS model results of 0.046 mg/L

The ACS shows that a discharge at these concentrations will maintain West Credit River water quality downstream of the proposed outfall to PWQO/CWQG requirements.

In addition to effluent limits for the WWTP, the ACS recommended effluent objectives, which are operational targets used to safeguard against exceeding contaminant loadings to the river, but not as a regulatory requirement.

Table 9 – Proposed WWTP Effluent / Operational Objectives

Parameter	Effluent Concentration Objective
Biological Oxygen Demand (BOD)	3 mg/L
Total Suspended Solids (TSS)	3 mg/L
Total Phosphorous (TP)	0.03 mg/L
Total Ammonia	0.3 mg/L (summer: May 15 to October 15) 1 mg/L (winter: October 16 to May 14)
Nitrate Nitrogen	4 mg/L
Minimum Dissolved Oxygen	5 mg/L
E. Coli.	100 cfu / 100mL

During Phase 2, the MOECC and CVC raised concerns over chlorides and temperature and additional work was initiated to define impacts of these two parameters. MOECC have confirmed that they will not include an effluent limit or objective for chlorides in their Environmental Compliance Approval (ECA), however they will require a monitoring and sampling program. The team also addressed effluent temperature in a submission to MOECC during Phase 3 of the UCWS EA (refer to section 14.8 of this ESR)

Freshwater Mussel Survey

The Ministry of Environment and Climate Change (MOECC) requested a mussel survey in response to a CCME guideline for chlorides and the concerns to SAR mussels in south western Ontario. Natural Resources Solutions Inc. (NRSI) conducted a survey and habitat assessment in the West Credit River near the Town of Erin on October 3, 2017 to determine the suitability of the habitat for Species at Risk (SAR) mussels.

There are limited observations, dating back to 2006, and observations are spread out throughout the West Credit sub-watershed. No SAR mussel observations have been made previously. The mussel survey conducted for this study was completed by two aquatic biologists. The survey included walking in an upstream direction utilizing view finders to conduct visual searches within habitat that was suitable for mussels. Additional effort was spent looking for shells along the banks of the river to add to the species information. The survey was conducted over two sections:

- Reach 1: Upstream of Shaw's Creek Road to Winston Churchill Blvd
- Reach 2: Winston Churchill Blvd to 10th Line

In Reach 1, two partial shells of Cylindrical Papershell were found during the survey. These shells were weathered but still had distinguishing features. No additional live mussels or mussel shells were observed.

In Reach 2, a partial and very weathered Cylindrical Papershell was also found. No additional live mussels or mussel shells were observed.

None of the species that were found during the survey or previously observed within the background information are listed as SAR under the provincial Endangered Species Act or the federal Species at Risk Act. The Creeper, Creek Heelsplitter, and Giant Floater each have a S-Rank of S5 (Very common and demonstrably secure within Ontario), and the Cylindrical Papershell has an S-Rank of S4 (Common and apparently secure within Ontario) (MNRF 2015). Due to the lack of SAR mussel presence, chloride (under the new CCME guideline) will not result in impacts to SAR mussel as a result of the new WWTP discharge.

The complete Assimilative Capacity Study, including the mussel survey and thermal analysis (both as an appendix) can be found in ***Appendix D*.**

6.4 Two Treatment Plant Solution

The SSMP concluded that wastewater should be conveyed to a single location for treatment and discharge. At the outset of the UCWS EA the single plant solution was carried forward as the preferred general alternative solution from the SSMP. Through the public consultation process, it was determined that a desire for a more thorough examination of the benefits and drawbacks of operating separate treatment systems for Erin Village and Hillsburgh existed in the community. The perception among some residents was that the capital costs and long term operational costs associated with pumping sewage from Erin Village and Hillsburgh would outweigh the costs associated with establishing and operating two separate treatment facilities. As a result, the study team re-examined the potential for a multi-plant solution for the community.

In order to compare the single plant and multi-plant alternatives, an implementation plan was developed for comparative analysis to illustrate cost differences between each scenario. Implementation plans were developed for both alternatives and the capital and operating costs were developed for each alternative on the basis of full build out of the communities and for the existing communities alone.

The operating costs for each alternative were also compared based on budgets for various municipalities along with discussions with operating authorities. Operating cost components investigated for comparisons included personnel costs, consumables, and plant maintenance. The costs associated with each alternative were compared using a Net Present Value analysis for a period of 50 years. It was determined that individual collection and treatment systems for Erin Village and Hillsburgh would be 32% more expensive to operate and maintain as compared to one large system for the entire community.

Table 10 presents the cost to service full build out with one plant and with two plants.

Table 10 – Cost Comparison of Alternatives for Servicing Full Buildout

Inflation Adjusted Cost	One Plant	Two Plants
Capital Cost	$60,669,310	$98,348,076
Operation and Maintenance Costs	$75,113,136	$100,118,368
Total	$135,782,445	$198,466,444
Present Value Cost	**$70,497,472**	**$104,250,255**

Table 11 presents the cost to service the existing community with one plant and with two plants.

Table 11 – Cost Comparison of Alternatives for Servicing Existing Community

Inflation Adjusted Cost	One Plant	Two Plants
Capital Cost	$ 30,904,188	$42,910,949
Operation and Maintenance Costs	$31,707,382	$41,826,759
Total	$62,611,569	$84,737,708
Present Value Cost	**$36,810,320**	**$50,655,454**

Based on the NPV analysis conducted, it was determined that utilising a single plant is more economically feasible compared to individual plants for each community. The cost difference exceeds the $5.0 million required for constructing a forcemain between Hillsburgh and Erin Village. The cost analysis indicates that the two-plant solution is more expensive even when the connection between the two communities is taken into account. In addition, the river water quality through Hillsburgh is not as favorable as at 10th Line and there is no data available to establish a 7Q20 flow in Hillsburgh.

Based on the above results, it is recommended that the preferred alternative solution identified in the original SSMP with a single treatment plant discharging to the West Credit River south of Erin Village, remains the preferred alternative.

A Technical Memorandum detailing the Two Plants Alternative (One in Erin and one in Hillsburgh) can be found ***Appendix E.***

6.5 Viability of Subsurface Disposal

The use of subsurface disposal for treated effluent was examined as an alternative solution for servicing the communities of Erin Village and Hillsburgh. Subsurface disposal was evaluated as an alternative to, or in conjunction with, surface water discharge to the West Credit River, downstream of Erin Village. The request to consider this alternative was made by members of the Public Liaison Committee (PLC) and by members of the community group Transition Erin who identified that subsurface discharge was not fully addressed as a potentially viable component of the overall solution within the SSMP. While the SSMP did identify subsurface disposal as an alternative solution, it indicated that further consideration should be given at the next stage of the project.

Large Subsurface Disposal Systems (LSSDS) are a common effluent management practice throughout Ontario, however typically they are used for small single developments such as nursing homes, hotels, subdivisions and parks since they are designed for an average daily flow of 10-80m^3/d. The scale of the system needed for managing sewage from an area the size of Erin Village or Hillsburgh is well beyond any system presently operating in Ontario.

It is noted that a plant discharging to surface water will require advanced tertiary treatment for the removal of both phosphorus and nitrate. A plant discharging to the subsurface will require tertiary treatment to achieve the lower nitrate requirement while phosphorus limits can likely be achieved using secondary treatment processes. In order to evaluate the range of potential solutions for subsurface disposal, three (3) alternative treatment and disposal strategies were considered:

- **Alternative 1:** Decentralized treatment and disposal systems servicing sewer decision areas established in the Septic System Survey technical memorandum.
- **Alternative 2:** Centralized treatment system with a series of disposal fields distributed to areas suitable for subsurface disposal based on the hydrogeological overview of the study area
- **Alternative 3:** Centralized treatment system for either Erin Village or Hillsburgh with a single disposal field suitable for subsurface disposal based on the hydrogeological overview of the study area

In order to evaluate the use of subsurface disposal within the Town of Erin, potential locations suitable for subsurface disposal were reviewed. Potential locations in the community are severely limited due to the extensive pattern of surface water drainage as well as the potential impact on drinking water supplies. After eliminating locations within 300m of surface waters, and within wellhead protection areas, a small number of suitable locations remained.

Based on the available disposal areas and a review of all three alternatives, it has been concluded that subsurface disposal alternatives are not viable for Erin Village. It was determined that not enough land was available to support Alternative 1. Alternative 2 and 3 had minimal cost advantage and added risk associated with disposal bed failure and the commitment to meet compliance limits downstream of the disposal field.

In contrast, for Hillsburgh it was found that all three alternatives were viable and there may be opportunity to incorporate subsurface disposal in the overall solution. Each alternative was evaluated economically for a comparative analysis; it was found that Alternative 3 was the least costly alternative for subsurface disposal at an estimated capital cost of $36,975,000. At full buildout, treatment and disposal costs for Alternative 3, including the construction of an independent treatment and disposal system for the community of Hillsburgh and a separate treatment and disposal system for Erin is $71,075,000 (exclusive of collection system costs).

Based on the comparative analysis, in terms of capital cost, there is no advantage for a separate treatment system in Hillsburgh using subsurface disposal. This solution is likely to cost between 10 – 20% more in terms of capital cost. In addition, the costs to operate two plants, instead of one, would likely be approximately 10% more in ongoing operation and maintenance. While the surface water alternative involves the cost of pumping wastewater from Hillsburgh to Erin, the subsurface alternative likely involves a similar cost in pumping to the disposal fields. Further, there are several additional costs for subsurface disposal that were not included in the overall costing; extensive long-term monitoring of ground water quality, additional disposal beds to manage potential failures, and effluent holding tanks for high groundwater level conditions may also be required to have a successful groundwater disposal system.

Based on the comparative analysis of costs, a single plant with surface water discharge servicing both Erin Village and Hillsburgh provides a more economical solution for the Town. In addition, the operation and maintenance of two treatment plants would add significantly to the lifecycle cost of this alternative. It was concluded that subsurface disposal of treated wastewater effluent for the community of Hillsburgh offers no advantage over the preferred surface water discharge alternative established during the SSMP.

A Technical Memorandum detailing the Subsurface Disposal Alternative can be found in ***Appendix F***.

7.0 Public Information Centre #1

Public Information Centre #1 was held on June 22, 2016 at the Erin Community Centre from 6:00pm to 9:00pm. The purpose of the PIC was to share information with members of the public about the UCWS EA. The goal was to inform community members in order to give a better understanding of the project and the study process and to provide the findings from the technical studies that had been completed to that point.

The PIC included an information session prior to a formal presentation where attendees could view display boards containing information about Phase 1 and Phase 2 of the study and pose questions to the study team. Refer to ***Appendix A*** for a complete record of PIC #1, comments and responses from the attendees, and other stakeholder comments and responses.

A total of 62 visitors attended PIC #1.

The key topics covered at PIC #1 were:

1. Purpose of PIC and project background
2. Refresher on the Servicing and Settlement Master Plan (SSMP)
3. Update on the Assimilative Capacity Study and confirmed effluent limits and objectives for the discharge to the West Credit River at 10th Line;
4. Overview of the existing Septic System Review and identified areas that should be connected to the Municipal Wastewater system;
5. Overview of the potential populations and wastewater flows for each community, based on the updated ACS and new effluent criteria;
6. Overview of the Assessment for Two Wastewater Treatment Plant discharge locations;
7. Overview of the Assessment for Large Subsurface Disposal Systems.
8. Next Steps and Schedule

7.1 Issues and Concerns Raised by Public

A number of questions, issues, and concerns were raised by members of the public during the PIC and through comments/questions submitted to the project email. Table 12 below is a high-level summary of key points that were raised.

Table 12 – Selected Issues and Concerns Raised at PIC #1

Topic	Summary
Population Growth	A number of visitors expressed concern about the amount of growth that could happen as a result of this study. It was explained that while the wastewater system being considered would enable growth, the ultimate decision about whether to grow and by how much is part of the Town's Official Plan process and not a decision made by this Class EA.
Environmental Impacts	Concern was expressed about potential environmental impacts on the West Credit River. Visitors wanted to know more about how the sewage would be treated and what the direct impacts would be on the river's health.
Technical Studies Process	Visitors had questions about how the technical studies were conducted. Project team members who completed the technical work were on hand to answer questions.
Cost	Many visitors expressed a concern about the potential costs of the project and who would be paying those costs. A general explanation of overall project costs was provided, but it was explained that full details on costs were not the focus of PIC #1 and would be covered at PIC #2
Servicing Area	There were comments and questions about why certain areas of the Town would be serviced and others not. The project team explained the reasons for inclusion/exclusion that had led to the proposed servicing map.
Alternative Treatment Technologies	A number of visitors had questions about potential alternative treatment approaches. An expanded scope investigation of these alternatives had been undertaken by the project team and they responded with findings from those investigations.
Impact on Public Use of the River	Members of the public asked about how the outfall location would impact swimming, fishing, and taking water from the river.

8.0 Phase 1 and 2 Design Considerations Resulting from Public and Agency Consultation

The major design considerations and/or actions that were implemented as a result of public and agency consultation are summarized in Table 13.

Table 13 – Design Considerations Resulting from Public and Agency Consultation

Comment	Action Taken
The potential for the use of multiple small treatment facilities in lieu of a single centralized treatment facility has not been adequately addressed.	A review of the background documentation was undertaken. The single discharge location was selected based on the recommendations of the original ACS. The SSMP provided a brief overview of subsurface disposal but a full review was not conducted. Full review of subsurface disposal opportunities was conducted to determine if alternate discharge locations were available. The Subsurface Disposal Alternative Technical Memorandum was completed to address this gap in the study.
The economic viability of separate treatment facilities for Hillsburgh and Erin Village was not adequately addressed and may be advantageous over pumping waste from Hillsburgh to Erin Village.	A full review of the capital costs and lifecycle costs for centralized treatment as compared to separate treatment facilities for Hillsburgh and Erin Village was completed. The Two Treatment Plants Alternative Technical Memorandum was developed to address this design option.
The assumed flow rate of 380 L/capita/day is too high given the high efficiency water fixtures available today. The over estimation of flow rates results in system oversizing that will cost the existing community more than necessary.	The flow assumption used for the study is in line with standard industry assumptions. While it is agreed that 380 L/capita/day is a conservative assumption for new construction, some system decay is anticipated over an 80-year lifecycle for sanitary collection and the design must take long-term considerations into account. As such, the flow assumptions used for the study are considered appropriate. This issue was addressed in an Ainley letter report dated November 23, 2017 shown in ***Appendix A.***

9.0 Recommended Preferred General Alternative Solution

Phase 1 and 2 of the UCWS EA presents an overview of the SSMP by summarizing the key findings followed by a review and refinement of the recommended preferred alternative identified in the SSMP.

In 2014, the Town of Erin completed the SSMP to address servicing, planning and environmental issues within the Town's urban areas. The study area included Erin Village and Hillsburgh as well as a portion of the surrounding rural lands. The SSMP considered servicing and planning alternatives for wastewater and identified a preferred wastewater servicing strategy for existing and future development in the study area. The UCWS EA continued with a review of Phase 1 and Phase 2 activities to confirm the preferred general alternative for wastewater collection, treatment and disposal for the existing urban areas of Erin Village and Hillsburgh, and to accommodate future growth. The aforementioned SSMP concluded that the preferred solution for both communities is a municipal wastewater collection system conveying sewage to a single wastewater treatment plant located south east of Erin Village with treated effluent being discharged to the West Credit River. A system with an average day flow (ADF) capacity of 2,610 $m^{3/}d$ servicing a population of 6,000, based on a phosphorus discharge concentration of 0.15 mg/L; was recommended.

As part of the UCWS EA, a more detailed survey of existing septic systems was undertaken within the study area to refine the problem statement. Based on the analysis of the septic system information collected; proposed wastewater servicing areas in Erin Village and Hillsburgh were recommended as previously shown in Figures 3 and 4.

As part of the UCWS EA, an assessment of the anticipated wastewater flows was made from each of the recommended servicing areas within the existing communities. Anticipated wastewater flows were also assessed from future development areas as delineated within the Town Official Plan. The results of these flow assessments indicate that in order to fully service the existing communities of 4,616 persons, a wastewater flow of 2,844 m^3/d will be needed. It is also determined that in order to service new growth areas, as defined by the Town Official Plan, 4,328 m^3/d of wastewater flow will result from 9,943 persons. The total estimated wastewater flow resulting from the full build out service area will be 7,172 m^3/d. This will service a residential population of 14,559 persons. Tables 14 and 15 summarise the anticipated flows and populations respectively. “All Development” and “equivalent Population” in tables 14 and 15, include residential, commercial, industrial and institutional components.

Table 14 – Full Build Out Average Day Flow Summary

	All Development (m^3/d)			Residential Development (m^3/d)		
	Erin	Hillsburgh	Total	Erin	Hillsburgh	Total
Existing Community	2,244.1	599.4	2,843.5	1,225.5	528.6	1,754.1
Growth Areas	2,523.0	1,805.7	4,328.7	2,029.2	1,749.1	3,778.3
Total	**4,767.1**	**2,405.1**	**7,172.2**	**3,254.7**	**2,277.7**	**5,532.4**

Table 15 – Full Build Out Population Summary

	Equivalent Population			Residential Population		
	Erin	Hillsburgh	Total	Erin	Hillsburgh	Total
Existing Community	5,905	1,577	7,482	3,225	1,391	4,616
Growth Areas	6,639	4,752	11,391	5,340	4,603	9,943
Total	**12,544**	**6,329**	**18,873**	**8,565**	**5,994**	**14,559**

Based on an updated 7Q20 baseline flow in the West Credit River, established by CVC and the wastewater flow required to service the full build out population, a revised Assimilative Capacity Study was undertaken as part of the UCWS EA.

In order to protect the water quality of the West Credit River, the ACS recommends establishment of a site specific downstream Total Phosphorus (TP) concentration of 0.024 mg/L to ensure that the Provincial Water Quality Objective of 0.03 mg/L is not exceeded. In order to further protect water quality, the ACS recommends that a target of ‘net zero’ increase in phosphorus loading be adopted for future development lands.

The results of the ACS indicate that the required full build out wastewater flow can be discharged to the West Credit River, provided the effluent meets the effluent limits indicated in Table 16 through the application of “Best Available Technology” at the wastewater treatment plant (WWTP).

As part of the UCWS EA, additional general alternative solutions were investigated. The first included a comparison of a two plant solution, servicing Erin Village and Hillsburgh with separate discharges to the

West Credit River, with a single plant solution as recommended in the SSMP. The two plant alternative was shown to be more costly and to require considerable cost and time to establish the viability of a second

Table 16 – Effluent Limits for Proposed Erin WWTP

Parameter	Stage 1 (Effluent Flow of 3,380 m^3/d)	Full Build Out (Effluent flow of 7,172 m^3/d)
pH	Within range of 6.5-8.5	Within range of 6.5-8.5
Total Suspended Solids	5mg/L	5mg/L
Total Phosphorus	0.07mg/L	0.045 mg/L
Total Ammonia Nitrogen	1.2 mg/L summer 2 mg/L winter	0.6mg/L summer 2 mg/L winter
Nitrate Nitrogen	5 mg/L	5 mg/L
E.coli	100cfu/100mL	100cfu/100mL
Dissolved Oxygen	4mg/L	4mg/L
5-day Carbonaceous Biochemical Oxygen Demand (CBOD5)	5 mg/L	5 mg/L

discharge to the River in Hillsburgh. The second alternative included a comparison of subsurface disposal alternatives with the single plant surface water disposal alternative. All of the subsurface alternatives considered were shown to be either non-viable or more costly than the single surface water discharge alternative. The alternative of a single treatment plant located south east of Erin Village and discharging to the West Credit River was confirmed as the preferred general alternative solution.

Based on the results of Phase 1 and Phase 2 of the UCWS EA, it is recommended that the preferred general alternative solution identified in the SSMP with a single treatment plant discharging into the West Credit River south east of Erin Village remain the preferred general alternative solution, with a revised capacity of 7,172 m^3/d servicing the full build out of future development areas as shown in Town's present Official Plan and that the Town of Erin proceeds forward with Phase 3 of the Class EA with this recommended alternative solution

In summary, the preferred solutions recommended through Phase 1 and 2 of the study are:

- Implement a municipal wastewater collection and treatment system, with sufficient capacity to service the existing population and all future growth within the OP boundaries;
- One wastewater treatment plant to service both the Erin Village and Hillsburgh communities, located southeast of Erin Village;
- The wastewater treatment plant would discharge to the West Credit River between 10th line and Winston Churchill Boulevard, and have effluent limits as recommended by the updated ACS and approved by MOECC in consultation with CVC.

10.0 Phase 3 Evaluation Approach

Phase 3 of the study evaluates alternative designs that can be used to implement the preferred solutions that were established in Phases 1 and 2. Phase 3 involves identification and evaluation of five major components of the proposed wastewater collection and treatment system in order to determine preferred design alternatives for each component. The five major components evaluated were:

1. Wastewater Collection System;
2. Pumping Stations and Forcemains;
3. Wastewater Treatment Plant Location;
4. Wastewater Treatment Plant Outfall Location;
5. Wastewater Treatment Technologies.

The evaluation methodology used to select the preferred design alternatives was established in a manner consistent with the principles of environmental assessment planning and decision-making as outlined in the Municipal Class Environmental Assessment.

In general, the evaluation process involved selection of potentially viable alternatives to be included in the evaluation and a detailed evaluation of each alternative using screening criteria that were chosen to reflect key aspects of the component being evaluated. The screening criteria fell into four primary categories as listed below:

- Social/Cultural impacts;
- Environmental impacts;
- Technical performance;
- Economic impacts.

Each criterion was given a weighting to capture its relative importance to the component being evaluated relative to the other criteria. For example, in the WWTP outfall location evaluation a higher emphasis is placed on environmental impacts over technical impacts, accordingly, the environmental criterion was given a higher weighting than the technical criterion.

The screening criteria and weightings used for each component's evaluation are provided in the sections below.

Some evaluations required a two-step process since there were numerous potentially viable alternatives and the list of alternatives needed to be narrowed down for the detailed evaluation. The two-step evaluations involved:

1. Identification of a long list of potentially feasible alternatives and screening this list down to a short list using "long-list screening criteria".

2. Performing detailed evaluations of the short-listed alternatives, using a "short-list screening criteria", to identify a recommended preferred alternative.

For this two-step approach, two sets of screening criteria were needed. The first set (long-list criteria) was used to screen the long list of alternatives to a short list and consisted of criteria considered essential to the success of the component. The second set of criteria (short-list criteria) was used to perform detailed evaluations of the short-listed alternatives.

11.0 Development of Phase 3 Alternative Designs

The first step in the evaluation was establishing the list of potentially viable design alternatives for each of the five major system components. Once this was done, the type and scope of background studies and/or investigations required to support the evaluations could be determined.

The process of selecting potentially viable design alternatives for each component was unique to that component since the objectives and priorities were unique to each. Some components, such as the WWTP location had few potentially viable alternatives and the selection process was straightforward. Other systems, such as the collection system and treatment technologies had a significant number of potentially viable alternatives and these components went through the two-step (long-list/short-list) process described in the previous section.

The design alternatives evaluated for each major component are summarized in Table 17 and a description of how these alternatives were selected is provided in the sections following.

Table 17 –Short-Listed Design Alternatives Evaluated for the Major System Components

Component	Design Alternative
Collection System	Traditional Gravity Sewers
	Modified Gravity Sewers
	Blended Gravity / Low Pressure Sewers
	Septic Tank Effluent Gravity System (STEG) and Septic Tank Effluent Pump Sewer (STEP)
	Low Pressure Sewer System
	Vacuum Sewer System
Forcemain Route Between Hillsburgh and Erin Village	Along the Elora-Cataract Trail
	Aligned east along Wellington Road 22 and diverting along 8th Line towards Erin Village
	Aligned along Trafalgar Road and diverting east along Sideroad 17 towards Erin Village
WWTP Outfall Location	West Side of 10th Line
	East Side of 10th Line
	West Side of Winston Churchill Boulevard
Wastewater Treatment Plant Site	North of Wellington Road 52 (Solmar) – Site 1
	South of Wellington Road 52 (HCS) – Site 2A
	Southwest Corner of Wellington Road 52 and 10th Line (HCS) - Site 2B
	Southeast Corner of Wellington Road 52 and 10th Line (HCS) – Site 2C

Component	Design Alternative
Wastewater Treatment Technologies	*Primary Treatment*
	• Conventional Primary Clarifier
	• Advanced Primary Treatment, i.e. fine screens to facilitate membrane bioreactors in secondary treatment
	Secondary Treatment
	• Modified Conventional Activated Sludge (CAS) Process
	• Sequencing Batch Reactor (SBR)
	• Membrane Bioreactor (MBR)
	Tertiary Treatment
	• Adsorptive Deep Bed Filtration
	• Two-Stage Continuous Up-Flow Sand Filters
	• Tertiary Membranes
	Disinfection
	• Chlorination/De-Chlorination
	• UV Disinfection
	Effluent Re-Oxygenation
	• Fine Bubble Aeration (using upsized secondary treatment blowers)
	Sludge/Biosolids Management
	• Conventional Aerobic Digestion with Land Application of Liquid Biosolids
	• Autothermal Thermophilic Aerobic Digestion with Land Application of Liquid Biosolids
	Septage Receiving and Management
	• Direct Co-Treatment of Raw Septage
	• Design Main Plant's MBR process to Include Septage Treatment
	• Pre-Treat Raw Septage by Dewatering with GeoTube Followed by Co-Treatment

11.1 Development of Collection System Alternatives

Through the 2014 SSMP, a range of collection system technologies were presented as potential solutions for the collection of waste water for Erin Village and Hillsburgh. The SSMP did not select a preferred collection system technology. However, the cost estimates provided for the system were completed on the basis of an assumed gravity collection system conveying all waste to a single treatment location south of Erin Village.

Through the UCWS EA, all of the collection system alternative technologies presented within the SSMP were subjected to a detailed review including capital cost estimates for servicing the existing community. The collection system technologies evaluated included:

- Modified gravity sewers
- Traditional gravity sewers
- Low-pressure sewers
- Vacuum sewers
- STEP/STEG sewers
- Blended gravity/ low-pressure sewers

In order to accurately compare and contrast the various collection system alternatives, a full review of the Town's topography was conducted to determine where pumping facilities were needed for each technology. The topographical assessment led to the development of Collection Areas for each alternative technology. Generally, each Collection Area requires a pumping facility for connection to the Collection System Trunk, through which wastewater is conveyed to the WWTP. While the extent of individual Collection Areas varies under the different collection system alternatives, the Collection System Trunk was consistent from system to system. The key components of the Collection System Trunk include the pumping station connecting Hillsburgh to Erin Village, a central pumping station for the north end of Erin Village, and the pumping station in the south end of Erin Village conveying all waste to the proposed WWTP location.

The collection system alternatives were evaluated using the conventional Municipal Class EA approach of developing a long list of potentially viable technologies and using relevant screening criteria to narrow down the long list to a short list of alternatives. The short list was further scrutinized against a set of detailed evaluation criteria.

11.2 Development of Pumping Stations and Forcemain Alternatives

In following with the development of the overall collection system arrangement, pumping station locations were determined within each Collection Area. The primary basis for the selection of a pumping station location was the local topography. Where possible, the lowest site within the Collection Area was selected as the preferred site. In addition, sites currently owned by the Town of Erin were given preference to minimize the requirement of land purchase. In the majority of the Collection Areas the availability of sites was highly limited due to the constraints imposed by the existing development.

Three forcemain alternatives were evaluated for the forcemain connection from Hillsburgh to Erin Village. The three alternatives were selected based on minimizing the total pumping distance and limited to existing roads/trails i.e. construction through undeveloped areas was not considered. The three evaluated in the study were:

1. Along the Elora Cataract Trail
2. Along Wellington Road 22/ 8th Line
3. Along Trafalgar Road/ Sideroad 17

The three alternatives are described in further detail in the subsequent sections.

The three alternatives were evaluated against the evaluation criteria to determine the preferred solution.

11.3 Development of Wastewater Treatment Plant Effluent Outfall Location Alternatives

The potential location for an effluent outfall site to the West Credit River was reviewed during the 2014 SSMP and a rationale was established for a location between 10th Line and Winston Churchill Boulevard, where the assimilative capacity of the river is maximised. To identify alternative discharge locations within this stretch of the river, the following key aspects were considered:

- The need for permanent access to the discharge point to support collection of samples and maintain the discharge pipe and diffusers
- Minimize impacts to the natural environment during construction and operation
- Minimize impacts on the riverbed and banks
- Minimize impacts to private property

Based on the above, three alternative locations were identified for evaluation as follows:

1. The West side of 10th Line where the river crosses the road
2. The East side of 10th Line where the river crosses the road
3. The West side of Winston Churchill Boulevard where the river crosses the road

The three alternatives are shown in Figure 5 and described in further detail in the subsequent sections.

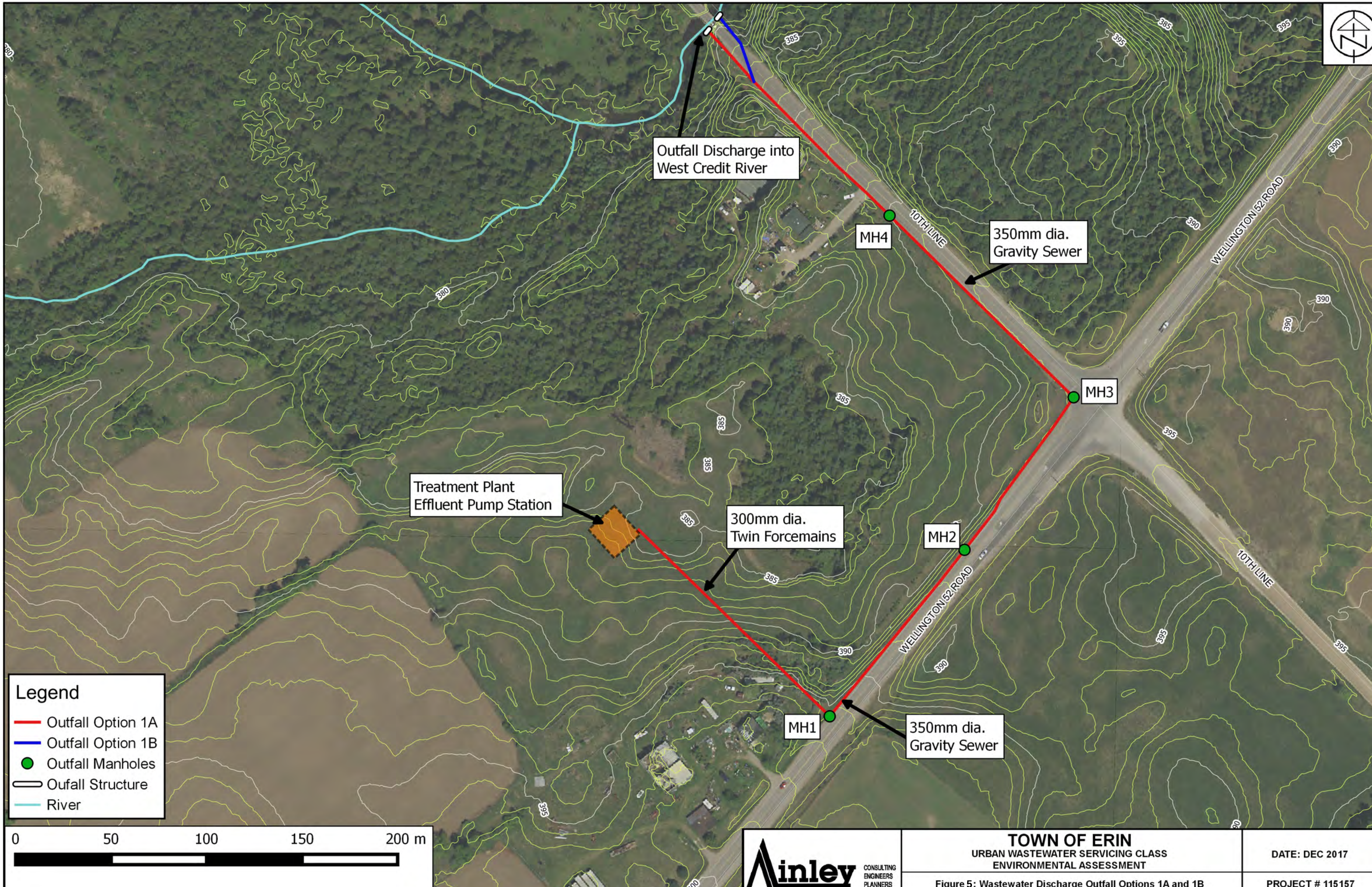
The three alternatives were evaluated against the evaluation criteria to determine the preferred solution.

11.4 Development of Wastewater Treatment Plant Site Alternatives

The potential location for a wastewater treatment facility was thoroughly reviewed during the 2014 SSMP and a clear rationale was established for the location along Wellington Road 52 between Main Street/9th Line and Winston Churchill Boulevard.

Based on the above considerations, the lands along Wellington Road 52 between Main Street/9th Line and Winston Churchill Boulevard with direct access of Wellington Road 52, were examined for possible sites. Available sites were established by first eliminating areas too close to residences or presenting environmental restraints as follows:

- The area South of the McCulloch Drive/Aspen Court and extending 200 m east of the subdivision was eliminated due to the potential impact on the residential area;
- The area North of Wellington Road 52 between 10th Line and Winston Churchill Boulevard was eliminated as it consists of private residences;
- The area South of Wellington Road 52 extending from 300 m east of 10th Line to Winston Churchill Boulevard was eliminated as it could impact several private residences along the South and North side of Wellington Road 52;



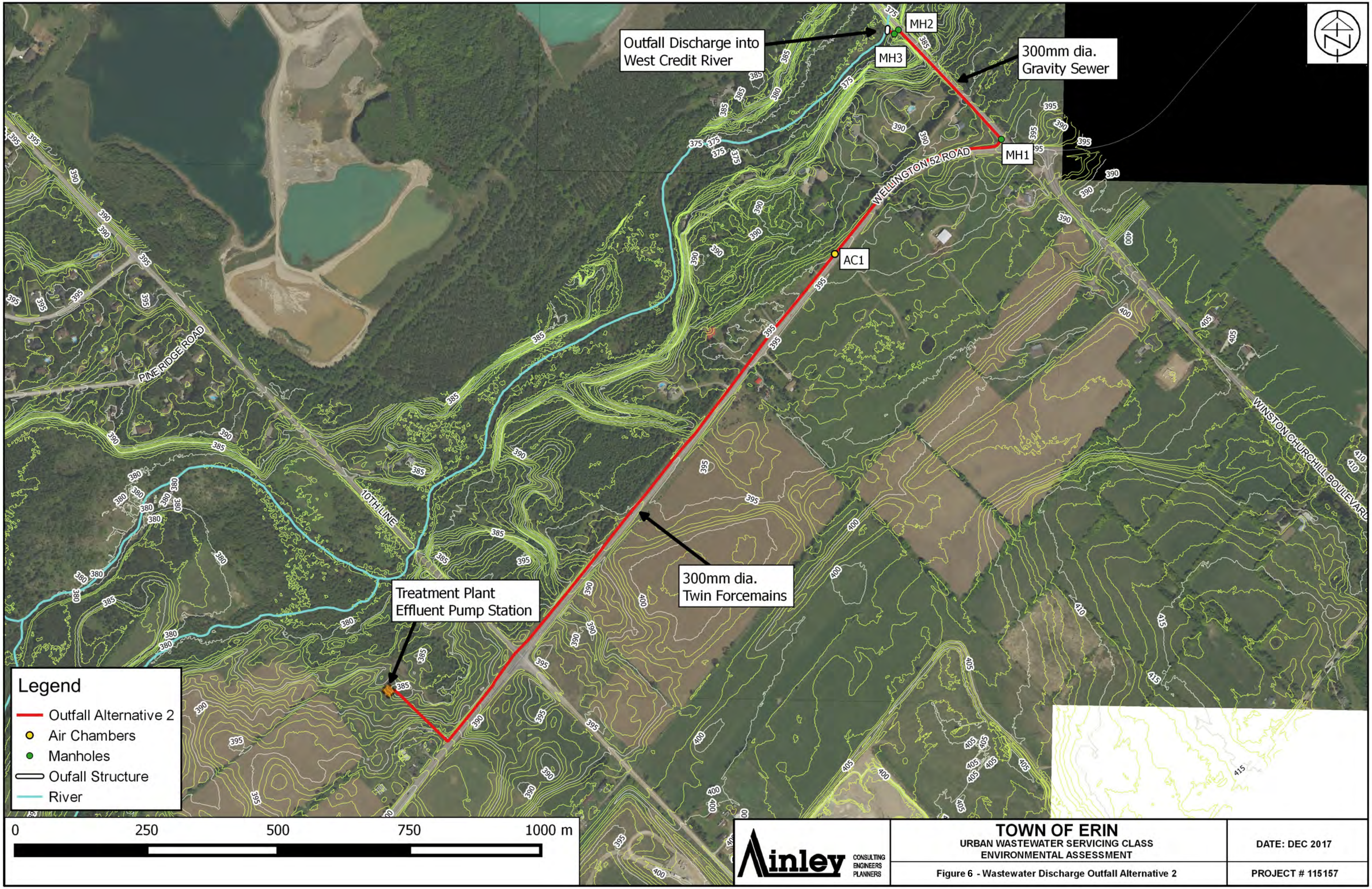
Ainley CONSULTING ENGINEERS PLANNERS

TOWN OF ERIN
URBAN WASTEWATER SERVICING CLASS ENVIRONMENTAL ASSESSMENT

DATE: DEC 2017

Figure 5: Wastewater Discharge Outfall Options 1A and 1B

PROJECT # 115157


Outfall Discharge into
West Credit River
MH2
MH3
MH1
300mm dia.
Gravity Sewer
AC1
WELLINGTON 52 ROAD
PINE RIDGE ROAD
10TH LINE
WINSTON CHURCHILL BOULEVARD
300mm dia.
Twin Forcemains
Treatment Plant
Effluent Pump Station
Legend
Outfall Alternative 2
Air Chambers
Manholes
Oufall Structure
River
0
250
500
750
1000 m
Ainley
CONSULTING
ENGINEERS
PLANNERS
TOWN OF ERIN
URBAN WASTEWATER SERVICING CLASS
ENVIRONMENTAL ASSESSMENT
DATE: DEC 2017
Figure 6 - Wastewater Discharge Outfall Alternative 2
PROJECT # 115157

- All lands to the North of Wellington Road 52 within CVC protected areas were eliminated due to the potential environmental impacts

In addition to these considerations, lands further south of Wellington Road 52 within Halton Crushed Stone sand and gravel extraction area that have already been mined, were eliminated due to access issues through an ongoing mining area and the designation of part of the mined lands as habitat preservation mandated by the Ministry of Natural resources and Forestry (MNRF) under the Aggregate Resources Act (ARA). The remaining available area is shown in Figure 7.

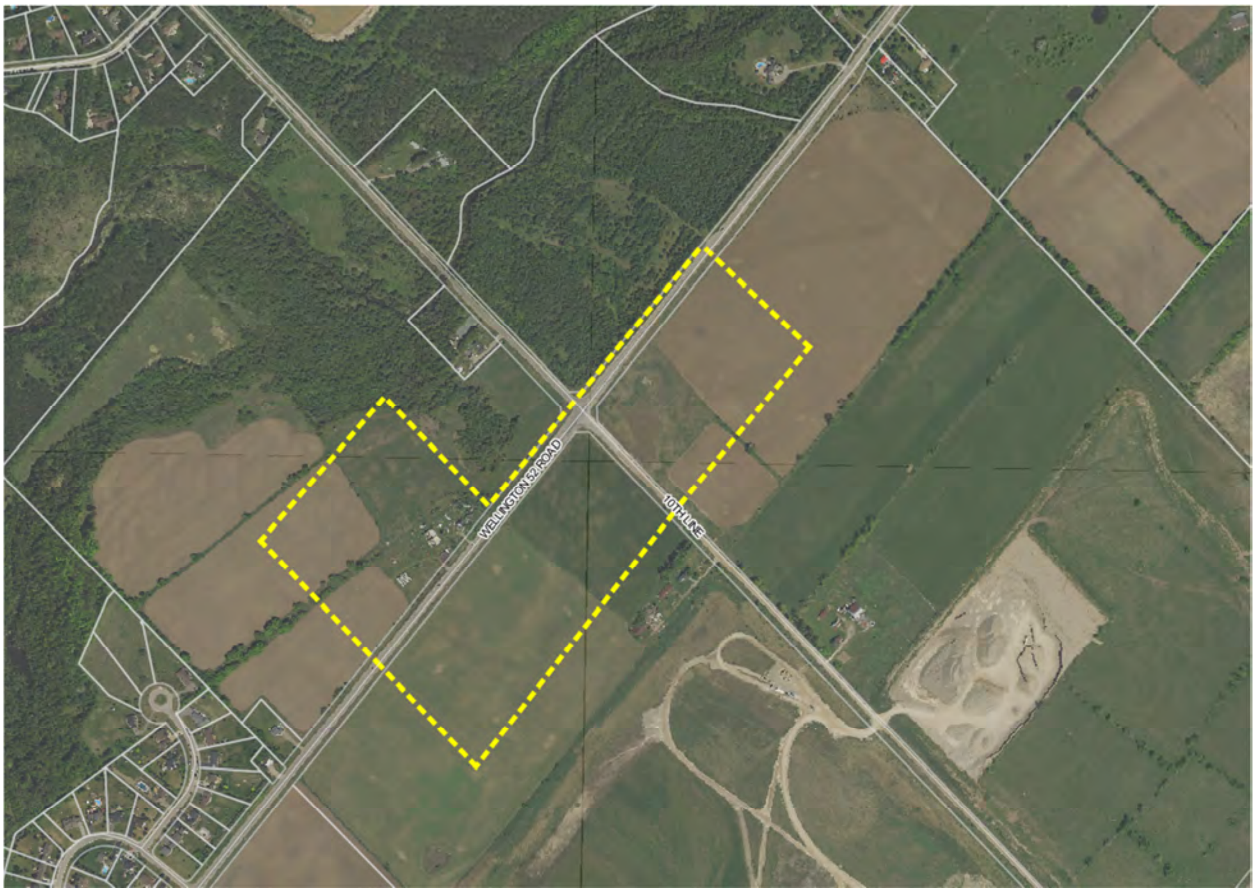


Figure 7 – Study Area for the potential location of the WWTP

Having established potentially viable locations for a WWTP, it was necessary to determine the size of property that would be large enough to support a WWTP with an average capacity of 7,172 m3/d, which is the full build-out capacity. A conceptual plant layout was created using the Modified Conventional Activated treatment alternative, the treatment alternative considered to have the largest footprint. Based on this conceptual layout, it was estimated that an area of approximately 150 m by 150 m would be needed for the plant processes. This includes ancillary buildings and facilities, such as the administration buildings, main power supply and control structures/buildings, etc.

Siting considerations outlined in the MOECC's Design Guidelines for Sewage Works (2008) along with MOECC Guideline D2 "Compatibility between Sewage Treatment and Sensitive Land Use" were used to establish a total property size. The MOECC's guidelines suggest that a buffer zone of 150m and not less than 100m be provided for treatment plants up to a capacity of 25,000 m^3/d.

Since the area identified for a WWTP is agricultural/aggregate extraction with few homes, it is suggested that a 5 Ha site with dimensions of 225 m by 225 m would be sufficient and would allow approximately 40 m between tanks and the property boundary of the site with the rest of the buffer zone provided by the agricultural lands and environmentally sensitive lands around the sites. The actual site boundary would be established through discussions between the Town and the site Owner at time of purchase.

Using these parameters, four site alternatives were identified within the study area selected for the potential location of the WWTP. The four alternatives are shown in Figure 8.

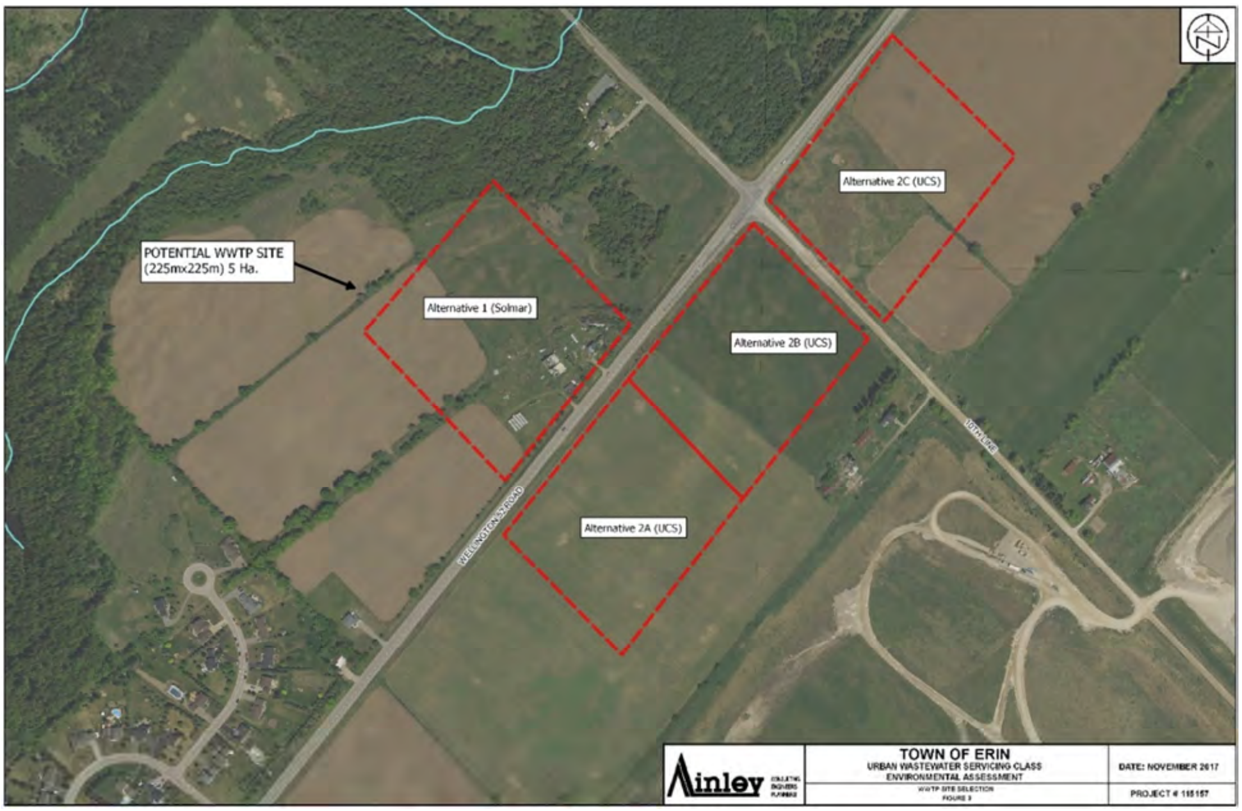


Figure 8 – Alternative WWTP Sites

The four alternative sites selected are:

- Alternative 1 – Solmar Site;
- Alternative 2A – Halton Crush Stone South of Solmar Site;
- Alternative 2B – Halton Crushed Stone at southwest corner of 10th Line and Wellington Road 52;
- Alternative 2C – Halton Crushed Stone at southeast corner of 10th Line and Wellington Road 52.

11.5 Development of Treatment Technologies Alternatives

Domestic wastewater typically consists of mostly water and a small amount of solids, less than 1% by weight. In developing alternative designs for treatment, two distinct sets of treatment technologies are needed, one set for treating the liquid component and the second set for treating the solids/sludge component.

Erin's WWTP will include a septage receiving and management system, accordingly a third set of design alternatives was included to evaluate alternatives for treatment of septage.

11.5.1 Liquid Train Treatment Alternatives

The final product of the liquid component treatment is the effluent discharged from the WWTP to the West Credit River. For Erin's WWTP, treatment of the liquid component is separated into six stages. The stages, sequentially, are preliminary, primary, secondary, tertiary, disinfection, and effluent re-oxygenation. The purpose of each stage is summarized below.

Preliminary Treatment	Removes larger objects and grit from the raw wastewater when it first arrives at the plant. Technologies used for preliminary treatment include various types of screens and grit removal systems. This process results in screenings and grit waste which is typically sent to a landfill. For the purposes of this evaluation process, preliminary treatment was not evaluated since the alternatives available will not be appreciably different in terms of environmental impact or cost.
Primary Treatment	Primary treatment removes particles that can be easily removed without the addition of chemicals or biological means. Typically achieved by gravity settling technologies, such as clarification. Other technologies, such as filters, can be used. Some secondary treatment technologies do not require primary treatment. The solids removed by this step are sent to the solids treatment system.
Secondary Treatment	Secondary treatment reduces the concentration of organics and other contaminants such as BOD, ammonia, and phosphorous. Technologies used for secondary treatment are usually biological in nature, such as aeration tanks, biological filters, moving bed bioreactors and clarifiers to settle solids. The solids removed by this step are sent to the solids treatment system.
Tertiary Treatment	Tertiary treatment removes parameters with low effluent limits that cannot be met by secondary treatment alone. Contaminants usually treated in a tertiary step include phosphorous, nitrogen, and suspended solids.
Disinfection	Disinfection deactivates and/or kills pathogenic micro-organisms, such as E. coli., found in the liquid. Traditionally, chlorination has been used for disinfection, however, ultra-violet radiation and ozonation are becoming more common.
Effluent Re-Oxygenation	Re-Oygenation elevates the dissolved oxygen levels in the treated wastewater before it is discharged to the river. This step is required to maintain the dissolved oxygen levels in the West Credit River.

The treatment technologies alternatives that selected for detailed analysis were selected using the conventional Municipal Class EA approach of developing a long list of potentially viable technologies and using relevant screening criteria to narrow down the long list to a short list of alternatives for detailed evaluation.

A long list of alternatives was generated for each of the liquid treatment stages described above, which was then reduced to the short-list of alternatives presented previously. The same process was used for the sludge/biosolids treatment train of the plant and the septage management system.

12.0 Phase 3 Background Studies and Reports

Several investigations and studies were needed to support an evaluation of the design alternatives for each major component of the system. The following is a brief summary of the background studies and investigations that were performed to gather the information required to analyse each alternative.

12.1 West Credit River Fluvial Geomorphological Assessment

Palmer Environmental Consulting Group Inc. (PECG) performed a fluvial geomorphological study on the West Credit River, between 10th line and Winston Churchill Boulevard, which is the stretch of the river that the Assimilative Capacity Study recommended for the WWTP discharge. The fluvial geomorphological study reviews the impact that the additional flow from the WWTP discharge would have on river characteristics, such as erosion, deposition of materials in the river bed and any channel widening.

The study focused on areas immediately down stream of 10th line, immediately upstream of Winston Churchill Blvd., and immediately downstream of Winston Churchill Blvd. since 10th Line and Winston Churchill Blvd. were identified as potentially viable locations for the outfall.

The study concluded that the proposed outfall locations are morphologically stable and the WWTP discharge will have negligible impact on the river. The study also recommended that the outfall's discharge be constructed in a way that directs flow away from the river bed and/or bank and the design should incorporate energy dissipation.

The complete fluvial geomorphological report can be found in ***Appendix G.***

12.2 Natural Environment Study

Hutchinson Environmental Service Limited (HESL) conducted a natural environment study to investigate the potential effects of the proposed wastewater collection system, WWTP location, and outfall location on the natural environment. The components of the natural environment in the natural environment study include fisheries and aquatic life, birds, amphibians, and vegetation. Based on the findings of the study, recommendations were made for mitigation measures to limit adverse effects of implementing the project.

This study reviewed the environment at the following locations:

- Proposed sewage pumping station locations; eight in Erin Village and 2 in Hillsburgh
- Along the Elora-Cataract Trail alternatives for the forcemain;
- The three alternative locations for the WWTP outfall;
- Three potential sites identified for the WWTP.

It should be noted that the site for the Hillsburgh SPS#1 was not studied since it was selected after the field study season. However information on the natural environment for that site was obtained from developer studies conducted on adjacent lands

The other two forcemain route alternatives were not studied as they are along existing roads and it was anticipated that construction of the forcemain along these two routes would have limited impact on the surrounding environment as it would be done within the footprint of the road rights of way.

Each alternative for the major component of the proposed collection and treatment system listed above were assessed in terms of aquatic ecology and terrestrial ecology, whichever was pertinent to the component being evaluated. Refer to the full report, in ***Appendix H***, for complete details of the Natural Environment Study.

12.2.1 Summary of Natural Environment Study Findings

The findings of the natural environment study are summarised below. Mitigation measures related to the environmental findings are presented in the section called “Impacts of Recommended Alternatives on the Environment and Mitigation Measures” of this ESR.

WWTP Outfall Natural Environment Recommendations

Alternatives for the outfall location at 10th and Line and Winston Churchill Blvd. were evaluated using aquatic ecology criteria. The preferred location was determined to be Winston Churchill Blvd. since it was less environmentally sensitive than the 10th line alternative.

WWTP Site Natural Environment Recommendations

Alternatives for WWTP sites were reviewed in terms of species at risk (SAR), sensitive birds species, and significant habitat. The preferred WWTP site alternative is Site 1 (Solmar) since there were two species at risk found in sites 2A and 2B.

Site 1 is considered a Significant Wildlife Habitat for Savannah Sparrow and development on this site would be permitted provided that this habitat and its ecological functions are not negatively affected by the development.

The study also recommended mitigation measures to protect the rare species (Wild Geranium) and the natural heritage features of the adjacent West Credit Provincially Significant Wetland (PSW) complex.

Forcemain Natural Environment Recommendations

Forcemain route alternatives were reviewed using the same criteria as the WWTP site alternatives. Alternative route 2 (along Wellington Road 22/8th Line) was found to avoid the most sensitive habitats. Alternative 1 (along the Elora Cataract Trail) was also considered acceptable, however the study recommended that this route be reconfigured to go along Sideroad 17 to Main Street to by-pass a section of the trail that is beside a wetland area.

Sewage Pumping Station Natural Environment Recommendations

The report provides recommendations for each SPS initially chosen as viable sites. The study showed that the sites originally selected for “Old SPS #1” (in Hillsburgh) and SPS #1A (in Erin) were not recommended for development due to the presence of environmentally sensitive/significant features. These two sites were removed from consideration and alternate sites were selected.

The site chosen to replace Old SPS #1 could not be included in the Natural Environment Study, as the study season was finished when the site was selected. However, the new SPS #1 site (in Hillsburgh) is part of a development area and a previous Environmental Impact Study was available for the property, which was used to assess the environmental impacts associated with the new site.

The Site for SPS #1B (in Erin) was chosen to replace the SPS #1A site. The site for SPS #1B was captured in the natural environment study. The existing Environmental Impact Study showed no significant environmental concerns associated with the new SPS site.

Refer to Section 13.2 for details of the findings and recommendations related to the proposed SPS sites.

12.3 Stage 1 Archeological Assessment: Erin Wastewater Servicing

Archaeological Services Inc. (ASI) performed a Stage 1 Archaeological Assessment (Background Research and Property Inspection) in support of the UCWS EA. The recommendations of this study are listed below:

- The proposed WWTP sites contain archaeological potential, as they are located in active agricultural lands;
- The following SPS sites were found to contain archaeological potential
    - The three originally proposed SPS sites in Hillsburgh
    - Erin sites SPS1A, 1B, 2, 3, 4, both 5's, 7, and 8
    - Some sections of the proposed forcemain route.
- The other areas in the study, including areas that are located in low and wet conditions or crossing the West Credit River would not require further study.

Locations within the study area that exhibit archaeological potential will require Stage 2 archaeological assessments. According to the study, on actively or recently cultivated areas, a pedestrian survey will be needed. A test pit survey will be required on areas where "ploughing is not viable, such as wooded areas, properties where existing landscaping or infrastructure would be damaged, overgrown farmland with heavy brush or rock pasture, and narrow linear corridors up to 10 meters wide."

Refer to the full report, in ***Appendix I,*** for complete details of the Archaeological Study.

12.4 Cultural Heritage Resource Assessment: Built Heritage Resources and Cultural Heritage Landscapes

Archaeological Services Inc. (ASI) conducted a Cultural Heritage Resource Assessment of the UCWS EA study area to inventory cultural heritage resources and potential impacts to these, identify existing conditions of the study area, and propose mitigation measures where required.

The study consisted of a desktop study and field review. The desktop study included review of current and historical data and aerial photographs and maps. The field review served to identify heritage resources that may not have been captured in existing databases.

The study found that there were thirteen cultural heritage resources within and immediately adjacent to the study area. Of the thirteen cultural heritage resources, 10 were cultural heritage landscapes and three were built heritage resources.

The Cultural Heritage Resource Assessment concluded that "no significant impacts to the cultural heritage resources are anticipated to result from the proposed undertaking."

The study's recommendations were:

- During implementation of the preferred alternative for each major component of the wastewater collection and treatment system, the cultural heritage resources should be reviewed for possible impacts;
- Staging of construction activities should be done to avoid impacts to the cultural resources identified in the study.

Refer to the full report, in ***Appendix J,*** for complete details of the Cultural/Heritage Study

13.0 Phase 3 Evaluation and Results

Information from the completed background studies was used in the detailed evaluations for each of the system's components.

The results of the evaluation of each component are summarized below. A description of each alternative is included along with the cost estimates associated with each alternative, and the result of the evaluation.

13.1 Wastewater Collection System Evaluation

The Collection System Alternatives Technical Memorandum detailing the evaluation of the collection system alternatives can be found in ***Appendix K***.

13.1.1 Evaluation Methodology

Alternatives for the wastewater collection system were evaluated using the two-step (long list/short list) approach. The evaluation proceeded as follows:

- Develop screening criteria for both the long list and short list;
- Develop a long list of viable technologies/options;
- Screen the long list of viable technologies/options using the long-list screening criteria to create a short list of alternatives;
- Develop alternative design concepts based on the short list of alternatives;
- Complete detailed evaluations of the short list of alternatives using the short list screening criteria; and
- Identify preliminary preferred alternative solution.

Long List Screening Criteria – Wastewater Collection System

The screening criteria used to narrow the long list of wastewater collection system technologies to a short list are shown in Table 18.

Table 18 – Long List Screening Criteria – Wastewater Collection System

Criteria	Description
Track Record	Demonstrated track record of ability to collect sewage for a similar sized community and climactic conditions.
Scalability	Demonstrated reliability of full scale experience of similar size.
Staging/Phasing	Ability to expand to suit Erin's growth requirements.
Operational and Maintenance (O&M)	Ability to maintain low operation and maintenance costs.
Cost	Have a capital cost commensurate with the benefits provided.

Short List Screening Criteria – Wastewater Collection System

The screening criteria and weightings used in the detailed evaluations of the collection system short-listed alternatives are shown in Table 19.

Table 19 – Sewage Collection System Short List Evaluation Criteria

Primary Criteria	Weight	Secondary Criteria	Weight
Social/Culture	15%	Impacts During Construction	20%
		Traffic Disruption/ Truck Traffic	10%
		Effect on Residential Properties	30%
		Effect on Businesses/ Commercial Properties	30%
		Effect on Industrial Properties	10%
Technical	35%	Technology Robustness	30%
		Energy Requirements	20%
		Suitability for Phasing	10%
		Construction Impacts	20%
		Operation and Maintenance Impacts	10%
Environmental	10%	Sustainability	15%
		Greenhouse Gas Generation	5%
		Effect on Groundwater	20%
		Effect on Surface Water/ Fisheries	20%
		Effect on Vegetation/ Wetlands	20%
		Effect on Habitat/ Wildlife	20%
Economic	40%	Capital Cost	30%

Primary Criteria	Weight	Secondary Criteria	Weight
		Life Cycle Net Present Value	40%
		Annual Operation and Maintenance	30%

13.1.2 Sewage Collection System Alternatives

Six potentially viable alternatives were considered in the evaluation of the collection system. The six alternatives were:

- Traditional Gravity Sewers
- Modified Gravity Sewers
- Blended Gravity/Low Pressure Sewer
- Septic Tank Effluent Gravity Sewer (STEG) and Septic Tank Effluent Pump Sewer (STEP) (STEG/STEP System)
- Low Pressure Sewer System
- Vacuum Sewer System

These six alternatives were evaluated using the long-list screening criteria shown previously. Modified gravity sewers were eliminated from the list. The modified gravity sewer system would be buried approximately 2m deep. Basements would need to be pumped up to the sewer in this system, rather than gravity flow. The difficulty with accommodating deep basements with future expansion of the collection system into new service areas lead to elimination of this alternative. The remaining five alternatives were carried forward for detailed evaluation.

Description of Traditional Gravity Sewers

A traditional gravity sewer system is one where wastewater in conveyed from each building through a privately-owned sewer pipe to the street line where it is connected to a gravity sewer in the street. The sewers are normally installed below basement level. If gravity flow is not possible throughout the system, lift stations are used to pump the sewage to a higher elevation. Lift stations are normally installed at the lowest elevations in the network and pump sewage to another gravity line to convey the sewage over hills and/or up to a trunk system that conveys the sewage to the WWTP. These lift stations are more commonly referred to as sewage pumping stations (SPS)

To consider the economic and technical impacts of a gravity system for the service areas, a conceptual system layout was developed. A potential gravity system design alternative was developed using the SewerGEMS sanitary modeling platform. The collection system was separated into four primary catchments / collection service areas. Additionally, 4 sub-catchments have been identified, all discharging to Catchment 4. The catchment areas are shown graphically in Figures 9, 10, and 11. A detailed description of the catchments can be found in the Collection Systems Alternatives Technical Memorandum in ***Appendix K.***

A trunk system was developed to convey wastewater from all of the existing catchments through to the WWTP. The trunk network is shown graphically in Figures 12 and 13.

This trunk system consists of the following elements:

- A sewer on Trafalgar Road in Hillsburgh

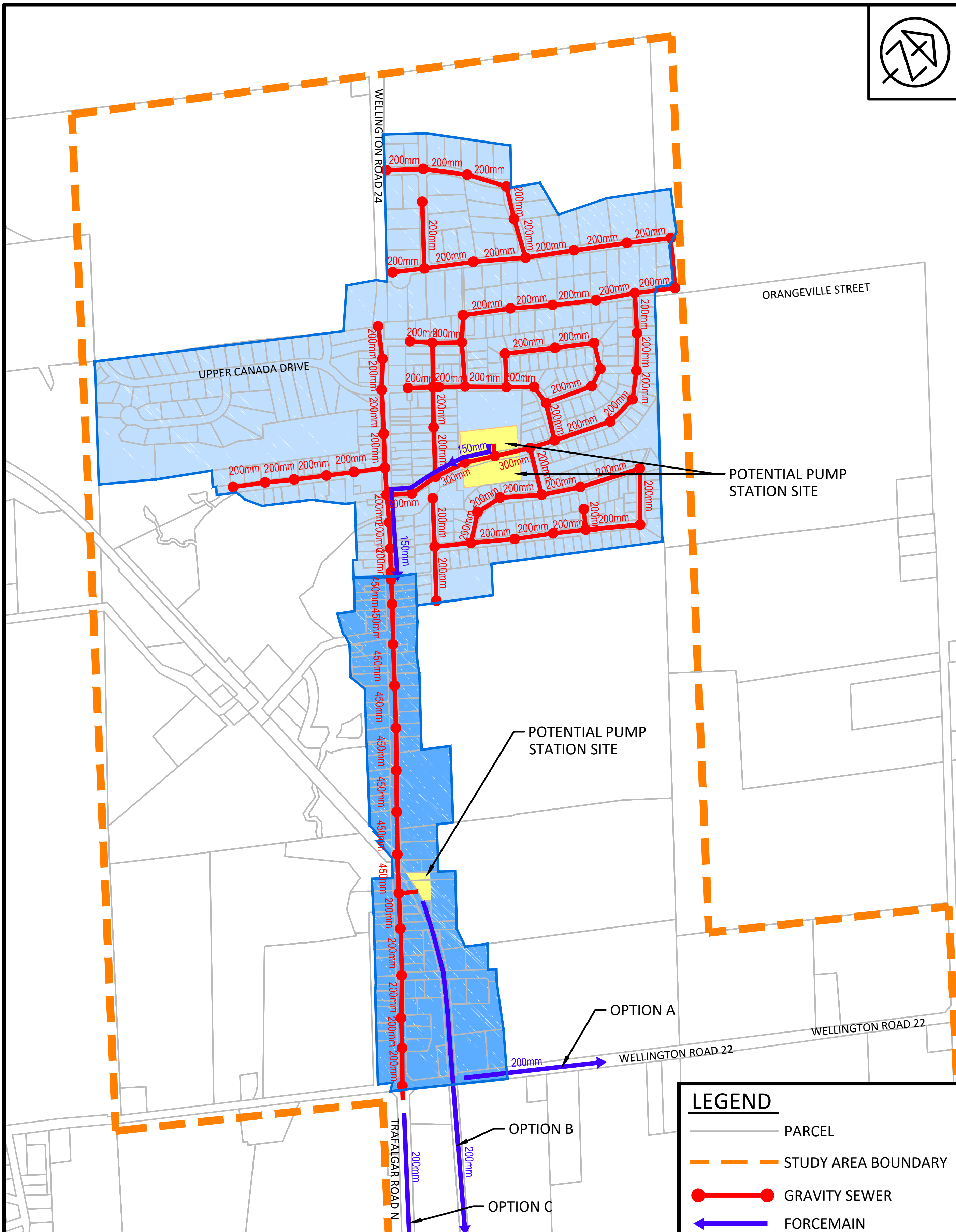
- A pumping station at the junction of the Elora Cataract Trail and Trafalgar Road in Hillsburgh
- Forcemains from the Hillsburgh pumping station to a pumping station on Main Street in North Erin Village
- A pumping station on Main Street in North Erin Village
- A forcemain from the North Erin Village pumping station along Main Street to the intersection of Main Street and Dundas Street
- A trunk sewer down Main Street and Daniel Street to a pumping station in South Erin Village
- A pumping station in South Erin Village
- Forcemains from the South Erin Village pumping station to the WWTP site

This trunk system was developed for the purpose of comparing alternatives. The system could be reviewed during implementation depending on servicing requirements for new growth areas.

Advantages and disadvantages of the traditional gravity sewer system design alternative are presented in Table 20.

Table 20 – Advantages and Disadvantages of the Traditional Gravity Sewer System

Advantages	Disadvantages
▪ Widely used throughout Ontario and the developed world ▪ Secure operation – no dependency on power supply ▪ Not a proprietary technology ▪ Suitable for areas with natural slope/terrain ▪ Proven technology with good track record ▪ Familiarity with the operation and maintenance ▪ System primarily constructed in the road allowances ▪ There are no mechanical components on private properties for gravity connections and little routine maintenance is associated with connections and main sewers ▪ Operational costs for the gravity sewer systems mainly associated with lift stations. ▪ Lift station operation is made secure through the use of a stand by power unit and can be fully automated. ▪ New developments where all utilities are being placed in new streets, typically have a reduced cost for gravity sewers. ▪ No municipally owned sewer components to operate and maintain on private property ▪ Both liquid and solid components of sewage removed from the property at the same time.	▪ Deeper excavations may require some excavations in bedrock to achieve gravity flow ▪ Potential for inflow and infiltration due to leaky pipes/manholes in the future ▪ Due to topography within study area, multiple lift stations will be required ▪ Property will be required to facilitate the installation of the lift stations and sewer easements through Main Street ▪ Homeowner connection costs can be high where lots slope below road. ▪ MOECC design guidelines require a minimum 200mm diameter for gravity sewers. ▪ Septic tanks and tile beds to be decommissioned by the property owner.



Ainley CONSULTING ENGINEERS PLANNERS

TOWN OF ERIN

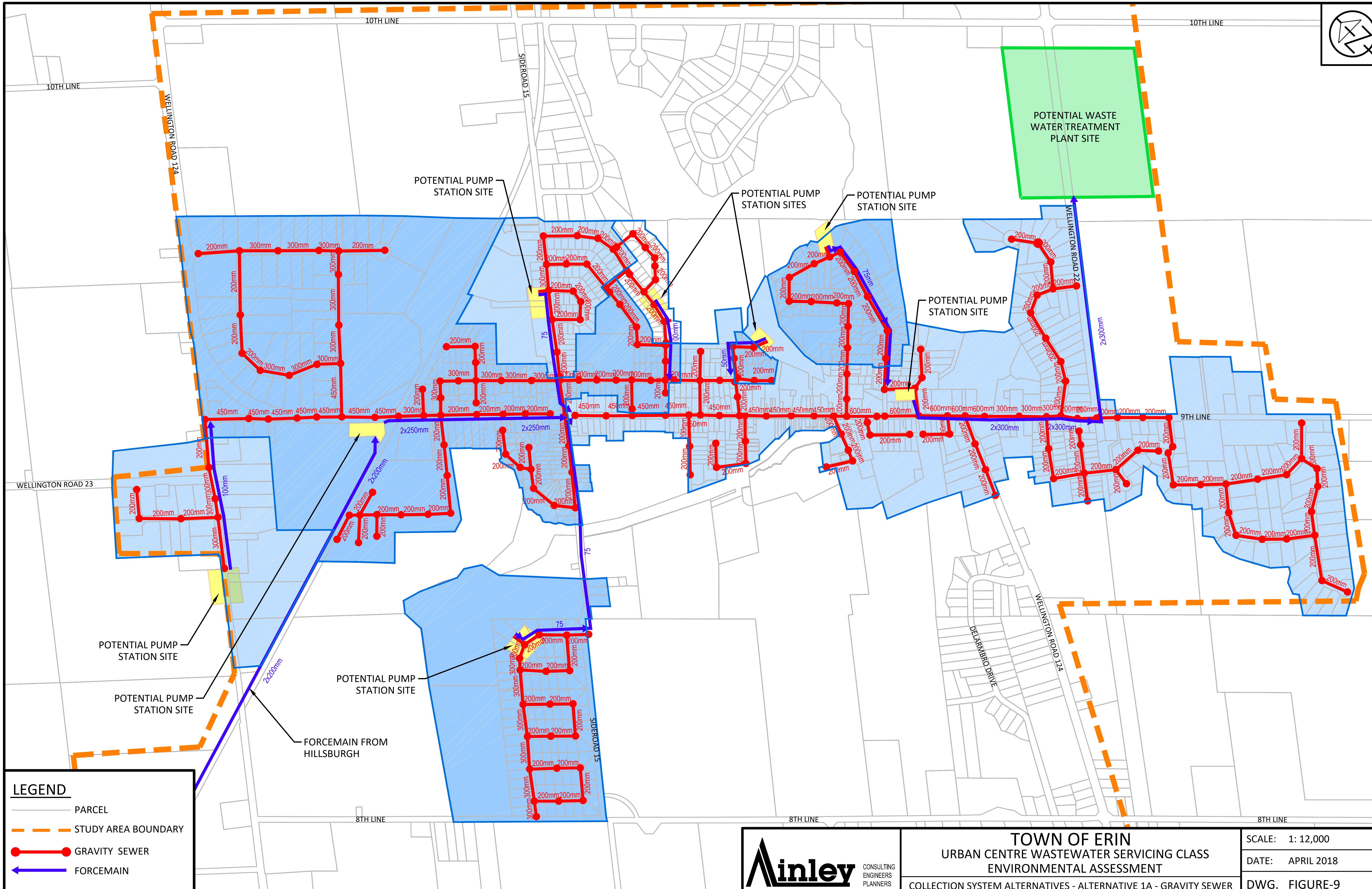
URBAN CENTRE WASTEWATER SERVICING CLASS ENVIRONMENTAL ASSESSMENT

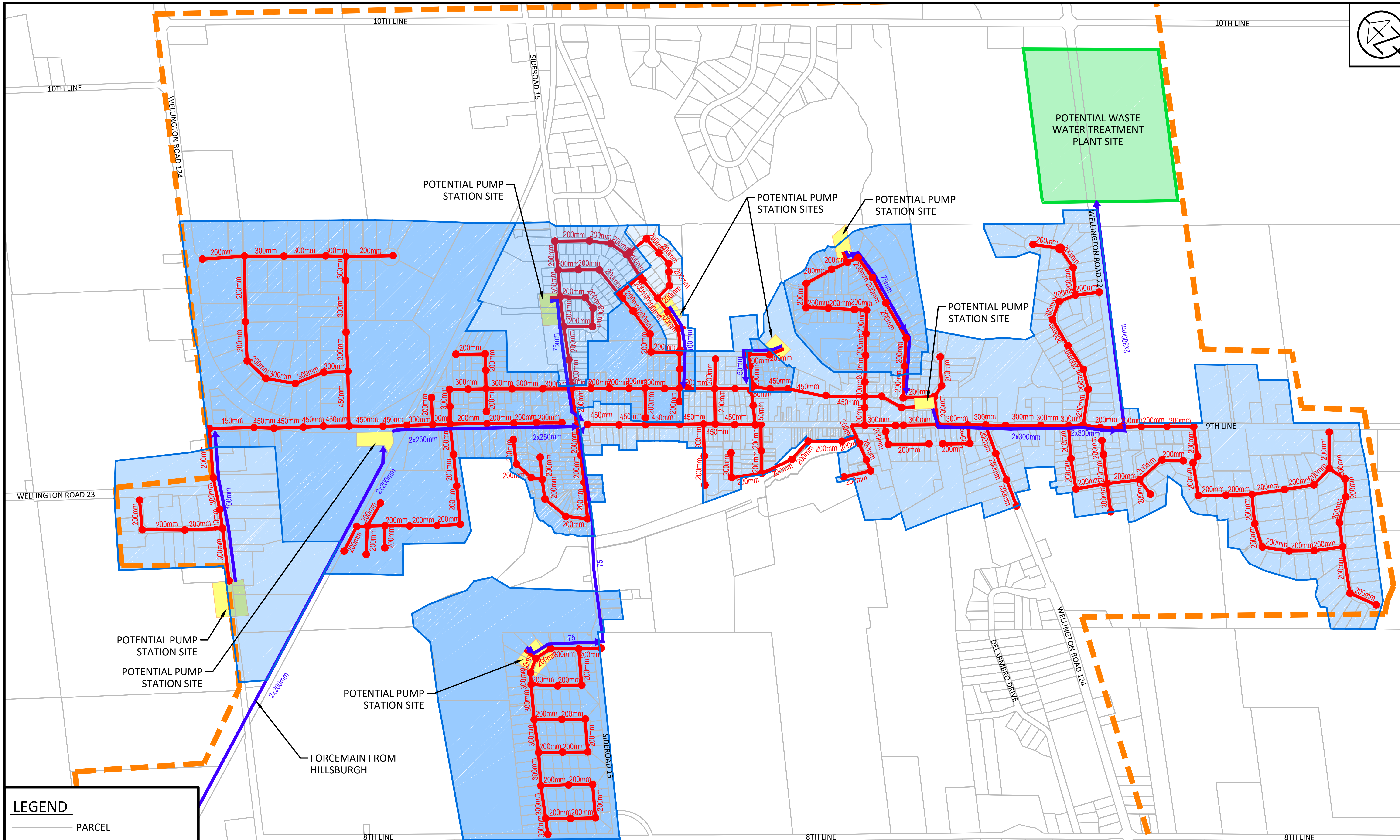
COLLECTION SYSTEM ALTERNATIVES - ALTERNATIVE 1 - GRAVITY

SCALE: 1: 12,500

DATE: APRIL 2018

DWG. FIGURE-8


10TH LINE
SIDEROAD 15
WELLINGTON ROAD 124
POTENTIAL WASTE WATER TREATMENT PLANT SITE
POTENTIAL PUMP STATION SITE
POTENTIAL PUMP STATION SITES
WELLINGTON ROAD 22
9TH LINE
WELLINGTON ROAD 23
FORCEMAIN FROM HILLSBURGH
DELARMBRO DRIVE
8TH LINE
LEGEND
PARCEL
STUDY AREA BOUNDARY
GRAVITY SEWER
FORCEMAIN
Ainley CONSULTING ENGINEERS PLANNERS
TOWN OF ERIN
URBAN CENTRE WASTEWATER SERVICING CLASS ENVIRONMENTAL ASSESSMENT
COLLECTION SYSTEM ALTERNATIVES - ALTERNATIVE 1A - GRAVITY SEWER
SCALE: 1: 12,000
DATE: APRIL 2018
DWG. FIGURE-9



LEGEND

PARCEL

STUDY AREA BOUNDARY

GRAVITY SEWER

FORCEMAIN

Ainley CONSULTING ENGINEERS PLANNERS

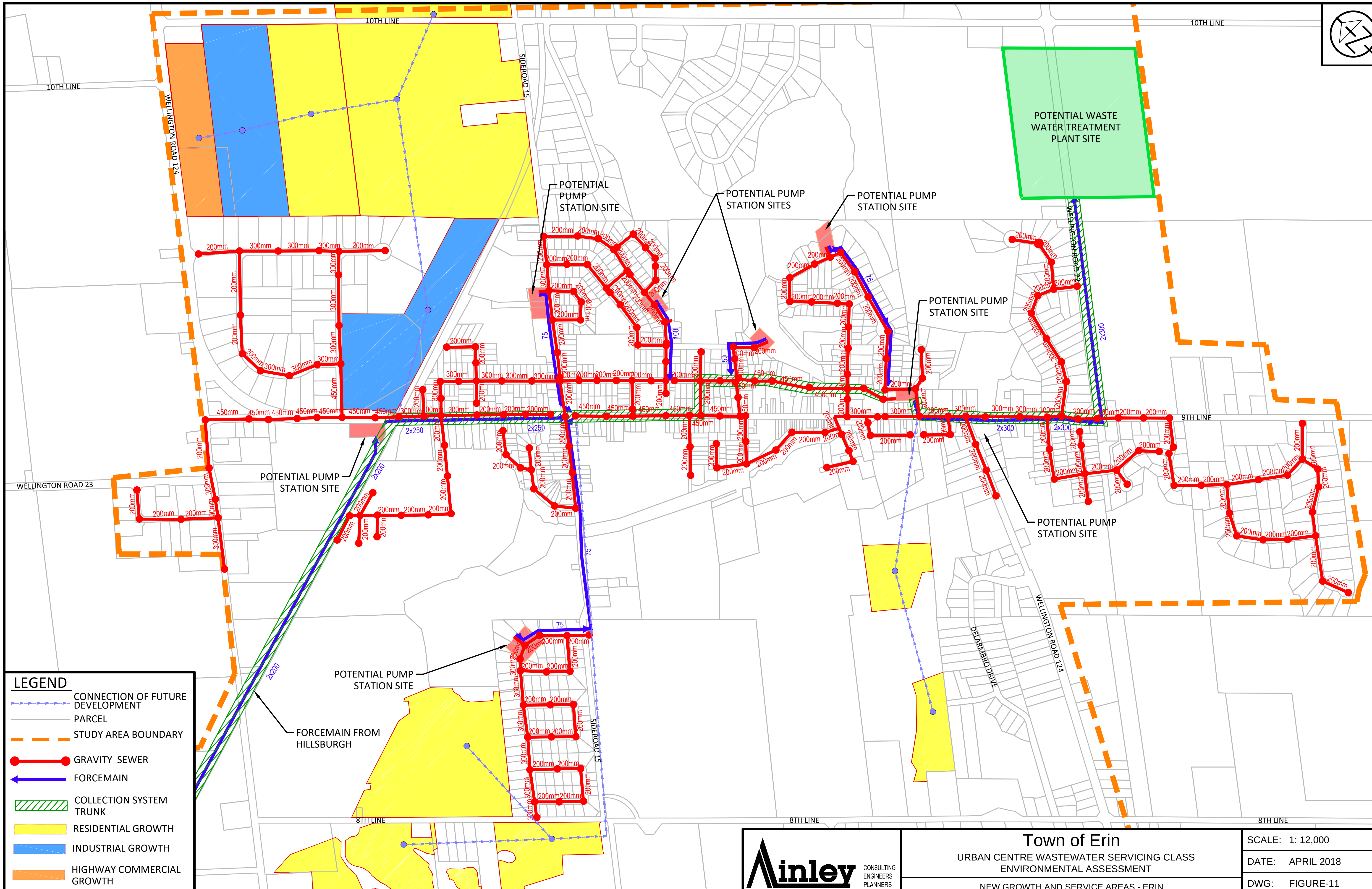
TOWN OF ERIN
URBAN CENTRE WASTEWATER SERVICING CLASS ENVIRONMENTAL ASSESSMENT

COLLECTION SYSTEM ALTERNATIVES - ALTERNATIVE 1B - GRAVITY SEWER

SCALE: 1: 12,000

DATE: APRIL 2018

DWG. FIGURE-10



Ainley CONSULTING ENGINEERS PLANNERS

Town of Erin

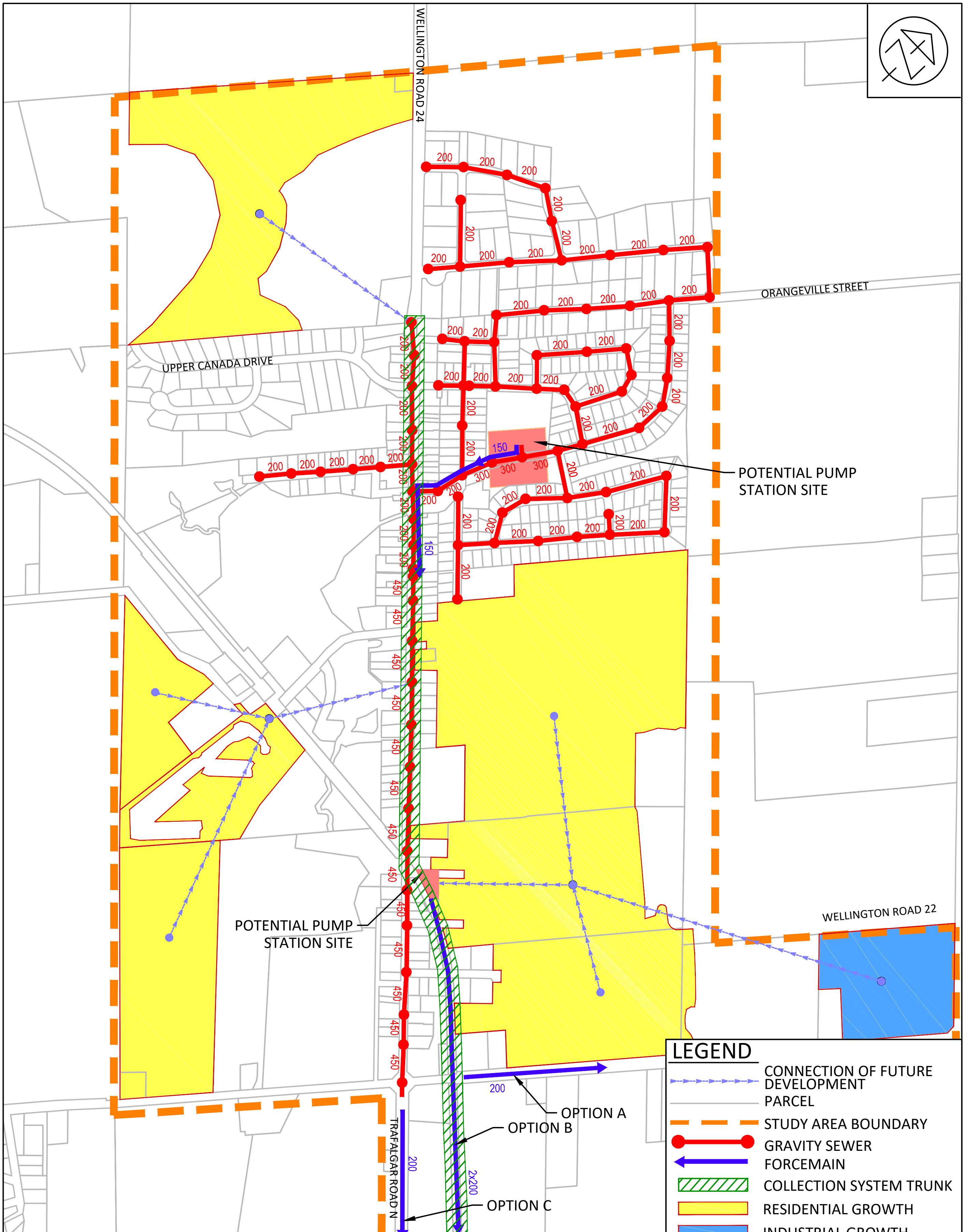
URBAN CENTRE WASTEWATER SERVICING CLASS ENVIRONMENTAL ASSESSMENT

NEW GROWTH AND SERVICE AREAS - ERIN

SCALE: 1: 12,000

DATE: APRIL 2018

DWG: FIGURE-11



Ainley CONSULTING ENGINEERS PLANNERS

TOWN OF ERIN

URBAN CENTRE WASTEWATER SERVICING CLASS ENVIRONMENTAL ASSESSMENT

NEW GROWTH AND SERVICE AREAS - HILLSBURGH

SCALE: 1: 12,500

DATE: APRIL 2018

DWG. FIGURE-12

Description of Blended Gravity / Low-Pressure Sewers

The blended gravity/low-pressure (LPS) sewer system is by and large a traditional gravity system, except, where isolated low-lying areas exist, grinder pumps are utilised instead of a small centralised pumping stations. Small centralised pumping stations have a relatively high capital cost along with a high operating and maintenance cost. However, a blended gravity/LPS system does not have these higher costs associated with it since they can use pre-packaged grinder pump designs to service small isolated areas.

Advantages and disadvantages of the blended gravity / LPS sewer system design alternative are presented in Table 21.

Table 21 - Advantages and Disadvantages of the Blended Gravity/LPS Sewer System

Advantages	Disadvantages
▪ Generally similar advantages to the traditional gravity system ▪ Avoids construction of multiple small lift stations.	▪ Generally similar to disadvantages to the traditional gravity system ▪ Creates a two-tier collection system with different requirements for different home owners. ▪ Disadvantages associated with grinder pump operation apply to a small portion of the overall user base.

Description of STEG / STEP Sewers

A septic tank effluent gravity tank (STEG) traps and retains solids at the point of discharge and transfers relatively clear effluent to the next treatment stage via gravity flow. A STEP (septic tank effluent pump) tank is similar, except the effluent is pumped to the next treatment stage because the treatment unit may be at a higher elevation than the tank and gravity flow is not possible.

STEG and STEP sewers use septic tanks on individual properties to provide liquid/solid separation before the liquid from the tank is conveyed to the collection system. The solids are collected and stored in the septic tanks and pumped out regularly for treatment at a facility design to treat septage. The individual tanks are owned by the municipality, but are located on private property. To access the septic tanks for maintenance, legal agreements for permission to enter are required.

The main components of a STEP/STEG system are septic tanks, small bore sewers, and wastewater treatment works. The septic tanks perform at-source solids separation and the network of small bore sewers conveys tank effluent to the treatment facility.

A challenge specific to STEG/STEP sewers is the issue of ownership of each septic tank and septic tank pump. The Town would need to decide if it will own and maintain all of the septic tanks/pumps or if the tanks/pumps should be owned and maintained by each property owner. This issue may be contentious because only some properties will require a STEP configuration and those Owners may object to having the additional costs in comparison with the Owners of STEG configurations.

One advantage, to the Town assuming ownership of the tanks/pumps, is that tank pump-outs would occur when needed, which would prevent conveyance of excess solids to the treatment facility and would reduce the potential for sewer blockages.

Advantages and disadvantages of the STEG / STEP sewer system design alternative are presented in Table 22.

Table 22 - Advantages and Disadvantages of STEP/STEG System

Advantages	Disadvantages
▪ Potentially less excavation required for sewer pipes ▪ Where STEP is used, pipes can be installed to follow the surface topography, remaining at a relatively constant depth below the surface ▪ Minimal inflow and infiltration into the system so smaller pipes and lower flow to WWTP ▪ Solids not pumped to WWTP so smaller pipes and less capital costs for pipes ▪ Lower initial capital costs due to shallower placement and small size of pipes ▪ Low pump maintenance compared to grinder pumps (low pressure system).	▪ All private properties require an Interceptor Tank similar to a Septic Tank ▪ Small diameter pipes subject to blockage if septic tanks do not function properly ▪ At-source components require maintenance (solids removal, pump maintenance). ▪ If septic tanks are owned by Town, legal access agreement is needed for maintenance ▪ The Town may also be responsible for solids pump-out if they own the tanks ▪ Property owners still have the restriction of having a septic tank system ▪ Power needs to be available all the time for STEP configurations. Power failure results in properties having no wastewater outlet ▪ Property owners will be required to supply and pay for power to the on-site pump at their property. ▪ STEP/STEG is a proprietary technology which means maintenance and procurements of parts will be through the same supplier which could increase capital and maintenance costs. ▪ Existing septic tanks will need to be decommissioned by the Town ▪ Tile bed will need to be decommissioned by the property owner. ▪ Not widely used in Canada and not on this scale ▪ Developers for growth areas would be required to use the same system and this may affect house prices as the system does not provide a secure sewer outlet ▪ Production of odour is common from improper house ventilation, manholes and system vents.

Advantages	Disadvantages
	▪ Effluent tends to be corrosive due to the presence of hydrogen sulphide gas from septic sewage. ▪ Odour control needed at all pumping stations

Description of Low-Pressure Sewers

Pressurised sewers differ from conventional gravity collection systems in that they use pumps (grinder) instead of gravity to transport wastewater from the source to the treatment facility. Wastewater flows by gravity from the source to a collection tank, equipped with a grinder pump, where it is ground up before being transported into the pressurised system by pumps. When the liquid level in the collection tank reaches a pre-set level, the grinder pump will activate and macerate the tank contents while pumping it into the sewer.

Properties could have dedicated collection basins or could be part of a small cluster of properties serviced by one basin of sufficient capacity. Grinder pumps could be installed above or below grade, indoors or outdoors. In a completely pressurized collection system, all the piping downstream from the grinder pump (including laterals and mains) would normally be under low pressure (40-60 psig). Pipe sizes would start at 1 1/4 inches for house connections (compared to 4 or 6 inches in gravity systems) and would be proportionally smaller than the equivalent gravity pipeline throughout the system.

Pressure sewer systems are not generally designed to have multiple catchments in the same way as a gravity system; due to the geographical separation between Hillsburgh and Erin Village, multiple catchments are necessary. A detailed description of each catchment can be found in ***Appendix K.***

As with the STEG/STEP system, the Town would have to decide if they should own and maintain all of the pumping stations (tanks/pumps) located on private property or if the stations should be owned and maintained by each property owner. A few communities in Ontario that have opted for a low-pressure sewer system have received public backlash for their decision to have the grinder pump stations privately owned, due to failures of the stations resulting in expensive repairs for the residents.

A consideration that must be made with a low-pressure system is the potential for power outages affecting the system operation. In a traditional gravity sewer system, generators are typically used to provide power to the pumping stations in the event of a power outage. For individual users of the low-pressure system, there is an increased risk of system backups during power outages.

Advantages and disadvantages of the low-pressure sewer system design alternative are presented in Table 23.

Table 23 - Advantages and Disadvantages for Low Pressure Collection Systems

Advantages	Disadvantages
▪ Less excavation required than other options	▪ Homes would require a grinder pump unit on

Advantages	Disadvantages
▪ Can be installed to follow the surface topography, remaining at a relatively constant depth below the surface (below the frost line) ▪ Minimal inflow and infiltration into the system so smaller pipes and lower flow to WWTP ▪ Lower initial capital costs due to shallower placement and small pipes sizes.	private property ▪ Grinder pumps owned by the Town would require maintenance of over 1500 pump systems and access to each property ▪ If pumps are owned by each property owner, it would present ongoing operation and maintenance costs for each homeowner ▪ Each property owner would be required to supply and pay for power to the onsite pump ▪ Power failure would result in properties having no wastewater outlet ▪ Odour concern due to the presence of vents on collection chambers and within downstream sewers and centralized pumping stations ▪ History of pump blockages and malfunctions cause ongoing issues for homeowners ▪ Does not provide secure alternative because the system relies on power supply at each property and local control panels need to be installed inside each home/property ▪ Low pressure system is a proprietary technology, which means that maintenance and procurements of parts will be through same supplier, which could increase capital and maintenance costs ▪ Pumps have 15-year life but operating history indicates failure occurs more frequently ▪ Developers for growth areas would be required to use the same system and this may affect house prices as the system does not provide a secure sewer outlet

Description of Vacuum Sewers

A vacuum sewer system is similar to a low pressure system, except that vacuum is drawn on the collection system by a central vacuum station, pulling the wastewater through the system rather than pushing it through the system with a series of pumps. In a vacuum sewer system, there are vacuum stations located throughout the system. The vacuum stations are equipped with vacuum pumps that keep the sewer mains under vacuum.

Valve pits that collect wastewater are installed at individual residences or connected to multiple properties. When the level in the valve pipe reaches a predetermined setpoint, a vacuum interface valve automatically opens and the negative pressure in the sewer main, created by the vacuum stations, draws wastewater from the valve pit into the sewer main. Each time a vacuum interface valve is opened along the vacuum sewer main, it moves wastewater in the main closer to the vacuum station, where it's collected in a collection tank. Once the collection tank is full the contents are pumped to the wastewater treatment plant.

The vacuum pits are typically owned by the municipality and located on private property, so easements would be required for maintenance purposes.

Vacuum sewer systems may be combined with other collection system technologies. Vacuum stations can take advantage of available slope in the terrain but are most economical in a flat terrain. For locations with high topographic variability, many small vacuum catchments would be required and would result in a requirement for numerous forcemains and an increased number of pumps to generate the negative line pressure, which ultimately negates the advantage of shallower pipe construction. Further, the operation of the vacuum pumps required to provide the suction and lift to the vacuum stations are expensive to operate due to the high energy demand.

The issue of ownership of the vacuum pits would need to be addressed. Unlike a low-pressure sewer system, the vacuum pits have limited mechanical components and are comparatively less likely to experience operational issues. However, it is possible for clogs to occur within the vacuum collection pits causing a disruption to the service. It is unlikely that all homeowners will be both willing and able to maintain their own vacuum pit. It is preferable for the Town to maintain ownership and responsibility for the vacuum system components to ensure operation.

Since the method of conveying wastewater from the residences is the central vacuum stations, the risk associated with power failures would be mitigated by using emergency back-up generation at the vacuum stations. Additionally, the costs to the user would not vary since all operational costs would be centralised.

A possible vacuum system design alternative was developed for this evaluation. The design identified three primary catchment areas, with catchment 3 having 3 sub-catchments discharging into it.

For Hillsburgh and Erin Village, a total of 7 vacuum stations would be required to service the existing community, 6 for Erin Village and 1 for Hillsburgh.

Advantages and disadvantages of vacuum sewer system design alternative are presented in Table 24.

Table 24 - Advantages and Disadvantages Vacuum Sewage Collection System

Advantages	Disadvantages
▪ Less excavation required than traditional sewers ▪ Can be installed to follow the surface	▪ Vacuum sewer systems can provide a lift of only 3 metres ▪ Homes will require a valve pit on their

Advantages	Disadvantages
topography, remaining at a relatively constant depth below the surface (below the frost line) ▪ Small pipe diameters are sufficient if vacuum stations properly located ▪ The risk of clogging is low because of pressure differential in pipes ▪ The vacuum station can typically cover a distance of 3 km if the terrain is flat enough ▪ Minimal inflow and infiltration into the system, so smaller pipes and lower flow to WWTP ▪ Lower initial capital costs due to shallower placement and small pipe sizes	property ▪ Best suited for flat areas with poor soils and/or high groundwater, unlike Erin and Hillsburgh. ▪ Systems typically municipality owned and require access to each property for maintenance by municipality. ▪ Odour concern due to the presence of vents on valve pits and at vacuum stations. ▪ Vacuum systems are proprietary, which means maintenance and procurements of parts would be through same supplier, which could increase capital and maintenance costs. ▪ System integrity needs to be constantly monitored. ▪ Vacuum station failure quickly affects sewage flow from each property as there is no inherent storage capacity compared to gravity sewers ▪ Vacuum pipe leaks also affect operation of system and can affect sewage servicing from many properties ▪ The system needs more specialist maintenance and operation. ▪ Limited installations in Canada.

Life-Cycle Cost Analysis of Collection System Design Alternatives

Life-cycle cost analyses were performed as part of the detailed evaluations of each design alternative described above. Results of the life-cycle cost analyses are summarized in Table 25.

Table 25 – Cost Estimate for Collection System Alternatives

Collection Alternative	Capital Cost	Connection Cost (Home Owner)	Total Capital Cost	System Replacement and Operation NPV	Total Cost (Capital Cost + NPV)
Gravity Sewers	$45,482,000	$10,210,000	$55,692,000	$7,772,000	$63,464,000
Blended Alternative	$43,276,000	$8,930,000	$52,206,000	$7,535,000	$59,741,000
Pressure Sewers	$56,130,000	NIL	$56,130,000	$12,944,000	$69,074,000

Collection Alternative	Capital Cost	Connection Cost (Home Owner)	Total Capital Cost	System Replacement and Operation NPV	Total Cost (Capital Cost + NPV)
Vacuum Sewers	$50,852,800	NIL	$50,852,800	$9,770,000	$60,622,800
STEP/STEG Collection	$52,502,400	NIL	$52,502,400	$8,999,000	$61,501,400

13.1.3 Results of the Sewage Collection System Alternatives Evaluation

A detailed evaluation of each collection system design alternative was conducted using the short-list screening criteria and weightings presented earlier in this section. The results of the detailed analysis showed that the preferred wastewater collection system alternative is the blended gravity and low-pressure sewer system.

13.2 Pumping Stations and Forcemain Route Evaluation

A detailed report of the analysis of the sewage pumping station location and forcemain alternatives evaluation can be found in ***Appendix L.***

13.2.1 Evaluation Methodology

Evaluation of the pumping stations involved identifying locations within the study area where wastewater would need to be pumped to service existing areas or to convey wastewater from growth areas to the proposed wastewater treatment plant. Pumping station sites were selected based on available lands at the low points of each catchment area. Vacant lands were identified along with ownership and surrounding environmental conditions. Background studies were completed to confirm the suitability of sites and develop potential mitigation measures.

Each pumping station location was assessed in terms of:

- Environmental impacts;
- Heritage and archaeological impacts;
- Geotechnical considerations for construction.

Evaluation of alternatives for the forcemain route between Hillsburgh and Erin Village was performed using the screening criteria approach. The criteria used to perform detailed evaluations of each forcemain route alternative are shown in Table 26.

Table 26 – Forcemain Route Alternatives Evaluation Criteria

Primary Criteria	Weight	Secondary Criteria	Weight
Social/Culture	10%	Impacts During Construction	50%
		Traffic Disruption	20%
		Effect on Residential Properties	10%
		Effect on Commercial Properties	10%
		Effect on Industrial Properties	10%
Technical	30%	Operational Performance	20%
		Energy Requirements	30%
		Suitability for Phasing	10%
		Constructability	20%
		Operation and Maintenance Impacts	20%
Environmental	30%	Effect on Surface Water/ Fisheries	30%
		Effect on Vegetation/ Wetlands	30%
		Effect on Groundwater	10%
		Effect on Habitat/ Wildlife	30%
Economic	30%	Capital Cost	70%
		Operational Costs	30%

13.2.2 Sewage Pumping Stations and Forcemains Alternatives

Sewage Pumping Stations

The selection of sewage pumping station (SPS) locations is primarily based on the topography of Erin Village and Hillsburgh, using the “Blended Gravity and Low-Pressure Pump System” for wastewater collection. A total of ten locations have been identified where wastewater needs to be pumped from existing and growth areas to the wastewater treatment plant. Additional pumping stations may be necessary within any new development areas and these would be identified during the planning stages for these new developments.

Conceptual designs for each pumping station site were developed and the following station sizes were identified.

- Four large stations, including stand-by power;
- Four smaller stations;
- Two catchments, serviced by the low-pressure sewer system

Table 27 lists the required pumping stations, their locations, and preliminary sizes.

Table 27 – Proposed Sewage Pumping Station Locations and Sizes

Station ID	Proposed Location	Full Buildout Capacity
H-SPS 1	Hillsburgh-Erin Connection: East side of Trafalgar Road at junction of Elora Cataract Trail	82 L/s
H-SPS 2	Hillsburgh Town Core: South Side of Mill Street, west of Health Centre	33 L/s
E-SPS 1	Lions Park Pumping Station: West Side of Lion's Park	227 L/s
E-SPS 2	North Erin Pumping Station: South of Main Street, West of Ross Street	152 L/s
E-SPS 3	Erin Heights Pumping Station: East end of Erin Heights Drive, within unopened right-of-way	5 L/s
E-SPS 4	Erin Industrial Area: Adjacent to Snow Brother's property driveway	9 L/s
E-SPS 5	Dundas St. E. Pumping Station: Southwest corner of Boland Drive and Dundas Street East	5 L/s
E-SPS 6	Waterford Drive Pumping Station: North side of Waterford Drive at north east end of road	4 L/s
E-SPS 7	Scotch Street Pumping Station: Right of way along Scotch Street south of Erinlea Crescent (Low-Pressure system)	2 L/s
E-SPS 8	Wheelock Street Pumping Station: Either end of Wheelock Street (Low-Pressure system)	1 L/s

It should be noted that E-SPS 7 and E-SPS 8 would be part of the low-pressure component of a blended gravity / low-pressure collection system.

A geotechnical investigation was conducted at each proposed pumping station site to confirm the capability of the founding soils in the area to support the required pumping stations and potential impacts on constructability.

Phase 2 archaeological investigations will be required for some of the sewage pumping station locations.

A description of each pumping station and aerial photos of each proposed SPS site follows. The boundary of the collection area for all of pumping stations can be found in ***Appendix M.***

Hillsburgh-Erin Connection Pumping Station (H-SPS 1)

A pumping station is needed at the south end of Hillsburgh to convey wastewater to Erin. Although the elevation of this SPS in Hillsburgh is some 30 m above the proposed Main Street SPS in Erin and the connection is capable of operating under gravity flow, it is proposed to pump the wastewater to provide the ability to control the residence time of the wastewater in the system. This prevents settling of solids into the pipe and reduces the potential for the development of odours.

The list of potentially viable locations was narrowed down to the two locations shown in Figure 13.

Figure 14 – Hillsburgh to Erin Potential SPS Locations (H-SPS 1)

Properties surrounding the intersection of Trafalgar Road and Wellington Road 22 were eliminated as an option due to environmental constraints at the site and the unwillingness of site owners to have their land considered for an SPS.

The location at the junction of Trafalgar Road/ Elora-Cataract Trail joins on to a proposed development area and has an unused road allowance that would be suitable for an SPS. This site was selected as the preferred site based on these property considerations and the ability to service both existing and growth areas. This station would collect all wastewater produced in Hillsburgh for transmission to Erin Village and have a capacity of 89.2 L/s for the full build-out condition.

Environmental Impacts	The sites at the intersection of Trafalgar Road and Wellington Road 22 were rejected due to the existing environmental constraints. The sites are mostly covered by wetland. The site at the intersection of the Elora Cataract Trail and Trafalgar was selected as the preferred site. It is part of a larger lot with development plans and Ainley was able to obtain a Phase 1 Environmental Assessment and an Environmental Impact Study of these development lands from the land owner. The previous studies identified the presence of thirty-seven bird species in the area. Fourteen of the bird species are considered to be species of conservation concern; however no nesting habitat was identified on the parcel being considered for the pumping station. In addition, there was no potentially significant wildlife habitat identified at the proposed site. The onsite woodland and onsite pond identified are located at the north end of the development parcel, well away from the proposed SPS

	site.
Heritage and Archeological Impacts	This location has been identified as a site with potential archaeological significance. As such, a Stage 2 test pit survey will be required prior to construction at the site.
Geotechnical Impacts	An Environmental Impact Study and a Hydrogeological Report was available from the land owner. The previous studies identified that the surficial geology of the site is broadly characterized by a sand and gravel deposits of varying texture interlayered with silt and till. The southwestern portion of the property, close to the proposed SPS location is characterized by surface deposits of glacio-fluvial 'outwash' sand and gravel, frequently overlain by several feet of fine sand and silt. The hydrogeological report estimates that the static groundwater level at this location is approximately 4.3 m below grade. The site would provide a suitable foundation for construction of a wastewater pumping station

Figure 15 shows a conceptual layout for the H-SPS 1 pumping station.

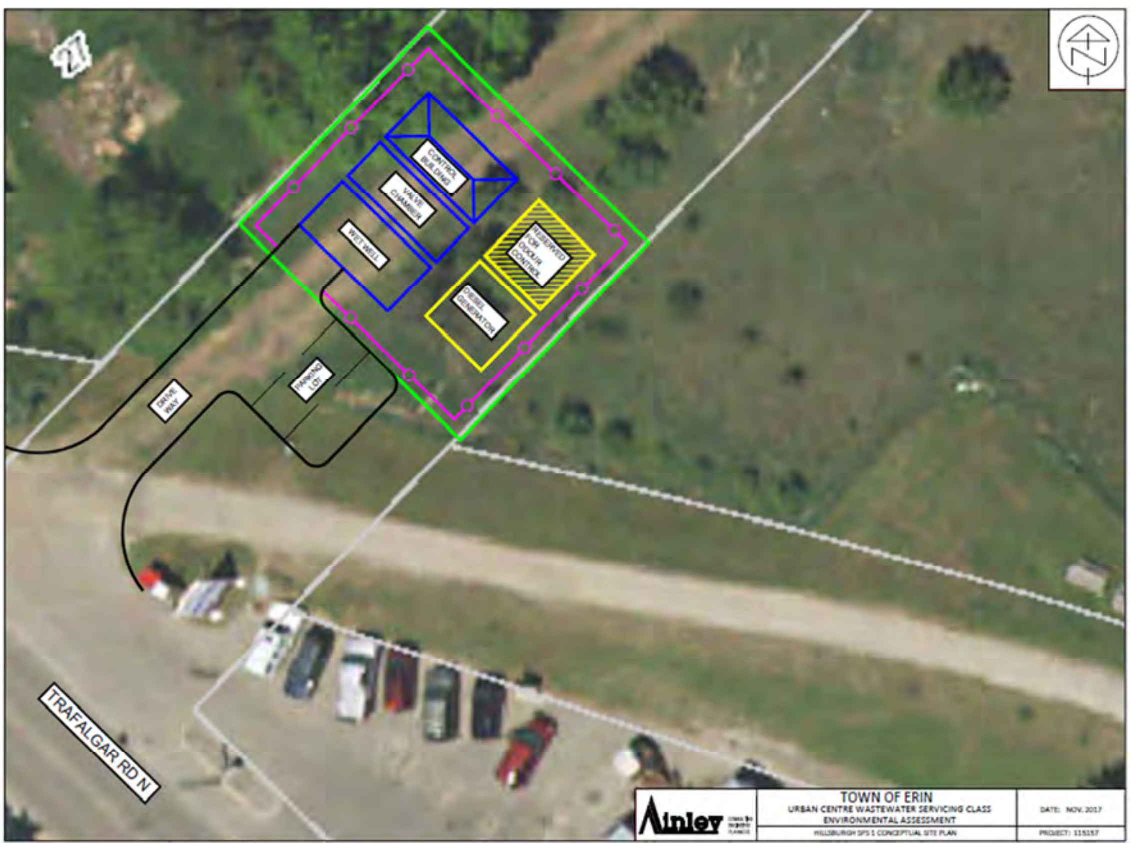


Figure 15 – H-SPS 1 Conceptual Site Plan

Hillsburgh Town Core Pumping Station (H-SPS-2)

A pumping station would be required for the core residential area in Hillsburgh to convey wastewater to Trafalgar Road. Two potentially viable sites, both located along Mill Street, west of Covert Lane, were identified for this pumping station. The two sites are shown in Figure 16.

Figure 16 – Hillsburgh Town Core Potential SPS Location (H-SPS 2)

Both of the potential sites are within 100m of a municipal well and potable water pumping station. The operation of a sewage pumping station in this area is not expected to have any impact on the existing well or the potable water pumping station.

The forcemain route for this location can be seen in the overall system layout available in ***Appendix M.*** A discharge location has been proposed along Trafalgar Road, which represents a local high point, allowing for the wastewater to be conveyed by gravity to the main pumping station connecting Hillsburgh to Erin Village. This pumping station would need to have a capacity of 33.1 L/s for the full build-out condition.

Based on a review of the potential SPS site area, the preferred location for the station was on the south side of Mill Street, west of the Health Centre. These lands are owned by the Town of Erin and will not impact existing recreational land use.

Environmental Impacts	The Natural Environment Report, completed as a part of the UCWS Class EA describes this site as an urban park beside fresh-moist lowland deciduous forest. There is no wetland present at the site and no amphibian habitat was identified. The site is located in close proximity to a watercourse and, as such, the Natural

	Environment Report provides recommendations on construction timing and erosion and sediment controls. This site is located in the flood plain of the West Credit River and will require special construction to ensure that it is accessible during flood events. The top of all chambers should be above the flood plain.
Heritage and Archeological Impacts	This location has been identified as a site with potential archaeological significance. As such, a stage 2 test pit survey will be required prior to construction at the site
Geotechnical Impacts	Indications from borehole information are that this site provides suitable foundation conditions for a Sewage Pump Station.

Based on concerns raised by the CVC during the ESR review period related to locating within the flood plain, the finalized preferred location for H-SPS 2 was moved to the north side of Mill Street. It is recommended that the flood plan mapping be updated during the detailed design phase to confirm actual conditions. If the data indicates no flood plain concerns, the preferred location for H-SPS 2 would revert to the south side of Mill Street.

Figure 17 shows a conceptual layout for the H-SPS 2 pumping station. Sufficient space has been provided for standby power and for installation of odour control equipment. A permit will be required from CVC to construct the SPS in this location. Should CVC not approve this location, the SPS can be relocated to the park on the other side of Mill Street.

Figure 17 – H-SPS 2 Conceptual Site Plan

Lion’s Park Pumping Station (E-SPS 1)

The Lion’s Park SPS would be the final SPS in the system and would transfer all of the collected wastewater to the wastewater treatment facility. The location proposed for this pumping station is within the existing park at the intersection of Hillsview St. and Lions Park Avenue, due to the unavailability of other potential sites. The potential site is shown in Figure 18.

Figure 18 – Main SPS Alternative 2 Potential Location (E-SPS 1)

The forcemain route from this station is aligned south along Main Street before diverting east along Wellington Road 52 towards the proposed WWTP location. This pumping station would need to have a capacity of 227.2 L/s for the full build-out. The trunk sewer from the north end of the community will pass under the West Credit River just to the north of the proposed SPS site.

Based on a review of the potential SPS site area, the preferred location for the station is the west side of Lion’s Park.

Environmental Impacts	A portion of the West Credit River Wetland Complex is in close proximity (approximately 20m) to the proposed site. An existing road lies between the proposed site and the watercourse. There were no species of concern at the site or within the watercourse close to the site. The Natural Sciences Report specifies that the pumping station at this site should be designed so as to maintain the existing wetland hydrology. In addition, any tree removals necessary for the construction of an SPS at

	this site should be completed outside of the migratory bird season. This site is partly located in the flood plain of the West Credit River and will require special construction to ensure that it is accessible during flood events. The top of all chambers constructed at this location should be above the flood plain.
Heritage and Archeological Impacts	This location has been identified as a site with potential archaeological significance. As such, a stage 2 test pit survey will be required prior to construction at the site
Geotechnical Impacts	Indications from borehole information are that this site provides suitable foundation conditions for a Sewage Pump Station

Figure 19 presents a conceptual site layout for the station at this location. Sufficient space has been provided for standby power and for installation of odour control equipment.

Figure 19 – E-SPS 1 Conceptual Site Plan

North Erin Pumping Station (E-SPS 2)

A pumping station is needed to convey wastewater from the north end of Erin Village to the high point at the intersection of Main Street and Dundas Street. The potential location for this pumping station is shown in Figure 20. The forcemain route for this station is aligned along Main Street connecting to a gravity sewer in the area of Main Street and Dundas Street. This pumping station would need to have a capacity of 151.7 L/s for the full build-out condition. The station capacity would include all of the flows from Hillsburgh and all the industrial and commercial development along Wellington Road 124 north of Dundas Street will be conveyed through this station along with some residential flows from north Erin Village.

Figure 20 – North Erin Potential SPS Location

Environmental Impacts	A portion of the West Credit River Wetland Complex is in close proximity to the proposed site. An open water vegetation community associated with the wetland complex is adjacent to the site and an amphibian habitat was located within 120m of the site. The Natural Sciences Report specifies that the pumping station at this site should be designed so as to maintain the existing surface water contribution to the wetland and that water quality should be maintained for any water discharged for dewatering.
Heritage and Archeological Impacts	This location has been identified as a site with potential archaeological significance. As such, a stage 2 test pit survey will be required prior to construction at the site.
Geotechnical Impacts	Indications from borehole information are that this site provides suitable foundation conditions for a Sewage Pump Station.

Figure 21 presents a conceptual site layout for the station at this location. Sufficient space has been provided for standby power and for installation of odour control equipment.

Figure 21 – *E-SPS 2 Conceptual Site Plan*

Erin Heights Pumping Station (E-SPS 3)

A pumping station is needed for the Erin Heights Drive area to convey wastewater from the subdivision under the river that separates this area from the downtown area of Erin Village and up to the Main Street sewer. The potential location for this pumping station is shown in Figure 22.

The proposed forcemain route for this station is aligned eastward along Dundas St W. and must cross the West Credit River before reaching Main Street (see Figure 32). This pumping station would need to have a capacity of 5.3 L/s for the full build-out condition.

As this is a small pumping station, it is proposed that the wetwell be oversized and a connection provided for a trailer-mounted standby power generator in case of prime power loss. The build-out condition flow rate assumes that all the development along 8th Line will be conveyed to Main Street along Dundas and the forcemain would link into the forcemain from the Erin Heights subdivision. This would require a cost sharing agreement with the developer(s) for the river crossing and joint forcemain.

Figure 22 – Erin Heights Potential SPS Location

Due to the highly constrained potential site area for the SPS, the preferred location for the station is within the unopened right-of-way at the east end of Erin Heights Drive.

Environmental Impacts	There are no specific environmental concerns at this site. Any tree removals necessary for the construction of the station should be completed outside of the migratory bird season. The road allowance leads to a trail behind the homes, however, it is not known if this trail crosses private lands. The station construction can allow the trail to remain open if necessary
Heritage and Archeological Impacts	This location has been identified as a site with potential archaeological significance. As such, a stage 2 test pit survey will be required prior to construction at the site.
Geotechnical Impacts	Indications from borehole information are that this site provides suitable foundation conditions for a Sewage Pump Station.

Figure 23 presents a conceptual site layout for the station at this location.

Figure 23 – E-SPS 3 Conceptual Site Plan

Erin Industrial Area Pumping Station (E-SPS 4)

A pumping station is needed to convey wastewater from the north end of the Erin Village industrial area along Sideroad 17 including Pioneer Drive. The pumping station will be located on Sideroad 17 west of Pioneer Drive. The potential area is shown in Figure 24.

The forcemain route for this station is aligned eastward along Sideroad 17 and diverts south along Main Street to a local high point where the flow continues by gravity. This pumping station would need to have a capacity of 7.8 L/s for the full build-out condition. As this is a small pumping station it is proposed that the wetwell be oversized and a connection provided for a trailer-mounted standby power generator in case of prime power loss.

Figure 24 – Erin Industrial Area Potential SPS Location

Environmental Impacts	There are no specific environmental concerns at this site.
Heritage and Archeological Impacts	This location has been identified as a site with potential archaeological significance. As such, a stage 2 test pit survey will be required prior to construction at the site
Geotechnical Impacts	Indications from borehole information are that this site provides suitable foundation conditions for a Sewage Pump Station.

Based on a review of the potential SPS site area, the preferred location for the station is adjacent to the driveway to the Snow Brothers property. Figure 25 presents a conceptual site layout for the station at this location.

Figure 25 – Erin SPS 4 Conceptual Plan

Dundas Street East Pumping Station (E-SPS 5)

A pumping station is needed along Dundas St. E. to convey wastewater from the surrounding residential area to a gravity main on Daniel Street. The potential location for this pumping station is shown in Figure 26. As this is a small pumping station it is proposed that the wetwell be oversized and a connection provided for a trailer-mounted standby power generator in case of prime power loss.

This pumping station would need to have a capacity of 5.1 L/s for the full build-out condition.

Environmental Impacts	There are no specific environmental concerns at this site. Any tree removals necessary for the construction of the station should be completed outside of the migratory bird season.
Heritage and Archeological Impacts	This location has been identified as a site with potential archaeological significance. As such, a stage 2 test pit survey will be required prior to construction at the site.
Geotechnical Impacts	Indications from borehole information are that this site provides suitable foundation conditions for a Sewage Pump Station.

Figure 26 – Dundas Street East Potential SPS Location

Figure 27 presents a conceptual site layout for the station at this location.

Figure 27 – Erin SPS 4 Conceptual Plan

Waterford Drive Pumping Station (E-SPS 6)

A pumping station is needed at the north end of Waterford Drive, to convey wastewater from the low lying portion of this residential area. The potential location for this pumping station is shown in Figure 28.

This pumping station would need to have a capacity of 4.4 L/s for the full build-out condition. As this is a small pumping station it is proposed that the wet-well be oversized and a connection provided for a trailer mounted standby power generator in case of prime power loss. A forcemain would convey sewage to a gravity sewer on Water Street.

Figure 28 – Waterford Drive Potential SPS Location

Environmental Impacts	A portion of the West Credit River Wetland Complex is within 120m of the proposed site. Due to accessibility issues, the presence of amphibian habitat was not assessed in the river reach close to the site. The Natural Sciences Report specifies that the pumping station at this site should be designed so as to maintain the wetland hydrology and that water quality should be maintained for any water discharged for dewatering. In addition, any tree removals necessary for construction at the site should be completed outside of the migratory season
Heritage and Archeological Impacts	This location is on a municipal road and part of a storm water management facility and has been previously disturbed. As such, is unlikely to have archaeological significance.
Geotechnical Impacts	Indications from borehole information are that this site provides suitable foundation conditions for a Sewage Pump Station.

Figure 29 presents a conceptual site layout for the station at this location. The exact location of this SPS will need to be determined following an assessment of the storm water management pond capacity. If necessary, the SPS can be constructed within the road allowance.

Figure 29 – Erin SPS 6 Conceptual Plan

Scotch Street Pumping Station (E-SPS 7)

A pumping station is required along Scotch St., to convey wastewater from the surrounding residential area to a gravity main on Daniel Street. The potential location for this pumping station is shown in Figure 30.

This pumping station would need to have a capacity of 2.0 L/s for the full build-out condition. However, this catchment has been identified as a good candidate location for use of low pressure sewers. The capital cost of the local gravity sewer, pumping station and forcemain is higher than the local grinder pumps and low pressure sewer. The pressure sewer catchment would outlet to the trunk sewer along Daniel Street. It is recommended that the grinder pumps be owned and serviced by the Town.

Environmental Impacts	The only site available for a centralized pumping station is within the existing ROW for this catchment. The grinder pump stations for the homes in this catchment would be located on private property, however, this area remains within 120m of the West Credit River Wetland Complex. As such, the design and construction of the low pressure system for this area should maintain the wetland hydrology and ensure water quality from any dewatering discharge

Heritage and Archeological Impacts	The only site available for a centralized pumping station is within the existing ROW for this catchment. As the land has already been disturbed in this location due to the road construction this site is not considered to have any archaeological significance.
Geotechnical Impacts	Indications from borehole information are that this site provides suitable foundation conditions for a Sewage Pump Station

Figure 30 – Scotch Street Potential SPS Location

Wheelock Street Pumping Station (E-SPS 8)

A pumping station is needed along Wheelock St., to convey wastewater from a small number of surrounding homes on the low-lying street to a gravity main on Daniel Street. The potential locations for this pumping station are shown in Figure 31.

This pumping station would need to have a capacity of 0.9 L/s for the full build-out condition. However, this catchment has been identified as a good candidate location for use of low pressure sewers. The capital cost of the local gravity sewer, pumping station, and forcemain is higher than the local grinder pumps and low-pressure sewer.

Figure 31 – Wheelock Street Potential SPS Locations

The pressure sewer catchment would outlet to the trunk sewer along Daniel Street. It is recommended that the grinder pumps be owned and serviced by the Town.

Environmental Impacts	Since this catchment has been identified as a good candidate for low pressure sewers, the grinder pump stations for the homes will be located on private property. Since the catchment area is in close proximity to the West Credit River, design and construction of the low-pressure system for this area should maintain the wetland hydrology, amphibian habitat, and ensure water quality from any dewatering discharge. Part of this service area, including the sewage pumping station locations, is situated within a CVC regulated area.
Heritage and Archeological Impacts	A low-pressure system has been recommended to service this catchment. As such, the system will be constructed within previously disturbed land within the existing ROW and on private properties and is not expected to have archaeological significance.
Geotechnical Impacts	Indications from borehole information are that this site provides suitable foundation conditions for a Sewage Pump Station.

River Crossings

There are several locations through Erin Village and Hillsburgh where the wastewater collection system would need to cross creeks or rivers. The key river crossing locations are shown in Figure 32 and Figure 33 for Erin Village and Hillsburgh respectively.

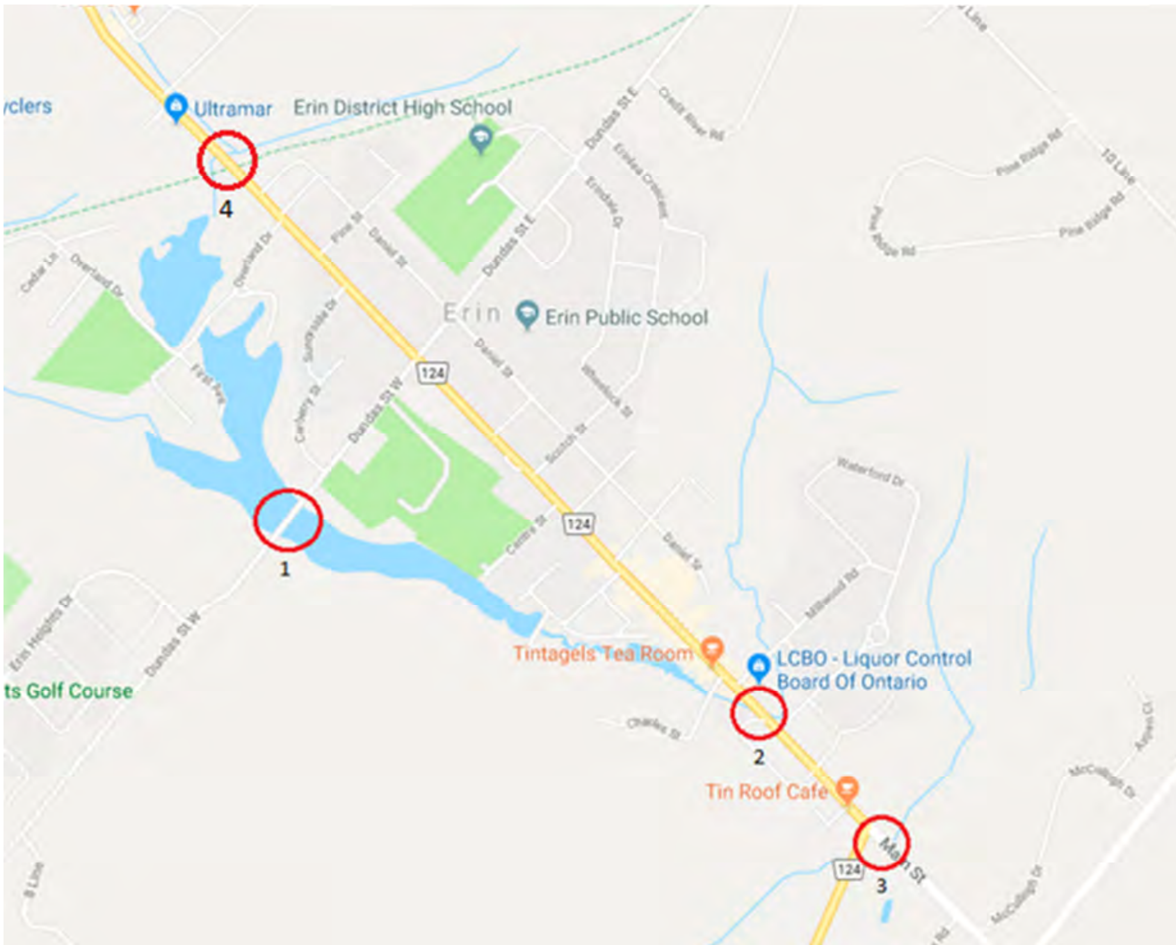


Figure 32 – Erin Village River Crossing Locations

In general, construction across rivers is regulated by the local conservation authority and the Ministry of Natural Resources and Forestry (MNRF). The Credit Valley Conservation Authority (CVC) provides mapping showing the general extent of the regulated areas within the Credit River watershed. The river crossings identified for Erin are all within CVC regulated areas. The extent of the regulated areas is shown in Figure 34 and Figure 35 for Erin Village and Hillsburgh respectively.

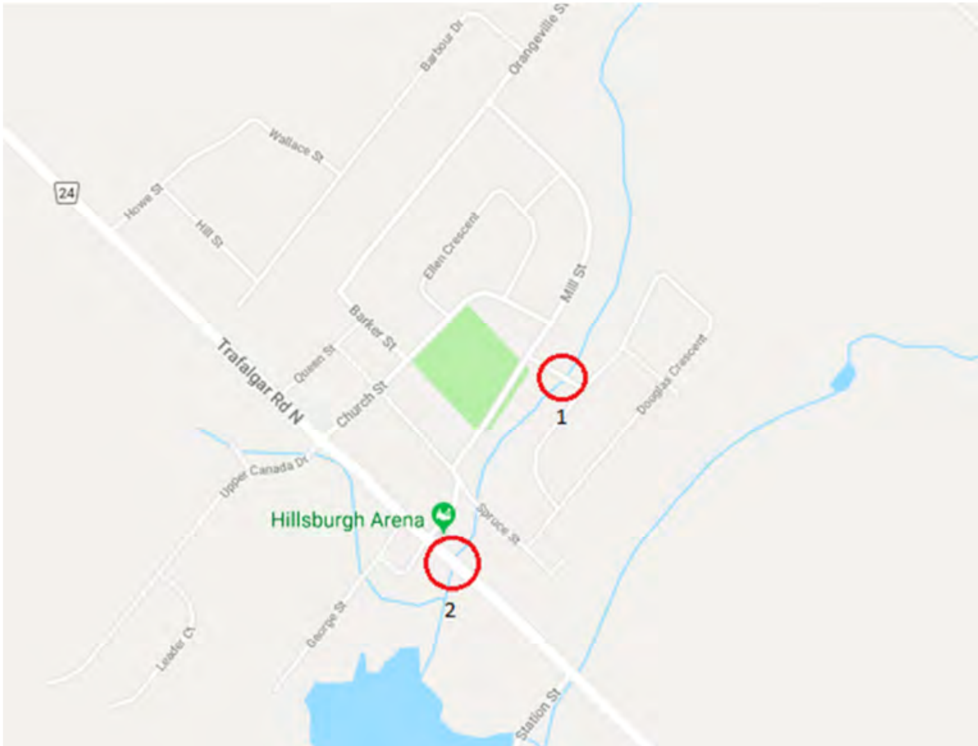


Figure 33 – Hillsburgh River Crossing Locations

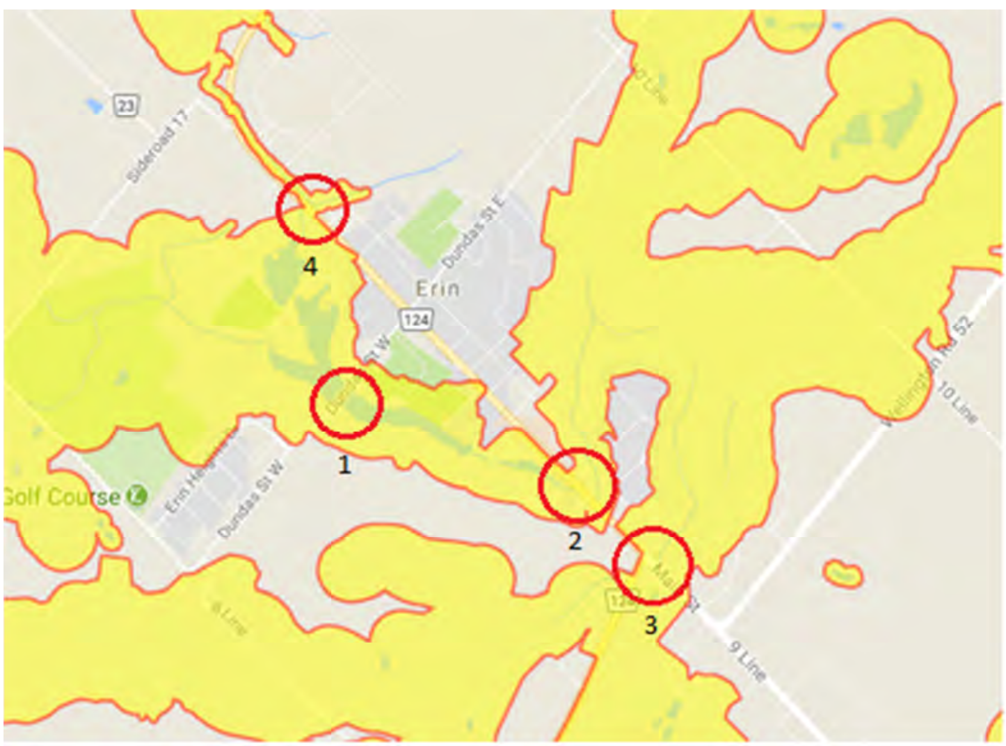


Figure 34 – *CVC Regulated Areas in Erin Village*

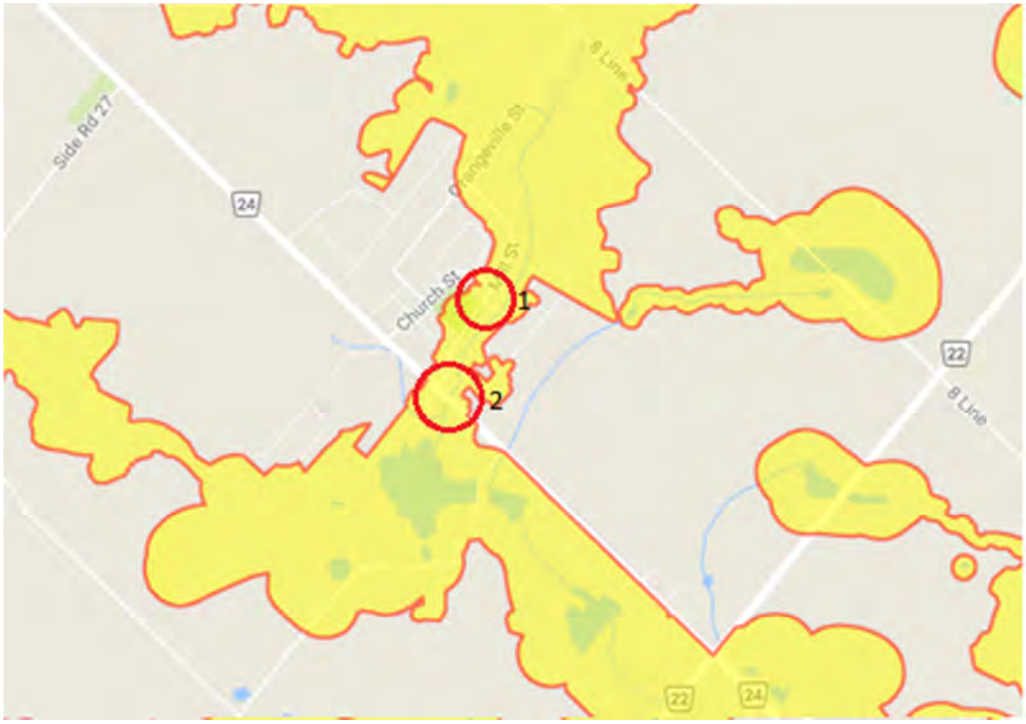


Figure 35 – CVC Regulated Areas in Hillsburgh

Typically, the CVC requires a unique permit for each crossing. The CVC does not prescribe a specific method(s) of crossing, however, open-cut construction is generally not permitted or is severely restricted, which makes it cost prohibitive. As such, it is likely that a trenchless technology would need to be employed for each river crossing. A suitable setback from the watercourse must be provided for the trenchless launching and receiving pits, however, the specific setback distance are typically based on local requirements. An MNRF permit will also be required for creek crossings.

Adequate separation must be maintained between the sewer/forcemain obvert, and the thalweg of the stream. Separation requirements are site specific and dependent on the scour potential of the watercourse. Depending on available information and the proposed depth, the CVC may require a scour assessment to be prepared by a qualified professional to establish the scour potential. In addition, an erosion and sedimentation plan will be required for each location.

Forcemain Route Alternatives

Three forcemain routes were identified in the SSMP to connect Hillsburgh to Erin Village. The three possible routes are listed below and shown in Figure 36.

- Alternative 1 (Elora-Cataract Trail): Along the Elora-Cataract: Total length of 5.2 km;
- Alternative 2 (Wellington Road 22): Aligned east along Wellington Road 22 and diverting along 8th Line towards Erin Village: Total length of 6.9 km;
- Alternative 3 (Trafalgar Road): Aligned along Trafalgar Road and diverting east along Sideroad 17 towards Erin Village: Total length of 7.0 km.

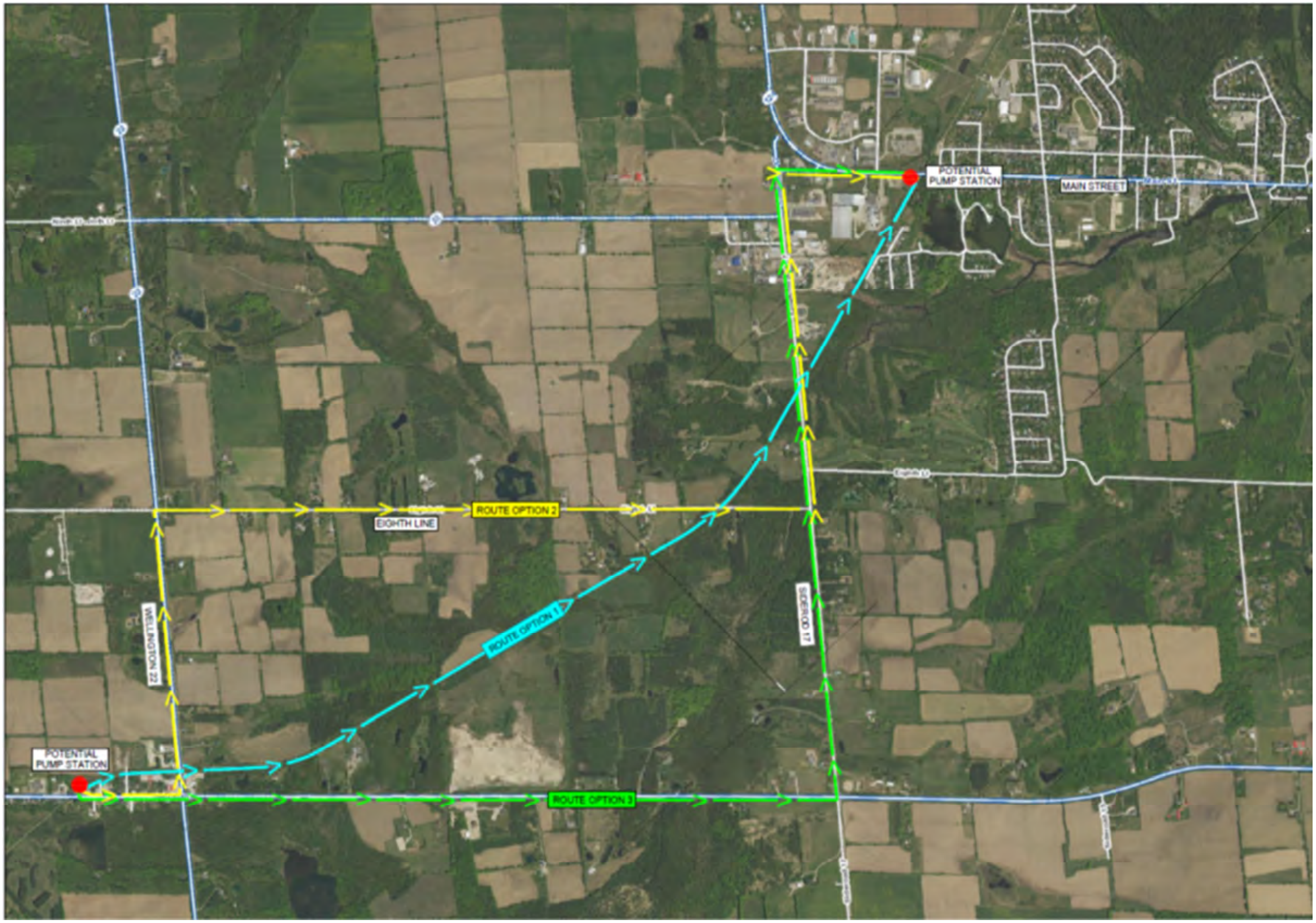


Figure 36 – Possible Hillsburgh to Erin Forcemain Routes

Forcemains are sized to maintain a minimum flow velocity of 0.8 m/s to facilitate scouring inside the pipe and prevent the accumulation of solids. MOECC Guidelines specify a maximum flow velocity of 3.0 m/s however there is an exponential relationship between flow velocity and pumping head (energy) required; maintaining a maximum velocity below 2.0 m/s, an average velocity of 1.2 m/s and minimum velocity of 0.8 m/s is preferred to minimize pumping costs. The forcemain and pumps should therefore be sized to provide a velocity between 0.8 – 2.0 m/s at the build-out condition and at the existing condition.

For all of the alternatives, twin 200mm diameter forcemains are recommended to provide operational flexibility and maintain scouring velocities while development is ongoing. The ability to operate with just one of the two 200mm forcemains would reduce the amount of time wastewater remains in the forcemain and subsequently, reduce the time for septicity to develop. Also, a dual forcemain would provide additional system security; system operation could continue if a break were to occur without additional contingency measures such as off-line storage. Should the Town proceed with a dual forcemain design, it is recommended that both forcemains be built concurrently to minimize construction costs.

The recommended pipe material is welded polyethylene (PE) pipe, which will prevent leakage from joints compared to pipes with bolted joints. Pressure control measures would need to be incorporated into the design to prevent transient pressure conditions and to provide on line operational data to identify any operational issues.

The following summarises the forcemain alternative evaluation. The detailed assessment is included in ***Appendix L.***

Description of the Elora-Cataract Trail Alternative

The Elora-Cataract Trail is owned by the CVC, who are open to providing an easement to the Town for construction of the forcemain. Refer to ***Appendix N*** for CVC's confirmation letter. The Elora-Cataract Trail is an approximately 9 m wide former railway corridor that has been repurposed as a hiking trail. The hiking trail consists of approximately a 3.0 m wide path, topped with limestone chips.

The route provides a gentle downhill slope from Hillsburgh to Erin Village at a total distance of 5.2 km and a 30-meter drop. A geotechnical investigation of the trail identified a relatively consistent makeup of the trail bed from silty sands at the surface to a coarser sand and gravel mixture at depths greater than 3 m. The borehole logs are provided in the Geotechnical Report in ***Appendix O.***

The Natural Environment Report identified Chorus Frog, Golden-winged Warbler and Barn Swallow, within the habitat surrounding the trail. These are listed as threatened species. The Eastern Wood-Peewee was also identified as a species of special concern. Species at risk in the area were Jefferson's Salamander, Eastern Ribbonsnake, Blanding's Turtle, Red Shouldered Hawk, Short-eared Owl, Wood Thrush, Canada Warbler, Hooded Warbler, Yellow-breasted Chat, Henslow's Sparrow, Grasshopper Sparrow, Gypsy Cuckoo Bumblebee, Rusty-patched Bumblebee, and Monarch Butterfly.

The main anticipated impacts to the terrestrial environment and species would be associated with site preparation, and construction and would involve temporary habitat disruption while avoiding long-term habitat loss. The proposed route is located within an existing right of way and thus both infrastructure and associated impacts are not expected to extend into surrounding natural habitats. To ensure minimal impact to the surrounding habitat and water quality in the area surrounding the trail, construction activities must be maintained on the travelled trailway and confined to periods that minimize impact on all of the species at risk, particularly within the spring period from April-June.

Construction of twin 200 mm forcemains along the trail can likely be accomplished in a single trench down the centre of the existing hiking trail. Open cut trenches can be used either using conventional trenches or using trenching machines. Interim air release chambers may be required at creek/culvert crossings and isolation valves would be spaced along the trail, however these would not interfere with the use of the trail after construction.

During construction, sections of the trail may be closed and material delivery trucks and soil removal would generate truck traffic. It may be necessary to create truck turning/staging areas along the trail. These areas can be selected to prevent impacts to the natural environment and can be removed after construction or retained as pedestrian rest areas along the trail.

Advantages and disadvantages of Alternative 1 are presented in Table 28.

Table 28 - Advantages and Disadvantages of the Elora-Cataract Trail Alternative

Advantages	Disadvantages
▪ CVC is willing to entertain easement for mains ▪ Continuous downhill slope that allows the pipe to drain and reduce potential for odours and airlocks ▪ Reduced pumping distance ▪ Substantially lower energy requirements ▪ Lower capital cost	▪ More environmentally sensitive areas adjacent to the route requiring mitigation ▪ Trail would likely need to be closed during construction ▪ Multiple species of concern identified in the area surrounding the trail. ▪ 1 culvert crossing required

Description of the Wellington Road 22/8th Line Alternative

The Wellington Road 22/ 8th Line route is a 2-lane ROW with above ground hydro and telephone lines that run primarily along the south side of Wellington Road 22 and the west side of 8th Line. The hydro and telephone lines are set well back from the ROW along Wellington Road 22. While Wellington Road 22 is a paved 2-lane road, 8th Line is a narrow gravel sideroad, requiring a lane closure. As such, construction along this ROW will have an impact on local traffic.

Approvals for an easement along Wellington County Road 22 would be required from Wellington County.

Due to the significant topographical variability of this alternative, a minimum of 4 air release chambers would be required along the route to prevent vacuum/airlock in the forcemain.

There is one river crossing along this route on 8th Line at the intersection with Sideroad 17. Required pumping energy would be substantially higher than with Alternative 1.

The Natural Environment Report did not identify the presence of any species of concern along this potential route.

This alternative would involve the construction of twin forcemains in a common trench within the road allowance, likely as close to the property line as possible depending on constructability issues. A single lane closure may be required during construction to facilitate material removal and delivery, Advantages and disadvantages of Alternative 2 are presented in Table 29.

Table 29 - Advantages and Disadvantages of the Wellington Road 22/8th Line Alternative

Advantages	Disadvantages
▪ Along an existing ROW ▪ Minimal environmental impact for construction	▪ Will require approval from Wellington County ▪ Traffic impacts ▪ Increased pumping distance ▪ Significant topographical variability ▪ Higher capital cost ▪ Increased long term energy costs ▪ 1 river crossing required

Description of the Trafalgar Road/Sideroad 17 Alternative

The Trafalgar Road/ Sideroad 17 route is a 2-lane ROW with above ground hydro and telephone lines running primarily along the west side of Trafalgar Road and the south side of Sideroad 17. The hydro and telephone lines are on the East side of Trafalgar Road for an 800 m span north of Sideroad 17. Trafalgar Road is a heavily traveled roadway and construction along this corridor would likely have significant traffic impacts.

Trafalgar Road is a County road. Approvals for this alternative would be required from the County.

This route has significant topographical variability between the pumping station location, and Sideroad 17 along Trafalgar Road and a minimum of 5 air release chambers would be required to prevent vacuum/airlock in the forcemain.

There are two stream crossings along this route, one is located on Trafalgar Road, approximately 660m north of Sideroad 17, and the other is located on Sideroad 17 at the intersection with 8th Line.

The Natural Sciences Report identified the presence of Western Chorus Frogs within the lowland creek crossing on Trafalgar Road. The Western Chorus Frog has been identified as a threatened species and therefore care should be taken to ensure that their habitat is maintained. In contrast to the Elora-Cataract Trail route, there were no additional species of risk identified along this route.

Table 30 - Advantages and Disadvantages of the Trafalgar/Sideroad 17 Road Alternative

Advantages	Disadvantages
▪ Along an existing ROW ▪ Lower environmental impact for construction	▪ Will require approval from Wellington County on Trafalgar Road ▪ Traffic impact

Advantages	Disadvantages
	▪ Increased pumping distance ▪ Significant topographical variability ▪ Higher capital cost ▪ Increased long term energy costs ▪ Western Chorus Frogs identified along the route. ▪ 2 river crossings required

Capital Cost Analysis of Forcemain Alternatives

The capital cost comparison of the potential forcemain routes is provided in Table 31. Each estimate is based on a twin 200 mm forcemain.

Table 31 – Capital Cost of Forcemain Alternatives

Alternative	Capital Cost Estimate
Alternative 1 – Elora-Cataract Trail	$ 3,165,000
Alternative 2 – Wellington Road 22	$ 4,440,000
Alternative 3 – Trafalgar Road	$ 4,830,000

13.2.3 Results of the Evaluation of Forcemain Route Alternatives

As detailed in ***Appendix L,*** the evaluation of the three forcemain route alternatives, using the selected screening criteria, showed that the preferred alternative is Alternative 1, along the Elora-Cataract Trail. The primary reasons for this result are:

- Best technical solution;
- Lowest capital cost for construction;
- Lowest operational costs;
- Higher potential for mitigation of environmental concerns for construction.

13.3 WWTP Effluent Outfall Location Evaluation

A detailed report of the evaluation of the effluent outfall location alternatives can be found in ***Appendix P.***

13.3.1 Evaluation Methodology

Three alternatives were evaluated as viable locations for the WWTP outfall. Each alternative was evaluated using the screening criteria and weightings shown in Table 32.

Table 32 – Screening Criteria – Outfall Alternatives Evaluation Criteria

Primary Criteria	Weight	Secondary Criteria	Weight
Social/Culture	10%	Impacts During Construction	30%
		Aesthetics (Appearance of discharge)	40%
		Effect on Residential Properties	10%
		Effect on Businesses/ Commercial Properties	10%
		Effect on Industrial Properties	10%
Technical	10%	Functionality and Performance	30%
		Suitability for Phasing	10%
		Constructability	30%
		Operation and Maintenance Impacts	30%
Environmental	60%	Effect on Surface Water/ Fisheries	50%
		Effect on Vegetation/ Wetlands	20%
		Effect on Groundwater	20%
		Effect on Habitat/ Wildlife	10%
Economic	20%	Capital Cost	100%

13.3.2 Outfall Location Alternatives

The 2013 ACS established that a surface water discharge from the WWTP to the West Credit River was a viable alternative for the WWTP outfall location. The ACS recommended that the most suitable location for the outfall was between 10th Line and Winston Churchill Boulevard, where the River's assimilative capacity is the greatest. The updated ACS completed for this UCWS Class EA study confirmed the viability of this location from a water quality and river flow point of view.

As noted in section 11.3, three alternatives were established for the Outfall location as follows:

- Alternative 1A 10th Line West Side
- Alternative 1B 10th Line East Side
- Alternative 2 Winston Churchill Boulevard West Side

For all three alternatives, treated effluent from the WWTP would be discharged via an effluent pumping station, located at the WWTP site, and conveyed through forcemains and gravity sewers to the discharge location.

The impacts associated with each alternative were assessed using the ACS, a Natural Environment Study, a Fluvial Geomorphological Study, a Geotechnical Study, and cost estimates for each alterative.

Description of the 10th Line West Alternative 1A

Figure 37 shows the proposed location of this alternative, which consists of gravity sewers that run East on Wellington Rd 52 from the proposed WWTP Site and then North on 10th Line before discharging into the West Credit River.

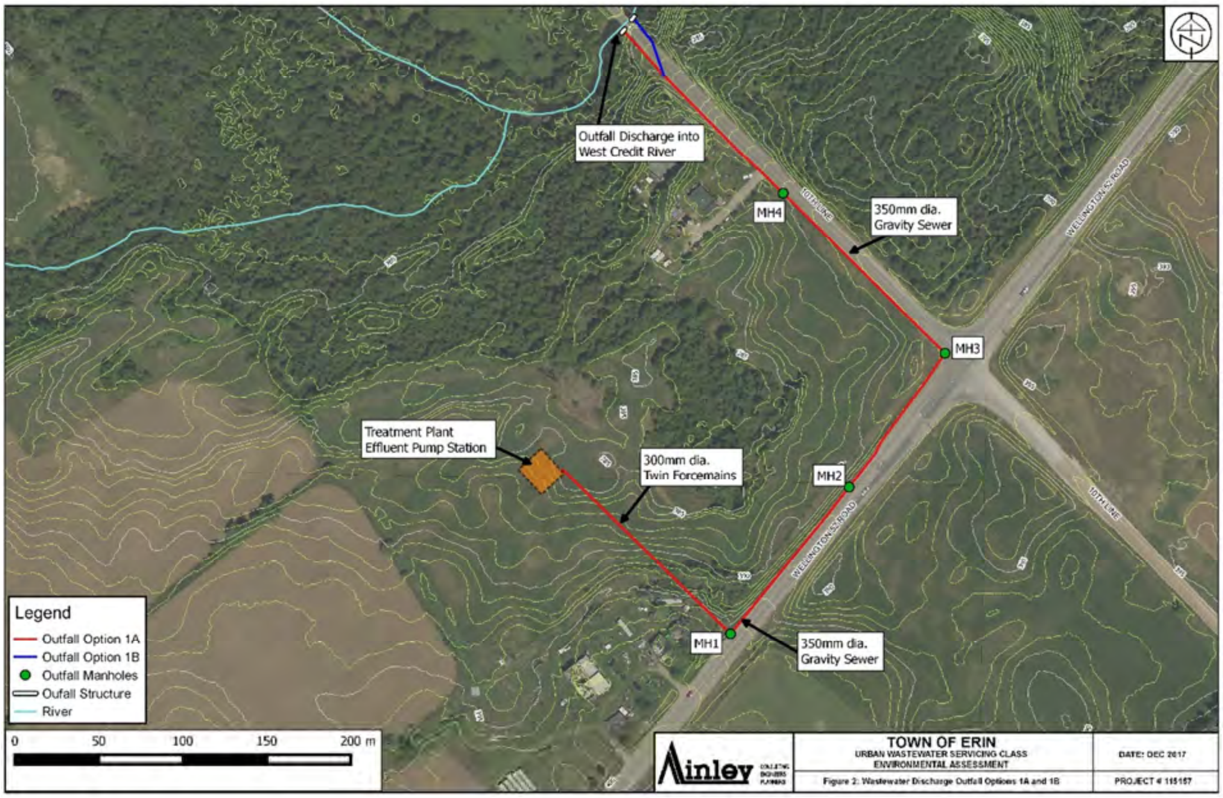


Figure 37 – Wastewater Effluent Discharge Outfall Alternatives 1A and 1B

There is sufficient clearance on the north shoulder of Wellington Rd 52 to place the discharge sewer within the shoulder and not in the road. The gravity discharge sewer would continue East on Wellington Rd 52 towards the intersection of Wellington Rd 52 and 10th Line. At the manhole within that intersection, the sewer would turn North on 10th Line.

As the sewer approaches the bridge over the West Credit River, there are two options for discharge: the West side of the bridge or the East side of the bridge. For Alternative 1A, the discharge is on the west side of the bridge.

The road reduces to one lane over the bridge, however the sewer could still be constructed on the west side of the road allowance without affecting the bridge. An existing roadside barrier would need to be temporarily removed to allow construction of the sewer to the river.

There is a CVC monitoring station at this location that would need to be protected during construction.

In accordance with the recommendations in the Assimilative Capacity Study, the outfall would need to extend either along the bank for 5 metres with 15 equally spaced diffuser ports to disperse the effluent. Details of the diffuser are to be developed during detailed design.

Description of the 10th Line East Alternative 1B

Alternative 1B is the same as Alternative 1A until the sewer nears the West Credit River bridge. At this point the discharge sewer would need to cross 10th Line and discharge into the river on the east side of the bridge. Figure 38 depicts the bridge area and the difference between Alternative 1A and 1B in more detail.

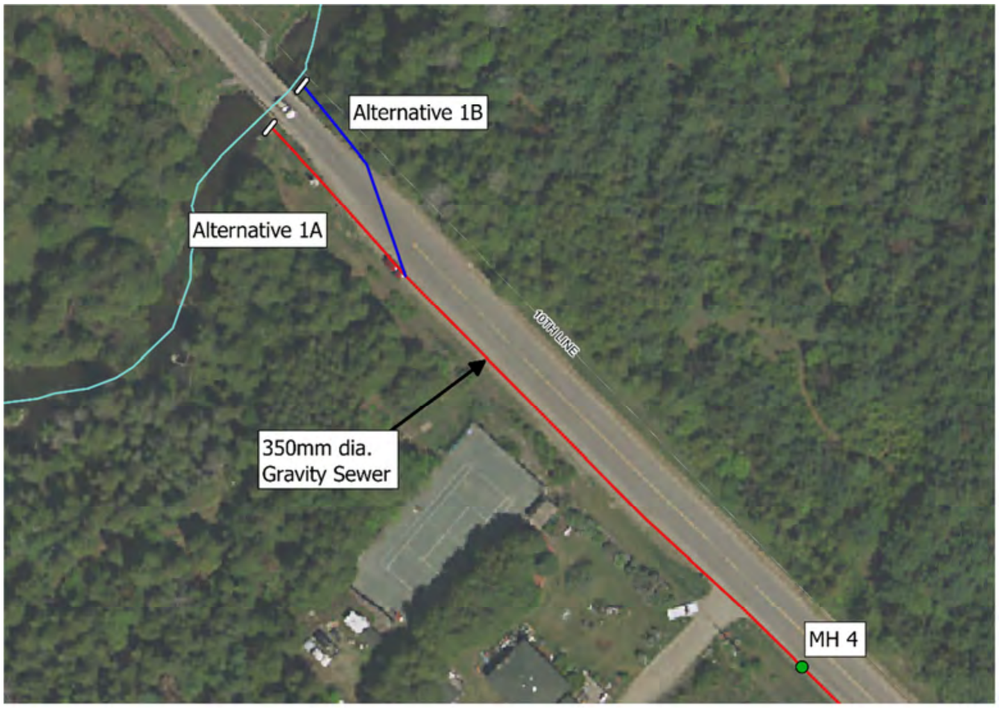


Figure 38 – 10th Line West Credit River Bridge for Alternatives 1A and 1B

The East side of 10th Line has a steep bank immediately off the shoulder making it difficult to construct the sewer. For this reason, the sewer would remain on the west side of 10th Line until, near the bridge where it would need to cross the road to get to the east side of the bridge.

Description of the Winston Churchill Alternative 2 (West Side of Bridge)

Alternative 2 is locating the outfall on the west side of the bridge on Winston Churchill Boulevard, north of Wellington Road 52. This alternative would require a forcemain from the WWTP to Winston Churchill Blvd, which would need to be a pumped flow since the land slopes towards the WWTP.

The forcemain would follow Welllington Road 52 to a proposed new manhole at the intersection of with Winston Churchill Blvd. From the new manhole, the flow could be conveyed by gravity sewer to the river, as the topography allows gravity low in that direction.

The centreline of Winston Churchill Blvd. marks the boundary between Peel Region and Wellington County. The gravity pipe sewer would need to be constructed on the west side of this road, which is in Wellington County**.** Figure 39 shows the proposed routing for the gravity sewer in the bridge area.

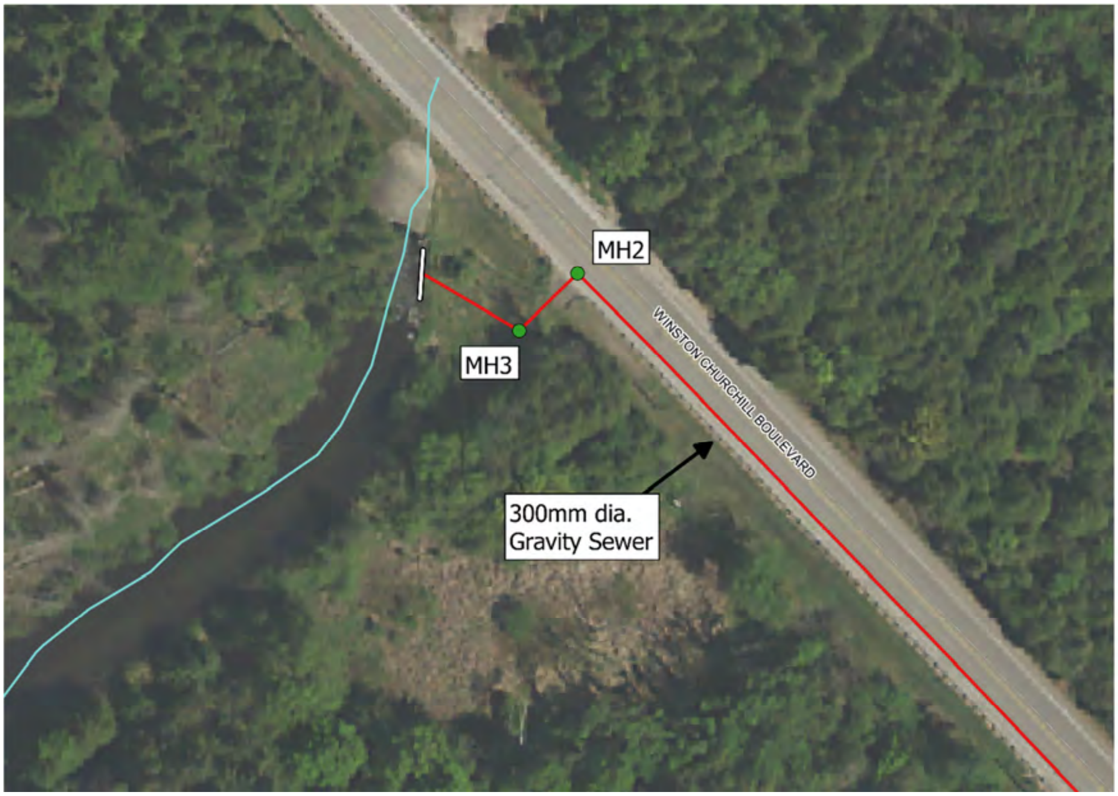


Figure 39 – Winston Churchill Blvd River Crossing and Alternative 2 Discharge

An energy dissipation manhole will be required to ensure an even velocity for dispersion into the river, due to the steepness of the road and height above the river.

13.3.3 Impacts of Outfall Location Alternatives

Environmental Impacts

The Assimilative Capacity Study (ACS) completed by HESL in 2017 outlines and delineates effluent limits and objectives sufficient to ensure that effluent is not directly toxic to the aquatic environment and determines the characteristics of the mixing zone and water quality at the point of complete mixing downstream of the effluent outfall site. Water quality modelling results are compared to Provincial Water Quality Objectives (PWQO) or Canadian Water Quality Guidelines to determine the potential for any impacts to aquatic biota. Water quality objectives and guidelines are protective of all forms of aquatic life and all aspects of the aquatic life cycles during indefinite exposure to effluent water (MOE 1994).

There is an additional requirement that the effluent stream, at the point of discharge, not be acutely lethal to aquatic life.

The CORMIX water quality model (as required by MOECC) was used to model the size and shape of the effluent plume and water quality in the mixing zone. The Qualk2K model (HESL 2017) was used to model oxygen and temperature impacts. The 10th Line location was used as the outfall location in the models. However, the results can be conservatively applied to the Winston Churchill Boulevard location, since there is approximately 15% more dilution potential at Winston Churchill Boulevard due to inputs of groundwater between the 10th line and Winston Churchill Blvd.

The HESL (2017) ACS concluded the following with respect to parameters most relevant to aquatic life, including fisheries and sensitive Brook Trout habitat in the study area:

- For the Full Build Out summer low flow scenario, dissolved oxygen concentrations were predicted to drop to a minimum concentration of 6.39 mg/L approximately 700 m downstream of the WWTP discharge location and start increasing from that point. As such, dissolved oxygen concentrations were predicted to remain well above the PWQO of 5 mg/L for cold water biota at river temperatures of 20°C and 25°C.
- A thermal impact assessment was conducted to determine if the WWTP outfall would negatively affect the river's temperature and subsequently aquatic life. The thermal impact assessment showed that the temperature change in the river due to the addition of WWTP effluent would be negligible and would not negatively affect aquatic life in the river.
- A total ammonia effluent limit of 2.1 mg/L or less would meet the requirement for non-lethality during the summer discharge period. The PWQO for un-ionized ammonia is 0.02 mg/L, which is achieved at a distance of 153 m from the outfall at full build out flows, through implementation of a multiport diffuser. The mixing zone does not occupy the complete width of the river and meets all MOECC requirements for mixing zones.

The potential effluent outfall locations at 10th Line and Winston Churchill Boulevard were evaluated using criteria for water temperature, dissolved oxygen, Brook Trout redds and benthic invertebrate biological metric results.

Data collected by HESL showed that water temperatures were cooler in the summer at Winston Churchill Boulevard relative to 10th line, as measured as maximum water temperature and 75th percentiles. This was due to abundant groundwater upwellings in the study reach upstream of Winston Churchill Boulevard. Dissolved oxygen concentrations were also slightly higher at Winston Churchill Boulevard because of upstream groundwater inputs (HESL 2017). These characteristics at Winston Churchill Blvd. provide more resilience and potential for assimilation of effluent and any associated changes in temperature and oxygen demand.

Three Brook Trout redds were observed in the potential mixing zone within 153 m of the 10th Line location. The modelling showed that dissolved oxygen would decline slightly downstream of the 10th Line outfall. More Brook Trout redds were observed within the oxygen sag zone downstream of 10th Line than downstream of Winston Churchill Blvd, 39 and 15 respectively. The benthic invertebrate assemblage at 10th Line contained a greater proportion and a more diverse assemblage of sensitive invertebrates.

Environmental considerations indicate that the preferred effluent outfall location would be Winston Churchill Boulevard because of the presence of more sensitive aquatic features and functions at 10th Line and the density of Brook Trout redds downstream of 10th Line. Treated effluent discharged at Winston Churchill Blvd. would avoid the most sensitive area immediately downstream of the 10th Line location altogether. Initial mixing would occur within the culvert where habitat has already been impacted and there is approximately 15% more assimilation flow in the river (HESL 2017).

Fluvial Geomorphological Impacts

Based on the results of the fluvial geomorphological assessment, all outfall alternative sites would provide suitable effluent discharge locations. The study indicates that the discharge would not impact the stream bed or banks to any meaningful extent.

Archaeological Impacts

Construction of all the treated effluent outfall alternatives would be completed in public rights of way (road allowances), including the actual outfall locations at the West Credit River. As such, the disturbed lands have been previously disturbed for construction of the road or bridge works. It is not anticipated that archaeological impacts would be significant for any of the alternatives.

Geotechnical Impacts

A borehole on Winston Churchill Boulevard close to the river crossing showed a mixture of silty sand and sand and gravel with a water level some 4.5 - 5.0m below the road which is close to river level. It is likely that the groundwater table discharges to the river and that pipe work will mostly be above the water table except for at the outfall.

Cost Impacts

Capital costs of the three alternatives were estimated using the following considerations:

- Cost of the forcemain/sewer to convey treated effluent to each outfall site;
- Cost of manholes/chambers for each outfall site;
- Costs associated with any unique development features for each outfall site;
- Cost of the outfall diffuser itself.

Since all outfall scenarios require an effluent pumping station, this was not considered in the cost impact analysis. For the comparative analysis of the alternatives, costs were taken from the 10th Line/Wellington Road 52 to each outfall location evaluated.

For alternatives 1A and 1B, the gravity sewer diameter was determined to be 350 mm, based on a full build out peak flow of 19,148 m^3 /day (221.6 L/s). Capital costs of these two alternatives were estimated using that pipe size, four proposed manholes, and an approximate outfall structure cost of $30,000.

For Alternative 2, twin 300 mm diameter forcemains are proposed for the full build out flows. One air/vacuum relief valve chamber will be required along Wellington Road 52 at the high point. From the intersection of Winston Churchill Boulevard and Wellington Rd 52, a 300 mm gravity sewer would be needed down to the river. Capital costs of this alternative was estimated using these pipe sizes, one proposed air chamber, four proposed manholes, and an approximate outfall structure cost of $30,000.

Table 33 shows the estimated capital cost of the three outfall location alternatives.

Table 33 – Capital Cost Estimates of Outfall Location Alternatives

Outfall Location Alternative	Estimated Capital Cost
Site 1A (10th Line West)	$ 399,300
Site 1B (10th Line East)	$ 400,400
Site 2 (Winston Churchill Blvd. West)	$ 1,606,800

The operation and maintenance costs for Alternative 1A/1B would involve routine maintenance of the short sewer section and energy costs of pumping from the WWTP to Wellington Road 52. Operation and maintenance costs for Alternative 2 would involve a slightly higher cost for operation and maintenance of the forcemains, and a similar cost for the sewer section. Alternative 2 would also have higher energy costs associated with pumping the effluent to Winston Churchill Boulevard. The NPV 80 year lifecycle energy cost for alternative 2 is estimated to be approximately $95,000.

13.3.4 Results of the Outfall Location Alternatives Evaluation

Detailed evaluations, using the screening criteria described previously, were performed on each outfall alternative and the results show that the preferred outfall location is the west side of Winston Churchill Boulevard (Alternative 2). The primary reasons for this result are:

- The Winston Churchill alternative avoids impacts on Brook Trout and sensitive aquatic features in the river reach downstream of 10th Line;
- Water temperatures are lower and river flows are higher at the Winston Churchill Boulevard location;
- Opportunity for improved mixing through the existing culvert at Winston Churchill Boulevard location.

It should be noted that a sensitivity analysis between the screening criteria weightings, showed that a 4% decrease in the environmental criterion weighting coupled with a 4% increase in the economic criterion results in Alternative 1A or 1B being the preferred alternative.

The higher weighting for the environmental criterion was used in this evaluation because of the potential impact on brook trout, which represents a valuable resource for the West Credit River. While the high-quality WWTP effluent will protect river water quality and all the fish species, there remains a potential risk to this sensitive and significant resource which cannot be mitigated.

A conceptual design was created for the outfall at the Winston Churchill Blvd. location. Figure 40 shows the conceptual design and extent of the outfall within the existing property line.

13.4 Wastewater Treatment Plant Site Selection Evaluation

A detailed report of the analysis of the evaluation of wastewater treatment plant (WWTP) site alternatives can be found in ***Appendix Q***.

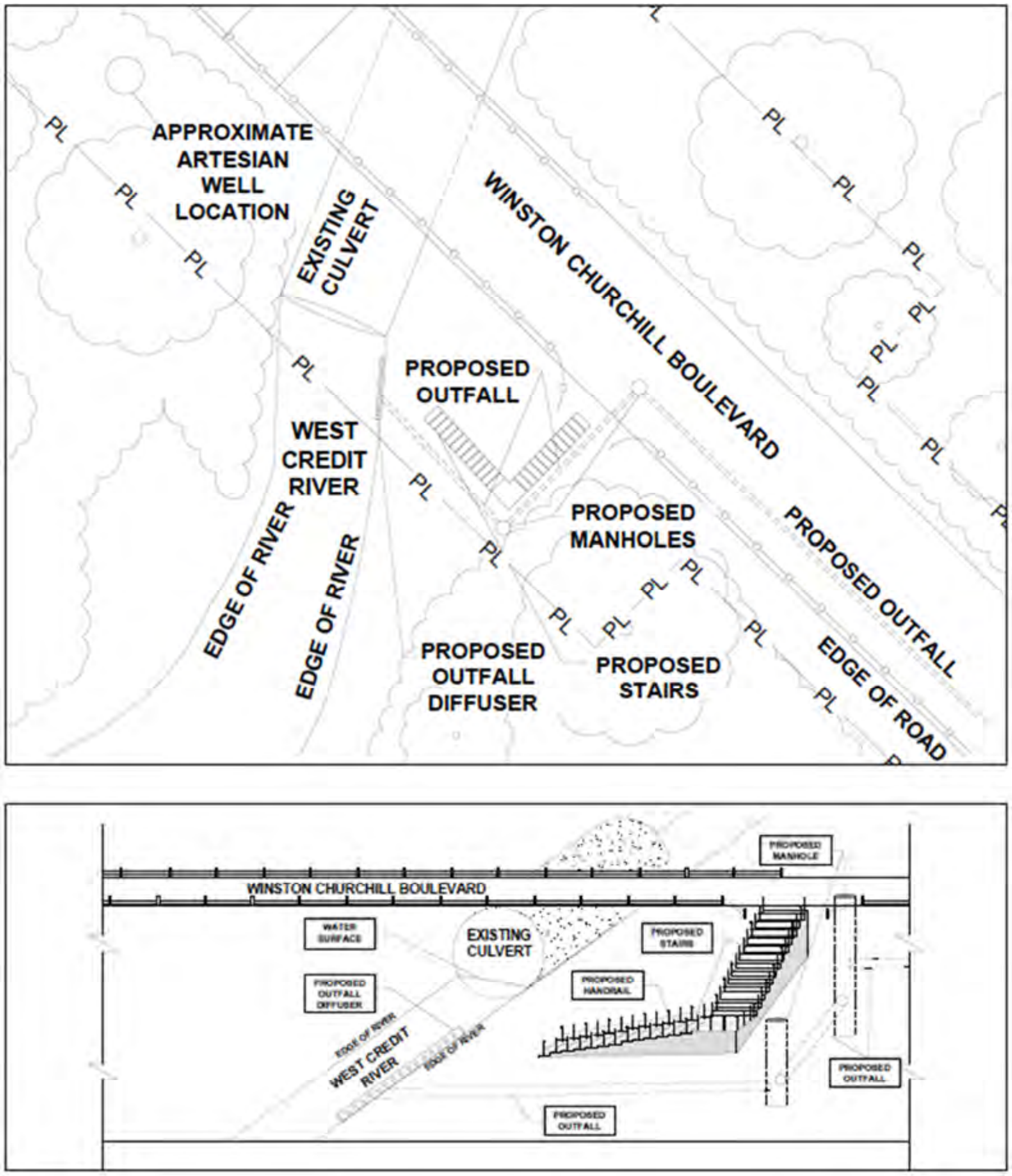


Figure 40 – Conceptual Outfall Design

13.4.1 Evaluation Methodology

Four potentially viable sites were evaluated as the location for the wastewater treatment plant. The four alternatives went through detailed evaluations using the screening criteria and weightings shown in Table 34.

Table 34 - Short-List Screening Criteria – WWTP Site Selection WWTP Site Evaluation Criteria

Primary Criteria	Weight	Secondary Criteria	Weight
Social/Culture	15%	Impacts During Construction	20%
		Aesthetics	30%

Primary Criteria	Weight	Secondary Criteria	Weight
		Effect on Residential Properties	30%
		Effect on Businesses/ Commercial Properties	10%
		Effect on Industrial Properties	10%
Technical	10%	Suitability of Elevation and Topography	50%
		Suitability for Phasing	20%
		Construction Impacts	20%
		Operation and Maintenance Impacts	10%
Economic	25%	Capital Cost	100%
Environmental	50%	Effect on Habitat/ Wildlife	30%
		Effect on Vegetation/ Wetlands	30%
		Effect on Groundwater	20%
		Effect on Surface Water/ Fisheries	20%

13.4.2 Wastewater Treatment Plant Site Alternatives

The rationale for selecting alternatives for the WWTP site was previously described and the potentially viable sites are listed below:

- Alternative 1 – Solmar Site;
- Alternative 2A – Halton Crush Stone (HCS) South of Solmar Site across Wellington Road 51;
- Alternative 2B – Halton Crushed Stone (HCS) at southwest corner 10th Line and Wellington Road 52;
- Alternative 2C – Halton Crushed Stone (HCS) at southeast corner 10th Line and Wellington Road 52.

Per the Official Plan land use designations and the Growth Plan for the Greater Golden Horseshoe, the potential site area is designated Prime Agricultural, Secondary Agricultural, Greenlands and Core Greenlands. Per section 4.45.2 of the Town of Erin Zoning By-Law, use of land for pumping stations, sewers, and forcemains are exempt from the need for Planning Act approvals; this exemption does not apply to wastewater treatment. As such, an amendment to the existing Official Plan will be required to facilitate construction on any of the alternative sites.

The Alternative 1 site is located on the north side of Wellington Road 52, west of 10th Line. The land consists of an abandoned farmhouse and farm buildings and lands sloping down towards the West Credit River. Per Town of Erin Official Plan (Modified Schedule A-1), this site is located in a secondary agricultural zone. The site is also outside of the urban boundary and under the current Greenbelt Plan, it cannot be developed for residential or commercial use. The site is part of a 200-acre farm property owned by Solmar Development Corporation (Solmar).

Solmar indicated that they are willing to sell sufficient property to the Town for construction of a WWTP and it was agreed that the site would be as far as possible from the existing McCullough Drive/Aspen Court subdivision and out of CVC regulated lands. Solmar agreed to permit access to the project team to conduct archaeological, environmental and geotechnical studies. The results are summarised below.

Environmental Impacts	A natural environment assessment was carried out at sites 1 (Solmar) and 2A and 2B

	(HSC) during June 2017 by Hutchinson Environmental Sciences Ltd (HESL). At bird survey was conducted at this site and the two others located along Wellington Road 52, west of 10th line. Two species at risk, Bobolink and Eastern Meadowlark, were heard on site 2A and 2B on June 1, 2018. Eastern Meadowlark was also heard on Site 1 on that day. On June 21, 2017, these two species were heard only on Sites 2A and 2B, but not Site 1. It was assessed that Site 1 was less suitable as breeding habitat, as it was more overgrown with scattered shrubs. Savannah Sparrow was observed at all three sites. This sparrow's breeding habitat is considered significant Wildlife Habitat (Open Country Bird Breeding Habitat). As such, development and site alteration are only permitted if there will be no negative impacts on the natural features or their ecological functions (MMAH 2014). The rare and uncommon species Wild Geranium was found on Site 1. Four rare and uncommon plant species were associated with the adjacent West Credit PSW complex: Yellow Sedge, Turtlehead, White Spruce, and Bristly Buttercup
Heritage and Archeological Impacts	A Cultural Heritage Resource Assessment was conducted by Archaeological & Cultural Heritage Services Inc. (ASI) as part of this project. The results indicate that no significant impacts to cultural heritage resources is anticipated as a result of the adoption of this site for the Wastewater Treatment Plant. A Stage 1 Archaeological Assessment of the site was also conducted by ASI. The results of the assessment indicate that the site has potential for archaeological significance and a stage 2 archaeological assessment using test pits will required to development on the property
Geotechnical Impacts	A geotechnical investigation was conducted by GeoPro Consulting Limited during October 2017. Four boreholes were advanced to assess the suitability for construction of a WWTP on site 1. The results indicate that the site is underlain by sands and gravel deposits that would provide adequate foundation for all WWTP structures. Construction would not be impacted by groundwater or rock

Table 35 summarises the advantages and disadvantages of the Site 1 (Solmar) alternative.

Table 35 - Advantages and Disadvantages of Site1 (Solmar)

Advantages	Disadvantages
▪ Sufficient space is available for the WWTP immediately adjacent to Wellington Road 52. ▪ The elevations across the site are adequate to support the design of gravity flow through the WWTP. ▪ The Owner is willing to sell the land to the Town for a WWTP. ▪ The site is mostly not presently farmed or used	▪ Use of this site will require cleanup of materials deposited on the site and this will likely require an Environmental Site Assessment Study prior to purchase. ▪ The use of this site will require a Stage 2 Archaeological Assessment prior to purchase. ▪ The Town may have to purchase more than 5 Ha as remaining lands may not be useful to the present Owner.

Advantages	Disadvantages
for any agricultural purpose. ▪ Topography will allow the main plant processes to be hidden from Wellington Road 52 and from the subdivision to the west. ▪ The distance between the nearest WWTP structure and the home on 10th Line exceeds 200 m which is greater than the MOECC buffer zone requirement. ▪ The distance between the nearest WWTP structure and the home east of the McCullough Drive/Aspen Court subdivision is over 290 m and also exceeds the MOECC buffer zone requirement.	▪ An entrance permit onto Wellington Road 52 will be necessary from the County.

Description of Alternatives 2A, 2B and 2C – Halton Crushed Stone Sites

Site 2A consists of farmland on the south side of Wellington Road 52 generally opposite Site 1 and would be accessed off Wellington Road 52. Site 2B also consists of farmland at the south west corner of Wellington Road 52 and 10th Line. Site 2C consists of farmland at the south east corner of Wellington Road 52 and 10th Line. The sites are all owned by Halton Crushed Stone (HCS), part of the Crupi Group, who have an application for extraction of sand and gravel covering all three sites, as an extension to their operation to the south of the sites. Per Town of Erin Official Plan (Modified Schedule A-1), these sites are located in a secondary agricultural zone. The sites are also outside of the urban boundary and under the current Greenbelt Plan, cannot be developed for residential or commercial use.

HCS indicated that they are willing to sell sufficient property to the Town for construction of a WWTP subject to the following considerations:

- It is undesirable to HCS to sell a portion of their lands that have not been mined for the underlying aggregate resources. The lands represent an opportunity to maintain stable employment for many people. Should the Town wish to purchase the unmined lands, the value of the underlying resource would need to be taken into consideration.
- The identified sites have not been mined by HCS for their aggregate resources. The sites are within the extraction area for which HCS is in the process of obtaining approval for extraction. Based on current mining plans, it is possible the area would be actively mined for between 5 to 10 years depending on market conditions, however HCS could not confirm a schedule for extraction on the site.
- Depending on the timeline for a wastewater system, the lands could be fully mined before they are required by the Town, however this cannot be guaranteed by HCS.

HCS has completed extensive studies covering these sites including resource development plans, archaeological report, natural environment report, hydrogeological report, noise report, planning report, and transportation brief. HCS made all of their reports available to the project team. The findings of the studies are summarized below.

Environmental	A Level 1 and Level 2 Natural Environment Technical Report was completed in 2016

Impacts	by WSP on behalf of Halton Crushed Stone as part of their application for sand and gravel extraction covering all three sites. This study identified three provincially and federally listed bird species at risk on the sites, including the barn swallow, bobolink and eastern meadowlark. The report recommends progressive rehabilitation of habitat as the extraction proceeds to minimise the impact on these species. A natural environment assessment was carried out at the sites during June 2017 by Hutchinson Environmental Sciences Ltd. Two species at risk, Boblink and Eastern Meadowlark, were detected at sites 2A and 2B. These species breed in grassland habitat, such as farm fields, uncut pastures and meadows. The study concluded that all the HCS sites are potential breeding habitat for Bobolink and Meadowlark. Savannah Sparrow was also recorded in all three sites. Its breeding habitat is considered Significant Wildlife Habitat (Open Country Bird Breeding Habitat).
Heritage and Archeological Impacts	An Archaeological assessment was completed in 2002 on all three Halton Crushed Stone sites by Archaeologix Inc. on behalf of Dufferin Aggregates application to expand the aggregate extraction area One area with significant mid-19th Century artifacts was located close to site 2C. Stage 2 and Stage 3 Assessments were conducted at this location and a recommendation for a Stage 4 assessment was made prior to aggregate extraction. A Cultural Heritage Resource Assessment was conducted by Archaeological & Cultural Heritage Services Inc. (ASI). A field review of the study area of sites 2A and 2B was undertaken by ASI on July, 19 2017. Based on the results of this assessment, no significant impacts to cultural heritage resources is anticipated as a result of the adoption of sites 2A or 2B for the Wastewater Treatment Plant.
Geotechnical Impacts	The sites are underlain by sand and gravel which is being extracted to just above the water table. Prior to extraction it is anticipated that the soils would provide excellent foundation materials with little requirement for a “Permit to Take Water” for construction dewatering or for structures to counteract buoyancy forces. Following extraction of the aggregates it is likely that dewatering would be required during construction and structures would need to have increased weight to counteract buoyancy.

Table 36 presents the advantages and disadvantages of the Site 2A alternative if the Town acquired the land prior to extraction of the resources by HCS.

Table 36 - Advantages and Disadvantages of the Site 2A Alternative-Prior to Resource Extraction

Advantages	Disadvantages
▪ Sufficient space is available for the WWTP immediately adjacent Wellington Road 52. ▪ The WWTP can be constructed more than 200 m from any residences.	▪ Site topography may not provide adequate space to support gravity flow through the WWTP as elevations drop off considerably to the west.

Advantages	Disadvantages
	▪ The site is mainly at a high elevation and the site would be highly visible. ▪ Species at risk have been identified on the site and any development may require habitat compensation. ▪ Additional land purchase may be needed for habitat compensation. ▪ An entrance permit onto Wellington Road 52 will be necessary from the County.

Following extraction, the flat site just above the groundwater table will add to the cost of construction both in terms of having to provide considerable dewatering within sand and gravel during construction and in additional structural weight (concrete) to offset the effects of buoyancy when constructing tanks below the groundwater table. Alternatively, the facilities could be constructed above the water table on imported fill which would also add to cost.

Table 37 - Advantages and Disadvantages of the Site 2A Alternative-Following Resource Extraction

Advantages	Disadvantages
▪ Sufficient space is available for the WWTP immediately adjacent Wellington Road 52. ▪ The WWTP can be constructed more than 200 m from any residences. ▪ The plant could be hidden from view in the extracted area.	▪ Site topography will be flat following aggregate extraction which does not support gravity flow through plant. ▪ Construction may be affected by the groundwater table which can add to costs for dewatering and structural work. ▪ HCS cannot provide a date when the resource extraction will be completed and so this alternative does not provide a valid solution at this time.

The advantages and disadvantages of the Site 2B alternative prior to and after resource extraction by HCS are presented in Tables 38 and 39.

Table 38 - Advantages and Disadvantages of Site 2B-Prior to Resource Extraction

Advantages	Disadvantages
▪ Sufficient space is available for the WWTP immediately with an access off 10th Line. ▪ The elevations across the site are adequate to support design of gravity flow through the WWTP. ▪ Topography will allow the main plant processes to be partly hidden from Wellington Road 52. ▪ The WWTP can be constructed more than 200 m from any residences and represents the site with	▪ HCS may wish to mine 10th Line which could affect access or outlet forcemain design. ▪ Species at risk have been identified on the site. ▪ Additional land purchase may be needed for habitat compensation.

Advantages	Disadvantages
the best buffer zone for all potentially affected properties.	

Table 39 - Advantages and Disadvantages of Site 2B Following Resource Extraction

Advantages	Disadvantages
▪ Sufficient space is available for the WWTP immediately with an access off either Wellington Road 52 or 10th Line. ▪ The plant could be hidden from view in the extracted area. ▪ The WWTP can be constructed more than 200 m from any residences and represents the site with the best buffer zone for all potentially affected properties.	▪ Site topography will be flat following aggregate extraction which does not support gravity flow through plant. ▪ Construction may be affected by the groundwater table which can add to costs for dewatering and structural work. ▪ HCS cannot provide a date when the resource extraction will be completed and so this alternative does not provide a valid solution at this time.

The advantages and disadvantages of the Site 2C alternative prior to and after resource extraction by HCS are presented in Tables 40 and 41.

Table 40 - Advantages and Disadvantages of Site 2C - Prior to Resource Extraction

Advantages	Disadvantages
▪ Sufficient space is available for the WWTP immediately with an access off 10th Line. ▪ The elevations across the site are adequate to support design of gravity flow through the WWTP. ▪ The WWTP can be constructed more than 200 m from any residences.	▪ HCS may wish to mine 10th Line which could affect access or outlet forcemain design. ▪ Species at risk have been identified on the site ▪ Additional land purchase may be needed for habitat compensation. ▪ Topography and location make this a fairly visible site that will not allow the main plant processes to be hidden from Wellington Road 52 unless berms are constructed. ▪ An archaeological site has been identified close to this site. ▪ The site is closer to residences on Wellington Road 52 downwind of prevailing winds

Table 41 - Advantages and Disadvantages of Site 2C Following Resource Extraction

Advantages	Disadvantages
▪ Sufficient space is available for the WWTP immediately with an access off 10th Line.	▪ HCS may wish to mine 10th Line which could affect access or outlet sewer design.

Advantages	Disadvantages
▪ The plant could be hidden from view in the extracted area. ▪ The WWTP can be constructed more than 200 m from any residences.	▪ Additional archaeological discoveries could delay the project and add to cost. ▪ Site topography will be flat following aggregate extraction which does not support gravity flow through plant. ▪ Construction may be affected by the groundwater table which can add to costs for dewatering and structural work. ▪ HCS cannot provide a date when the resource extraction will be completed and so this alternative does not provide a valid solution at this time.

Costs Estimates of WWTP Location Alternatives

Sites 2A, 2B and 2C are part of an application by HCS to extend their present operation to cover some 56.7 Ha for extraction, involving the recovery of approximately 4 to 5 million tonnes of sand and gravel at a rate of an estimated 725,600 tonnes per year. The area represents a key sand and gravel resource generating high quality granular A and B as well as stone and sand. It would appear that the sites are underlain by up to 5 m of extractable sand and gravel.

The estimated value of these resources under each of site 2A, 2B and 2C is approximately $2,000,000.

If the Town were to purchase one of these properties prior to extraction of the aggregates, it is assumed that the Town would have to pay the commercial value of the land.

Since purchase of these sites cannot be guaranteed to meet the project timeline, cost estimates have been generated for purchase before and after resource extraction.

In order to compare the capital costs of the four (4) sites, the following was considered:

- Relative lengths of forcemain to convey wastewater to each site
- Estimated purchase cost of the site
- Costs associated with any unique development features for each site
- Costs to convey treated wastewater to the preferred outfall site.

For site 1, the inlet forcemain location will be approximately the same as for site 2A (taken as zero). Outlet forcemain costs will be assumed to a common point beyond site 2C. For site 1, a cost has also been estimated to conduct necessary studies prior to purchase including an Environmental Site Assessment (ESA), Archaeological Stage 2 Study as well as clean up and demolition of the existing structures.

Capital costs associated with the four sites prior to and following aggregate extraction are presented Table 42.

Table 42 - Cost Comparison of Capital Cost of WWTP Site Alternatives

WWTP Site Alternative	Capital Cost Prior to Aggregate Extraction	Capital Cost Following Aggregate Extraction
Site 1 (Solmar)	$ 785,000	$ 785,000
Site 2A (HCS)	$ 2,665,000	$ 665,000
Site 2B (HCS)	$ 2,650,000	$ 650,000
Site 2C (HCS)	$ 2,670,000	$ 670,000

13.4.3 Results of the Wastewater Treatment Plant Site Alternatives Evaluation

The evaluation of the four (4) potential WWTP sites, using the criteria and weightings selected for evaluation of WWTP site alternatives was completed based on:

- The present site conditions prior to resource extraction.
- The site conditions following resource extraction.

The evaluation results indicate that Site 1 (Solmar) would be the preferred site alternative if the site were to be acquired prior to aggregate extraction at the HCS sites. The primary reasons for this are:

- The site owner is willing to sell the land to meet the project schedule;
- The high capital cost difference between Site 1 and Site 2A 2B and 2C which includes the resource cost for the aggregate prior to extraction;
- The effect on the industrial sector of reducing the area for aggregate extraction;
- Aesthetics of developing a WWTP on site 2A;
- Fewer environmental impacts on Site 1.

If the land were to be acquired after aggregate extraction, Site 2B (HCS) would be the preferred site. The primary reasons for this are:

- The site provides the best buffer from all nearby residences;
- The site can be hidden almost completely from view from all residences and Wellington Road 52;
- Fewer environmental impacts following extraction assuming that HCS have mitigated the loss of habitat.

In carrying forward two recommended alternatives for the WWTP site through to the final ESR, it is recognized that the municipality will need to prepare an Addendum to this ESR to make a final site selection. The addendum will need to provide details of the events that have occurred and the rationale for making the final location decision

13.5 Treatment Technologies Evaluation

A detailed report of the treatment technologies alternatives evaluation can be found in ***Appendix R.***

13.5.1 Evaluation Methodology

Evaluation of wastewater treatment technologies was performed on four distinct wastewater treatment processes, which are listed below

- Liquid Treatment
- Effluent Re-Oxygenation
- Sludge/Biosolids Treatment
- Septage Treatment/Management

Liquid Treatment refers to the process (treatment train) that treats the raw sewage to produces the liquid effluent to a level where it can be released to the West Credit River.

Aeration of the treated effluent, is a component of the liquid treatment train, and refers to the process to be used to elevate dissolved oxygen (DO) levels in the WWTP treated effluent above 4 mg/L, in order to maintain the river's DO levels following discharge to the river. It was analysed separately since its evaluation did not hinge on the results of the treatment stages preceding it.

Sludge/Biosolids Treatment refers to the system that treats the solids/sludge component of the wastewater; the component that is separated from the liquid stream during treatment.

Septage Treatment/Management refers to the alternatives available for receiving and treating septage such that it will meet the quality requirements for discharge to the environment. Septage consists of both liquid and sludge/biosolids treatment.

For the purposes of the technologies evaluation, it was forecasted that the wastewater treatment plant would be constructed in two phases. The first phase would have sufficient capacity to service all of the existing population plus spare capacity to accommodate some of the future growth. The second phase would be an expansion of the first phase to the full build-out capacity of 7,172 m^3/d, which would service the remaining future growth for the communities.

Construction phasing, along with the WWTP capacity at each phase are presented in Table 43.

Table 43 – WWTP Phases of Construction and Population Served

	Phase 1	Phase 2 / Full Buildout
Total WWTP Capacity (Average Day Flow)	4,780 m^3/d	7, 172 m^3/d
Capacity Allocated to Existing Population	60%	0%
Capacity Allocated to Growth	40%	100%
Residential Population Served	8,864	14,559
Equivalent Population* Served	12,893	18,873
Percent of Full Buildout Flow	60%	100%

*Equivalent population captures contributions from commercial, institutional, and industrial sources.

It should be noted that the Phase 1 flow rate used for the treatment technologies evaluation is higher than that used in the ACS. However, evaluation of the treatment technologies for Phase 1 was based on treatment to the more stringent Phase 2 effluent limits. Accordingly, design and sizing of the Phase 1 equipment should be done using the Phase 2 effluent limits as the required level of treatment.

The flows were divided as shown above for ease of design and operation. The flows proposed above would allow the WWTP to be constructed using three treatment streams, with each stream treating the same flow rate. Phase 1 would be constructed with two treatment streams and a third train would be added in Phase 2.

Liquid Treatment Train Evaluation Methodology

A long list of technology options was generated for the following stages of treatment for the liquid train:

- Primary Treatment
- Secondary Treatment
- Tertiary Treatment
- Disinfection
- Effluent Re-Oxygenation

Each option was evaluated using the long-list screening criteria shown in Table 44.

Table 44 - Long-List Screening Criteria – Liquid Train Treatment

Criteria	Description
Proven Reliability	Demonstrated track record of consistently meeting and/or exceeding the treatment objectives set forth for the UCWS EA.
Ease of Expansion to Buildout	Ability of the system to easily expand to meet UCWS EA WWTP Full Buildout capacity.
Operation and Maintenance Complexity	Simplicity of operation and maintenance and level of staffing required.
Cost	Have value in terms of performance and/or operation and maintenance that are reflective of the capital costs.

Alternatives that were short-listed for detailed evaluations were then evaluated using a set of short list screening criteria. Each criterion was given a weighting to capture its relative importance against other criteria. The short-list criteria and their weightings are shown in Table 45.

Table 45 – Liquid Train Short-List Screening Criteria

Primary Criteria	Weight	Secondary Criteria	Weight
Social / Culture	15%	Aesthetic Impacts (plant appearance)	10%
		Traffic Impacts (during construction and operation)	10%
		Noise Impacts (during operation)	40%

Primary Criteria	Weight	Secondary Criteria	Weight
		Odours Impacts (during operation)	40%
Technical	35%	Ability to Meet Regulatory Objectives	30%
		Technology / Process Robustness	30%
		Ease of Expansion and Phasing to Buildout	20%
		Energy Requirements	5%
		Operation & Maintenance Requirements (simplicity, operator skill level/quantity)	10%
		Site Requirements (plant footprint)	5%
Environmental	20%	Public Health and Safety	30%
		Sustainability	20%
		Climate Change Impacts / Greenhouse Gas Generation	20%
		Natural Environment Impacts	10%
		Waste Generation	20%
Economic	30%	Capital Cost	30%
		Operation and Maintenance Costs	40%
		Net Present Value	30%

Sludge/Biosolids Management

The scope of treatment proposed for Phase 1 includes a system to stabilize the sludge generated at the plant such that it can be beneficially reused via land application on farmland. Further treatment to produce a commercially marketable biosolids product is not recommended at this stage as the quantity or quality of stabilised sludge that will be produced is not known. It is recommended that a biosolids option study be conducted after Phase 1 is operating, to determine whether additional treatment is commercially viable. In light of this recommendation, the sludge/biosolids component of the evaluation consisted of evaluating sludge stabilization technologies.

The long list of technology options for stabilizing sludge generated at the plant were evaluated against the screening criteria shown in Table 46.

The short-list screening criteria applied to the sludge/biosolids treatment evaluation were the same as those used for the primary/secondary phases of the liquid train evaluation, since they were considered applicable to both processes.

Table 46 - Long-List Screening Criteria – Sludge/Biosolids Treatment

Criteria	Description
Regulatory Compliance	Ability to meet current and anticipated future regulations for processing and end-use / disposal.
Proven Reliability and Sustainability	Demonstrated successful projects of similar size and high level of flexibility to variations in sludge/biosolids quality and adverse weather conditions.

Criteria	Description
Staging / Phasing	Ability to easily expand to meet Erin WWTP's Full Buildout capacity.
Cost	Have value in terms of performance and/or operation and maintenance that are reflective of the capital costs.
Resource Recovery / Revenue Generation	Ability for end product to be used beneficially (e.g. land application) or to generate revenue (e.g. sold commercially as compost or fertilizer)

Septage Management

Current residents who are outside the recommended service area of the proposed wastewater collection system will remain on septic systems. To provide service to these residents, Erin's WWTP would include a septage receiving and management system. Accordingly, the evaluation included alternatives to achieve the required level of treatment for septage.

A long list of septage management alternatives was generated and evaluated using the criteria shown in Table 47.

Table 47 - Long-List Screening Criteria – Septage Management

Criteria	Description
Proven Reliability	Demonstrated track record of consistently meeting treatment objectives for septage.
Potential for Upset to Main Plant Process	The likelihood that this process would lead to an upset in the main plant's ability to meet effluent limits.
Site Requirements (footprint)	Amount of land required for the technology.
Potential for Odours	Likelihood of the alternative to generate odours at an unacceptable level during normal operation.
Cost	Have value in terms of performance and/or operation and maintenance that are reflective of the capital costs.

The short-listed alternatives were then evaluated using the screening criteria and weightings shown Table 48.

Table 48 – Short-List Screening Criteria -Septage Management

Primary Criteria	Weight	Secondary Criteria	Weight
Social / Culture	10%	Aesthetic Impacts (plant appearance)	10%
		Traffic Impacts (during construction and operation)	10%
		Noise Impacts (during operation)	40%
		Odours Impacts (during operation)	40%
Technical	40%	Ability to Meet Treatment Objectives and Robustness	30%

Primary Criteria	Weight	Secondary Criteria	Weight
		Potential for Upset to Main Plant Process	40%
		Energy Requirements	10%
		Operation & Maintenance Requirements (simplicity, operator skill level/quantity)	10%
		Site Requirements (plant footprint)	10%
Environmental	20%	Public Health and Safety	35%
		Sustainability	25%
		Climate Change Impacts / Greenhouse Gas Generation	25%
		Natural Environment Impacts	15%
Economic	30%	Capital Cost	30%
		Operation and Maintenance Costs	40%
		Net Present Value	30%

13.5.2 Liquid Train Treatment Alternatives Evaluation

Treatment of the liquid component of wastewater involves several stages, typically starting with removal of grit and larger particles and ending with disinfection of the treated effluent just prior to release to the environment. For Erin, the final step of liquid treatment would be re-oxygenation of the treated effluent.

The stages of the liquid train treatment are described previously and listed below.

- Preliminary Treatment
- Primary Treatment
- Secondary Treatment
- Tertiary Treatment
- Disinfection
- Effluent Re-Oxygenation

Re-oxygenation of the treated liquid is not typically required for wastewater treatment plants in Ontario. However, DO levels in the West Credit River are an important consideration to protect fish and the ACS stipulated a minimum effluent DO level required to not negatively affect the river's DO levels.

Primary Treatment Alternatives

From a long list of primary treatment technologies, two options were short listed:

- Conventional primary clarifier
- Enhanced primary treatment.

Description of Conventional Primary Clarifier

A conventional clarifier that employs gravity settling to remove settleable particles. A sludge collection system scrapes the settled solids from the bottom of the clarifier tank into sludge hoppers. A scum collection system scrapes scum from the top of the liquid surface in the clarifier into a scum hopper.

Description of Enhanced Primary Treatment

This is a category of technologies, rather than a specific technology. These technologies are ones that would have higher solids removal compared to a conventional clarifier and needed to facilitate or enhance secondary treatment technologies. For example, use of filtration for high solids removal would be needed to pair with membranes in the secondary treatment or use of a clarification technology that also includes some nutrient removal may be called for in order to reduce loadings on secondary treatment processes.

The short listed primary treatment technologies are not all applicable to all of the short listed secondary treatment technologies. As such, detailed evaluation of the primary treatment technologies was coupled together with the detailed evaluation of the secondary treatment alternatives in a combination that facilitated the secondary treatment technology. For example, a filtration technology was coupled with membrane bioreactors as the enhanced solids removal upstream of the membranes is needed for effective membrane performance.

Secondary Treatment Alternatives

A long list of eight secondary treatment alternatives was evaluated. Using the long list screening criteria described previously three alternatives were short-listed. The three short-listed secondary treatment alternatives were:

- Modified Conventional Activated Sludge Process (CAS)
- Sequencing Batch Reactor (SBR)
- Membrane Bioreactor (MBR)

Description of the Modified Conventional Activated Sludge Process (CAS)

Figure 41 shows a flow schematic of the modified CAS process, which is one of the most commonly used wastewater processes. The traditional CAS process consists of preliminary treatment, primary clarification, aeration, and secondary clarification. Wastewater flows from the preliminary treatment system (grit and solids removal) to the primary treatment system. For a CAS process, primary treatment is typically accomplished using a primary clarifier and this alternative includes a primary clarifier as the primary treatment technology.

The primary clarifier removes settleable solids, which are sent to the sludge/biosolids treatment system.

To facilitate denitrification (removal of nitrogen), which is a requirement for Erin, the traditional CAS system would need to be modified to include an anoxic zone/tank after the primary clarifier. Denitrification occurs in the anoxic tank where denitrifying bacteria convert nitrates to nitrogen gas. The nitrogen gas is released to the atmosphere.

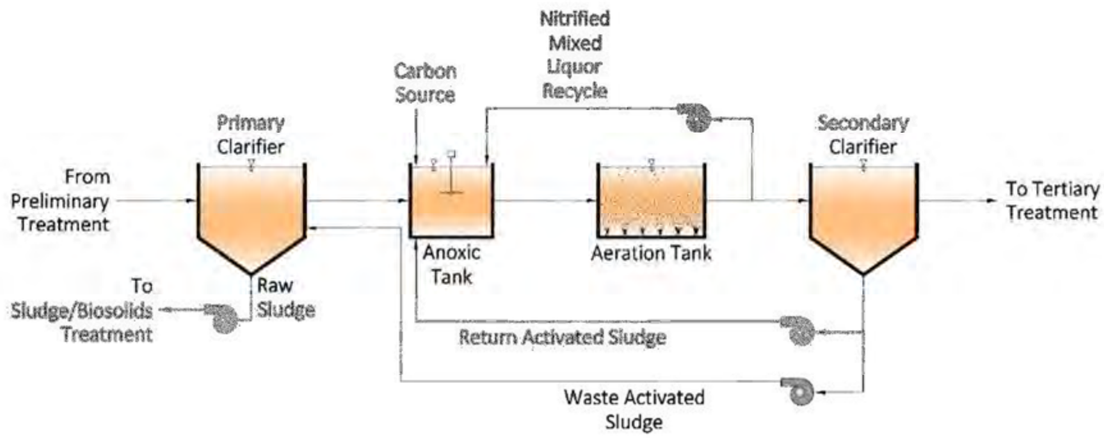


Figure 41 – Modified CAS Process Flow Schematic

Denitrifying bacteria use BOD present in the wastewater as a food source and use nitrates as an oxygen source for respiration. However, nitrate is not present, as nitrate in raw domestic wastewater. Domestic wastewater contains ammonia and ammonium, which must first be converted to nitrate under aerobic conditions (aeration) before it can be converted to nitrogen gas under anoxic (low oxygen) conditions. If there is insufficient naturally occurring BOD in the wastewater, an external carbon/food source may be required.

From the anoxic tank, wastewater flows into the aeration tank where aeration facilitates the biological conversion of ammonia and ammonium to nitrate and lowers BOD levels. A recycle stream from the aeration tank, called the nitrified mixed liquor stream, carries nitrates to the anoxic zone. Because the aeration process lowers BOD levels, the anoxic zone cannot be positioned downstream of the aeration tank, since denitrifying bacteria need sufficient BOD to survive.

The final step in the modified CAS process is removal of solids, which is typically done by a secondary/final clarifier. Some of the sludge from the secondary clarifier is recycles to the anoxic tank to supply the anoxic tank with denitrifying bacteria. This recycle stream is called the recycle activated sludge (RAS). The balance of the sludge is either pumped directly to the sludge/biosolids treatment system or sent to the primary clarifier sludge hoppers for co-thickening before being sent to the sludge/biosolids treatment system. This sludge stream is called the waste activated sludge stream (WAS).

In this alternative, partial phosphorous would be removed by adding a coagulant to the aeration tank and/or the anoxic tank. The coagulant would improve settling of particulate phosphorous in the secondary clarifier. To achieve the advance phosphorous removed required for Erin, a tertiary treatment process would be required and was included as part of the technology evaluation.

Table 49 presents the advantages and disadvantages of the modified CAS alternative.

Table 49 – Advantages and Disadvantages of Modified CAS Process

Advantages	Disadvantages
▪ Well understood process and easy to operate ▪ Construction is straightforward. ▪ Lower aeration demand/costs when coupled with primary treatment. ▪ Relatively easy to expand if clarifiers and biological system constructed as rectangular tanks.	▪ System not very flexible for high flow events ▪ Tertiary treatment stage would be needed for the required advanced phosphorous removal. ▪ Requires large amount of chemical if phosphorous removal is required in the secondary treatment stage to facilitate advanced removal in the tertiary treatment stage.

Description of the Sequencing Batch Reactor (SBR) Process

Figure 42 shows a flow schematic of an SBR system. The SBR system uses a single tank/reactor as the anoxic tank, the aerobic tank, and the final settling tank (clarifier). Primary clarification is not required in an SBR system. Wastewater flows from the preliminary treatment system directly to the SBR reactor. All phases of the treatment by the SBR occur in one tank/reactor.

The SBR reactor is divided into two sections, a “pre-react” zone, where no aeration is provided and a main zone, which includes an aeration system. In general, there are four stages in the operation of an SBR: fill, react, settle, decant, which are shown in Figure 41. There are several variations to the sequence and duration of each cycle, depending on the vendor.

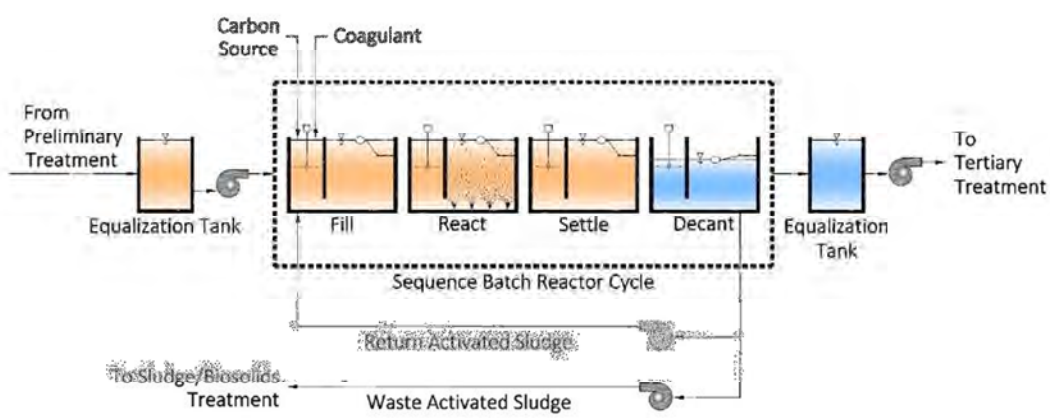


Figure 42 – Sequencing Batch Reactor Process Flow Schematic

Since this is a batch process, an equalization tank may be required upstream of the reactor or multiple reactors may be provided and treatment phases can alternate between reactors.

Raw wastewater is introduced into the pre-react zone of the reactor, where denitrification occurs similarly to the modified CAS process. A coagulant is also added to the pre-react zone to precipitate phosphorous. If needed, a carbon source is also added in this step.

From the pre-react zone, wastewater flows to the main reactor zone and air is introduced to support the micro-organisms that convert ammonia and ammonium to nitrate and lower BOD levels. Once this phase of the process is complete, oxygen supply to the main reactor zone is deactivated and the settle phase takes place. During this phase, sludge settles to the bottom of the reactor. As with the modified CAS alternative, some settled sludge is recycled to provide denitrifying bacteria to the denitrification step and the balance is sent to the sludge/biosolids treatment system.

The final step of the SBR process is the decant phase where liquid contents of the SBR is decanted out of the reactor and sent to the downstream treatment process.

The SBR alternative would achieve partial phosphorous removal via coagulant addition into the SBR. However, this alternative would require a tertiary treatment step to achieve the advanced phosphorous removal required for Erin.

Table 50 presents the advantages and disadvantages of the SBR alternative.

Table 50 – Advantages and Disadvantages of the SBR Process

Advantages	Disadvantages
▪ Simple construction as reactors systems can come as prefabricated modules. ▪ Very resilient to extreme flow conditions by adjusting cycle times and/or adding an equalization tank upstream of the SBR. ▪ Relatively easy to expand. ▪ Small footprint as primary and final clarifiers not required.	▪ Operation is slightly more complex than CAS system. ▪ Tertiary treatment stage would be needed for the required advanced phosphorous removal. ▪ Equalization tank is required prior to downstream treatment processes. ▪ More frequent sludge wasting compared with CAS process.

Description of the Membrane Biological Reactor (MBR) Process

Figure 43 shows a general flow schematic of an MBR system. A membrane bioreactor system combines the activated sludge process (aeration) with a filtration process. Membranes used in an MBR system will be low-pressure microfiltration or ultrafiltration membranes.

For the MBR membranes to operate without excessive fouling and shutdowns, an advanced primary clarification technology is needed for advanced solids and particle removal as compared with a traditional primary clarifier. For this evaluation, a rotary belt filter (such as a Salsness filter) has been coupled with the MBR alternative because of its ability to remove fine particles, including hair, which is a common cause of excessive membrane fouling.

Wastewater from the preliminary treatment stage would flow to the belt filter and through a rotating polyethylene filter mesh/belt, installed at a 45-degree angle. Particulates would be captured on the filter belt and carried upwards out of the liquid. The collected solids are cleaned from the belt and disposed of, typically at a landfill.

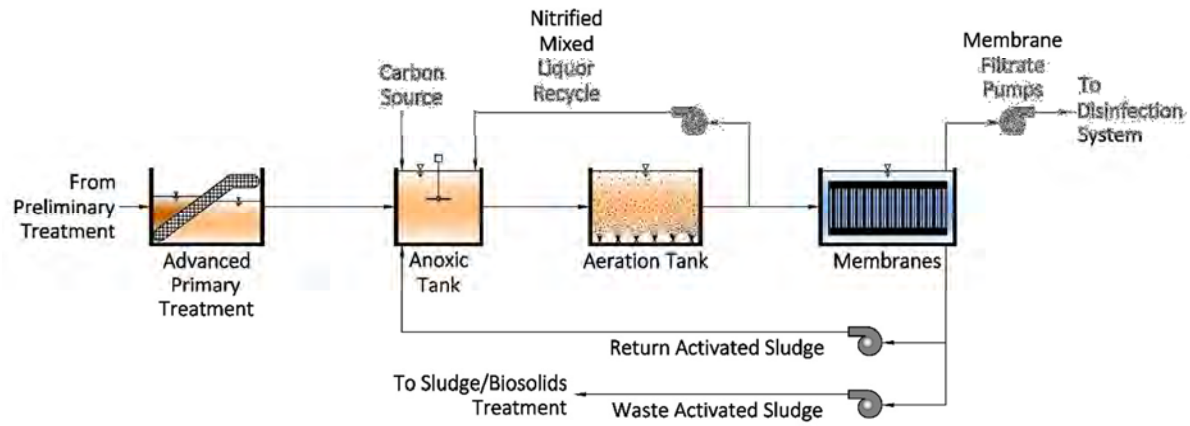


Figure 43 – Membrane Bioreactor Process Flow Schematic

From the filter, the wastewater flows to a bioreactor, which consists of an anoxic zone and an aerobic zone. The bioreactor could be constructed as two separate tanks, as shown above, or a single tank, with a dividing wall. As with the previous alternatives, the anoxic zone is designed for denitrification and the aerobic zone is designed for nitrification and BOD reduction.

The bioreactor can also house the membranes of an MBR system or the membranes can be housed in separate tanks. The membranes filter pollutants from the wastewater. Filtrate from the membranes is pumped to the disinfection system.

Through the filtration process and use of coagulants, an MBR system can achieve the advanced phosphorous removal required for Erin, without the need for a tertiary treatment step.

Table 51 presents the advantages and disadvantages of the MBR alternative.

Table 51 – Advantages and Disadvantages of the MBR Process

Advantages	Disadvantages
▪ The pore size of Ultrafiltration Membranes (MF) acts as an absolute barrier to suspended solids containing particulate phosphorus, bacteria and viruses, and large molecules. ▪ Tertiary treatment stage would not be needed to achieve the required advanced phosphorous removal. ▪ Smaller footprint than other technologies.	▪ Complex operation requiring advanced control systems. ▪ Aeration costs are higher than other technologies, due to aeration requirement in the bioreactor tank and the membrane tank. ▪ Membrane modules require replacement every 5 to 12 years, which is an added cost.

Life-Cycle Costs of Primary/Secondary Treatment Alternatives

A life-cycle cost analysis was performed for the three primary/secondary treatment alternatives and the results are summarized in Table 52.

Table 52 – Cost Estimates for Primary/Secondary Treatment Alternatives

NPV	Modified Conventional Activated Sludge	Sequencing Batch Reactor	Membrane BioReactor
Capital Cost	$10,436,000	$11,749,000	$21,168,000
Annual Operation and Maintenance Cost	$3,251,000	$4,242,000	$6,850,000
Net Present Value	**$13,687,000**	**$15,991,000**	**$28,018,000**

Tertiary Treatment Alternatives Evaluation

With the exception of the MBR system, a tertiary treatment stage would be required to achieve the phosphorous removal needed to comply with the established effluent limit. Three tertiary treatment technologies were short listed from a long list of five technologies. The three short-listed tertiary treatment technologies were:

- Adsorptive Deep Bed Filtration
- Two-Stage Continuous Up-Flow Filtration
- Tertiary Membranes

Description of Adsorptive Deep Bed Filtration

An adsorptive deep bed filter is configured and operated in a similar manner as a continuous up-flow sand filter, which is a type of moving bed filter, where the filter media (sand) is continuously cleaned. This continuous cleaning avoids the need to shut down the unit for backwashing However, an adsorptive deep bed filter system applies a hydrous ferric oxide coating to the sand media. Phosphorous and other metals in the wastewater are chemically attracted to the coating and adsorb onto the coated sand particles.

An airlift transports media with the attached contaminants upwards into a washbox where the hydrous ferric oxide coating and contaminants are washed off. The used hydrous ferric oxide and contaminants flow out of the filter and the cleaned media settles back to the filter bed and is recoated with hydrous ferric oxide for another filter cycle.

It should be noted that this technology is primarily sold by one vendor.

Description of Two-Stage Continuous Up-Flow Sand Filtration

Wastewater from the secondary treatment system would enter the filter tank at the bottom and flow upwards through the filter bed. Suspended particles would be filtered out of the wastewater stream. This technology as a single pass filter is successfully used at multiple locations throughout Ontario.

To achieve the advanced phosphorous removal required for Erin, two filters, connected in series, would be needed. Filtrate from the first unit would be the influent to the second filter.

A coagulant is added to the wastewater, upstream of the first filter, to flocculate reactive phosphorous and facilitate its removal by the filter media.

It should be noted that this technology is primarily sold by two vendors.

Description of Tertiary Membranes

Membrane filtration uses pressure or vacuum to drive the wastewater through a permeable membrane to remove pollutants. Tertiary membrane systems typically use either microfiltration or ultrafiltration membranes. Microfiltration membranes have a pore size small enough to prevent the passage of bacteria and ultrafiltration membranes have a pore size small enough to prevent the passage of viruses. This evaluation was based on discussion with pressurized tertiary membranes vendors, however, implementation would involve bids from all types of membrane suppliers. These types of membranes are used in multiple drinking water treatment plants across Ontario and would produce a very high quality effluent.

Tertiary membranes can be installed in a dedicated tank where wastewater from the secondary treatment system is passed through the filter modules or, in the case of pressurized membranes, installed in a building and wastewater from the secondary treatment stage is pumped through the filter modules.

To prevent excessive fouling of the tertiary membranes a pre-filtration step is required upstream of the tertiary membranes to remove particulates that can clog the membranes. The pre-filter can be an automatic backwash type of filter and needs to be able to remove hair, which is a common cause of membrane fouling.

Life-Cycle Costs of Tertiary Treatment Alternatives

A life-cycle cost analysis was performed for the three tertiary treatment alternatives and the results are summarized in Table 53.

Table 53 – Cost Estimates for Tertiary Treatment Alternatives

NPV	Adsorptive Deep Bed Filtration	Two-Stage Up-Flow Sand Filtration	Tertiary Membranes
Capital Cost	$15,570,000	$9,795,000	$14,050,000
Annual Operation and Maintenance Cost	$6,037,000	$7,512,000	$5,082,000
Net Present Value	**$21,607,000**	**$17,307,000**	**$19,132,000**

Disinfection Alternatives Evaluation

There are three technologies used for disinfection of wastewater. The three technologies are chlorination/ dechlorination, ultraviolet(UV) disinfection, ozonation. Of these three long list technologies, two were short listed for Erin. The two short-listed disinfection alternatives were:

- Chlorination / Dechlorination
- UV Disinfection

Description of Chlorination / De-Chlorination

A chlorination/de-chlorination disinfection system achieves disinfection by dosing the treated wastewater with a chlorine solution. Typically, a solution from chlorine gas or sodium hypochlorite is used as the chlorinating agent.

Chlorine released into the receiving water stream negatively impacts all forms of life in the stream. For this reason, a de-chlorination process is needed to remove residual chlorine prior to discharge to the river. De-chlorination is accomplished by adding a dechlorinating agent to the wastewater.

For the purposes of this evaluation, sodium hypochlorite solution was used as the disinfecting agent and sodium bisulphite was used as the de-chlorinating agent.

Treated wastewater from the tertiary treatment system would enter a chlorine contact tank, where chlorine would be metered into wastewater at the contact tank's inlet. The contact tank would be designed to provide the required amount of contact time between the chlorine and wastewater to allow the disinfection process to take place. The de-chlorination agent would be added to the wastewater as it exits the chlorine contact tank.

Table 54 presents the advantages and disadvantages of the chlorination / de-chlorination alternative.

Description of UV Disinfection

Disinfection via UV radiation involves exposing micro-organisms in wastewater to UV light within the 200 to 300 nanometer wavelength range. This range is called the germicidal range because micro-organisms, such as bacteria, viruses, and protozoa, are deactivated and lose the ability to reproduce after exposure.

Table 54 – Advantages and Disadvantages of Chlorination/De-Chlorination

Advantages	Disadvantages
▪ Proven effective and historically, extensively used. ▪ Well understood process. ▪ Effectiveness is not affected by water characteristics, such as turbidity.	▪ Negatively impacts all forms of life in receiving water. ▪ Over-dosing with the dechlorination chemical can reduce the dissolved oxygen concentrations in the wastewater and lower effluent DO levels. ▪ Operation requires skilled operators with a good understanding of chlorination chemistry. ▪ Added risk to worker health and safety due to handling of liquid or gaseous chlorine. ▪ Requires a building to house chemical dosing and storage systems.

A UV disinfection system consists of a bank of UV radiation emitting tubes, which are submerged in the wastewater, usually in a concrete channel. As the wastewater flows across the UV tubes, micro-organisms are exposed to the radiation and become deactivated.

Table 55 presents the advantages and disadvantages of the UV disinfection alternative.

Table 55 – Advantages and Disadvantages of UV Disinfection

Advantages	Disadvantages
▪ Proven effective on multiple installations in Ontario ▪ Smaller footprint than chlorination ▪ Effective against a wide range of micro-organisms. ▪ Does not produce harmful by-products.	▪ Effectiveness depends on water quality, i.e. transmissivity and turbidity. ▪ Not very flexible to large variations in water quality. ▪ Requires building to house UV system.

Life-Cycle Costs of Disinfection Alternatives

A life-cycle cost analysis was performed for the two disinfection alternatives and the results are summarized in Table 56.

Table 56 – Cost Estimates of Disinfection Alternatives

NPV	Chlorination / De-Chlorination	UV Disinfection
Capital Cost	$1,761,000	$785,000
Annual Operation and Maintenance Cost	$873,000	$444,000
Net Present Value	**$2,634,000**	**$1,229,000**

Effluent Re-Oxygenation Alternatives Evaluation

The final stage of the liquid treatment train is the effluent re-oxygenation step, where the dissolved oxygen level of the wastewater is elevated to meet the effluent minimum requirement. The following long list of alternatives was considered:

- Coarse Bubble Aeration
- Fine Bubble Aeration
- Side Stream Dissolved Gas System
- Natural aeration via engineered waterfall from the WWTP to discharge point

However, all alternatives except fine bubble aeration were deemed undesirable or impractical. Natural aeration was eliminated as it was not possible to readily calculate the amount of re-oxygenation achievable using this method. The side stream dissolved gas system was eliminated because it would require on-site storage and handling of large amounts of oxygen gas. The additional health and safety risks associated with handling oxygen gas made this alternative undesirable. Coarse bubble aeration is less efficient and more costly than fine bubble aeration in this application and was also eliminated.

Preliminary sizing showed that the blowers that would be used in the secondary treatment process could be upsized to supply enough air to the effluent re-oxygenation system as well.

Life-Cycle Costs of Effluent Re-Oxygenation

A life-cycle cost analysis was performed for the fine bubble aeration alternative and the results are summarized in Table 57.

Table 57 – Cost Estimates of Effluent Re-Oxygenation via Fine Bubble Aeration

NPV	Effluent Re-Oxygenation (Fine Bubble Aeration) Costs
Capital Cost	$86,000
Annual Operation and Maintenance Cost	$11,000
Net Present Value	**$97,000**

Complete Liquid Train Treatment Alternatives

A preferred alternative for a complete system to treat the liquid train, from primary treatment to effluent re-oxygenation, is required. However, combining all short-listed technologies into all possible combinations for detailed evaluation was not practical, as there would have been some thirty-six alternatives to be evaluated.

Since selection of the primary, secondary, and tertiary treatment alternatives does not affect evaluation results for the disinfection and effluent re-oxygenation processes, the latter two evaluations were conducted independently of the former three.

There were three short-listed primary/secondary treatment technologies and three short-listed tertiary treatment technologies. Evaluating all possible combinations of these short-listed technologies would have required detailed analyses of nine alternatives. However not all combinations were applicable.

To further narrow down the feasible alternatives, a detailed evaluation was performed on the tertiary treatment alternatives and that preferred alternative was paired with each primary/secondary treatment alternative, resulting in three alternatives for detailed analysis.

Details of the analysis of each alternative can be found in the Treatment Technologies Evaluation Report in ***Appendix R.*** The preferred tertiary treatment alternative was tertiary membranes. This gave rise to the treatment train alternatives listed below:

- Modified Conventional Activated Sludge (CAS) with Tertiary Membranes

- Sequencing Batch Reactor (SBR) with Tertiary Membranes
- Membrane Bioreactor

Note that the membrane bioreactor option does not require a tertiary treatment step since it is capable of achieving the required effluent limits, with appropriate coagulant dosing for phosphorous removal.

Life-Cycle Costs of Liquid Train Treatment Alternatives

A life-cycle cost analysis was performed for the liquid train treatment alternatives listed above. The results of this analysis are summarized in Table 58.

Table 58 – Cost Estimates of Primary/Secondary/Tertiary Treatment Alternatives

NPV	Modified Conventional Activated Sludge with Tertiary Membranes	Sequencing Batch Reactor with Tertiary Membranes	Membrane BioReactor
Capital Cost	$24,486,000	$25,799,000	$21,168,000
Annual Operation and Maintenance Cost	$8,333,000	$9,324,000	$6,850,000
Net Present Value	**$32,819,000**	**$35,123,000**	**$28,018,000**

Results of the Liquid Train Treatment Alternatives Evaluation

Based on the results of the detailed analyses of the alternatives for the liquid train treatment processes, the preferred alternatives are listed in Table 59.

Table 59 – Preferred Liquid Train Treatment Technologies for the WWTP

Treatment Stage	Preferred Alternative
Primary Treatment	Advanced Primary Treatment (e.g. Rotary Belt Filter)
Secondary and Tertiary Treatment	Membrane Bioreactor
Disinfection	UV Radiation
Effluent Re-Oxygenation	Fine Bubble Aeration (using up-sized secondary treatment blowers)

Figure 44 presents the flow schematic for the preliminary preferred alternative for the liquid treatment train.

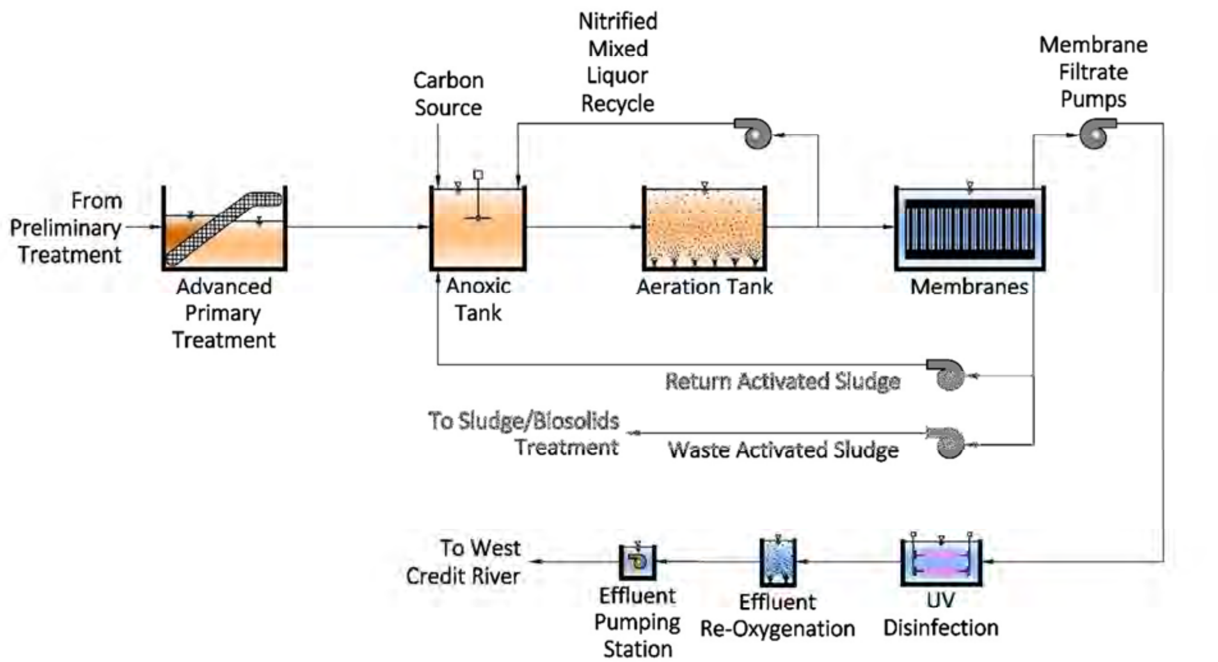


Figure 44 – Preferred Liquid Treatment Train Process Flow Schematic

13.5.3 Sludge/Biosolids Train Treatment Alternatives Evaluation

The objective of the sludge/biosolids component of the evaluation is to develop alternatives for treating and managing the sludge/biosolids generated at the WWTP.

Sludge/biosolids refers to the solids component in the wastewater. For the purposes of this assessment, sludge refers to wastewater solids that have not been stabilized/treated and biosolids refers to wastewater solids that have been stabilized/treated to a level where they are suitable for off-site disposal or use, such as land application.

Sludge is progressively removed from the liquid stream during primary, secondary, and tertiary treatment. The sludge is collected from these processes and can either be stabilized on site or hauled off-site for treatment by another party (another municipality or an independent biosolids management contractor).

Development of a Sludge/Biosolids Management Strategy

Several factors were considered when developing a management strategy for the sludge/biosolids. Factors considered included:

- Whether or not to stabilize the sludge on site or have unstabilized sludge hauled off-site for treatment and disposal at another facility,
- What on-site stabilization technology to use, and

- To what level should the biosolids be processed for beneficial re-use and/or commercial marketing (revenue generation).

Off-Site Disposal and/or Treatment

The option of hauling unstabilized sludge off site was considered unsustainable as this would carry a high degree of risk due to dependence on the receiving facility. Specifically, if the receiving facility were unable to accept Erin's unstabilized sludge, Erin would have no alternate means of disposing or treating the unstabilized sludge. Also, the ability to expand Erin's plant would hinge on whether or not the off-site receiving facility has spare capacity to accept additional sludge. Alternatives related to hauling unstabilized sludge off-site were eliminated from the evaluation.

On-Site Stabilization

The option of stabilizing sludge on-site would provide the Town with greater flexibility than relying on an external party. Stabilized sludge can be more land applied to suitable agricultural lands and have more end-use options than unstabilized sludge. It was decided that this option would serve the Town well and it was carried through the evaluation process.

13.5.3.1 On-Site Sludge Stabilization Alternatives

A long list of five stabilization alternatives were evaluated against the long-list screening criteria that was selected for the sludge/biosolids train and two options were short-listed, per below:

- Aerobic Digestion
- Auto-Thermal Thermophilic Aerobic Digestion (ATAD)

Description of Conventional Aerobic Digestion

Figure 45 shows a flow schematic of the process steps associated with the conventional aerobic digestion alternative. Sludge and scum from the liquid train treatment processes would be directed to the aerobic digester, which is equipped with aeration and mixing systems.

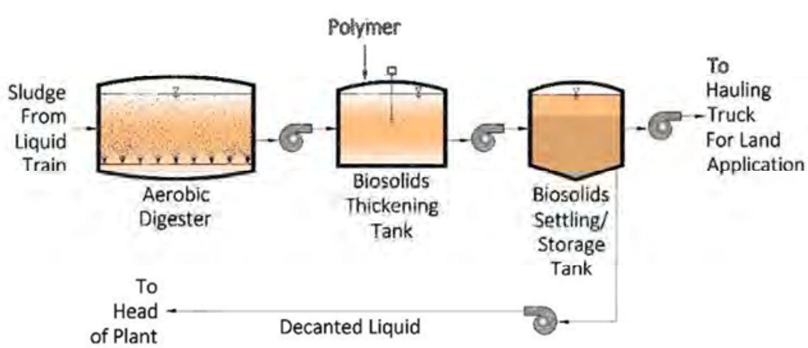


Figure 45 – Conventional Aerobic Digester Process Flow Schematic

Micro-organisms in the digester digest the solids and produced a stabilized sludge, which would be pumped to a biosolids thickening tank. A polymer would be added to the thickening tank to facilitate settling. From the thickening tank, biosolids would be pumped to settling/storage tanks. The thickened biosolids would be pumped from the settling tanks onto biosolids haulage trucks to be land applied.

In the winter months, when land application is not possible, the biosolids would be stored on site. Regulations dictate that 240 days of storage is to be provided.

Table 60 presents the advantages and disadvantages of the conventional aerobic digester alternative.

Table 60 – Advantages and Disadvantages of the Conventional Aerobic Digestion Alternative

Advantages	Disadvantages
▪ Requires simplest thickening system. ▪ Least amount of process equipment required. ▪ Biosolids produced is relatively odour-free. ▪ Well understood technology.	▪ Higher operation costs due to requirement of aeration. ▪ Degree of stabilization is weather dependent, with lower levels seen in the colder months.

Description of Autothermal Thermophilic Aerobic Digestion

Figure 46 presents a flow schematic of the steps associated with the ATAD alternative. Unlike Alternative 1, sludge and scum from the liquid train treatment processes cannot be pumped directly to the ATAD. The sludge needs to be thickened to approximately 5% solids beforehand.

From the liquid train, sludge and scum would be pumped to an holding/equalization tank then to a mechanical thickener. Polymer would be added to the mechanical thickening process to improve thickening. Since sludge fed to the ATAD must be at a prescribed solids concentration, mechanical thickening was incorporated into this alternative to ensure that the required solids concentration can be achieved in a reasonable length of time.

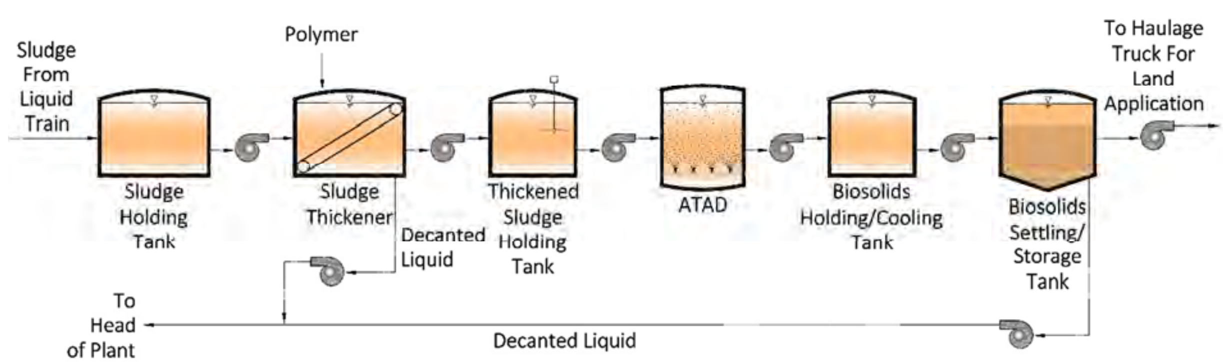


Figure 46 – ATAD Process Flow Schematic

Thickened sludge is then pumped to the ATAD for stabilization. The ATAD unit can be a single stage or double stage digestion system. A single stage process achieves sludge stabilization and the product is suitable for land application. If followed by a second stage, the second stage pasteurizes the biosolids to a quality level where the biosolids can be used as fertilizer without restrictions, as compared to land application only with the single stage ATAD. However, the pasteurized end-product has a lower nitrogen content, potentially making them a less desirable product in areas where high-ammonia nitrogen fertilizers is desired.

From the ATAD, biosolids would be transferred to biosolids holding/cooling tank, where excess heat from the stabilization process is removed to avoid possible over-heating.

Biosolids from the holding/cooling tank would be pumped to the biosolids storage tanks, which would need to provide the regulated 240 days of storage.

Table 61 presents the advantages and disadvantages of the ATAD alternative.

Table 61 – Advantages and Disadvantages of the ATAD Alternative

Advantages	Disadvantages
▪ Smaller digester size due to shorter retention times. ▪ Degree of stabilization is not weather dependent. ▪ Can produce a pasteurized biosolids product if second stage used.	▪ Higher capital costs due to requirement for mechanical thickening system. ▪ Slightly more complex operation. ▪ Biosolids product have higher odour than conventional aerobic digestion – odour control system may be needed.

Life-Cycle Costs of Sludge Stabilization Alternatives

A life-cycle cost analysis was performed for the two sludge stabilization alternatives and the results are summarized in Table 62.

Table 62 – Cost Comparison of Sludge Stabilization Alternatives

	Conventional Aerobic Digestion	Autothermal Thermophilic Aerobic Digestion (ATAD)
Capital Cost	$8,540,000	$11,091,000
Annual Operation and Maintenance Cost	$2,340,000	$1,529,000
Net Present Value	**$10,880,000**	**$12,620,000**

Results of the Sludge/Biosolids Alternatives Evaluation

A detailed evaluation of the short-listed sludge stabilization alternatives was performed using the short-list screening criteria selected for the sludge/biosolids train treatment. The result of the evaluation showed that the ATAD alternative was the preferred stabilization alternative.

The study also recommended that the Town implement a Biosolids Options Study after Phase 1 is in operation to assess the profitability of moving towards marketing the biosolids produced by the wastewater treatment facility. Sludge quantity and quality will be known once Phase 1 is in operation. Assessments that may affect Phase 2 can be performed with more accurate information gained from Phase 1 operation.

The study noted that there may value to implementing a county-wide biosolids processing facility and benefiting from the economies of scale that such a system could provide

13.5.4 Septage Receiving and Management Alternatives Evaluation

There are an estimated 2,500 existing, rural residents who would be outside the recommended service area of the proposed wastewater collection system and remain on septic systems. The estimated growth rate of this rural population is 0.5% per year. Over this next twenty years, the number of residents using septic systems will increase to approximately 2,762. Erin's WWTP would include a septage receiving and management system to provide service to rural residents.

Septage is significantly stronger than domestic sewage, which makes it more difficult to treat. In larger wastewater treatment facilities, where flows are high enough, septage may be added directly to the plant. The higher flows provide significant dilution of the septage and prevent overloading of the plant's treatment processes.

For smaller plants, such as Erin's; the addition of even small amounts of septage to the main treatment process could result in overloading of the treatment processes. Septage addition would need to be carefully metered and paced with the plant's instantaneous flow to prevent overloading the plant.

Septage Flows and Characteristics

Table 63 shows the current estimated septage flows and the projected flows in twenty years, when the WWTP full build-out may occur.

Table 63 – Estimated Septage Flow to Erin WWTP

	2018	2038
Number of Rural Residents Using Septic Systems	2,500	2,762
Annual Septage Flow to the WWTP (m^3 / year)	2,500	2,762
Estimated Daily Flow to the WWTP ($m^{3/}d$)	9	10

Since the projected increase in septage flow for the next twenty years is less than 1 m^3/d, it would be practical and cost effective to design the septage receiving and management system in Phase 1 to accommodate full buildout flows.

The estimated septage flow rates used in this evaluation assumes that the plant will only accept septage from residents of the Town of Erin.

Characteristics of septage received at the WWTP may vary widely, since septage haulers collect septage and waste from differing sources in addition to septic tanks, including construction and temporary toilets for special events. Once Erin's WWTP starts to receive septage, the septage can be tested to determine its specific characteristics and the septage management system can be adjusted accordingly.

The septage characteristics used in evaluating septage management alternatives for Erin were the suggested design values as cited in the MOE Design Guidelines for Sewage Works, Chapter 9 (Co-Treatment of Septage and Landfill Leachate at Sewage Treatment Plants) and are listed in Table 64.

Table 64 – Raw Septage Characteristics Used in Evaluation of Alternatives

Raw Septage Parameter	MOE Suggested Design Value (mg/L)
Biological Oxygen Demand (BOD)	7000
Total Suspended Solids (TSS)	15,000
Total Kjeldahl Nitrogen (TKN)	700
Total Ammonia Nitrogen (TAN)	150
Total Phosphorous (TP)	250
Alkalinity	1000

Septage Management Alternatives

From a long list of septage management alternatives the three alternatives listed below were short-listed.

- Direct Co-Treatment of Raw Septage
- Design Main Plant's MBR process to Include Septage Treatment
- Pre-Treat Raw Septage by Dewatering with GeoTube Followed by Co-Treatment

All three alternatives would include a septage receiving station consisting of a bar screen, septage holding tank, and pumps to empty the holding tank. It is proposed that two septage holding tanks be provided (standby and backup) and each tank sized to contain two day's worth of septage.

Description of Direct Co-Treatment of Raw Septage

The Direct Co-Treatment alternative involves receiving raw septage at the septage receiving station and pumping it to the main plant for treatment. Raw septage would be introduced to the plant at the headworks area to allow mixing with the domestic sewage.

Using the septage characteristics listed above, at the plant's Phase 1 average flow of 4,780 m^3/d, raw septage could be added to the plant at approximately 6 L/min before the added loading would drive the plant's influent characteristics above the average range for domestic sewage, which would be above the design range of the plant. The maximum flow rate of 6 L/min is very low and it may be difficult to source a metering pump that can achieve such a low flow. To make this alternative practical the septage may have to be diluted prior to pumping to the headworks.

Raw septage flow to the plant would need to be kept below 0.19% of the plant's instantaneous flow in order to prevent system overload. This means that when the plant flow is below the average day flow of 4,780 m^3/d, the maximum allowable septage flow rate would be less than 6 L/min.

Advantages and disadvantages of the Direct Co-Treatment alternative are presented in Table 65.

Table 65 – Advantages and Disadvantages of Direct Co-Treatment

Advantages	Disadvantages
▪ Least costly alternative ▪ Small footprint, since only the septage receiving station and holding tank would be required	▪ Highest potential for upset to main plant process ▪ Requires frequent operator involvement to analyze septage characteristics and determine acceptable transfer rate to main plant. ▪ Difficult to plan for variability of septage arrival at the WWTP. ▪ No potential to expand for revenue generation.

Description of Design Main Plant's MBR to Include Septage Treatment

Alternative 2 involves designing the plant's preferred secondary treatment technology (membrane bioreactor) to accommodate the increased loading from septage. The increase in design capacity would be to a level where the MBR could achieve the required treatment up to the point where addition of septage would drive the plant's influent characteristics above the average range for domestic sewage.

Raw septage would be received at the septage receiving station, stored in a septage holding tank, and pumped to the plant for treatment. As with alternative 1, the flow of septage to the treatment plant would need to be controlled to prevent shock loading or overloading of the plant's treatment system.

This alternative could accommodate a septage addition rate up to 0.42% of the plant's instantaneous flow. At the plant's Phase 1 average flow rate of 4,780 m^3/d; this septage addition rate equates to 14 L/min. This is a fairly small flow rate and dilution may be required to facilitate accurate pumping rates to the plant.

Advantages and disadvantages of this alternative are presented in Table 66.

Table 66 – Advantages and Disadvantages of Increasing the Capacity of the Main Plant

Advantages	Disadvantages

Advantages	Disadvantages
▪ Minimizes potential for plant upset compared to direct co-treatment ▪ Slight increase in bioreactor size	▪ Potential for upset fairly high ▪ No potential to expand to achieve revenue generation, if desired.

Description of Pre-Treat Raw Septage by Dewatering with GeoTube Followed by Co-Treatment

Alternative 3 involves pre-treating the raw septage by dewatering it using a permeable membrane tube, such as the Geotubes® dewatering system, and pumping the dewatering filtrate to the head of the main plant for co-treatment. The solids component of the dewatering operation would become stabilized in the Geotubes and the stabilized sludge would be suitable for land application.

Pre-treatment would decrease the strength of the raw septage as some of the pollutants remain in the sludge in the dewatering tubes, thus reducing the potential for shock-loading or overloading of the main plant and potentially increases the amount of septage that can be treated at the plant.

Raw septage would be received at the septage receiving station then pumped into the dewatering tubes, where the liquid component (filtrate) would flow out of the tube onto the laydown area. The laydown area would incorporate trenches to collect the filtrate and direct it to a filtrate holding tank. Once the filtrate holding tank is full, the filtrate would be pumped to the main plant for treatment.

It is estimated that Geotube filtrate could be added to the plant at a maximum of 2.8% of the plant's instantaneous flow before overloading the plant. At the Phase 1 average plant flow rate of 4,780 m^3/d, the maximum filtrate addition translates to approximately 92 L/min.

The Geotube® technology was selected for this alternative because it has been successfully used at the Eganville WWTP in Eganville, ON for the past seven years and the supplier was able to provide data on the characteristics of the filtrate and the dewatered solids, which were needed to determine the level of treatment possible with this system and the maximum allowable rate of filtrate addition to the main plant.

It should be noted that other dewatering technologies, such a screw press could be used for this application. However, accurately sizing such systems would be difficult without knowing the characteristics of the filtrate that is produced by the system.

Additionally, this alternative produces a biosolids end-product that can be land-applied as opposed to disposed of at a landfill, which is the typical disposal method for dewatered septage solids. If instances occur where the characteristics of the Geotube solids do not permit them to be land applied, those solids can be disposed of at a landfill.

Advantages and disadvantages of the Geotube® dewatering alternative are presented in Table 67 below.

Table 67 - Advantages and Disadvantages of Pre-Treatment with Geotubes®

Advantages	Disadvantages
▪ Significantly reduces potential for plant upset ▪ Produces a biosolids product that can be	▪ Higher capital cost ▪ Larger footprint than other alternatives

Advantages	Disadvantages
disposed of by land application ▪ Low operator involvement ▪ Can accommodate fluctuations in septage characteristics ▪ Easily expanded to accommodate septage from neighbouring communities (revenue generation potential)	

Life Cycle Costs of Septage Receiving and Management Alternatives

A life-cycle cost analysis was performed for the septage receiving and management alternatives. The results are summarized in Table 68 below.

Table 68 – Cost Estimates of Septage Management Alternatives

	Alternative 1 Direct Co-Treatment	Alternative 2 Design MBR to Treat Septage	Alternative 3 Pre-Treat with Geotube®
Capital Cost	$498,000	$504,000	$853,000
Annual Operation and Maintenance Cost	$38,000	$49,000	$243,000
Net Present Value	**$536,000**	**$553,000**	**$1,096,000**

Results of the Septage Management Alternatives Evaluation

Based on the results of the detailed evaluation of the septage management alternatives, pre-treatment with Geotube followed by co-treatment of the dewatering filtrate is the preferred alternative.

It should be noted that a sensitivity analysis between the screening criteria weightings of the septage management evaluation, showed that a 5% decrease in the environmental criterion with a 5% increase in the economic criterion results in the alternative of increasing the MBR capacity to directly co-treat septage without pre-treatment becoming the preferred septage alternative.

13.5.5 Results of the Treatment Technologies Evaluation

Table 69 summarizes the recommended alternatives for each stage of the wastewater treatment plant, including sludge/biosolids management and septage management.

Table 69 – Recommended Treatment Technology Alternatives

Treatment Stage	Preferred Alternative
Primary Treatment	Advanced Primary Treatment (e.g. Rotary Belt Filter)
Secondary and Tertiary Treatment	Membrane Bioreactor
Disinfection	UV Disinfection
Effluent Re-Oxygenation	Fine Bubble Aeration (using up-sized secondary treatment blowers)
Sludge/Biosolids Management	Sludge Stabilization via Autothermal Thermophilic Aerobic Digestion (ATAD) and Land Application of Stabilized, Liquid Biosolids
Septage Management	Pre-Treatment with GeoTubes Followed by Co-Treatment at the Main Plant and Land Application of Stabilized, Dewatered Biosolids

In addition, the study recommended investigating the potential for revenue generation through commercially marketing biosolids after Phase 1 of the WWTP is in operation. The investigation could be in the form of a Biosolids Options Study. It may be of value to consider implementing a county-wide biosolids processing facility and benefiting from the economies of scale that such a system could provide.

Figure 47 shows a flow schematic of the preferred alternatives for the liquid treatment train, including the septage receiving and treatment system.

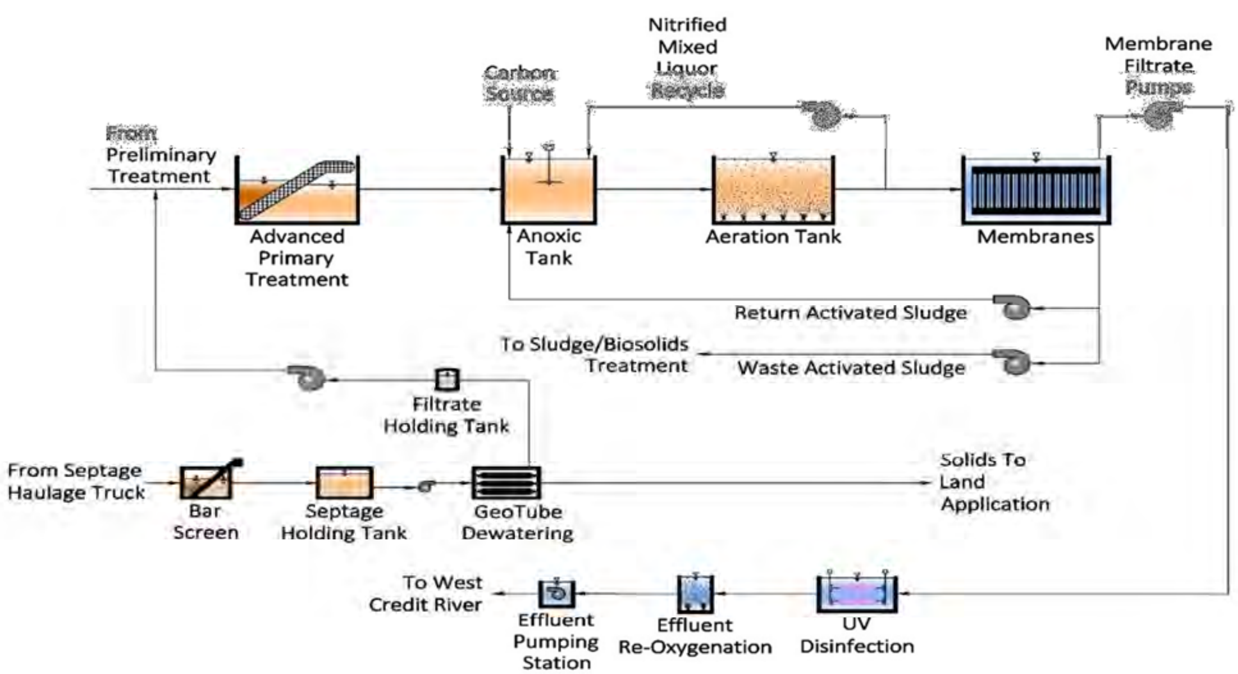


Figure 47 – Preferred Liquid Treatment Train Process Flow Schematic

Figure 48 shows a flow schematic of the preferred alternatives for the sludge/biosolids treatment train.

Figure 49 presents a conceptual plant layout, using the preferred treatment alternatives and the preferred WWTP site alternative (Solmar). The plant layout includes common facilities such as the administration building, standby power, odour control, and the effluent pumping station. Figure 50 shows the same conceptual plan located on the HCS site.

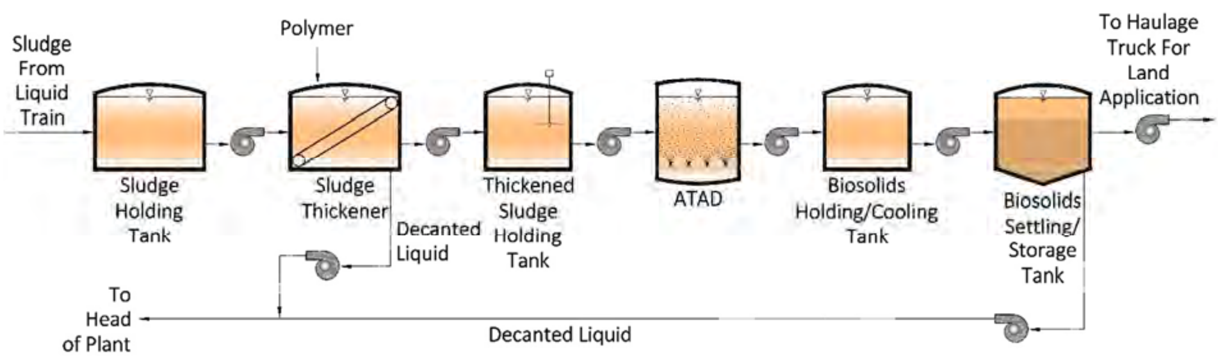


Figure 48 – Preferred Solids Treatment Train Process Flow Schematic

14.0 Impacts of Recommended Alternative on the Environment and Mitigation Measures

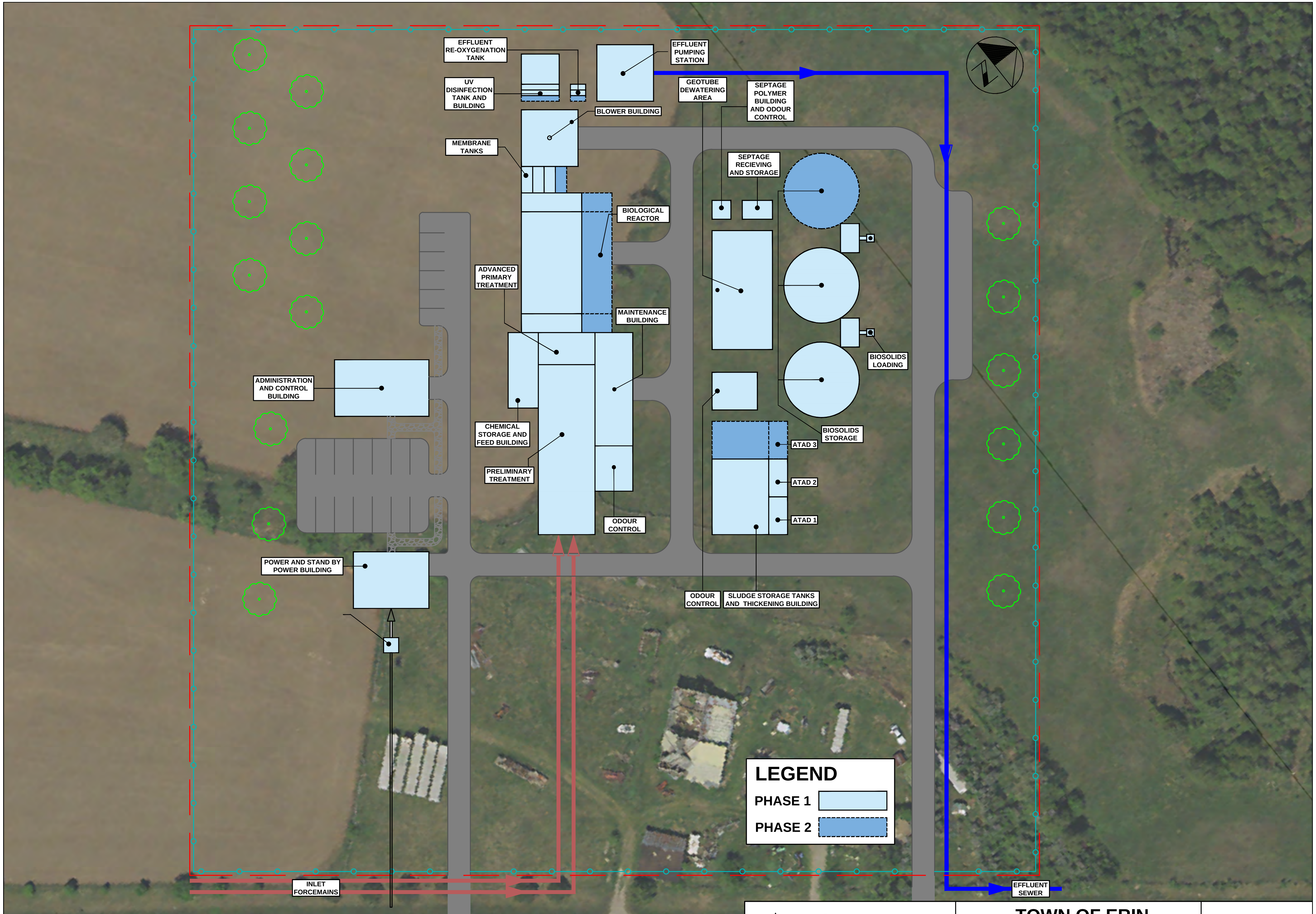
14.1 Natural Environment

Impacts and mitigation measures related to the natural environment are addressed in the Natural Environment Study, included in ***Appendix H***. The report covers mitigation measures for both aquatic and terrestrial environments.

14.1.1 General:

Mitigation measures that are common to construction of all elements of the wastewater servicing system are described below and measures specific to a certain component are provided in subsequent sections.

- For construction sites where activities will take place adjacent to natural vegetation areas where the vegetation areas are not to be disturbed, the site should include flagging of these areas and protective barriers/fencing to prevent disturbance of the vegetation.



Ainley GROUP CONSULTING ENGINEERS PLANNERS

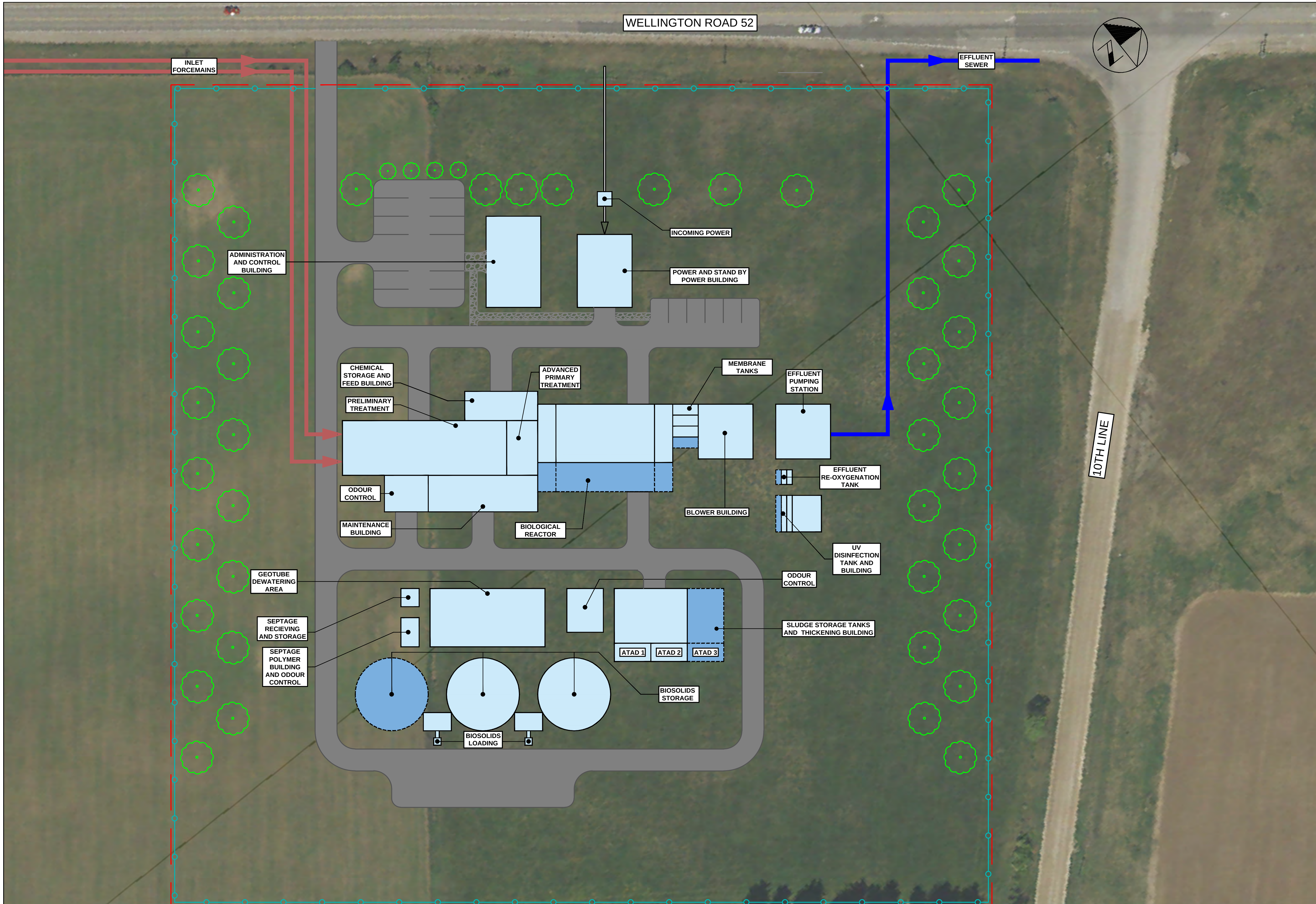
TOWN OF ERIN

URBAN WASTEWATER SERVICING CLASS ENVIRONMENTAL ASSESSMENT

DATE: JAN 2018

WWTP SITE SELECTION
SITE ALTERNATIVE 1 (SOLMAR)

FIGURE-49



Ainley GROUP CONSULTING ENGINEERS PLANNERS

TOWN OF ERIN

URBAN WASTEWATER SERVICING CLASS ENVIRONMENTAL ASSESSMENT

DATE: JAN 2018

WWTP SITE SELECTION
SITE ALTERNATIVE 2B (UCS)

FIGURE-50

- In areas where sensitive species are known to breed or use the area as migration grounds, construction and maintenance activities should be performed in periods where the impacts to identified species are minimized. The breeding seasons are described below. Refer to the Natural Environment Report, appended to this ESR, for more details.
  - Amphibians and reptiles have an active period between March to October, according to the MNRF. It is recommended that construction activities be performed outside this time-frame. The most sensitive time starts in April and continues into June.
  - The nests, eggs, and young of most bird species are protected by the federal Migratory Birds Convention Act (1994). Most species breed from early April through late August (ECCC 2017).
- Construction activities should be performed in such times to minimize environmental damage. For example, construction of the WWTP outfall should be avoided during high runoff periods in spring and fall.
- An Environmental Management Plan should be developed to ensure that all aspects of the construction are controlled to minimize any impacts to the natural environment.
- A stormwater management plan should be implemented for construction that is to take place adjacent to wetlands to prevent adverse impacts to water quality and hydrologic regime. The plan should include sediment and erosion controls where deemed necessary and follow requirements laid out in Permits to Take Water where dewatering activities are to be completed.

14.1.2 Effluent Outfall Impacts and Mitigation Measures

The Winston Churchill Boulevard alternative was selected as the outfall location due to there being fewer impacts to the natural environment compared to the other alternatives. Nonetheless, construction activities will need to be planed and controlled to prevent or minimize negative affects to aquatic and terrestrial wildlife in the area.

Mitigation measures should include:

- Performing construction activities within the river at times outside Fisheries and Oceans Canada’s in-stream construction timing windows for spring, which is March 15 to July 15, and fall spawners, which is October 1 to May 31.
- Implementing a construction mitigation plan, consisting of an Erosion and Sediment Control Plan to:
  - Utilize a multi-barrier approach;
  - Retain existing vegetation;
  - Minimize land disturbance area;
  - Slow down and retain runoff to promote settling;
  - Divert runoff from problem areas;
  - Minimize slope length and gradient of disturbed areas;
  - Maintain overland sheet flows and avid concentrate flows; and
  - Store/stockpile soil away from watercourses, drainage features, and tops of steep slopes

14.1.3 Collection System River Crossings Impacts and Mitigation Measures

The West Credit River supports a sensitive, cold-water fish population, which could be disturbed by construction activities, such as earthworks or dewatering, at locations where forcemains/sewers need to cross a river.

Mitigation measures related to river crossings include:

- The use of trenchless technology (directional drilling), where soil conditions allow, to install sewers and forcemains to cross the river and avoid the need to reduce / stop the river's flow and disrupt aquatic habitat. If trenchless technology is not feasible, a fish rescue should be completed from isolated waterbodies by a professional to avoid fish kills;
- Performing construction activities within the river at times outside Fisheries and Oceans Canada's in-stream construction timing windows for spring, which is March 15 to July 15, and fall spawners, which is October 1 to May 31. As detailed for the outfall construction;
- Implementing an Erosion and Sediment Control Plan, as described in the previous section.

14.1.4 Forcemain Route Impacts and Mitigation Measures

The preferred forcemain route between Hillsburgh and Erin Village is along the Elora-Cataract Trail, which is clear of vegetation and no adverse impacts are expected once the forcemain is in place. The areas near the proposed route include breeding habitat to grassland species of concern and certain bird and amphibian species. Five species at risk were found along the trail.

To mitigate adverse effects on these species the following measures are recommended:

- Maintain the construction footprint within the existing trail;
- Perform construction activities outside the bird breeding season, which is early April to late August;
- Implement a Sedimentation and Erosion Control Plan, as previously described;
- Control topsoil management for effective restoration, especially at open trench crossings;
- Route sewers to avoid intercepting perched water tables in adjacent wetlands.
- Implement a dewatering plan that controls the amount and quality of discharge to affected wetlands, and ensuring that dewatering is performed in accordance with a Permit to Take Water.

14.1.5 Sewage Pumping Station Impacts and Mitigation Measures

Most of the proposed sewage pumping stations are located in open urban locations and not in proximity of environmentally sensitive areas. For those sites that are located in an area where mitigation measures are required during construction. Table 70 summarizes those measures.

Table 70 – Mitigation Measures for Sewage Pumping Stations

Sewage Pumping Station	Mitigation Measures
H-SPS2 E-SPS1	• Construct tops of chambers above flood plain.
E-SPS 1 E-SPS 3 E-SPS 5 E-SPS 6	• Perform tree removals outside migratory bird season
E-SPS 2 E-SPS 6 E-SPS 7 E-SPS 8	• Design SPS to maintain existing surface water contribution to the wetland near the river. • Ensure water quality is maintained for any water discharged for dewatering operations.

14.1.6 WWTP Site Impacts and Mitigation Measures

WWTP site alternative #1 (Solmar) was selected as the preferred alternative if the project proceeds before the extraction of aggregate on Site 2B. The natural environment study concluded that this site was less suitable as bird breeding habitat than the other alternative sites and there would be fewer environmental impacts if the WWTP were constructed here. However, Site 2B becomes the preferred site should the project proceed after aggregate extraction is complete at Site 2B.

The three alternative sites (Sites 2A, 2B and 2C) were assessed as potential breeding habitat for Bobolink and Eastern Meadowlark, which are threatened bird species. If any of these sites are selected as the WWTP site, The Natural Environment Report cites the following as mandatory actions under the Ontario's Endangered Species Act:

- The work and affected species must be registered with the MNRF before the work begins;
- A habitat management plan must be prepared and followed;
- Habitat for the affected species must be created or enhanced, and managed;
- A written undertaking must be submitted to MNRF indicating that any habitat created or enhanced will be managed over time;
- No activity likely to damage or destroy habitat, or kill, harm or harass individuals of the affected species will be carried out between May 1 and July 31;
- Reasonable steps to be taken to minimize adverse effects on the affected species (e.g., locating access routes outside of the birds' habitat);
- Records relating to the work and habitat must be prepared and maintained; and
- Sightings of rare species must be reported (and registration documents updated, as needed).

Savannah Sparrow, which is a sensitive species was found at all four sites. Additionally, Wild Geranium, which is an uncommon plant species was found at site 1 (Solmar).

The recommended mitigation measures for construction at any site are:

- Maintain grassland and shrubland habitat around the WWTP footprint;

- Retain and reuse the top 20 – 30 cm of topsoil that is removed from a natural vegetation area. This will retain the native and local seedbank on the property.
- Develop site restoration and edge management plans that reflect the natural vegetation type.

14.2 Archaeological

Based on the findings of the Stage 1 Archaeological Assessment (Background Research and Property Inspection), the following mitigation measures are required to protect/preserve archaeological interests.

- A stage 2 archaeological assessment is to be performed on the selected WWTP site 1 (Solmar);
- A stage 2 archaeological assessment is to be performed on the following SPS sites:
  - SPS1A
  - SPS1B
  - SPS 2
  - SPS 3
  - SPS 4
  - SPS 5A and 5b
  - SPS7
  - SPS 8

14.3 Cultural Heritage: Built Heritage Resources and Cultural Heritage Landscapes

The Cultural Heritage Resource Assessment concluded that "*no significant impacts to the cultural heritage resources are anticipated to result from the proposed undertaking*."

The study's recommendations were:

- Once a preferred alternative is selected for each major component of the wastewater collection and treatment system, the cultural heritage resources should be reviewed for possible impacts;
- Staging of construction activities should be done to avoid impacts to the cultural resources identified in the study.

14.4 Climate Change and Greenhouse Gas Emissions

Climate encompasses all aspects of weather, including: temperature, precipitation, air pressure, humidity, wind speeds, and cloudiness. Weather and climate are not static processes and variability is often normal. Weather, for example, changes on a daily and sometimes hourly basis. Weather can also change on a monthly basis, through the changing of seasons. When climate changes on a global scale, it is referred to as Climate Change.

Since the beginning of the industrial revolution in the 18th century, excessive emission of greenhouse gases, like carbon dioxide and methane, have been released through human activities, causing an increased percentage of solar radiation to be trapped in our atmosphere. In recent decades the effect of this on climate has become clearer. As more energy is retained within the atmosphere, a general increasing trend in global temperatures has occurred.

The effects of climate change are anticipated to extend beyond a simple increase in temperature. Climate models project an increase in extreme weather events, a rise in sea levels, and changes to inland water levels. The effects of global warming differ region to region, and therefore different adaptation strategies are more appropriate to different geographical areas. Table 71 provides a listing of climate changes that have been documented in Canada as well as the projected changes that are anticipated to occur over the coming years:

Table 71 – Documented and Project Climactic Changes in Canada

Parameter	Observed Climactic Change	Projected Change
Temperature	▪ Average air temperature has increased 1.5C from 1950-2010 ▪ Frequency of hot summer days increased and cold summer nights decreased.	▪ Warming will continue and affect winter months most. ▪ Magnitude of warming varies substantially based on the emissions scenario, ▪ Heat waves projected to occur more frequently and become more intense.
Precipitation and Snow Cover	▪ Increase in precipitation over recent decades ▪ Annual snowfall decreased in southern Canada and increased in northern Canada	▪ Projected decrease in summer precipitation in southern Ontario ▪ Snow cover projected to decrease in southern Ontario and increase in northern Ontario ▪ Rare extreme precipitation events projected to increase in frequency by 100% by mid-century
Permafrost	▪ Permafrost temperatures at many sites across Canada have increased over the past three decades.	▪ Slow thaw of permafrost over time. ▪ Colder permafrost will take decades to centuries to thaw.
Relative Sea Level	▪ Relative sea level rising in Atlantic Canada (3mm/year), rising less significant on the Pacific coast. (1.6mm/year average) ▪ Amplification of storm surges and coastal erosion ▪ Relative sea level has been falling in areas that are rising from post-glacial rebound	▪ Estimated rise in sea level up to 1 m in coastal areas ▪ Decrease in relative sea level up to 1 m in areas that are rising from post-glacial rebound
Sea Ice	▪ Minimum ice levels decreased by 13% (1979-2010) ▪ Maximum sea level ice decreased	▪ Some models predict ice-free summer before mid-century in Arctic ocean ▪ Summer sea ice may persist in

Parameter	Observed Climactic Change	Projected Change
	2.6% each decade	Canadian arctic archipelago
Lake and River Ice	▪ Trending towards earlier ice-free dates in lakes and ice break-up in rivers.	▪ Continuous trends towards earlier ice-free and ice break-up dates.
Inland Water Levels	▪ Great Lakes water levels below long-term average from 1997-2012 ▪ Water levels higher than long-term average 2013-2014	▪ Episodes of low water levels expected to become more frequent ▪ Long term trend towards reduced water levels in the Great Lakes.

Source: *From Impacts to Adaptation: Canada in a Changing Climate* (Warren and Lemmen 2014)

While mitigation of climate change is outside of the scope of this study, it is recognised that design codes and guidelines are being revised to account for changing climate. Canadian Standards Institute (CSA) is working on a tool to assess the potential impact of climate change on wastewater treatment plants and there has been an increase in studies by Cities aimed at mitigating the potential effects of climate change on their infrastructure. The design of the wastewater system should take into account potential adaptive measures for the anticipated changes and should establish the potential impact on Erin during detailed design. The goal is to decrease the vulnerability of the system to the anticipated climate change effects in Erin. Due to the temperate climate in Canada, many of the challenging conditions presented by a changing climate are already considered within the design of wastewater treatment facilities. At the design stage, consideration should be made for the possibility of the following conditions in increasing frequency and/or severity:

- Blowing snow/ blizzard
- Cold wave
- Drought/ dry periods
- Extreme diurnal temperature variation
- Freeze/ thaw
- High wind
- Freezing rain/ ice storm
- Hail storm
- Heat wave
- Heavy fog
- Heavy rain
- Heavy snowfall
- Hurricane
- High temperature
- Lightning/ thunderstorm
- Low temperature
- Snow accumulation
- Tornado

In general, wastewater facilities are classed as “Post-Disaster Buildings” in Ontario under the Ontario Building Code. A post-disaster building means a building, and its ancillary infrastructure, that are expected to remain functional and accessible after a rare climatic or seismic event. As such, the design of wastewater treatment facilities already takes into account additional factors of safety for extreme events.

In addition to the requirements already outlined in the OBC, reasonable risk reduction measures should be investigated at the design stage to manage the additional challenges presented by climate change. Simple examples of risk reduction measures would include the provision of site space for snow storage, placing sensitive process components within enclosures to shield them from higher temperatures and ice, more robust insulation, and increased fuel storage for power generation. In addition, site design measures can be considered such as the establishment of berms and tree stands to minimize the impacts of blowing snow.

The collection system should be designed to eliminate extraneous flows entering the system from roofs and sump pumps and should also include sealed manholes where there is a threat of local flooding.

In establishing the 7Q20 low river flow, CVC has applied a 10% reduction in flow to account for climate change.

14.5 Overflow/Spills Management

Appendix S contains a technical memorandum dealing with the potential for overflows/spills from the wastewater system to the natural environment.

While the system will be designed to minimise the risk of overflows or spills to the natural environment and back-ups into private properties, there does still exist some degree of risk. Overflows could potentially arise from:

- Main breaks
- Main blockages
- Infiltration and Inflow during storm events resulting in capacity exceedances
- Pump failure
- Power failure
- Control / Communication system failure
- Future expansion or upgrade projects

Mitigation recommendations aimed at minimising the risk of spills are suggested in the technical memorandum as a guide to be used during detailed design. Additionally, the CVC are to be advised during the detailed design phase of how the mitigation measures proposed in the technical memorandum are being implemented.

14.6 Odour

14.6.1 Types of Odour

There are approximately sixteen (16) principal types of odours encountered in wastewater management systems. With a few exceptions, odorous compounds typically contain either sulfur or nitrogen. The odour most commonly encountered in wastewater facilities is hydrogen sulfide, which has a smell of rotten eggs.

Table 72 summarises the most common odours associated with wastewater management and their characteristics. The odour threshold refers to the concentration at which a human can detect the presence of the specific compound in the atmosphere.

Table 72 – Odours, Thresholds & Characteristics

Odorous Compound	Odour / Detection Threshold (ppm)	Characteristic Odour

Odorous Compound	Odour / Detection Threshold (ppm)	Characteristic Odour
Ammonia	46.8	Pungent, Irritating
Crotyl Mercaptan	0.000029	Skunk-like
Dimethyl Sulfide	0.0001	Decayed Cabbage
Diphenyl Sulfide	0.0047	Unpleasant
Ethyl Mercaptan	0.00019	Decayed Cabbage
Ethyl Sulfide	0.000025	Nauseating Odour
Hydrogen Sulfide	0.00047	Rotten Eggs
Methyl Mercaptan	0.0021	Decayed Cabbage

14.6.2 Odour Sources

There are several places within wastewater collection and treatment systems that odours could originate or be released. Potential odour sources within wastewater management systems include:

- Pumping Stations;
- WWTP Preliminary Treatment Process;
- Clarifiers;
- Aeration Tanks;
- Biosolids Management Facilities;
- Septage Management Facilities.

Odour is a natural occurrence in wastewater and its treatment. However, a well-designed and managed wastewater system would incorporate odour mitigation strategies and treatment systems that would prevent fugitive odours.

14.6.3 Odour Mitigation Measures for Erin

Odours within a wastewater system are typically generated through organic decay of the wastewater in anaerobic (without air) conditions. There are many strategies that can be used to diminish odour generation and release in wastewater.

Some strategies are as simple as incorporating design elements into the system, such as avoiding the need to store wastewater for long periods of time before pumping. Stagnant wastewater encourages odour production and when the wastewater in pumped the odours are released from the wastewater by the mixing caused by the pumping action. Some situations require a more targeted approach to odour control, such as installing an odour treatment system at the facility to collect and treat odorous air from a specific area, prior to releasing the air to the environment. Below are the odour mitigation measures that have been incorporated into the collection and treatment system proposed for Erin.

Odour Mitigation at the Pumping Stations and Forcemain

Emission of fugitive odours is less likely at smaller pumping stations, and due to their small size, the emissions would be negligible. For larger pumping stations, the conceptual designs in this study include provision for an odour control unit at the pumping station. The odour control unit will draw air from the pumping station, treat it to remove the odours, and then release the treated air to the environment.

During the detailed design phase, the wet-well design should take into account hydraulic retention times for both current day and future flows. Retention times in the stagnant environment of the wet-well should be minimized. This will prevent the wastewater from becoming septic, which generates odours.

Design of the multiple forcemains took into consideration prevention of septicity in the wastewater and the resulting odour generation. The forcemains were sized to minimize residence time, thereby reducing the likelihood of the wastewater going septic within the forcemains and producing odours. If septicity occurs in any of the forcemains, when the wastewater is discharged into the receiving wet-well or sewers, odours would be released from the turbulence of the discharge. Selection of the most appropriate treatment system for pumping stations will need to occur during detailed design. Sufficient space must be made available on the sites to accommodate an odour control system.

Odour Mitigation at the Wastewater Treatment Plant

In general, the likelihood of odour emissions at a wastewater treatment facility decreases with each stage of treatment of the liquid. The type of treatment technology used at the WWTP can also affect the quantity of odours produced and or released from the plant. For example, in the preliminary treatment stage grit removal could be accomplished by an aerated grit tank, which is open to the atmosphere, or it could be accomplished using a vortex grit separator, which is an enclosed unit. In the case of the grit tank, odours from the tank would be released to the atmosphere and, depending on wind conditions and distance to the nearest receptor or residence, those odours could reach the receptor. In the case of the vortex separator, the majority of the odours would be contained within the separator and the probability of the odours reaching a nearby receptor would be significantly lower.

The type of odour control system required for the WWTP will be decided during detailed design, since the most suitable approach will depend on the technologies selected for the plant. For the liquid treatment train, the membrane bioreactor technology is the preferred alternative for secondary and tertiary treatment. To minimize the potential for odour emissions from the membranes, it is proposed that the membranes be housed inside buildings.

A fine filter technology is needed upstream of the membranes to removed particles, hair, and other materials that can cause membrane fouling and lead to failure. The fine filters would be housed in the headworks building, with the equipment used for preliminary treatment. An odour control system would be installed in the headworks (preliminary treatment) building to treat the odorous air from these processes prior to release to the environment. The conceptual design and cost estimate for the plant include considerations for an odour control system associated with the preliminary treatment building.

Odour control will be required for the sludge stabilization and thickening system (ATAD). Accordingly, the conceptual design of the plant includes provision for odour control in terms of footprint and financial allocation.

The proposed septage receiving area of the WWTP would include a dedicated odour treatment unit, which would be activated when septage is being delivered to the septage holding tank at the receiving station and when septage is pumped out of the holding tank, since odours would be released during these two activities.

Lastly, the criteria used to select possible sites for the WWTP included a requirement that the nearest critical receptor (residences) be between 150m to 100m away from a structure in the plant that could generate odour. This criterion is in keeping with recommendations in the MOECC Guideline D2 “Compatibility between Sewage Treatment and Sensitive Land Use for treatment plants up to a capacity of 25,000 m^3/d. If the Solmar site were selected as the WWTP location, there would be at least 200 m separation to the nearest receptor.

It is expected that all odour impacts can be mitigated through the measures described above. The MOECC require an Air and Noise Environmental Compliance Approval (ECA) for the WWTP, and odour emissions will be modeled to demonstrate that the limit of 1 odour unit at the WWTP property boundary can be achieved with the proposed odour management/control systems.

14.7 Noise

It is expected that the noise from new equipment associated with the collection and treatment system (pumps, blowers, tertiary treatment, sludge stabilization, etc.) would have minimal impact on the existing environment and residences. At the pumping stations, pumps would be housed within the pumping station building, which would contain operational noises. Larger pumping stations are required to incorporate a standby generator to supply power to the station in the event of a power failure. Standby generators emit significant amounts of noise; however, they are typically housed in a noise attenuating structure to shield the environment and residents from the noise.

At the wastewater treatment plant, the blowers would produce the most noise during operation. Blowers would be equipped with silencers that are designed to reduce their noise output to a level that is consistent with the Ontario Health and Safety Act limit for worker protection. Since the blowers would be housed in a building and the noise output would be significantly reduced by the silencers, it is expected that all the sound created by this equipment would not penetrate the building walls into the environment.

The approach to mitigation of noise as it relates to location of the WWTP was similar to the approach for odour considerations. The sites proposed for the wastewater treatment plant include a 150m to 100m buffer between a noise producing structure at the plant and the nearest critical receptor (residence). If the Solmar site were selected as the WWTP location, there would be at least 200 m separation to the nearest receptor

In order to determine if there is additional need for noise mitigation, a noise assessment would be needed during the detailed design stage. The design specifications, including noise output, of each piece of equipment to be used at the plant will be known at that time and can be used to generate an accurate assessment.

At this time, it is considered that the noise impacts to the environment and residents are not significant and will be mitigated through the measures proposed in this study.

14.8 Effluent Temperature

The West Credit River is a coldwater habitat that is home to many sensitive coldwater fish species. It is also a critical Brook Trout spawning habitat, as documented in the Natural Environment Report. In response to concerns raised by the MOECC regarding the thermal effects on the river from the WWTP effluent discharge, a thermal impact analysis was performed by HESL.

HESL's technical memorandum, refer to ***Appendix D,*** indicates that Brook Trout is deemed the most sensitive fish species in the River and considered the indicator species for coldwater habitat in the Credit River watershed, according to the MNRF and CVC. The thermal impact analysis used temperature thresholds associated with the different life stages of Brook Trout as the acceptable limits for the river temperature when WWTP effluent was mixed into the river.

The resulting river temperature, after addition of the WWTP effluent, was determined using:

- A mass balance model;
- A CORMIX model to predict the dimensions of the thermal mixing zone.

The conclusions of the thermal impact study, based on low (7Q20) flows, are:

1. At the Phase 1 flows, the resulting river temperature, after the addition of the WWTP effluent, would remain below the upper tolerance temperature limit of Brook Trout, which is 19.0°C.

2. At the Full Buildout flows, the resulting river temperature, after addition of the WWTP effluent, would be 19.4°C, which is not expected to negatively affect the local Brook Trout population.

The study notes that the maximum natural river temperature recorded at Winston Churchill Blvd. is 24.3°C. This indicates that Brook Trout in this area have acclimatized to temperatures up to 24.3°C.

14.9 Energy Efficiency

Energy efficiency considerations were factored in the detailed evaluations of major components of the wastewater collection and treatment system. An Energy Efficiency criterion was used as a component of the Technical criterion in detailed evaluations of the collection system, forcemain route, and treatment technologies. Net present value evaluations consisted of an operation and maintenance (O&M) cost comparison of each alternative. The NPV calculations were conducted over an 80-year period for the collection system and a 50-year period for pumping stations and the WWTP.

The Energy Efficiency criterion was given the weightings listed below:

- Collection System: 20% of technical score;
- Forcemain: 30% of technical score;
- Treatment Technologies: Ranged from 5% to 15% of technical score, depending on the system evaluated.

The energy efficiency criterion was not weighted as heavily in treatment technologies evaluations, since the criteria for "Ability to Meet Effluent Limits" and "Technology Robustness" were both weighted at 30% each.

The net present value analysis for the forcemain, outfall, and treatment technologies evaluated energy efficiency as part of the O&M costs, which accounted for 30% of the economic score. O&M costs were calculated using the energy requirements for the major pieces of equipment used in each alternative design along with chemical consumption requirements and major equipment replacements, such as membrane replacements in the MBRs.

Aeration systems are the greatest energy consumers at a WWTP and can account for 50% to 60% of the WWTP's energy usage. The alternative designs for the WWTP use fine bubble aeration systems for both the secondary treatment and effluent reoxygenation stages, which is one of the most energy efficient aeration systems available.

An energy efficiency plan should be developed during detailed design aimed at reducing greenhouse gas (GHG) emissions.

During the detailed design stage, energy efficiency can be further improved through the selection of energy efficient motors and equipment, construction materials and methods for buildings, and efficient heating and ventilation systems. Examples of design elements that can optimize energy efficiency in the process design include:

- Careful selection of blower type;
- Implementing an automatic dissolved oxygen control system for the aeration systems, which would be tied into the plant's SCADA network and automatically control blower output to match the flow/process requirements;
- Using variable control drives (VFD) on large capacity pumps, such as the inlet and effluent pumps. VFDs would modulate pump capacity to match wastewater flows, rather than pumping at full capacity continuously;
- Configuring the plant layout so that it maximizes the use of gravity flow and minimizes pipe lengths on pumped systems;
- Adopting building and plant automated lighting systems using high efficiency LED lights;
- Adopting a high standard of building insulation and heating control;
- Consider the use of ground source heat pumps or effluent heat exchangers;
- Consider using solar power for non-process power requirements.

Energy efficiency is also a function of effective plant operations and regular equipment maintenance.

14.10 Pharmaceuticals

Pharmaceuticals and Personal Care Products (PPCPs) can originate from numerous sources. When medications are taken, only a portion is absorbed by the body. In addition, PPCPs can come from fragrances, shampoos, laundry and dishwashing detergents and other consumer products.

Endocrine Disruptors Compounds (EDCs) are chemicals, both natural and man-made, that at certain doses, can interfere with the endocrine (or hormone) systems in mammals. Endocrine disruptors may be found in many everyday products– including plastic bottles, metal food cans, detergents, flame retardants, food, toys and cosmetics.

There are currently no Federal and/or Provincial regulations in Canada relating to the levels of PPCPs and EDCs in wastewater and/or drinking water. In addition, neither the US Environmental Protection Agency nor the equivalent agencies in Europe and Asia have any regulations for PPCPs and EDCs in wastewater and/or drinking water.

The effects of the PPCPs and EDCs on the environment continue to be investigated by the United States Environmental Protection Agency (US EPA) and many other scientists and organizations around the world to determine the levels that exist in our water systems and whether those levels, present any potential danger to the environment. To date the levels that have been found are extremely low concentrations (usually parts per trillion). One part per trillion is equal to one drop of water in 26 Olympic-size swimming pools.

PPCPs and EDCs are found throughout the world in all bodies of water influenced by human and/or animal wastewater, including rivers and streams, groundwater coastal marine environments, and many drinking water sources.

The detection of a compound in water does not mean that adverse health effects will or are likely to occur. In fact, no relationships have been established between PPCPs and EDCs in water and adverse effects in humans. Some studies indicate that there are endocrine-related effects on growth and development from environmental exposures in fish and wildlife. However, the US EPA and the Ministry of Environment and Climate Change (MOECC) have not established acceptable levels of PPCPs and EDCs in water or wastewater.

Given the very low concentrations in which they are generally found; detection of PPCPs and EDCs is the major challenge. It is only due to recent advances in analytical techniques and instrumentation that have allowed for the reportable measurement of concentrations at such low levels.

In 2011 the World Health Organization (WHO) Undertook a Study on “Pharmaceuticals in Drinking Water.” This Study was a working group of leading experts from USA, Switzerland, Australia, England, Canada, Singapore, Denmark, Japan and Italy. The Study involved three human health risk assessments (USA, UK and Australia). The major findings of this Study were:

- Trace concentrations of pharmaceuticals in surface water impacted by wastewater discharges are extremely low (only detectable in last decade);
- Substantial margins of safety (more than 1000 fold) suggest adverse health impacts are very unlikely;
- From a treatment perspective, pharmaceuticals are not unusual organic chemicals, and treatment removal rates are reasonably predictable based upon the physical and chemical properties of the compounds;
- Conventional Biological Wastewater treatment processes with coagulation, filtration and chlorination can remove about 50% of these compounds, whereas advanced wastewater treatment processes (similar to what is being proposed in Erin such as membrane treatment can generally achieve much

higher removal rates (and in some cases up to 100%) compared with conventional treatment processes;

- Current levels of exposure do not warrant development of formal guidelines;
- There is also a lack of standardized sampling and analysis protocols to support monitoring studies.
- Consideration should be given to preventative measures such as "Take Back" programs, regulations, public education encouraging proper disposal to minimize pharmaceuticals in the environment.

One of the main recommendations of the WHO study was:

> *"The substantial margin of safety for consumption of very low concentrations of pharmaceuticals in drinking-water suggests that appreciable adverse impacts on human health are very unlikely. As such, concerns over pharmaceuticals should not divert attention and valuable resources of water suppliers and regulators from other priorities, such as pathogenic microbial water quality issues. The low risk to human health from current levels of exposure in drinking-water suggests that development of formal guideline values for pharmaceuticals in the WHO Guidelines for Drinking-water Quality and the installation of specialized treatment processes to reduce trace concentrations of pharmaceuticals are not warranted."*

Inappropriate disposal practices, such as flushing unwanted or excess drugs down the toilets or discarding them into household waste, are very common and are a main contributor to pharmaceuticals in wastewater and other environmental media, such as surface waters and landfill leachate.

As this issue is global in nature, organizations like the World Health Organization (WHO) have continued to stress not only the need for monitoring water and drinking water, but also for countries to develop programs for the retrieval and proper disposal of unused or expired pharmaceuticals.

Therefore, it is important that policies promoting safe disposal or regulations governing disposal practices for unwanted or excess drugs be developed, at the Provincial and/or Federal level. Such programs or regulations would reduce the amount of pharmaceuticals entering water bodies. In addition, takeback programs, guidance and enhanced consumer education will support efforts for the proper disposal of medicines and reduce the impact of pharmaceuticals entering our water sources.

The advanced Wastewater Treatment process that is being proposed for Erin will provide one of the best barriers available in the industry and as such will significantly minimize the PPCPs and EDCs within the wastewater, entering the West Credit River

14.11 Environmental Management

As outlined in the Natural Environment Report, a considerable portion of the lands in Hillsburgh and Erin Village are environmentally sensitive. The West Credit River with tributaries and wetland areas also extend from the north end of Hillsburgh through Erin Village. Pipelines will mostly be on existing rights of way as well as the Elora Cataract Trail. Sewage Pumping Stations will be on public and private lands with several close to sensitive environmental features. The Wastewater Treatment Plant will be located in open lands in proximity to sensitive features. The project is likely to generate a wide range of construction activities throughout a sensitive environmental landscape and could potentially impact surface waters, groundwater, trees within woodlots and along existing streets as well as wildlife, vegetation and fish.

To support the Class Environmental Assessment process, a Natural Environment Assessment and Geotechnical study were undertaken for the project area primarily to assist with establishment and evaluation of alternative solutions.

To support construction, a more detailed assessment will be required on each facility site and along all of the streets and routes for pipelines. This more detailed assessment will delineate all potential environmental impacts and will outline necessary mitigations to eliminate negative impacts.

It is recommended that all of the necessary studies be undertaken at an early stage in the design of the wastewater system to ensure that potential impacts are taken into consideration in the siting and timing of the works so as to avoid conflicts with natural environment hazards.

Appendix T provides a suggested scope for an Environmental Management Plan that captures all of the necessary studies and mitigations necessary to support construction. The scope was developed based on work undertaken for previous similar projects as well as comments received from statutory authorities during the Class EA process. When completed, the Environmental Management Plan will provide guidance to designers and contractors to minimize potential impacts to the environment.

During construction of the works, it is recommended that, in addition to construction inspectors on site, all construction work be monitored by an environmental inspector responsible for making sure that works are carried out in accordance with the Environmental Management Plan.

It is anticipated that the Environmental Management Plan will be submitted in support of permits required by Credit Valley Conservation and MNRF. The scope for the Environmental Management Plan will be developed and agreed with CVC/MNRF and any other relevant agencies prior to commencement of project implementation.

15.0 Property Considerations

Through the Class EA process, several properties were identified as potential sites for the proposed infrastructure. As potential sites were identified during the study, property owners were contacted with requests to access their property to conduct studies or investigations needed to evaluate the feasibility of the site. Where permission to enter the property was granted, geotechnical and environmental studies were conducted. Where permission was not received to enter the potential site, the site was removed from further consideration and new locations were pursued. In the cases where access was granted and the location was selected as the preferred site, the owners were provided with an update notice informing them of the project outcomes.

Communications sent to relevant property owners have been compiled ***in Appendix N***.

It has been noted that the existing zoning by-law does not specify Wastewater Treatment Facilities as a permitted use in all zones under Section 4.45.2. As such, a zoning by-law amendment will be necessary for the WWTP site. A planning Act approval may also be required for the proposed WWTP site. The potential use of the WWTP sites should also be accounted for within the next Official Plan amendment. Development of a local, municipal wastewater system servicing the present Town Official Plan areas, is also permitted under the Greenbelt plan.

16.0 Public Information Centre #2

Public Information Centre #2 was held on February 2, 2018 at the Erin Community Centre from 6:00pm to 9:00pm. The purpose of PIC #2 was to share new information with members of the public about the progress of the UCWS EA. The goals of the event were to introduce the project to any residents who may not have been familiar, to inform residents about the findings from completed technical studies, to describe the process to date and next steps, and to explain the anticipated costs and potential funding sources and financing options that may be available.

The PIC entailed an information session prior to the formal presentation where attendees could view display boards containing information about Phase 3 of the study and pose questions to the study team. The presentation was provided to highlight key findings of the technical reports, provide an explanation of costs, describe what the system and facilities would look like once constructed, and outline the decisions that the Town will need to make in going forward.

Refer to ***Appendix A*** for a complete record of PIC #2, comments and responses from the attendees, and other stakeholder comments and responses.

A total of 205 visitors attended PIC #2.

The key topics covered at PIC # 2 were:

1. Purpose of PIC & project background
2. Overview of Class EA process
3. General project update
4. Evaluation approach and criteria description
5. Treated effluent outfall alternatives
6. Wastewater treatment plant site selection alternatives
7. Hillsburgh/ Erin Village forcemain alternative assessment
8. Wastewater collection system alternatives
9. Wastewater treatment alternatives
10. Costs
11. Next Steps

16.1 Issues and Concerns Raised by Public

A number of questions, issues, and concerns were raised by members of the public during the PIC and through comments/questions submitted to the project email. Table 73 is a high-level summary of key points that were raised.

Table 73 – Selected Issues and Concerns Raised at PIC #2

Topic	Summary

Topic	Summary
Cost	Ainley provided information on capital costs and Watson and Associates Economists Ltd provided information on financing and costs to property owners. Despite information being displayed on boards and included in the presentation, attendees continued to express concern about the potential costs of the project and who would be paying those costs.
Capital costs and cost splitting	Residents asked and commented about how best to split costs between current residents and developers of new residential properties. Community members were concerned that they would be paying the cost for new development.
Overall Town Budgeting	Some comments focused on how the Town would finance the project while still delivering other required infrastructure. The issue of who pays if there are costs overruns for the project was also raised.
Homeowner Costs	There were questions about costs to individual homeowners for connecting to the wastewater system. Residents with new septic systems asked if there would be a phase in period in which they could continue on their existing systems.
Rural residents	Rural residents had questions and comments about the cost to them and about whether the treatment facility was being designed to accept septic wastes from rural residents.
Environmental impacts	Concern was expressed about potential environmental impacts on the West Credit River. Comments focused on flow rates, assimilative capacity, and public use of the river. The project team explained the technical studies that had been completed show that all Provincial water quality standards will be met.
Climate change	Attendees had questions about the potential impacts of climate change and whether the treatment plant and collection systems were being designed with that in mind.
Population growth	There were comments and questions about why certain areas of the Town would be serviced and others not. The project team explained the reasons for inclusion/exclusion that had let to the proposed servicing map.
Availability of Funding from Higher Levels of Government	Residents had questions about what avenues there would be to get grants or other funding from the Provincial or Federal government. The project team highlighted some of the potential options for funding for capital works and of financing for individual homeowners.

17.0 Phase 3 Design Considerations Resulting from Public and Agency Consultation

The major design considerations and/or actions that were implemented as a result of public and agency consultation are summarized in the Table 74.

Table 74 – Design Considerations Resulting from Public and Agency Consultation

Comment	Action Taken
MOECC/CVC: The thermal impacts of the effluent discharge on the West Credit River have not been addressed adequately within the Assimilative Capacity Study.	A thermal assessment of the Erin WWTP effluent on water temperatures in the West Credit River was completed to assess potential temperature impacts to Brook Trout. The assessment found that water temperatures would increase minimally downstream of the outfall, and the mixing zone, where water temperatures were above thermal thresholds was small. As such, the temperature changes resulting from the WWTP discharge will not significantly change the distribution and abundance of plant and animal life in the West Credit River. The Thermal Impact Assessment is provided in **Appendix D**.
MOECC/CVC: There is a high level of chlorides anticipated in the wastewater influent due to the high rate of water softeners throughout Hillsburgh and Erin Village. As such, an assessment of the impact of chlorides on the West Credit River should be conducted.	Mass balance modelling was completed to determine downstream chloride concentrations in the West Credit River. Fully mixed concentrations were below the acute (short term) CWQG of 640 mg/L and not likely to impair aquatic life. NSRI completed a mussel survey of the WCR on October 3, 2017 (report appended to December 2017 Assimilative Capacity Study) as mussels can be impacted by chlorides. The survey found no SAR mussel species in the reach downstream of 10th Line to Shaw's Creek Road.
MOECC: The MOECC did not agree with the selected outfall location on the basis that limited information was collected on aquatic life downstream of Winston Churchill Boulevard and additional pumping costs will be required to reach the selected site.	A response was provided to MOECC by letter dated April 11, 2018 providing further information on aquatic life downstream of Winston Churchill Boulevard as compared to 10th line. 80-year NPV of lifecycle energy costs to pump to Winston Churchill Boulevard were also provided along with a discussion on the effect of evaluation scoring. The team continues to believe that Winston Churchill Boulevard is the preferred alternative.
MNRF/CVC: The potential for wastewater spills has not been adequately addressed throughout the project reporting.	A technical memorandum titled "Overflow Risk Management" was developed to address concerns with potential spills. The additional technical memorandum has been included in **Appendix S.**
County of Wellington: The agricultural impacts of construction on the selected sites should be reviewed and taken into consideration in the evaluation of alternatives.	The Sewage Pumping Stations and Forcemains Technical Memorandum, Effluent Outfall Site Selection TM, Wastewater Treatment Plant TM have been updated to include discussion and evaluation of agricultural impacts.

Comment	Action Taken
Public: Numerous comments were received subsequent to PIC#2. The most common concerns throughout the comments received were related to the overall system costs, particularly with respect to the share of costs to existing residents.	In order to clarify the share of costs to the existing community and to new development a Capital Cost Summary Report was developed. The report provides a clear outline of the estimated capital costs for all system components and provides an explanation of potential funding scenarios.

18.0 Opinion of Cost

The Urban Centre Wastewater Servicing Class EA (UCWS EA) has identified the opportunity to service a higher population than assumed in the Servicing & Settlement Master Plan (SSMP), representing an increase from a service residential population of 6,000 to 14,559. The project would now involve servicing of the existing communities as well as new development areas. All costing has been completed on the basis of servicing to this higher population level. This Class EA shows the total full build out capital cost. Project implementation will require Provincial and Federal government funding along with a cost sharing agreement between the Town and developers.

Capital costs are detailed in the Capital Cost Summary Technical Memorandum in ***Appendix U.***

Connected properties will have to pay for 3 separate cost components:

Municipal System Capital Cost

This identifies the cost to construct the entire wastewater system up to the street line/property line outside each property and will be financed by the Town and paid for by all connected properties.

Private Property Connection Cost

This represents the cost to connect the system from the street into each property. It will be paid for directly by the property owner at time of connection.

System Operating Cost

This represents the ongoing operation and maintenance cost that will be paid by serviced properties through user rates similar to the existing water rates.

18.1 Municipal System Capital Cost

The system Capital Costs were all developed in a series of independent memoranda covering each aspect of the system including:

- Collection system,
- Wastewater treatment plant (WWTP), and
- Treated effluent outfall.

The System Capital Cost estimate is based on the design solution from the UCWS EA including:

- A refined service area.
- A comprehensive collection system design solution.
- A treatment plant design solution capable of meeting stringent effluent requirements for discharge to the West Credit River.
- Selected outfall location.

The System Capital Cost of constructing a system for the larger service population including all of the designated development lands shown in the Town's Official Plan is approximately $118.2 million.

A summary of the System Capital Costs for each system component for the full build-out scenario is provided in Table 74.

Table 74 – System Capital Cost

System Component	Estimated Cost (2017 CAD$)	
Collection System	$	55,211,000
Treatment System	$	61,381,500
Outfall	$	1,606,760
Total	**$**	**118,199,260**

The share of system capital cost between existing residents and new development is an important consideration. In order to identify the system capital cost sharing between the existing communities and new developments an Official Plan (OP) review process will need to be completed and system capacity will need to be allocated based on the OP objectives.

For all aspects of the system shared between the existing community and new development, it is recommended that system capital cost sharing be based on capacity/flow proportioning between the existing communities and developers, however it is recognised that system capital cost sharing will also depend on project financing and implementation.

Based on a review of the preferred alternative identified in this Class EA study, it is likely that the Town share of the system capital cost will be between $50 million and $60 million, representing 40% to 50% of the total cost. This will leave the balance of the $118.2 million between $58 million and $68 million to be paid by developers representing 50% to 58% of the total cost.

The Town's share of the cost may depend on:

- The extent of sharing necessary for the collection system to service all the planned growth areas.
- Whether the first phase is primarily to support the existing community.
- Whether the first phase is primarily aimed at servicing new developments.

The actual capital cost share between the Town and developers can only be established after allocation of capacity across the system and when planning approvals and financing are in place. The capital cost will be shared between each property in the existing communities plus any infill or additional units added within the communities which could be up to a total of 2,670 lots.

18.2 Private Property Connection Cost

In addition to the system capital costs defined above, each property will need to connect to the system. Costs to connect each private property to the municipal system at the property line will be the responsibility of the property owners.

A survey of the community was conducted and a range of connection costs were developed for both the piping and landscaping required for connecting private properties to the system and make the existing septic tank safe.

- Piping costs range from $3,200 – $14,700, with the typical lot paying $4,500.
- Landscaping costs range from $600 - $5,500, with the typical lot paying $1,500.

- On average most properties can expect to pay between $4,000 and $8,000 with the average cost being approximately $6,000 to connect to the system.

18.3 Operation and Maintenance Costs

The cost of operating Municipal Wastewater Treatment Plants varies widely depending on the type of treatment and collection system as well as size. Generally, larger Municipalities and Cities have the lowest operating cost per cubic metre processed and costs increase as the size of the system gets smaller. For Erin, it is likely that the user rates in the early years may be higher, however, it is anticipated that they will reduce as more customers are connected to the system.

User rates must be developed to cover the full cost of operating and maintaining the system with due allowance for future equipment replacement. Municipalities in Ontario are required to implement an asset management system for their municipal assets and to develop sustainable rates that provide for the long term operation and maintenance of the system.

Wastewater rates typically include a fixed/basic charge (monthly/bi-monthly) and a usage rate linked to the household water use. Often for wastewater, these rates are typically slightly higher than water rates. The SSMP identified an average cost per household of $422 per year to operate the system based on a 6,000 population. A sampling of wastewater operating costs was undertaken for a number of municipalities in the general area of the Town. The costs per customer for the direct operating costs (net of capital financing and reserve transfers) are as shown in Table 75.

Table 75 – Example Operating Costs

Municipality	Operating Costs (net of Capital and Reserve Transfers)	Number of Customers	Annual Operating Costs per Customer
Centre Wellington	3,156,300	7,742	468
Guelph-Eramosa	955,019	1,639	583
Wellington North	1,319,800	3,231	408
Orangeville	3,747,100	10,067	372
Average			458

Based on other local municipalities with similar size, it is anticipated that the annual operating costs per customer range from $600 in the early years to under $500 per year as the system approaches full build out.

19.0 Summary of Preferred Alternatives

Table 75 summarizes the preferred design alternatives for the major components of the proposed wastewater collection and treatment system.

Table 76 – Preferred Design Alternatives for Major System Components

Component	Preferred Design Alternative
Collection System	Blended Gravity and Low-Pressure Sewers
Forcemain Route	Along the Elora-Cataract Trail
WWTP Outfall Location	West Side of 10th Line
Wastewater Treatment	North of Wellington Road 52 (Solmar) in advance of aggregate

Component	Preferred Design Alternative
Plant Site	extraction at Site 2B. Site 2B, south of Wellington Road 52, is preferred subsequent to aggregate extraction.
Wastewater Treatment Technologies	*Primary Treatment*
	• Advanced Primary Treatment, i.e. fine screens to facilitate membrane bioreactors in secondary treatment
	Secondary and Tertiary Treatment
	• Membrane Bioreactor (MBR)
	Disinfection
	• UV Disinfection
	Effluent Re-Oxygenation
	• Fine Bubble Aeration (using upsized secondary treatment blowers)
	Sludge/Biosolids Management
	• Auto-thermal Thermophilic Aerobic Digestion with Land Application of Liquid Biosolids
	Septage Receiving and Management
	• Pre-Treat Raw Septage by Dewatering with GeoTube Followed by Co-Treatment

20.0 Permits, Approvals, and Monitoring Requirements

Prior to any construction of the works, all necessary approvals by concerned agencies must be in place. At the commencement of the implementation phase, an approvals register should be prepared and reviewed with concerned agencies to verify their specific requirements. The following represent the main approvals that will be required on the project:

Ministry of Environment and Climate Change (MOECC) / Ministry of Environment, Conservation and Parks (MECP)

- MECP will issue Environmental Compliance Approvals (ECA) for sewage, air and noise, which will delineate the physical extent of the works being approved and the compliance requirements for effluent quality, odour, and noise as well as outlining monitoring and reporting requirements. ECA applications will require completion of the designs and design reports.

Credit Valley Conservation (CVC)

- CVC will require application for a work permit where the works affect a watercourse, floodplain, valley slope, wetland or hazardous lands. Applications will require submission of an Environmental Management Plan as well as relevant drawings.

Ministry of Natural Resources and Forestry (MNRF)

- MNRF will require application for a permit for any works that affect species at risk, fish or bird habitat, as well as work in or near rivers. Applications will require submission of an Environmental Management Plan that delineates all potential impacts as well as planned mitigations.

Wellington County (County)

- The County will require application for a permit for any pipes along or crossing county roads including the location of any pipes and restoration. Entrance permits will be required for access roads entering County Roads from facilities such as the WWTP. The County will also be involved in any planning approvals for facility sites where required.

Town of Erin (Town)

- The Town will require application for building permits for any building works including pumping stations and the wastewater treatment plant.

Hydro One (Hydro)

- A range of permits and inspection will be required from Hydro involving incoming power, protective systems, and installation compliance.

Technical Standards and Safety Authority (TSSA)

- TSSA approval will be required for installation of the diesel generator and any fuel systems

21.0 Implementation and Staging Considerations

The UCWS EA delineates a wastewater servicing plan for a residential population of 14,600 within the study area aimed at servicing the existing communities and development (growth areas). While the UCWS EA defines the limitations of the wastewater infrastructure component, other infrastructure, planning and funding considerations will dictate the implementation schedule for the project including:

- Completion of a parallel water supply Class EA to identify the servicing limits for water supply for the Urban Areas;
- Completing an Official Plan Review process to identify the limits of growth within the Urban Areas;
- Securing sufficient funding for the existing communities share of the project;
- Securing sufficient funding for the growth component of the project through a joint financing agreement with developers;

When all of these components are in place, the implementation of the entire project can proceed.

When the Town secures sufficient funding for the Town component of the project and the Official Plan review has been completed, and a front end financing agreement is in place with developers for their share of trunk sewers; the Town could proceed with servicing of the existing communities.

When the water supply Class EA, Official Plan Review and a cost sharing agreement with the Town, are all in place the servicing of the new development areas can proceed.

21.1 Implementation Scenarios

A few general implementation scenarios are described below.

21.1.1 Existing Community Driven

Under this scenario, the Town would complete the Class EA process, secure funding and complete the official plan review process prior to planning approvals for new development being in place. In this case the Town could proceed to service the existing community prior to any servicing of the growth areas. Under this scenario it would be necessary to secure front end financing from the Provincial and Federal governments and developers to construct shared trunk sewers and treatment plant components to provide for the future servicing of the growth areas.

21.1.2 Growth Driven

Under this scenario, the Town would complete the Class EA process, complete the official plan review process and process planning approvals for new developments prior to securing funding to service the existing communities. In this case developers could proceed to service growth areas prior to any servicing of the existing areas. To provide for the future servicing of the existing communities, parts of the collection system would need to be oversized and paid for by developers through front end financing

21.1.3 Joint Servicing of Existing and Growth Areas

Under this scenario, all of the limitations on implementation would be removed within the same timeframe and the project implementation plan would be based on servicing both the existing communities and growth areas in a phased plan. In this case a joint financing agreement would need to be put in place with developers. It is likely that the first phase would service all of the existing communities and a proportion of the growth, with subsequent phases being growth driven. As with other scenarios, this is also dependant on receiving funding from Provincial and Federal governments.

21.2 Implementation Methodologies

A number of project implementation methodologies are available to the Town.

21.2.1 Conventional Design, Tender, Build

Using this methodology, the Town would:

- Engage a Project Manager/Engineering team to manage, design and commission the project
- Tender for the construction of the works and engage contractors either through one contract or several contracts covering the various components of the project
- Either hire staff to operate and maintain the wastewater system or contract out the operation and maintenance to a specialist company.

21.2.2 Design-Build,

Using this methodology, the Town would:

- Engage a Project Manager to manage the project
- Tender for the design, construction and commissioning of the works and engage a Design-Build contractor
- Either hire staff to operate and maintain the wastewater system or contract out the operation and maintenance to a specialist company

21.2.3 Design-Build-Operate

Using this methodology, the Town would:

- Engage a Project Manager to manage the project
- Tender for the design and construction of the works and for the ongoing operation and maintenance of the works and engage one contractor for all components of the project.

21.3 Implementation Timing

Completion of the necessary financing and planning to facilitate implementation of the project is likely to take at least one year following completion of the Class EA process. The earliest start to project implementation is therefore at the beginning of 2020. The project would then proceed through design, approvals, construction and commissioning. Based on the range of implementation scenarios and methodologies, this period could range from three (3) to five (5) years.

PHASE 4

22.0 Notice of Completion

The notice of completion was published in the Erin Advocate and Wellington Advisor on May 1, 2018 and May 8, 2018 and also sent by email to all interested parties and review agencies.

The 30-day public review process commenced on May 14, 2018 and ended on June 12, 2018

The notice of completion is included in ***Appendix V.***

23.0 ESR Comments and Part II Orders

23.1 ESR Agency Review Comments

The comments received during the ESR review period that required action by the Class EA team are summarized in Table 76, along with a description of the action taken. ***Appendix W*** contains a copy of all comments received and responses issued by the project team.

Table 77 – Comments Received During ESR Review Period

Comment	Action Taken
CVC Had no objection to the approval of the ESR, but indicated that they do not support the preferred location of H-SPS 2 since it is within the erosion hazard of the West Credit River and further stated that relocation outside the flood plain, to the north side of Mill Street, should be considered.	• Received June 27, 2018 • Response issued October 30, 2018 The preferred location for H-SPS 2 has been revised per the CVC's comment. Refer to section 13.2.2 of the ESR.

Comment	Action Taken
The CVC expressed a concern that, under full buildout conditions, instream chloride concentrations would exceed aquatic guidelines for chronic exposure and provided recommendations for minimizing the impacts.	The CVC's recommendations for minimizing the discharge of chloride/salts into the wastewater are described below and have been included into the Class EA recommendations. • New Developments: The Town should require that new subdivision development must install high-efficiency water softeners for each lot. • Existing Developments: The Town to consider funding plumbing upgrades for private residences that would include installation of high-efficiency water softeners. • Education Program: The Town to consider public education program to provide information to residents on how to minimize impacts to the environment, including installation of high-efficiency water softeners.
The CVC indicated that they are satisfied with the overflow risk management approach proposed by the proponent. They requested that details be provided to them during the detailed design phase about how the mitigation measures proposed in the Class EA are being implemented.	The project team has incorporated clarification into Section 14.5 of the ESR that overflow risk management must be addressed during detailed design and approval of the MECP and CVC will be required.
MOECC(MECP): The MECP were satisfied with the ESR's coverage of effluent criteria, thermal assessment on brook trout, and chloride monitoring and conceptually agree with the proposed spills/overflow management approach. Additionally, the MECP support the CVC's position that chloride/salt addition to the wastewater be minimized at the source. They also indicated that all outstanding issues have been resolved.	• Received June 14, 2018 • Response issued October 30, 2018 The recommendation for minimizing source chloride in the wastewater has been included in the Class EA.

Comment	Action Taken
MOECC(MECP): The MECP were concerned that, while 3 indigenous communities were advised of the project, there was no correspondences back from those communities and wanted assurances that these communities had not concerns about the Class EA.	• Received June 14, 2018 • Response issued October 30, 2018 As recognized in the MECP comment, the project team developed a listing of indigenous communities considered to be stakeholders at the initiation of the project and each were included in all notifications for the Class EA (Notice of Commencement, PIC #1 and #2, and Notice of Completion). In addition, to the issuance of the Notice of Completion, follow-up emails to elicit comments for the Notice of Completion (ESR) were sent to the following indigenous stakeholders on May 11, 2018: • Haudenosaunee Confederacy – Secretary Hohahes Leroy Hill • Haudenosaunee Confederacy – Hazel Hill • Mississauga of the New Credit First Nation – Chief Stacey LaForme • Six Nations of the Grand River Territory – Lonny Bomberry • Six Nations of the Grand River Territory – Caron Smith • Six Nations of the Grand River Territory – Joanne Thomas, Dawn LaForme, Paul General • Ministry of Aboriginal Affairs – Leslie Brewer (follow-up email was sent on May 15, 2018) There have been no responses from these communities outlining specific concerns with the project at any notification stage or the additional follow-up emails to elicit comment.
MOECC(MECP): The MECP noted that the MNRF expressed concerns about the selection of the outfall location and the assumptions used to support it.	The project team prepared a response to the MNRF's comments on the ESR that addressed their concerns, including the location of the outfall. Both MECP and CVC were copied on the response and subsequent correspondences. Refer to Appendix W for copies of the correspondence.

Comment	Action Taken
MNRF: The MNRF's issued final comments on March 5, 2019. They advised on the approval requirements for use of the HCS 2B if that site were to be selected as the WWTP site and the potential long turnaround time for extraction. They also recommended additional spawning surveys in the time leading up to the detailed design phase and a strategy to address exceedances of the predicted high wastewater effluent temperature.	• Received June 12, 2018 • Response issued October 31, 2018 • Final MNRF letter received on March 5, 2019 The comments relate to activities in the detailed design phase, therefore they will be addressed during the detailed design stage of the project and taken into consideration for the implementation/construction stage.
Region of Peel: Concerns about source water protection in Wellhead Protection Areas near the proposed outfall location.	• Received October 26, 2018 • Response issued October 31, 2018 Response indicated that the ESR includes spills mitigation recommendations and a full geotechnical / hydrogeological investigation will be included as part of the detailed design phase, which Peel Region indicated they support and requested the opportunity to review during the detailed design phase.
598622 Alberta Ltd.: Denial of permission to run sewer across property	• Received May 14, 2018 • Response issued June 6, 2018 • Response indicated that the sewer alignments would be finalized and negotiated with property owners once the Class EA is complete, and after the Town receives the financial assistance such that the project could move ahead with detailed design and, ultimately, construction.

23.2 Part II Order Requests

Three Part II Order requests were received during the ESR review period. They are summarized in Table 77, along with a the MECP's decision on each request. ***Appendix W*** contains a copy of the Part II Order requests, details of the Class EA team background information provided to MECP for each request, and the MECP's decision letter.

Table 78 – Part II Order Requests Received During ESR Review Period

Comment	Action Taken
Armstrong Part II Order Request: • Failure to adequately address water conservation issues • Total cost, including financial asset management issues • Inadequate examination of alternative options	• Received June 13, 2018 • Class EA team provided information requested by MECP about where concerns raised in Part II order request are addressed in ESR • MECP decision letter of August 29, 2019 issued, indicating that the ESR had adequately addressed the issues and an individual environmental assessment is not required.
Mabee Part II Order Request: • Inadequate consultation with Hamlet of Belfountain • Direct dumping of sewage into river • Requirement for 10 years flow measurement in study area • Identification and consideration of the effects of alternatives on environment • Brook Trout population protection in river and flora in Credit River Valley	• Received June 12, 2018 • The Class EA team provided information requested by MECP about where concerns raised in Part II order request are addressed in ESR • MECP decision letter of August 29, 2019 issued, indicating that the ESR had adequately addressed the issues and an individual environmental assessment is not required.
Seymour Part II Order Request: • Persistent chemicals (chloride, ammonia, endocrine disruptors) discharge to the river • Spills and fishery impact to the river • Lack of consultation with downstream communities	• Received June 13, 2018 • The Class EA team provided information requested by MECP about where concerns raised in Part II order request are addressed in ESR • MECP decision letter of August 29, 2019 issued, indicating that the ESR adequately addressed the issues and an individual environmental assessment is not required.

Appendix - A

Public Consultation

Phase 1 & Phase 2 Consultation Records

Listing of Contents

1. Notice of Commencement
2. Media Release
3. PLC Recruitment Ad and Terms of Reference
4. Communications to the PLC
5. PLC 1 – Meeting Notes
6. PLC 2 – Meeting Notes
7. PLC 3 – Meeting Notes
8. PIC 1 – Project Backgrounder
9. PIC 1 – Media Advisory
10. PIC 1 – Presentation Boards
11. PIC 1 – Consultation Report
12. PIC 1 – Public Responses
13. General Public Communication Records

1.
Notice of Commencement

The Corporation of the Town of Erin

Urban Centre Wastewater Servicing

Class Environmental Assessment (Phases 3 & 4)

Notice of Study Commencement

In 2014 the Town of Erin completed a Servicing and Settlement Master Plan (SSMP) to address servicing, planning and environmental issues within the Town. The study area for the SSMP included the Village of Erin and Hillsburgh as well as a portion of the surrounding rural lands. The SSMP considered servicing and planning alternatives for wastewater and identified a preferred wastewater servicing strategy for existing and future development in the study area. The SSMP is available on the Town's website at http://www.erin.ca/town-hall/public-notices. The SSMP was conducted in accordance with the requirements of the Municipal Class Environmental Assessment (Class EA), which is an approved process under Ontario's Environmental Assessment Act and addressed Phase 1 & components of Phase 2 of the Class EA planning process.

The Town is now continuing with a review of Phase 2 and initiating Phases 3 & 4 of the Class EA Planning Process to determine the preferred design alternative for wastewater for the existing urban areas of the Village of Erin and Hillsburgh, and to accommodate future growth. The aforementioned SSMP concluded that the preferred solution for both communities is a municipal wastewater collection system conveying sewage to a single wastewater treatment plant located south east of the Village of Erin with treated effluent being discharged to the West Credit River. During this study, the SSMP's preferred solution will be refined and a preferred design concept for wastewater collection and treatment will be identified.

This Class EA process will follow the planning and design process for Schedule 'C' projects as described in the Municipal Class Environmental Assessment Document (October 2000 as amended in 2007, 2011 & 2015), published by the Municipal Engineer's Association.

The Town has retained the Ainley Group to complete and document the Class EA planning process and this Notice initiates the beginning of the Study. The Town recognizes that public consultation will be a key component of this Study and an extensive public consultation process will be arranged including the formation of a Public Liaison Committee, Public Information Centres, newspaper advertisements and updates to Council throughout the completion of the Class EA Study in order to seek input and comment.

The Town has created a project website at www.erin.ca/town-hall/wastewater-ea to make project information available to the public.

If you would like to be placed on the mailing list to receive all future notices relating to this Class EA please send your contact information to either of the Contacts listed below.

Dina Lundy
Town Clerk
Town of Erin
5684 Trafalgar Road
Hillsburgh, Ontario
N0B 1Z0
Tel: (519) 855-4407
Email: dina.lundy@erin.ca

Joe Mullan, P. Eng.
Project Manager
Ainley & Associates Limited
280 Pretty River Parkway
Collingwood, Ontario
L9Y 4J5
Phone: (705) 445-3451
Email: erin.urban.classea@ainleygroup.com

This notice issued April 13, 2016.

Comments and information regarding this project are being collected in accordance with the Municipal Freedom of Information and Protection of Privacy Act for the purpose of meeting environmental assessment requirements. With the exception of personal information, all comments received will become part of the public record.

2.
Media Release

TOWN OF ERIN
5684 Trafalgar Rd.
Hillsburgh, ON N0B 1T0
www.erin.ca

Office of the Mayor
Telephone: (519) 855-4407 Ext 232
Fax: (519) 855-4281
council@erin.ca

Media Release

On November 8th, 2016, Town Council received an update on the status of the Urban Centre Wastewater Servicing Class Environmental Assessment (Class EA) for Erin Village and Hillsburgh. The following are some of the key tasks that have been completed by the project team to date:

- Topographical surveys to support detailed analysis of the proposed sewage collection system
- Documentation and analysis of data related to the existing septic systems
- Updating of the West Credit River Assimilative Capacity Study (ACS) including assessment of river low flow conditions and field work and analysis to determine the amount and quality of effluent (treated sewage from a treatment plant) that can be safely discharged to the river
- Evaluation of potential wastewater flows from existing development and new growth areas

Council heard that the river has the capacity to accommodate treated effluent to service the majority of the existing urban centres of Erin and Hillsburgh; allow for a full build-out of Erin Village and Hillsburgh as provided within the existing Official Plan and limited septage servicing of our rural areas. This amount of sewage servicing would permit the urban centres to grow to a residential population of approximately 14,500 as well as accommodate institutional, commercial and industrial development.

This level of population/development growth is based strictly on an engineering/technical perspective related to the amount of treated wastewater effluent the West Credit River can accommodate. Currently, the Town of Erin and Wellington County Official Plans do not include this substantial increase in population. As a result, amendments to the Official Plans will be required if the Town wishes to grow beyond currently identified levels. The Official Plan amendment process requires public consultation with residents and other stakeholders and includes mandatory requirements for public notices and meetings.

"Although I campaigned on a platform of growth for the Town of Erin, the potential population increase identified by this EA process is significantly higher than Council expected" said Mayor Alls. "Council has committed to fully engaging the public through an Official Plan amendment process in 2017 to determine how large our community wishes to grow" he added.

Detailed information on the Urban Centre Wastewater Servicing Class EA can be found on the Town's web page erin.ca. Queries regarding the wastewater servicing Class EA should be forwarded to the project email address at erin.urban.classea@ainleygroup.com.

3.
PLC Recruitment Ad and Terms of Reference

Town of Erin

Urban Centre Wastewater Servicing

Schedule C Municipal Class Environmental Assesment

Invitation to Join a Public Liaison Committee

Representatives of the local community are being sought to join the Public Liaison Committee (PLC) for the Town of Erin Urban Centre Wastewater Servicing EA.

The PLC is a non-political advisory committee that will provide advice and feedback at key milestones over the course of the Project.

An application questionaire, fact sheet, and the PLC terms of reference are available at:

www.erin.ca/town-hall/wastewater-ea/

Get involved!

Have your voice heard.

For more information, please contact:

Dina Lundy - Town Clerk

Email: dina.lundy@erin.ca

Mail: Dina Lundy
Town of Erin
5684Trafalgar Rd.
Hillsburgh, ON
N0B 1Z0

Town of Erin Urban Centre Wastewater Servicing
Schedule C Municipal Class Environmental Assessment

Public Liaison Committee
TERMS OF REFERENCE

Project Background and Description

The Town of Erin (the “Town”) is a rural lower-tier municipality located in southern Wellington County northwest of the Greater Toronto Area (GTA). The population of the Town is 11,830 spread out in 3900 households. It includes two urban centres, Erin Village and Hillsburgh.

The Town’s Official Plan was originally approved by Wellington County on December 14, 2004. The Town completed a Servicing and Settlement Master Plan (SSMP) in September 2014, assisted by their consultant B.M. Ross and Associates Limited. This was completed as a Master Plan under the Municipal Class Environmental Assessment (Class EA) process and included water, wastewater, transportation and storm water management servicing. The SSMP followed Approach #1 of the Class EA Master Planning Process and by doing so, addressed Phases 1 and 2 of the Class EA process. Because the SSMP was done at a broad level of assessment, more detailed project-specific studies are required to fulfill the Class EA requirements.

The Town has made the decision to move forward with a municipal wastewater collection and treatment system as recommended in the SSMP. In order to advance to next steps, the Town is undertaking a Class EA - Urban Centre Wastewater Servicing Class Environmental Assessment (the “Project”). This Project involves continuing Phase 2 of a Class EA process and then, commencing and completing Phases 3 and 4.

The Project is classified as a Schedule C under the Municipal Class EA process. The Town will continue with Phase 2 of the Schedule C Project by reviewing and updating wastewater related studies completed as part of the Class EA Master Planning Process (Phases 1 and 2) and commence and complete Phases 3 and 4 of this Class EA process to complete an Environmental Study Report (ESR), which helps to determine the preferred design concept for wastewater servicing across the Town (including identification of the parts of the community that should be connected to the wastewater collection and treatment system).

The Town has retained a multi-disciplinary consultant team including the Ainley Group (project management), Hardy Stevenson and Associates Limited (environmental assessment coordination, public and stakeholder consultation, and communications), and Hutchinson Environmental Sciences Limited (water quality and assimilative capacity studies) to carry out this Project.

The Consultation Program will strive for strong two-way communication with Municipal Council, the general public, local businesses, interest groups, government review agencies (e.g. Ministry of Environment and Climate Change, Credit Valley Conservation Authority, etc.) and Aboriginal communities (where appropriate).

Part of the Consultation Program is to establish a Public Liaison Committee (PLC). PLCs are common in projects of this nature and it is an approach that has proven to be helpful for guiding many other similar projects. Through the PLCs, a cross section of key stakeholders will be engaged early on and in depth during the EA process. This will help address issues and discuss approaches prior to engaging the wider community. As well, this will allow for a detailed discussion of Project issues with a smaller group of stakeholders, while still allowing for a range of perspectives from across the community.

In addition to the PLC, the Consultation Program includes:

Core Management Team (CMT) Committee, which includes Town of Erin and Triton Engineering Services Limited, Wellington County Planning Department, Blackport Hydrogeology, government review agencies, Ainley Group, Hardy Stevenson and Associates Limited, and Hutchinson Environmental Sciences Limited (not open to the general public);

Council Workshops, which are intended for municipal councillors (although open to public, the general public will not participate in the discussion);

Public Information Centres (PICs), which are for the general public (CMT, PLC, and councillors are invited to attend);

Public Review of ESR, which offers the stakeholders and government review agencies at least 30 calendar days to review the ESR and submit written comments via email, hand delivery, or regular mail within a given deadline; and

Written Submissions, which will be opportunities to submit written feedback from the beginning of the Project to two weeks after the second PIC and as part of the public review period of the ESR.

Purpose of PLC

The PLC is a non-political advisory committee that will be established by the Town of Erin in accordance with these Terms of Reference (ToR). Members of this group are guided by these ToR.

The purpose of the PLC is to provide advice and feedback to the Town of Erin, the CMT, and the Project Team at key milestones over the course of the Project, including feedback on the following:

- Opportunity Statement for the project;
- Evaluation approach, including evaluation criteria, weighting factors and proposed methodology;
- Evaluation results;
- Anticipated impacts and mitigation measures;
- Communication and consultation activities and approach;
- Key documents completed in draft before they are released to the public; and
- Related project issues and items as may be identified as the project evolves.

All participating members will have an opportunity to be heard. By participating as members of the PLC, the members are not expected to waive their rights to the democratic process, and may continue to avail themselves of participation opportunities through delegations to Council, and / or providing written briefs. Any positions taken by individual members are without prejudice.

Membership

The PLC is structured to allow a full range of stakeholder opinions to be made available to the Town of Erin. Accordingly, the Town intends to have member representatives in the PLC, from the following groups:

Types of Groups	
General public (both Erin and Hillsburgh)	Economic Development Committee
Community interest groups	Environment and Sustainability Advisory Committee
Local businesses (includes Erin Village BIA and Let's Get Hillsburgh Growing Committee)	Environmental groups
Development community	Aggregate industry
Heritage Committee	Agricultural industry
Recreation and Culture Committee	

Recruiting

10-12 PLC members will be identified and recruited by the Town of Erin from the groups listed above. PLC membership positions will be advertised through ads in the Erin Advocate and Wellington Advertiser, Town's website and social media (Twitter and Facebook). The following criteria are recommended to assist with identifying and selecting community-at-large PLC representatives:

- Interest in water and wastewater servicing matters.
- Ability to attend meetings over a 24 month period.
- Ability to travel to attend meetings.
- Represent general public and / or represent one of the groups listed above.

See *end of this ToR* for the Application Form

Meetings

The PLC will be convened at key points in the project. Meetings are anticipated to be aligned with key study stages or as deemed necessary by the Project Team. Meetings will be held at the Town's offices, with the exact location to be confirmed. In order to adhere to the project schedule, the PLC meetings will take place as scheduled. If a participating member is not able to attend a meeting, he / she is encouraged to assign an alternate representative (see sections below on *Participating Members* about alternate representatives).

The Project Team will organize the meetings, including setting the dates, sending invitations, and providing the agendas and information related to the study process in advance of each meeting. Participants should review any reports and materials before the meetings as required. PLC meetings will be open to members of the public but only members of the PLC will be able to participate in the discussions.

Minutes

Minutes of meetings with the PLC will be taken by a member of the Project Team. Draft meeting minutes will be circulated to the PLC for suggested edits following each meeting. Members will have three business days to provide suggested edits (only information that was recorded erroneously or was incorrect will be incorporated – no new comments will be added); then, the minutes will be finalized (incorporating suggested edits, if applicable), re-circulated and posted on the project website.

Members and observers are not allowed to audio or video record the meeting without permission from the chair.

Roles and Responsibilities

As a member of the PLC, each participant will:

- Consider any matters, issues, or information referred to them by the Project Team relating to the Class EA, and provide advice and recommendations as requested;
- Liaise with the organization they represent (if applicable) and bring forward advice, issues, or comments from their organization to the PLC;
- Assign an alternate representative to attend a meeting(s) when absent from a meeting(s);
- Strive to operate in a consensus mode, where participants openly discuss views and opinions, and seek to develop common ground and narrow areas of disagreement to the best of their ability. It is not the purpose of the PLC to provide a single unified position to the Town;
- Ensure that the results of the PLC discussions are accurately recorded in the meeting minutes, or in additional reports that members may determine as needed;
- Receive project information available to the public and be invited to attend PICs; and
- Treat all members of the PLC with mutual respect and courtesy.

Project Team members will:

- Strive to provide accurate, understandable information to PLC members, such that they can contribute informed advice and recommendations;
- Ensure that appropriate Town staff (or other resource people) are present at discussions on specific issues or components of the planning process;
- Ensure that the advice and recommendations of the PLC are fully considered as part of the Class EA; and
- Be open, receptive, and give careful consideration to advice and ideas received from PLC members.

Structure of PLC

Chair: Meetings will be chaired and facilitated by Dave Hardy (with Hardy Stevenson and Associates Limited). The Chair will conduct PLC meetings in a timely and orderly manner and ensure that the meeting adheres to the agenda items. The Chair will help the PLC to provide advice through consensus where possible and will ensure that each member has an opportunity to provide their input and opinion.

Participating Members: Each PLC member will represent an independent interest. A member will be allowed to identify an alternate who may participate in the discussions so that if the member is unavailable, the member's interests can continue to be represented. It is the responsibility of the member to notify their alternate if they are unable to attend the meeting and that they are up-to-date on the Project. Members and their alternates are expected to share the meeting discussions with their respective organizations.

Observers: Observers (non-members) will not participate, ask questions or provide unsolicited comments unless the PLC Chair provides for this opportunity.

Reporting

The Project Team will prepare the meeting minutes for all PLC meetings. Draft versions will be circulated to the meeting participants for suggested edits (no additional comments could be added to the minutes after the meeting). They will then be finalized, re-circulated and posted on the project website. See section above on *Minutes* with additional information.

Decision Making

The PLC does not make decisions about the Class EA. It will be acting in an advisory capacity to the Project Team, and through the Project Team to the Town Council. However, from time to time the PLC may be asked to assist with decisions of an administrative matter, such as the time, date and location of meetings.

Transparency

All meeting records will be posted on the Town's website for review by Council and the general public.

Application Form

Name	
Address	
Telephone	
Email	
Affiliation	
Are you currently a member of any Town Board or Advisory Committee? If yes, which one(s)?	
Please list prior or current community involvement or experience within the Town of Erin including but not limited to participation in the Servicing and Settlement Master Plan (SSMP).	
Please list the skills or qualifications you would bring to this committee.	

Please list your reason(s) for seeking appointments to this Public Liaison Committee and other pertinent information you may deem helpful in considering your application.
Please list on this form any affiliation that you have, financial or otherwise, with a commercial or other industry interest and/or land ownership and if you think this might be perceived as biasing your participation in the Public Liaison Committee or a conflict of interest.

Please send your completed and signed forms to:

Dina Lundy (Town Clerk)

Email: dina.lundy@erin.ca

Mail to: Attn: Dina Lundy,
Town of Erin,
5684 Trafalgar Road,
Hillsburgh, ON N0B 1Z0.

Completed applications must be received by April 29, 2016.

Signature: ____________________________________ **Date:** ______________

All comments and information received from individuals, Public Liaison Committees and agencies regarding this Project are being collected to assist the Town of Erin in making a decision. All comments and feedback will be part of public record. In accordance with the *Ontario Freedom of Information and Protection of Privacy Act*, comments and feedback will not be associated with the respective individuals or groups by sharing the names, titles, contact information or personal information. This information will only be made public only with written consent from the individuals or groups, authorizing the disclosure of such information.

4.
Communications to the PLC

Simon Glass

From:	Dina Lundy <Dina.Lundy@erin.ca>
Sent:	May 31, 2016 12:50 PM
To:	Allan Alls; Bruce Donaldson; Christine Furlong; Dave Doan; Dave Hardy; Don Fysh; Donna Revell - Alternate; Erik Mathisen; Gary Scott; Jamie Cheyne; Jay Mowat; Joe Mullan; Josie Wintersinger; Justin Morrow; Linda Rosier; Lloyd Turbitt (LGHG); Maurizio Rogato; Melodie Rose - Alternate; Noah Brotman; Roy Val; Valerie Bozanis
Subject:	Public Liaison Committee - Appointments and First Meeting
Attachments:	PLC Meeting #1 Agenda.docx

Hello all:

Thank you for putting your name forth to join the Public Liaison Committee for the Town's Urban Centre Wastewater Servicing EA. You will be recommended for appointment at our next meeting on June 7th. We expect all of you to be appointed to the committee (including the two names put forth as alternates). The first meeting for the Committee is also on **June 7th at 7PM at the Municipal Office (address below)**. We apologize for the short notice, and hope all of you can attend.

Attached you will find an Agenda for this meeting. Please let me know if you have any questions, and please rsvp if you can.

Thank you

Dina Lundy **Dipl.M.A, CMO**
Clerk, Town of Erin
5684 Trafalgar Rd
Hillsburgh, ON
519-855-4407 x233
Clerk's and Administration Department Webpage

Simon Glass

From: Dave Hardy <davehardy@hardystevenson.com>
Sent: September 6, 2016 12:52 PM
To: Allan.Alls@erin.ca; abrucedonaldson@aol.com; dave@sep-tech.ca; gdfysh@gmail.com; revelld@hotmail.com; mensaerik@gmail.com; jamiecheyne01@gmail.com; jaymowat@sympatico.ca; wintersinger1947@gmail.com; justin@copperhilldevelopments.com; linda@conceptadvertising.com; lloyd.turbitt@sympatico.ca; mrogato@solmar.ca; melodie.rose.1@gmail.com; nancy@bsrd.com; sales@pangaeasciences.com; valerie.bozanis@gmail.com; bhalfpenny@killamproperties.com; dina.lundy@erin.ca
Cc: cfurlong@tritoneng.on.ca; Dave Hardy; Noah Brotman; Joe Mullan; Gary Scott
Subject: Town of Erin WW Class EA – PLC Update

Town of Erin WW Class EA – PLC Update

Welcome back from what we hope has been a relaxing and fun summer for everyone. This email provides a status update of the progress on the Erin Wastewater Servicing Class EA.

Throughout the summer our team has been hard at work on a number of technical studies that are key components of the Class EA process. Our primary focus has been on the following activities:

1. Completing the septic survey of systems in Erin.
2. Completing a detailed topographical survey of the study area
3. Identifying collection system alternatives
4. Identifying potential wastewater treatment plant sites
5. Completing a peer review of the 7Q20 flows in the West Credit River
6. Completing the Rhodamine WT dye study in order to determine hydrologic characteristics of the West Credit River that will be used in evaluating discharge options for the wastewater treatment facility.

At this time, we are pleased to report that the field work for these tasks have been completed and we are now analysing the new information, assessing potential sewage flows from the existing communities and analysing collection system alternatives.

The focus of the next Public Liaison Committee (PLC) meeting will be on providing you with updates and obtaining your comments about the revised CVC flow data and the assimilative capacity study. We will also look at the extent of the existing communities to be serviced and the potential service population. Your comments on these matters will also be important.

Once we have completed our associated technical memos on the septic systems, updated river flow and assimilative capacity, and collection system alternatives, the Core Management Team (CMT) will review and comment on the technical memos. The technical memos will remain in draft form through submission to Council, and to you as PLC members for comment. Thereafter, our team will prepare for the first Public Information Centre (PIC) still planned for November 2016. We will be reviewing PIC info with you before we finalize the PIC approach.

After receiving all comments through the PIC process, we will close out Phase 2 of the study which will define the extent of the service area including existing communities and areas for planned growth. As a heads up to future activities, starting next year we will start to define and analyse treatment processes and sites and effluent discharge alternatives. We encourage all questions and comments. If you have any further questions, please send a message to the project email address: erin.urban.classea@ainleygroup.com

Simon Glass

From: Dave Hardy <davehardy@hardystevenson.com>
Sent: October 19, 2016 10:55 AM
To: [redacted]
Subject: Erin WW EA PLC Meeting #2 Notice

Hello to all, we hope you have had a great start to the fall season. This is a status update for all PLC members regarding the Erin Wastewater Servicing Class EA.

As you know, over the summer our team was able to undertake the field investigations for the completion of four project tasks: the Assimilative Capacity Study (ACS); the Septic System Survey; the System Capacity Study; and the evaluation of collection system alternatives. During September, our team has been hard at work analyzing the findings of the studies and completing technical memos for review by the project Core Management Team (CMT).

The CMT has now met once to review the findings and will meet again shortly to finalize the technical memos. Once approved by the CMT, the technical memos will be ready to be shared publicly. An informational update will first be presented in a session of Town Council on November 8, and then the following day the full studies will be available for download on the Town's project website.

The next PLC meeting is scheduled for Thursday November 24, 2016 from 7:00 p.m. to 9:00 p.m.

The topics for discussion will focus on:

1. The results of the Assimilative Capacity Study.
2. The results of the Septic System Survey.
3. The results of the System Capacity Study.
4. An overview of the collection system alternatives.
5. PLC advice regarding preparations for the first Public Information Centre.

We look forward to hearing from PLC members on these important studies. Once the technical memos have been shared with the PLC, if you have any questions or wish further clarification please send them to the project email address: erin.urban.classea@ainleygroup.com. Helpful questions of interest to PLC members will be brought forward at the PLC meeting so that all can hear the response.

Regards,

Dave Hardy

Simon Glass

From: Dave Hardy <davehardy@hardystevenson.com>
Sent: November 14, 2016 5:04 PM
To: Dave Hardy
Cc: Noah Brotman
Subject: PLC Update

Hello to all PLC members,

This message is to inform you that the reports for the initial technical studies for the Erin Wastewater Servicing EA have been completed, reviewed by the CMT, presented to Council, and are now available for public review and comment.

On November 14, the following documents are now available on the project website:

- Technical memorandum on results of the Assimilative Capacity Study.
- Technical memorandum on results of the Septic System Survey, with recommendations for servicing existing area.
- Technical memorandum on System Capacity, with recommendations for servicing existing and new growth areas.
- West Credit River 7Q20 Update Report by CVC
- Presentation to Council from Nov. 8.

All of these documents can be found at http://www.erin.ca/town-hall/wastewater-ea

Please note that these technical memorandums are currently “Draft for Comments”. These documents will remain in draft form through the PLC meeting and the Public Information Centre now planned for January. The memorandums will be finalized only after receiving public comment.

These documents will be the focus of the conversation for the next PLC meeting #2, which is coming up on **November 24, 2016 from 7:00 p.m. – 9:00 p.m.**

We look forward to hearing from PLC members on these important studies. If you have any questions or wish further clarification please send them to the project email address: erin.urban.classea@ainleygroup.com. Helpful questions of interest to PLC members will be brought forward at the PLC meeting so that all can hear the response.

Simon Glass

From: Dave Hardy <davehardy@hardystevenson.com>
Sent: January 20, 2017 12:24 PM
To: [redacted] Dave Hardy; Noah Brotman; Joe Mullan; Gary Scott
Subject: January PLC Update

Hello to all PLC members,

This message is a status update for Public Liaison Committee (PLC) members regarding the Erin Wastewater Servicing Class EA. There are two matters that the Project Team wants to update you on.

First, two members at the last PLC meeting asked for the Class EA study to consider an alternative treatment solution. The suggested solution differs from the preferred solution identified in the SSMP which is a single wastewater treatment plant discharging to the Credit River downstream of Erin for both Erin and Hillsburgh. Members of Transition Erin subsequently met with the Town and asked for consideration of a multiple plant solution with subsurface discharges.

In response, Ainley Group were asked by the Town to look at this issue and having done so, it is their opinion that the alternative of subsurface discharge may not have been looked at in sufficient detail during the SSMP. Ainley recommended an additional study to examine the viability of the suggested approach and their recommendation was approved by Council on January 17, 2017. A phased approach has been recommended that will address the suggested alternative at the conceptual/viability level, then report back to Council with a recommendation on whether to further evaluate the alternative. The study will take around one month to complete. Within this scope change, Council also approved an additional PLC meeting.

The second update to share is that due to this scope change, the Public Information Centre (PIC) meeting that had been originally planned for late January will be pushed back. This will allow the Project Team to work through the initial investigation, to report back to Council, and to reach agreement on how best to proceed. The new date for the PIC is not anticipated to have a significant impact on the current overall project timeline. Ainley will be proceeding with other aspects of the project that were planned for early January.

Prior to the PIC there will be a PLC meeting held to discuss the results of the proposed scope change investigation and to seek more detailed input in materials to be presented at the PIC. You will receive another update email once final dates have been set for the next PLC meeting and for the PIC.

We are happy to receive your questions and comments at any time. If you wish further clarification, please contact us through them to the project email address: erin.urban.classea@ainleygroup.com. Helpful questions of interest to PLC members and responses will be shared at the PLC meeting so that we can all participate in the dialogue.

Simon Glass

From: Dave Hardy <davehardy@hardystevenson.com>
Sent: April 10, 2017 12:48 PM
To: Dave Hardy
Subject: PLC Update Email - April

Hello to all PLC members,

Here is a status update for Public Liaison Committee (PLC) members regarding the Erin Wastewater Servicing Class E A as of the end of March 2017.

At the request of some members of the PLC and with approval from council, the Project Team has been hard at work for the last few months investigating the viability of Large Subsurface Sewage Disposal Systems (LSSDS) around Erin and Hillsburgh to support a multiple plant solution as a possible alternative to the single wastewater treatment plant for both Erin and Hillsburgh. A phased approach to the LSSDS study had been recommended that would address the suggested alternative at the conceptual/viability level, then report back to Council with a recommendation on whether to further evaluate the alternative.

We are pleased to let you know that the Technical Memorandum examining the overall viability of this approach has been completed and has been sent to the Ministry of Environment and Climate Change (MOECC) and Credit Valley Conservation (CVC) for comment. We are hopeful of receiving comments by the end of April, at which point the document will be finalized, presented to Council and shared with you and made available for public comment.

Our next PLC meeting will be scheduled to allow for at least two weeks of review time after the LSSDS memo is release to ensure that you have adequate time to consider the findings. We expect that the PLC will occur around the first or second week of May. At that PLC meeting, there will be two areas of discussion: the technical memo on subsurface disposal; and the display boards that will be used at the Public Information Centre (PIC) in late May or early June.

We are happy to receive your questions and comments at any time. If you wish further clarification, please contact us through them to the project email address: erin.urban.classea@ainleygroup.com. Helpful questions of interest to PLC members and responses will be shared at the PLC meeting so that we can all participate in the dialogue.

Looking forward to our next meeting!

David R. Hardy R.P.P.
Principal
Hardy Stevenson and Associates Limited
364 Davenport Road
Toronto, Ontario
M5R 1K6

Cell: (416) 358-9881
Telephone: (416) 944-8444 x 222
Toll Free: 1-877-267-7794
Fax: (416) 944-0900

Follow us on *twitter*
Follow our *blog*
Visit us on *Facebook*

Simon Glass

From: Dave Hardy <davehardy@hardystevenson.com>
Sent: May 25, 2017 3:28 PM
To: erin.urban.classea@ainleygroup.com
Subject: PLC Update

Hello to all PLC members,

Here is a status update for Public Liaison Committee (PLC) members regarding the Erin Wastewater Servicing Class EA.

In the previous email update at the end of March, we informed you that the Technical Memorandum examining the viability of subsurface disposal of treated wastewater effluent had been completed and had been sent to the Ministry of Environment and Climate Change (MOECC) and Credit Valley Conservation (CVC) for comment. We are now able inform you that those comments have been received and the Memorandum was finalized and presented to Council on May 16, 2017.

To briefly summarize the responses from MOECC and CVC, MOECC found that:

> *"…there is no significant benefits in terms of capital costs for the inclusion of a subsurface disposal option in Hillsburgh, [and that] a detailed feasibility investigation will involve significant time, cost and uncertainties, which may further negate the option of subsurface disposal in Hillsburgh.*
>
> *Further investigation (i.e., geotechnical, hydrogeological, modeling, and risk assessments) to support a subsurface disposal option for Hillsburgh is not recommended while there is a feasible option for surface disposal with known constraints and risks exists."*

CVC found that:

> *"...while a large subsurface system may be feasible, there is a significant risk to the Town that they will not be able to confirm the viability of this mode of servicing. In addition, there is also concern with respect to the long-term effects that could result to the natural environment. Therefore, CVC would recommend that the Town continue with determining the viability of the surface water discharge.*

Given the findings from the Technical Memorandum by Ainley Group and the support for those findings from both the MOECC and CVC, no further steps will be taken to assess the viability of the subsurface disposal approach in Hillsburgh.

The full memorandum can be found at:
http://www.erin.ca/uploads/userfiles/files/LSSDS%20Viability%20Report%20Final_compressed.pdf

We would also like to inform you that at the Erin Town Council meeting on May 2nd, a resolution was passed asking Ainley Group to prepare an additional Technical Memorandum on the feasibility of a surface water discharge for a wastewater treatment plant to service Hillsburgh specifically (a two plant solution). The study for that memo is currently under way and you will be updated once completed and MOECC and CVC have commented. At this time, the intention is to present this Technical Memorandum to Council on June 6, 2017.

Our **next PLC meeting will be held on June 8th at 7:00 PM – 9:00 PM**. At that meeting, we will discuss and address any final questions regarding the technical memorandum on subsurface disposal, a two plant solution and will have a chance to preview and comment on the display boards that will be used at the Public Information Centre (PIC) on June 22nd. Additional information on the PIC will be sent out at a later date.

Regards,

David R. Hardy R.P.P.
Principal
Hardy Stevenson and Associates Limited
364 Davenport Road
Toronto, Ontario
M5R 1K6

Cell: (416) 358-9881
Telephone: (416) 944-8444 x 222
Toll Free: 1-877-267-7794
Fax: (416) 944-0900

Follow us on *twitter*
Follow our *blog*
Visit us on *Facebook*

Simon Glass

From: Dave Hardy <davehardy@hardystevenson.com>
Sent: October 10, 2017 2:20 PM
To: Dave Hardy
Subject: Erin Wastewater EA - Fall PLC Update

Hello to all PLC members,

We hope everyone had a great summer and are continuing to enjoy the lovely start of fall. This email is to update members of the PLC on the progress that we have had over the last few months in the Erin Urban Centre Wastewater Servicing Class Environmental Assessment project.

The focus of the recent work has been in two key areas: background work for technical memoranda on design options for the wastewater treatment plant and the collection system; and conducting required natural sciences, heritage, and archaeological field investigations. The memoranda on design options for the wastewater treatment plant and collections systems have proceeded well and are expected to be completed in draft around mid November. When ready, the draft memos will be circulated to the Core Management Team for review and comment prior to circulation to the PLC. It is anticipated that there will be a PLC meeting to discuss the memos at some point in early December.

The other focus of our work in the last few months has been to prepare for the required geotechnical investigations. So far, preferred locations for borehole testing have been identified, landowners have been contacted, and the final preparations to start the field work have begun. During October 2017, as part of the Erin Urban Centre Wastewater Servicing Class Environmental Assessment project, boreholes will be drilled throughout Erin Village and Hillsburgh and along the Elora Cataract Trailway. The resulting Geotechnical Investigations Report will assist in defining potential environmental impacts from the project and will assist with costing alternative solutions that are being investigated.

If you have any questions for the Project Team about the current work please remember to send your emails to erin.urban.classea@ainleygroup.com. This will help us ensure that you get a timely answer from the right people, and that your comments and questions are properly documented for the purposes of the study.

Thank you,

Dave Hardy

David R. Hardy R.P.P.
Principal
Hardy Stevenson and Associates Limited
364 Davenport Road
Toronto, Ontario
M5R 1K6

Cell: (416) 358-9881
Telephone: (416) 944-8444 x 222
Toll Free: 1-877-267-7794
Fax: (416) 944-0900

Follow us on *twitter*
Follow our *blog*

5.
PLC 1 – Meeting Notes

Public Liaison Committee Meeting #1 - Notes

PROJECT:	Town of Erin: Urban Centre Wastewater Municipal Class Environmental Assessment (EA)
DATE:	June 7, 2016
LOCATION:	Town of Erin Municipal Office
TIME:	7:00 p.m. – 9:00 p.m.

ATTENDEES:

PLC members	Organization
Allan Alls	Mayor
Bruce Donaldson	Black, Shoemaker, Robinson and Donaldson Limited (Lawyer for Tavares Group)
Dave Doan	SeptTechWastewater Group
Don Fysh	Riverwalk trails committee and Rotary Club
Donna Revell	Let's Get Hillsburgh Growing Committee
Erik Mathisen	Urban Erin
Jamie Cheyne	Heritage Committee and Economic Development, Erin Agricultural Society
Jay Mowat	Environment Committee
Josie Wintersinger	General public, Former Erin Councilor
Justin Morrow	Copper Hills Development
Linda Rosier	General public
Lloyd Turbitt	Let's Get Hillsburgh Growing Committee
Maurizio Rogato	Solmar
Melodie Rose	Riverwalk trails committee
Nancy Shoemaker	Black, Shoemaker, Robinson and Donaldson Limited (Lawyer for Tavares Group)
Roy Val	General public
Valerie Bozanis	General public
Brian Halfpenny	Killam Properties / Stanley Park
Project Team	
Christine Furlong	Triton Engineering
Joe Mullan	Ainley
Gary Scott	Ainley
Dave Hardy	HSAL
Noah Brotman	HSAL

Public Liaison Committee Meeting #1 - Notes

MEETING PURPOSE: To introduce the Project and the Project Team and to outline how the PLC will function and what the expectations will be of participants.

MEETING AGENDA

1. **Welcome Remarks**
   Remarks by Mayor Alls

2. **Chair's Remarks**
   Explain the role of the Chair
   Describe what we hope to get out of this meeting

3. **Introductions**
   Public Liaison Committee (PLC)
   Project Team

4. **Review of the PLC Terms of Reference**

5. **Presentation – Part 1: Project Overview**
   Background and Context
   Project Goals and Approach
   Challenges and Opportunities

6. **Discussion – Part 1 – EA Process, Technical Issues**

7. **Presentation – Part 2: Consultation and Communications**
   Consultation Objectives
   Consultation and Communications Approaches
   Phases of the consultation program

8. **Discussion – Part 2 – Consultation and Communications**

9. **Next Meeting**
   October 2016
   Topics: Summary of Environmental Baseline and Wastewater System

10. **Adjournment**

Public Liaison Committee Meeting #1 - Notes

Welcome Remarks

The meeting started with a welcome from Mayor Allan Alls and an introduction from Dave Hardy (PLC Chair), providing a brief overview of the agenda for the first PLC meeting. The role of the PLC Chair was described, the agenda for the meeting was reviewed.

Introductions

PLC members were then asked to introduce themselves, as well as any organizations that they were there to represent. The Project Team was then introduced and the roles of each member were explained.

Review of PLC Terms of Reference

PLC members were walked through a review of the PLC Terms of Reference in order to ensure that everyone is clear on the responsibilities and requirements of taking part in the committee. PLC member were given an opportunity to ask questions about the PLC setup and how it would function.

PLC Questions

- Will all PLC member questions be captured?
    - Answer: Yes, all questions will be captured. However, the names of question askers will not be recorded in order to ensure privacy and that PLC member are able to comfortably ask questions and make comments.
- Will the notes be posted online?
    - Answer: Yes, all PLC meeting notes will be posted on the Town of Erin website in the 'Wastewater Environmental Assessment' section under the 'Town Hall' tab. We will get the notes out as quickly as possible after the meetings.
- Is this an official town committee?
    - Answer: Yes, it is an official committee and will be open to the public.
- Given that the closing date of the project is in 2018, how many PLC meetings will there be?
    - Answer: We are anticipating five PLC meetings.

- What would happen if we feel there is a need for more PLC meetings?
    - Answer: The number of meetings was generally determined by the requirements of the EA process. If more meetings are required due to circumstances of the process, we are able to add additional meetings. However, at this time we don't anticipate a need for additional meetings.
- How do we get in contact with the project team if we have questions?
    - Answer: A general project email has been set up for all project related emails. If you send a question through that, the project team will ensure that it gets to the right person for a response. The email address is: erin.urban.classea@ainleygroup.com

Following the question period, the Terms of Reference were accepted by all PLC members with no objections or issues.

Project Overview

Gary Scott (Ainley) gave a presentation providing an overview of the project, including:

- A review of the work completed to this point through the Erin Servicing and Settlement Master Plan (SSMP);
- Description of baseline conditions study work that has already been initiated;
- A summary of key high level consideration for the project as a whole;
- Highlights of the work plan, detailing the three phases of the project and the specific pieces of work that are intended to occur in each.
- An outline of the standard Municipal Class Environmental Assessment (Class EA) system and where this project currently sits in that process.

Following this presentation, PLC members were invited to ask questions regarding the overall project, technical considerations, the EA process,

PLC Questions

- What does "SPS" stand for?
    - Answer: Sewage pumping station.
- Has the assimilative capacity of the West Credit River been determined by the Credit Valley Conservation Authority (CVC)?

- Answer: Yes, the SSMP included a preliminary assimilative capacity study that was reviewed by the CVC and Ministry of Environment and Climate Change (MOECC). However, the study is being revisited to take a more detailed look in order to confirm the previous findings. As well, we are already working with the CVC and MOECC on this project and they are also bringing some new information to the table that they didn't have at the time when the SSMP was being done. An important part of the early steps of this project is the process of tweaking and adjusting the previous findings with the most up-to-date information before we go forward.

- Do you expect that effluent numbers have gone up or down since the SSMP?
  - Answer: Based on meetings with CVC and MOECC, it is the Project Team's understanding that the river low flow statistics are going to be close to the original numbers, but confirming this is important.
- Have flow rates changed since the SSMP?
  - Answer: The Conservation Authority has been collecting more flow data, so we do have their updated numbers on that.
- So our growth is determined by the allowable effluent levels?
  - Answer: Yes, that's correct. We will actually be looking at the maximum capacity of the river and working backwards. Also, we're considering that some of the septic systems in certain areas may not need to be serviced. We are revaluating effluent limits and growth numbers in light of that.
- Will the assimilative capacity number be public?
  - Answer: Once we finish the report, it will go to the Core Management Team (CMT) for comment, then to the PLC, then ultimately to the general public.
- Going through the CVC, when would the assimilative capacity number be made public?
  - Answer: We still have some work to do on this and are expecting PLC members to see the numbers at some time in September in advance of our next PLC meeting.

- Are you going to be looking at alternative methods like the small bore sewers? Are you considering alternative collection systems?
  - Answer: Yes, we will be considering a number of alternative technologies. As soon as we determine which properties are in or out of the collection system, we will start looking at the potential technical solutions. It may be a mix of potential solutions.
- Would it be helpful if we had an overview of the SSMP report? Would that help at all?
  - Answer: The feedback that we got coming into this is that the SSMP process took a long time and was a bit painful, so we would prefer to move forward rather than dwell on previous battles.
  - A PLC member commented that maybe the way to do it would be to bring forward an overview of the recommendations of the SSMP.
  - Answer: Actually there is already a brief overview provided in the Fact Sheet prepared for this project which can be found on the project webpage. The fact sheet is attached to these minutes as well.
- Once the assimilative capacity study has been completed, will there be an opportunity for public comment?
  - Answer: Yes there will be. The study will be seen first by the CMT, then the PLC, then general public. Comments from all will be considered.
- Does this project and this committee have a way to look at the impact on local businesses should the treatment plant be put in? Does this committee have a chance to look at what the impact would be?
  - Answer: That will come with the socio-economic effects study and will certainly be reviewed by the PLC when it has been completed. The project team will seek to acknowledge and mitigate the potential impacts, but large infrastructure projects of this kind are likely to require some road work down Main Street that would have impacts. We will be seeking advice from the PLC on how best to mitigate any negative impacts and to identify sensitive users.
- Is there going to be information made available to the PLC or the public about existing septic systems and potential replacements.

- Answer: That is actually something we are working on right now. We are trying to get an age profile and conditions profile together. That study is being done and should be ready by the fall.

- How are you doing that study?
  - Answer: We actually found a lot of information through the building department. We originally were going to have to go out and look at each system, but the information has been quite good, so it has shifted from an observational study to a more analytical one. We will also be looking for feedback from residents and local experts in reviewing the septic study.
  - A PLC member suggested that any time work is done on a septic system, there should be some kind of reporting to the town about conditions.
- Have hydrology reports been looked at to take into account the abundance of springs? Some properties will be dry, while others right across the street will have their sump pumps going all year round.
  - Answer: We will definitely take a look at that. Thank you for the suggestion.
- PLC members were asked if there are any opportunities that the project team should be sure to take advantage of?
  - A number of answers were given:
  - There are fantastic technologies out there. If we're looking for something to be proud of, there are a lot of interesting opportunities here in regards to cost recovery.
  - Ideally we would like to have a planning led approach. What we found in the SSMP was that the Erin Official Plan defined some growth areas that present some challenges and opportunities for the implementation of the wastewater system.
  - There is an existing divide between the preference of residents and the push for new growth. There is an opportunity here to discuss how best to grow and develop Erin.

Consultation and Communications

Dave Hardy provided an overview of the consultation and communications approach for the project, including discussing: consultation objectives; consultation and communications approaches; and outlining the phases of the consultation program.

PLC Questions

- There is an average of 5-6 months between meetings of this committee. That is a long time. Is there any way you could communicate with us between those meetings to keep updates going?
  - Answer: There are many ways to do that, including updates on the website and direct PLC member updates. What did you have in mind?
  - A PLC member pointed out that it will be difficult to give a well-informed opinion if we're only seeing details every few months. Even just doing a very advanced agenda with notes would give PLC member something to think about would be helpful. The PLC on the SSMP project basically ended up coming to meetings, listening to the consultant speak, and then everyone walked away. There was no dialogue. There was no engagement. There needs to be ample time to comment and we should consider more meetings.
  - Answer: We see this as an ongoing process that doesn't stop when we leave the room. If a report is released in September, the discussion is not cut off and the door is not closed on comments until the PLC have had their opportunity to provide feedback. That feedback is essential to our success and we would not proceed without it. Our goal will be to get reports and meeting agendas to the PLC as early as possible to allow for ample review time. As well, Council updates will be occurring once per month, so some of the information will be trickling out through them. We can ensure that any updates provided to Council will also be circulated to PLC members. Also, if there are any comments or questions, the project email address will remain open throughout the project.
- The CMT meetings that precede the PLC meetings, is there a reason why they're at the same time, or could they be a week or two before PLC meetings?
  - Answer: We will take a look as a team and see what can be done.

- If I email the project email address and get a detailed answer, how can we be sure that those answers will get out to other PLC members?
  - Answer: In other projects we have sent out answers to all PLC members, or maintained a questions section on the website.
- When we're looking at alternative systems, how will that work?
  - Answer: We will develop a set of evaluation criteria and rank each alternative against each other. We will need to talk to some of the vendors to get additional information, but we are familiar with many types of systems through previous experience. If you have any additional information or specific people to speak to we would love to hear it.
- Will the evaluation be traceable or subjective?
  - Answer: We strive to make it all traceable, but some factors do end up being subjective. Getting input from the PLC will be key here. We will probably end up needing a primer on evaluation methodology so that everyone understands how the decision making will work.
- Erin is a clean palette. We can do whatever we want. We should be open to considering non-standard methods that are progressive, innovative, and economically feasible. If it's just a big pipe tearing up roads, it will be too expensive.
  - Answer: That kind of issue will be covered in the next PLC meeting so there will certainly be an opportunity to discuss it.
- What experience do you have with communities that don't have any infrastructure? You've basically got a greenfield here.
  - Answer: Ainley has implemented the wastewater systems for both Wasaga Beach and Innisfil, which were both designed and developed from scratch with no sewer or water systems in place prior to the projects.
- PLC members were asked to suggest organizations that may be helpful in getting the word out to the people in the community. The following responses were given:
  - BIA; Rotary Club; various service groups; Agricultural Society; Optimists Club; Lions; Masons; and School.

- The suggestion was made that some of these organizations might be interested in hearing about the project at one of their meetings.

- A PLC member pointed out that social media use is big in Erin, with Facebook tending to be the most popular forum. It was also suggested that the local radio station would be happy to provide regular project updates.
- A PLC member agreed that roadside signage for public events would be a very effective means of getting the word out.
- A PLC member pointed out that when we get down to alternatives and possibilities, there are mostly people around the table who are not experts on wastewater systems. At some point the project team might want to consider some educational materials or additional meetings where people can learn in more detail about some of the technical considerations.
- There is a general summary of wastewater collection and treatment technologies in the SSMP.
- A PLC member suggested that even sending out links to informational Youtube videos would be a helpful learning opportunity.
- A PLC member suggested having a glossary of terms and a list of acronyms available on the website.

Final Comments

- More information shared in advance and communicated in ways that the public can easily access would be great.
- Everyone's main concern is going to be cost. This is going to be a major issue. We *have* to afford it. If we don't do something quick, we won't have a Town of Erin. And people do want to see new ideas and not old stock.
- Mayor: One of the reasons we hired Ainley is that we felt they would be much more open to feedback and brining the community into the conversations.
- Happy to see there is a lot of public consultation because there are lot of people in Erin who are interested in this and want to have their voices heard.
- Many things for the SSMP were very last minute.
- We need to be *better* than other towns. We need to be forward thinking and innovative.

6.
PLC 2 – Meeting Notes

Public Liaison Committee Meeting #2 - Notes

PROJECT: Town of Erin: Urban Centre Wastewater
Municipal Class Environmental Assessment (EA)

DATE: November 24, 2016

LOCATION: Town of Erin Municipal Office

TIME: 7:00 p.m. – 9:00 p.m.

ATTENDEES:

PLC members	Organization
Allan Alls	Mayor
Dave Doan	SeptTechWastewater Group
Jamie Cheyne	Heritage Committee and Economic Development, Erin Agricultural Society
Derek McCaughan	Interim Chief Administrative Officer
Dianna Mckay	General public
Jay Mowat	Environment Committee
Justin Morrow	Copper Hills Development
Linda Rosier	General public
Lloyd Turbitt	Let's Get Hillsburgh Growing Committee
Maurizio Rogato	Solmar
Melodie Rose	Riverwalk trails committee
Nancy Shoemaker	Black, Shoemaker, Robinson and Donaldson Limited (Lawyer for Tavares Group)
Roy Val	General public
Valerie Bozanis	General public
Project Team	
Christine Furlong	Triton Engineering
Joe Mullan	Ainley Group
Gary Scott	Ainley Group
Neil Hutchinson	Hutchinson Environmental Sciences
Dave Hardy	HSAL
Noah Brotman	HSAL

Public Liaison Committee Meeting #2 - Notes

MEETING PURPOSE: To review and discuss findings from the technical studies that have been completed to date

MEETING AGENDA

1. **Welcome Remarks**

   Remarks by Mayor Alls

2. **Chair's Remarks**

   Welcome PLC members

   Review Agenda

3. **Assimilative Capacity Study**

   Presentation by Hutchinson Environmental Sciences

   Discussion of Findings and Implications for the Project

4. **Septic System Survey Results**

   Presentation by Ainley Group

   Discussion of Findings and Implications for the Project

5. **Flows and Service Population**

   Presentation by Ainley Group

   Discussion of Findings and Implications for the Project

6. **Next Steps**

7. **Adjournment**

Public Liaison Committee Meeting #2 - Notes

Welcome Remarks

The meeting started with a brief welcome from Mayor Allan Alls and an introduction from Dave Hardy (PLC Chair), providing a brief overview of the agenda for the second PLC meeting. It was noted that there was quite a bit of detailed material to go through together, so the meeting would be broken up into three presentations, with Q&A and discussion time following each presentation. As well, it was expressed that, if necessary, an additional PLC meeting could be arranged early in the new year to continue the discussion and to provide input for the Public Information Centre.

Introductions

The Project Team and PLC members were then asked to briefly introduce themselves, as well as any organizations that they were there to represent.

Project Update

Dave Hardy provided an update of the work completed over the summer since the last PLC meeting. The field studies were described, as well as the process to complete draft reports, receive comments from the Ministry of Environmental and Climate Change (MOECC) and from Credit Valley Conservation (CVC), and finalize the reports for public release. Mr. Hardy noted that MOECC and CVC have a large influence over decisions at this stage of the project.

Presentation: Assimilative Capacity Study

Neil Hutchinson (Hutchinson Environmental) presented the Assimilative Capacity Study (ACS). He stated that the purpose of the study is to understand how the river will deal with the treated effluent. He explained how the level of allowable effluent release would be influenced by factors such as the river's flow rate, flow volume, water quality and sensitive aquatic communities. The field studies undertaken during the summer were described in detail, including the involvement of CVC in the process.

The general findings were described, including, there is very good water quality in the river between 10th Line and Winston Churchill with a low concentration of nutrients and algae. Phosphorus, ammonia, and nitrites are critical elements to consider. The field studies completed below Erin Village show that the phosphorus level is low and well below Provincial standards.

The rhodamine dye test to determine river flow rate was explained. Water quality modelling using the CORMIX and QUAL2K models was explained. Allowable effluent concentration was explained.

ACS Q&A and Discussion

Q: The ACS from B.M. Ross was peer reviewed by Ray Blackport. Are we looking to have this study peer reviewed as well?

Ray Blackport is actually part of this project team and has been working with the CVC to help reach the low flow value.

Q: We have spent a lot of money on studies up to this point. How did we get from B.M. Ross's results to this?

One of the main differences between the findings from B.M. Ross and the new findings is that a higher concentration of effluent phosphorus in the river is now suggested.

Q: Does this phosphorus limit represent the "worst" possible scenario?

The limit indicated is the amount of phosphorus that the treatment facility will not be permitted to exceed.

Q: The 2014 Sewer Servicing Master Plan (SSMP) identified a 7Q20 of 210 and now you're saying 225. Could you explain the difference?

The project team explained that the "7Q20" is the 7-day lowest flow rate over a 20-year period. It was explained that the primary difference between the 7Q20 rates is the inclusion of two more years of flow rate data. B.M. Ross had to use projections and standard ratios, but a flow monitoring gauge placed at 10th Line has given real data and allowed for a more accurate projection.

A PLC member asked that this be made clear in the report and when presented to the community.

Q: How can the B.M. Ross report and this report both claim to use "best available technologies" if there are differences in effluent treatment levels? If the study results are going to allow growth to 15,000 people, that will be the headline of any public meeting.

Another PLC member responded that the cost to treat effluent is directly relatable to how many people the system serves. When people say best available technology there is still the question of what is economically achievable.

The project team added that best available technology changes with time. The last ten years has seen development of a number of new treatment technologies and a 0.07 effluent limit has become a common industry practice.

It was also noted that the effluent limits are only one part of the decision to grow the community. While the allowable effluent level and level of treatment set the potential limits of the overall population, the decision on how much to grow is a planning and strategic decision that rests in the Official Plan process that will occur outside the scope of this study.

Q: In 1991-1993 there were tests done on the West Credit River and the water quality was really bad, specifically regarding Pseudomonas bacteria. Has there ever been updated tests for this?

The PLC member indicated that CVC had provided her with the studies at the time and she would be happy to share. The project team responded that they would be happy to look at those studies if provided.

Q: During the 2014 SSMP process it was stated that Ontario communities recommend the assumption of a 10% reduction of flow because of climate change. Why would we not do 15% just to be on the conservative side?

The project team explained that the 7Q20 of 225 is a calculation done by CVC and the 7Q20 flow statistics is set by the MOECC and not by this team. As well, to give some context, the summer of 2016 was an extremely dry one and during that time the lowest flow recorded was 305, meaning that the 7Q20 of 225 calculated by the CVC is being conservative.

Q: Did we want to address the reduction in precipitation that the area has seen over the last few years? There has been an increasing number of heat advisories and 2016 was the hottest year ever.

Interestingly, the precipitation being low this year actually didn't manifest in a lower flow. In fact, there is a 20% increase in flow between 10th Line and Winston Churchill, indicating that local water springs are adding significantly to the river flow.

A PLC member suggested that the proposed expansion of the gravel pit in the area may have an impact on the water table and how that could impact flows may need to be considered.

Presentation: Septic System Survey

Gary Scott (Ainley Group) presented the results of the Septic System Survey. It was explained, when you design a communal sewage system for an area you don't design for what is currently there, but for what could potentially be built in the area as well. There is a need to account for all potential properties in the area.

The approach taken for the Septic System Survey was described. The approach taken was to define logical groupings of homes and businesses into servicing areas that would allow for decisions to be made based on the overall characteristics of the zone. For example, if a zone has numerous small properties that are unable to put in new septic tanks it would likely be recommended for inclusion in the wastewater system. However, an area with larger properties or undeveloped lots could stay on septic systems and perhaps have their zone connected at a later stage.

An example map of one zone was reviewed and the decision criteria used were briefly discussed. PLC members were invited to take time over the next few weeks to review the zone maps in the completed reports and to provide comments.

Q: Why would the age of a septic system be important? Shouldn't they be able to operate forever if properly maintained?

Septic systems can fail for a number of reasons. Even if maintained in very good working order, the concrete itself and the structural integrity of the tank can degrade over time. Disposal beds can become blocked over time. As well, not all septic systems are properly maintained.

Q: If a holding tank on Main St. breaks, what does the building code say about that? What do they replace it with?

The building code states that new holding tanks would not normally be allowed, however it would be allowed it if there are no other possible solutions.

Q: There was a mention made of nitrate concentrations being elevated at Winston Churchill Blvd. That was when they were dropping whey on the field. Would that have any effect on the nitrates?

This is a good and interesting question but we don't not enough about dairy wastes to respond at this time.

Q: You have prepared this detailed maps from the Town GIS. Are we able to access those?

We are not sure if the maps can be shared due to privacy concerns. We will look into whether the release of that information is possible.

Q: During the SSMP it was brought up that there might be two different ways of treating houses in town (some septic, some communal). This would create two classes of houses. There will be a question from people of "why aren't I a part of this?" and "how much will it cost to hook up this area?".

It is important that people understand that if a decision is made not to connect a zone to the communal system, that a compelling reason to connect the area has not been identified.

Q: There's some wonderful decentralized systems that we should be looking at before I can concur with the area recommendations.

The project team responded that the Terms of Reference for this project was to refine the servicing areas identified in the SSMP and to move on to the treatment approach. Reassessing the base findings of the SSMP was not a part of this project.

A PLC member stated that their understanding is that the mandate is for one facility for both communities and that this decision was no longer on the table.

A PLC member suggested that decentralized systems could deal with the industrial area or certain residential spots.

The project team stressed that we are now past that stage of decision and it is no longer in the scope of work to consider decentralized systems.

Q: You have indicated that you will be looking at alternatives in Phase 3. I assume we will be looking at decentralized systems at that point.

Phase 3 will focus on different treatment technologies that are options for a centralized treatment system. Decentralized systems will not be considered.

A PLC member noted that this was an issue for years in the SSMP and they said someone would look at alternative non-centralized systems. They said that someone would be looking at that in the EA study. But you seem to be under the assumption that this is settled.

The project team clarified that the SSMP concluded that there would be a single municipal treatment plant. The Terms of Reference for this team was to look at a centralized treatment system with collection and treatment alternatives. The CVC has said that the discharge for a centralized facility must be located between Winston Churchill Blvd. and 10th Line.

A PLC member asked to see the Terms of Reference and it was indicted that this could be put up on the project website.

The PLC member thought this meant alternative decentralized systems would be considered, rather than alternative technologies in a centralized system. At this point a conversation ensued between several PLC members and the project team to determine how this difference of understanding could have occurred. Ultimately it was identified that there was a misunderstanding of what was meant by “alternatives”.

Q: In the core area, were you able to figure out the density and average plot sizes?

Yes.

Q: Regarding the building code and outdated septic tanks, how would you know that a tank is out of code?

A PLC member responded that any septic tank installed before 2012 would be out of code.

The project team explained that if a landowner went to get a permit to replace the tank it would have to be brought up to the latest Building Code standard.

Q: What will happen if someone has spent money on a tertiary system or their septic system is working well?

When an EA is completed a municipality typically passes a bylaw that says everyone will have to connect. There can be phasing done but they eventually will have to a connect to a communal system.

Q: What is the current timeline for when all rural properties will need to have a mandatory septic inspection?

The regulation requiring that has been passed by the Town and they are now in the process of implementation and inspection for compliance are expected to occur over the next few years.

Public Liaison Committee Meeting #2 - Notes

Presentation: Flows and Population Projections

Joe Mullan (Ainley Group) presented on flows and population projections. It is explained that part of the purpose of this study is to identify what effluent flow is possible given the river condition and treatment technology. The Official Plan process will be where the actual growth decisions are made. That process is separate and will be run by the Town and the County.

It was also explained that part of this teams mandate is to reevaluate, not redo Phase 2 before moving on to Phase 3 and 4, which is one of the key differences from the B.M. Ross report.

The current population and wastewater flows were presented. The potential populations that would be possible with various treatment levels were presented. The new growth areas of both Erin and Hillsburgh were described. Observations and preliminary recommendations were reviewed.

Q: If we build a facility for 10,000 people, could we still restrict growth and keep the population at 6,000? How would that impact the cost per person?

The result would be a much higher expense per person. There is some staging possible but there would be no reason to overbuild if you are not intending to grow.

Comment: Mayor Als commented that this is just technology. It has nothing to do with population levels the Town decides to achieve. The Town will be initiating a process to discuss population growth in 2017. The wastewater EA will not make the decision about how much we grow. Also, at this point we should really be starting to move beyond discussing the SSMP. Those decisions have been made and we need to move forward.

Comment: It would be helpful for the public meeting to come up with a simplified statement about the differences between the B.M. Ross study and this study in order to help differentiate.

Q: In order to achieve full buildout, we have to go with the best technology. Does anyone have any idea of the cost per year to service that?

That is a topic that we will be getting to in the new year.

A PLC member suggested that if we got to the public meeting and say that 15,000 people can now be accommodated then the first question will be how much will that cost. It will be viewed as suspicious if we don't have a number.

The project team responded that we are currently in the middle of the process and there is quite a bit more study to be done before we get to costing.

Q: Is the PIC in January premature if we don't have all the info?

One of the key focuses for the team on this project is to communicate with the public and to provide information in a timely and easy to understand way. We are going to be doing the PIC at this time so that we can familiarize people with what is happening early in the process. This will give people time to think about things, learn more about the process, and take the time to discuss and understand. If we just save everything up for a single meeting at the end it will be very challenging for people to engage and provide meaningful input. We are planning a second PIC at which costs and technologies will be discussed.

Q: Has this taken into account septage? Now septage must be sent to Collingwood so this could be a source of revenue.

Yes, septage has been taken into account and the treatment plant should be able to treat septage over and above the limit shown here.

Q: After treating septage would there still be biosolids to deal with? Has technology gotten to a point where there are beneficial uses for the biosolids?

There will be a biosolids management aspect to this and there are currently beneficial uses for biosolids. That is an aspect that will be considered later in the process, however the scale of the plant might mean that not enough biosolids are produced to provide a notable benefit.

Final Comments

PLC members were asked to provide final comments about their thoughts on the overall process

- It would be helpful to really make the point that planning is not done by pipe. You should show at the PIC how planning decisions are made.
- Much of this material will need to be made more easily digestible for the public.
- I applaud this team for this process. It is going much better than last time.
- I am still really concerned about what you'll do in terms of alternate technologies. If what you're saying is that the only option is a single treatment plant, then I am disappointed. There are plenty of other technologies that should be considered. I was at those B.M. Ross meetings and it was very clear that alternative technologies would be considered.
- Looking forward to see where we're going next because that is the guts of this process.
- Not being an engineer, I agree that it is disappointing that decentralized approaches are not going to be considered.
- I would like to see a little more study on the quality of the River.
- We should look at alternatives that cost less and are decentralized.
- People will be most interested in costs and what it means for development.
- I believe we could get Council to revise the Terms of Reference and look at two treatment plants.
- Why would the public want to look at alternative systems? Wouldn't the centralized system be the most economic way of doing this?

- This is going well and there has been lots of good discussion.
- There has been lots of great work done by the project team. This is a public process and people should engage with it and present other options to the team if they feel certain ideas have not had enough consideration.
- If I do some research and find some technologies I will send to the project team for their consideration.

7.
PLC 3 – Meeting Notes

Public Liaison Committee Meeting #3 - Notes

PROJECT: Town of Erin: Urban Centre Wastewater
Municipal Class Environmental Assessment (EA)

DATE: June 7, 2017

LOCATION: Town of Erin Municipal Office

TIME: 7:00 p.m. – 9:00 p.m.

ATTENDEES:

PLC members	Organization
Allan Alls	Mayor
Valerie Bozanis	General public
Nathan Hyde	Chief Administrative Officer
Deanna McKay	General public
Jay Mowat	Environment and Sustainability Advisory Committee
Linda Rosier	General public
Lloyd Turbitt	Let's Get Hillsburgh Growing Committee
Maurizio Rogato	Solmar
Melodie Rose	Riverwalk trails committee
Nancy Shoemaker	Black, Shoemaker, Robinson and Donaldson Limited (Planner for Tavares Group)
Roy Val	General public
Project Team	
Christine Furlong	Triton Engineering
Joe Mullan	Ainley Group
Gary Scott	Ainley Group
Neil Hutchinson	Hutchinson Environmental Sciences
Deborah Sinclair	Hutchinson Environmental Sciences
Dave Hardy	Hardy Stevenson and Associates Limited
Noah Brotman	Hardy Stevenson and Associates Limited

Public Liaison Committee Meeting #3 - Notes

MEETING PURPOSE: To review and discuss findings from the technical studies that have been completed to date and to provide a preview of the Public Information Centre in June.

MEETING AGENDA

1. **Welcome Remarks**
   Remarks by Mayor Alls
2. **Chair's Remarks**
   Welcome PLC members
   Review Agenda
3. **Subsurface Disposal Alternative Technical Memo**
   Discussion of Findings and Implications for the Project
4. **Hillsburgh Surface Water Disposal Alternative Technical Memo**
   Discussion of Findings and Implications for the Project
5. **Preview of Public Information Centre**
6. **Next Steps**
7. **Adjournment**

Public Liaison Committee Meeting #3 - Notes

Welcome Remarks

The meeting started with a brief welcome from Mayor Allan Alls and an introduction from Dave Hardy (PLC Chair), providing a brief overview of the agenda for the third PLC meeting.

It was noted that there was quite a bit of detailed material to go through together, so the meeting would be broken up into three presentations, with Q&A and discussion time following each presentation. The first presentation was on the results of the study of the subsurface disposal alternative with a presentation by Gary Scott. The second topic focused on the investigation of a potential second treatment plant in Hillsburgh with a presentation by Joe Mullan. The third topic was a discussion about the upcoming Public Information Centre led by Dave Hardy.

Introductions

The Project Team and PLC members briefly introduced themselves, mentioning the organizations that they were there to represent. Nathan Hyde, the new CAO for the Town of Erin, was introduced to the PLC.

Presentation: Subsurface Disposal Alternative

Gary Scott presented the results of the investigation into a subsurface disposal alternative. The presentation started with a brief review of the background of the study, noting that it was the result of a request/suggestion made by PLC members. Following that request, Ainley Group met with members of Transition Erin to better understand their concerns. This resulted in taking a closer look at the Servicing and Settlement Master Plan (SSMP), from which Ainley determined that the possibility of subsurface disposal had not been adequately addressed in that study. The SSMP acknowledged the possibility but had left it as a recommendation for investigation in Phase 3. In order to be able to satisfactorily close out the Class EA, Ainley felt that it was important to investigate that alternative.

Once approved by Council, a study was undertaken to determine the viability of subsurface disposal. A technical memo was completed that looked at: government regulations on subsurface disposal; other locations in Ontario where comparable systems had been used; a calculation of the land area that would be required; a study of which areas in Erin could use subsurface disposal considering environmental constraints; a consideration of alternatives in Erin Village and Hillsburgh to consider viability; and, a general project of potential costs.

Gary then provide a few highlights of identified considerations that should be taken into account when considering the viability of subsurface disposal:

Government regulations

- Wastewater systems over 10m^3/d falls under MOECC jurisdiction and would require environmental compliance approval.
- Subsurface system effluent treatment requirements could be almost equivalent to the requirements of a surface water system.

- The systems being considered for Erin Village and Hillsburgh would need to meet this standard.
- The technical memo discusses and conceptually outlines the effluent requirements.
- It is noted that to fully define those effluent requirements there would need to be extensive hydrogeological and geological studies that could take years to do.
- The MOECC is generally getting stricter about requirements as they are increasingly of the opinion that the ground would be getting saturated with nitrates and phosphorus.
- Regulations on subsurface disposal could tighten in the future.

Other locations in Ontario

- Subsurface disposal is fairly common for rural subdivisions and facilities.
- Most subsurface systems are in situations where the developer/owner actually owns the land it is put on.
- In Erin, it would be imposing the system on private owners, which could cause a number of issues.
- An investigation was done into one specific system nearby that is already having issues leading to bed replacement. It was also noted that the cost per house of that system was around $21,000.
- If Erin were to do this, it would be the biggest system in Ontario.

Examination of land area

- Size of disposal beds required were calculated using MOECC guidelines.
- A service area of 58 hectares would be required to serve Erin Village and Hillsburgh.
- Due to a history of failure of these disposal beds, MOECC has been asking for additional disposal bed capacity.
- Erin Village and Hillsburgh have variable and undulating topographies with a lot of surface water drainage. Since any subsurface discharge requires a setback from surface water, this creates some limitations on potential locations for disposal beds.
- MOECC considers a 300m buffer as reasonable, with indications that they may increase the required buffer area in the future.

At this point Gary shared and explained the map of potential areas in Erin Village and Hillsburgh that could allow for subsurface disposal. It was shown that the possible areas are somewhat limited and that there would be a number of challenges for siting any subsurface disposal systems.

A general review of cost estimates for the various subsurface alternatives were described.

Given the findings in the Subsurface Disposal Alternative Technical Memo, both the MOECC and CVC recommended that subsurface disposal not be investigated further.

Subsurface Disposal Alternative Q&A and Discussion

Q: What is the equivalent number of households that would produce 80m^3/d of waste?

That would be the equivalent of around 80 homes. An explanation was provided of the usual waste numbers for standard homes.

Q: So the operation at Centre 2000 could service 70 to 80 homes?

Yes, though the system there has been having problems and they have had to add additional disposal bed capacity. If that were to occur on a full town scale in would be very problematic.

Q: I am aware of a subsurface system in the town of Mono and MOECC has required them to have a water source next to the system in case anything goes wrong.

We looked into that system in the report and noted that they have been having issues.

The project team would like to clarify that MOECC did not require a water source to be located next to the system. Since there was nowhere for the system to discharge to surface water, discharging into the ground was the only alternative.

Presentation: Two Treatment Plant Alternative Technical Memo

Joe Mullan presented the results of the investigation into the possibility of a second treatment plant and an additional surface water discharge site in Hillsburgh. It was noted that this alternative was not heavily discussed in the SSMP and that Council felt it was best to complete all the due diligence and investigate this option.

The SSMP collected and evaluated water quality and flow data on the West Credit River from Hillsburgh to south of Erin Village. From this data a discharge location was identified with support from MOECC and CVC and the study was then closed. At the start of this project, Ainley reviewed the data collected in the SSMP and found that there was not enough data to complete an Assimilative Capacity Study for discharge in Hillsburgh in order to understand the flows.

In order to collect the data required to properly determine the 7Q20 for the Hillsburgh area of the river, flow and water quality data would be required for at least 10 years of monitoring in order to meet MOECC and CVC data standards. Undertaking this investigation would mean a significant delay for the implementation of a communal wastewater system and would cost around $500,000. Most importantly, there would be no guarantees that the study would reach a positive result, meaning that 10 years of studies could be done and then the result could be that effluent discharge would not be allowed at that location.

High-level cost considerations comparing two plants versus one were then reviewed. Overall, the two-plant solution would end up costing more than a single treatment facility.

Due to the time, cost, and uncertainty of being able to implement a second treatment plant with MOECC and CVC approval, it is recommended to proceed with a one-plant solution.

Public Liaison Committee Meeting #3 - Notes

Subsurface Disposal Alternative Q&A and Discussion

Q: I would like to see the cost numbers in today's dollars. How can the $60 million be the cost for just the one treatment plant?

That is the cost of the treatment plant for full buildout. It can be phased along the way to coincide with the actual population growth called for in the Official Plan.

Q: Is there somewhere where we have seen the number of properties that this effects?

We can express costs by the numbers per lot, but at this stage we usually look at it in terms of the number of people to be served by the system.

Q: People at the PIC are going to be asking about costs. How will that be addressed?

We will be making it clear that considering specific costs at this point is getting ahead of things in the process of the study. That is a topic for the next stage and we will assure everyone that we recognize that this is the topic of greatest concern for most residents and it will be covered in detail in the next PIC in November.

It will also be important to point out that the number of people for full buildout is being determined by Official Plan decisions. Those growth targets will have an impact on the associated costs for current residents.

Q: When we talk about two plants, are we talking about two surface plants? Did you consider the possibility of surface disposal in Erin Village with subsurface disposal in Hillsburgh?

Yes, we are talking about two surface plants. We did investigate the possibility of surface disposal in Erin Village with subsurface disposal in Hillsburgh and it was concluded that it would be a 12% increase in cost to do subsurface in Hillsburgh over piping into a single treatment plant in Erin Village.

Q: If you present these numbers at the PIC, shouldn't you include the costs of both the plant and the piping? This does not include the piping.

Good point. Collection system alternatives have not yet been evaluated and are going to be looked at in Phase 3 of the Class EA. For the next PIC, we should be able to present total costs including the plant and piping.

Q: There was some discussion of using the Cataract Trail as a possible avenue for connecting the sewage systems of the two villages. Has there been any further investigation into this?

There have been initial discussions with the CVC and they have indicated that they are open to considering this but nothing has proceeded on that topic yet.

Q: Are both of these reports on the Town's website?

The subsurface study is currently up on the Project's website. The treatment plant alternative memo will be up shortly.

Comment: People had a strong reaction about the cost numbers at the PIC for the SSMP. I suggest that the messaging be very carefully thought through with how the costs are presented to people because that has potential to scuttle the whole project?

Great point. We are very much aware of that concern and will be thinking carefully about how everything is presented.

Q: Is there a way to talk about the potential for Provincial and Federal funding to perhaps soften the blow for people?

Mayor Alls responded that it would be premature to discuss that possibility, but that he has had some initial conversations and would be following up with Provincial and Federal governments.

Q: Operational costs are estimated over how long? And is that listed in 2016 dollars or does it take into account inflation over time?

Those operational costs are for fifty years and are in 2016 dollars without inflation.

Comment: We will definitely want the collection costs to be included in this.

The collection costs will be included when we get into that topic at the next PLC and PIC.

Public Information Centre Preview

Joe Mullan started with an overview of the PIC and how it will be set up. The date, time, and location were discussed, with PLC members sharing thoughts about how best to structure the meeting. The format of the PIC was described, starting with an informal opportunity to see the display boards and speak with the Project Team, a formal presentation, and then a question and answer period for visitors to ask questions and share their thoughts. A description of the display boards was provided including what technical material will be presented.

Feedback provided by PLC members is depicted below, along with responses from the Project Team:

Comment: This is a commuting town and 6pm might be a bit early to start.

We are flexible on the timing and can start the presentation later if needed.

Comment: Sixty display boards is a lot of content and I recommend that you lower that number to something more manageable.

We will look into reducing the number of boards where possible.

Comment: The arena might be the wrong space. We have never had 250 people show up for anything at the SSMP. There is a lot of echo and I would recommend doing it

somewhere else.

Thank you for the comment. At this point we are committed to the location, but will have an audio system there that will reduce echo as much as possible.

Comment: Maybe some consideration should be given to a more open house format with less of a focus on a formal presentation. Presentations can get complex or boring. Q&A periods can become an opportunity for people to grandstand and maybe isn't needed.

Thank you for your comment. We will consider that possibility.

Comment: The Project Team should be easily identifiable.

A Project Team members will have name tags for easy identification.

Comment: If you were to use a projector for the boards instead of printing they could be much larger and more people would be able to see them at once.

We will be using a projector for the presentation, but for the boards that would mean that people could only see one slide at a time and might not focus on the topics that most concern them.

Comment: I think that you could get a lot of traction with people if you can show images of what the actual treatment plant would look like.

Comment: Lots of people won't be able to understand the language being used. You need to do as much as you can to make the language easily understood by everyone.

This is definitely a focus for us. It will need to be a careful balance between helping people understand through simple language and using technical accurate terms to avoid later confusion.

Comment: Who will chair the Q&A?

Dave Hardy will be the chair.

Comment: We have had bad experiences with outside facilitators. Tricky to have someone from outside the town to do this. You should consider having someone from the Town do it.

Comment: One of the major questions you will face is that the SSMP estimated river capacity at 6000 people and now you're saying it can be 14,500. There needs to be a simple and succinct answer to how this is possible.

Thank you for the comment. We will do our best to explain to people how our improved understanding of the flows and water quality of the river, as well as using best available treatment technology.

Comment: I didn't realize that there was an actual Phase 4 to this process. It would be good if one of the boards said what the next two phases are and what they will be dealing with.

Need to be clear on that.

Comment: What's the presentation going to be? Is it simply going to be a reiteration of the boards? Some of the best presentation we've had have not had any words in the display. There's pictures to connect with what you're saying, but there's no need for words in the PowerPoint. The words are already on the display boards, there is no need for them in the presentation.

Comment: You've got to try to dumb it down. No disrespect to anyone, but they just want to come and easily understand, and you have maybe fifteen minutes before they lose interest.

Comment: I suggest that you keep the presentation to 30 minutes with a one hour Q&A period. At the SSMP the presentation went for over an hour and it annoyed everyone.

We will consider shifting time from the presentation to display board meeting and greet at the start of the event so that people can speak directly with the Project Team for more time.

Comment: The Q&A should be documented somehow.

We will be taking detailed notes and there will be a PIC consultation report produced.

Comment: If we advertise the meeting we might want to have it say why it's happening and what people will get out of the meeting.

The Mayor responded that this was a great idea and that he would write a piece for the newspapers to publish.

Final Comments

PLC members were asked to provide final comments on the overall process

- Strongly suggest to cut down the number of display boards.
- Council should look to senior levels of government for funding and to work with developers to make it affordable for the average person.
- This is very important and pertinent material and we want it to be received positively by the public. So pictures, and bullet points, and simple language will be important.
- The two reports discussed today were very helpful and answered a lot of our questions.
- I think that there is a lot of misinformation in the community about this. I don't think that the website and the information coming out of Council has told the story well. I think that people will have a lot of misconceptions and they're going to take small pieces of what you're presenting and they're going to run with it. Be ready to correct a lot of misconceptions.

8.
PIC 1 – Project Backgrounder

June 13th, 2017

Backgrounder

Wastewater Public Information Centre

- The Class Environmental Assessment (Class EA) process for wastewater projects in Ontario is a five phased process. The Settlement Servicing Master Plan (SSMP) completed Phase 1 (problem definition) and part of Phase 2 which identifies the recommended overall general alternative solution to the problem. For the past year the team has been busy closing out Phase 2.

- The focus of the work by the consultants over the last year has been to study the conditions of the West Credit River in order to determine whether it can support a municipal wastewater system for the existing community and to allow for future growth. It has been found that the river can support growth up to a population above 14,500 which is in line with the present Official Plan growth allocations. As well recommendations have been made as to what areas should be serviced by the municipal system to support the existing community and potential growth areas.

- Following the June 22nd Public Information Centre (PIC) meeting and subject to comments received, the team will move forward with Phase 3. Phase 3 looks at more detailed design alternatives for the recommended general alternative identified in Phase 2. They will be looking at what type of sewage collection system the Town should have and what type of treatment the Town should have for the treatment plant. The preferred location of the plant and the discharge location to the river and the location of any pumping stations, will all be developed in the coming months and presented at the next Public Information Centre.

- Financial impacts from the recommended preferred solution will be available at the next meeting in the fall.

- The target for completion of the project is anticipated to be Spring – 2018.

For more information: Nathan Hyde, CAO – Town of Erin. 519.855.4407.

Nathan.Hyde@Erin.ca.

9.
PIC 1 – Media Advisory

June 13th, 2017

MEDIA ADVISORY

What: Public Information Centre to discuss the Town's Wastewater Servicing Environmental Assessment that is currently underway

When: June 22nd, doors open at 6:00pm with an opportunity for informal questions and answers. Formal presentation begins at 7:30pm, to be followed by a formal question and answer period at 8:00pm.

Where: Centre 2000 Community Centre (on the ice rink), 14 Boland Drive, Erin, ON.

Details: This is an opportunity for the media and community to learn more about the current Wastewater study and ask the Project Team questions. Residents will have an opportunity to ask detailed questions about the work completed thus far, and learn what steps are left to be completed. The work currently underway is the latest step in a process that started years ago with the development of the Settlement and Servicing Master Plan (SSMP) and is now continuing with the present team to complete the Class Environmental Assessment process.

For more information: Nathan Hyde, CAO – Town of Erin. 519.855.4407.
Nathan.Hyde@Erin.ca.

10.
PIC 1 – Presentation Boards

Public Information Centre

WELCOME

Town of Erin – Urban Centre

Wastewater Servicing Class EA

TOWN OF ERIN

Class Environmental Assessment Phases 3 & 4

Ainley GROUP CONSULTING ENGINEERS PLANNERS

Date: June 22, 2017

Presentation Agenda

1. Welcome and Introductions
2. Meeting Courtesies
3. Purpose of PIC & Project Background
4. Refresher on the Servicing and Settlement Master Plan (SSMP)
5. Update on Assimilative Capacity Study (ACS) and confirmed effluent objectives for the discharge to the West Credit River at 10th Line;
6. Overview of the existing Septic System Review and identified areas that should be connected to the Municipal Wastewater system;
7. Overview of the Potential Populations and Wastewater Flows for each Community, based on updated ACS and new effluent criteria;
8. Overview of the Assessment for Two Wastewater Treatment Plant discharge locations;
9. Overview of the Assessment for Large Subsurface Disposal Systems.
10. Next Steps & Schedule

Project Team

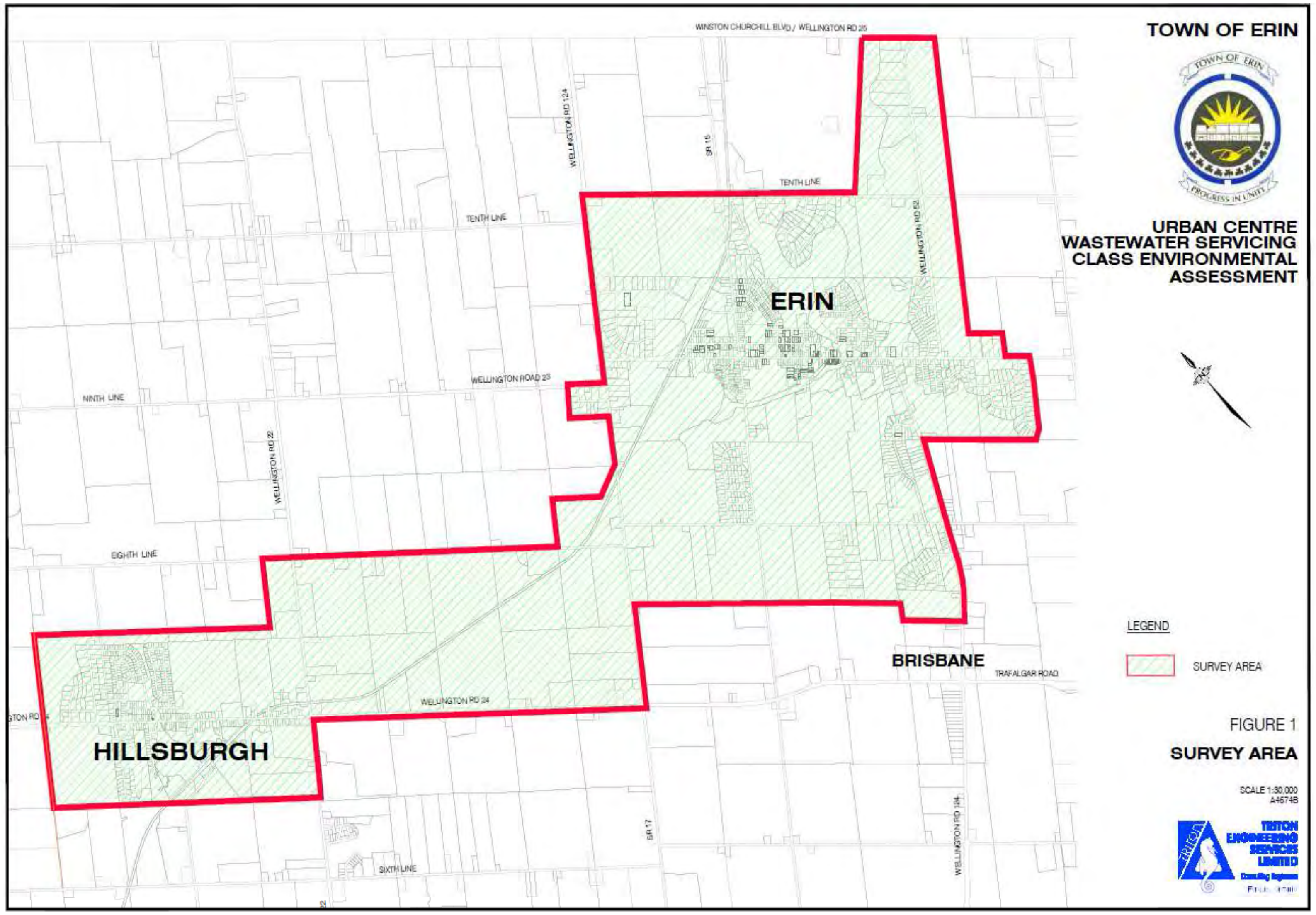
Christine Furlong	Town's Project Manager
Joe Mullan	Overall Project Manager
Gary Scott	Technical Team Lead
Simon Glass	Technical Support
Dave Hardy	Consultation Lead
Noah Brotman	Consultation Support
Neil Hutchinson	Natural Sciences Advisor
Deborah Sinclair	Senior Aquatic Scientist

Meeting Courtesies

- Speaking
- Listening
- Jargon
- Note taking
- All views welcome
- Polite language
- Sharing time
- Speak into the microphone
- Safety

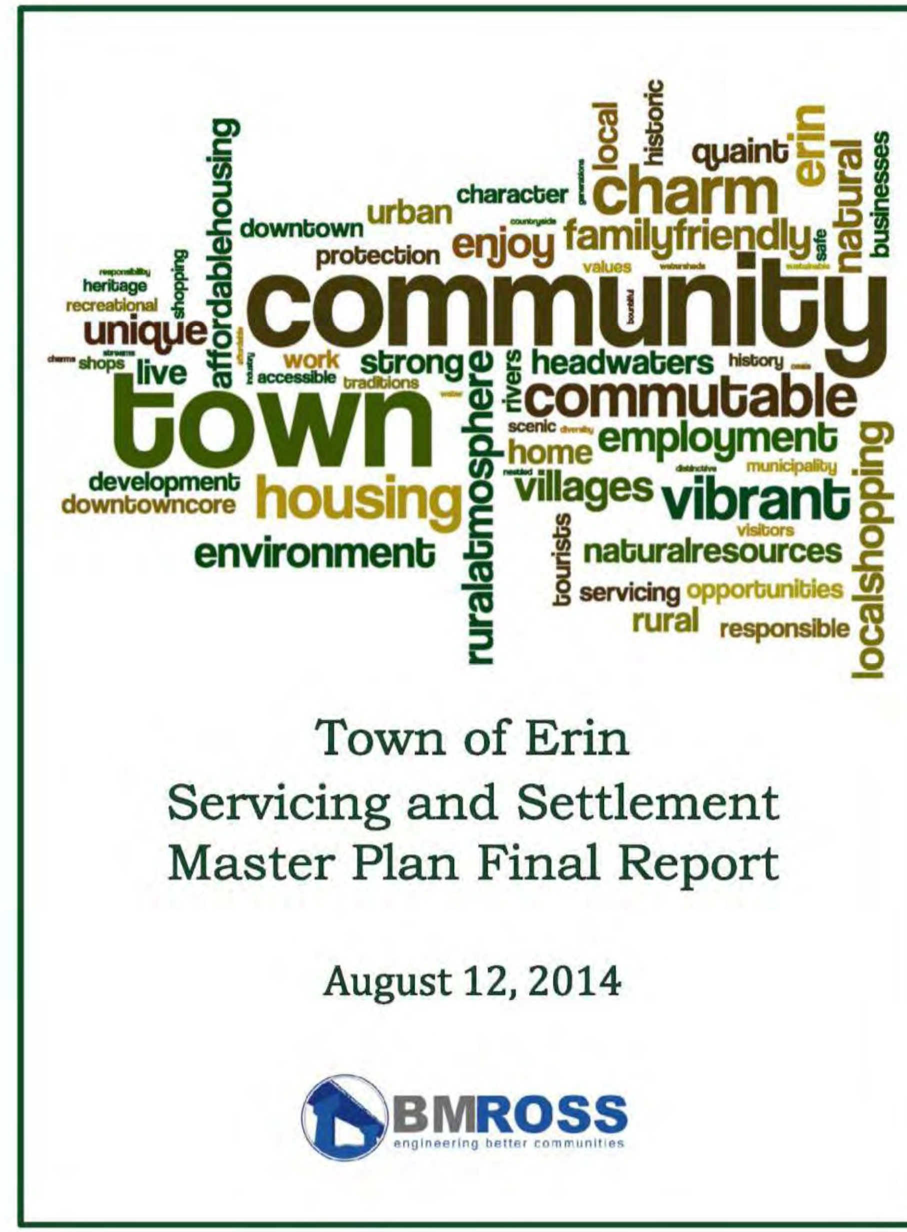
Purpose of today's Public Information Centre (PIC)

- To provide an overview of the Urban Centre Wastewater Servicing EA
- To outline changes since the SSMP was completed in 2014
- To present project findings and receive comments on the various Technical Reports, completed to date
- To highlight next steps and the proposed schedule



Servicing and Settlement Master Plan (SSMP)

- In 2014 B.M. Ross completed the Servicing and Settlement Master Plan (SSMP). The SSMP completed Phase 1 and part of Phase 2 of the Class Environmental Assessment process.
- SSMP concluded that the Town should proceed with planning for a municipal wastewater system for both communities.
- SSMP identified a Preferred alternative as a single Wastewater Treatment Plant with effluent discharge to the West Credit River, between 10th Line and Winston Churchill Boulevard.
- SSMP identified a potential buildout population of 6,000



Assimilative Capacity Study (ACS) Update

- The Assimilative Capacity Study (ACS) identifies how much treated wastewater can be safely discharged to the West Credit River at 10th Line.
- An ACS was completed by CVC, as part of the SSMP in 2014.
- A key component of the ACS is the determination of the 7Q20 flow rate. The 7Q20 flow rate is the lowest 7-day average flow in a 20 year period.
- The 7Q20 is used to assess the effect of effluent discharge to the river under low flow conditions.
- In 2016, CVC updated the 7Q20 value for the West Credit River at the 10th Line and identified a value of 225 Litres/second. The SSMP identified a 7Q20 of 202 Litres/second
- Water quality and potential effects on species in the river are core concerns and the ACS helps to ensure that appropriate treatment limits are set.

Assimilative Capacity Study (ACS) Update

- The baseline water quality in the West Credit River was measured through sampling at 10th Line
- At this location, the water quality in the river is very good
- One of the key water quality parameters for treatment is the level of Total Phosphorus (TP) in the river and in the effluent.
- The level of TP in the river is 0.016 mg/L, well below the Provincial Water Quality Objective (PWQO) of 0.03 mg/L.
- This study is recommending a downstream Site Specific Water Quality Objective (SSWQO) of 0.024 mg/L TP (well below 0.03 mg/L):
- Based on the above, we can increase the TP in the river from 0.016 mg/L to 0.024 mg/L

Recommended Effluent Limits for WWTP to meet Provincial Water Quality Guidelines in West Credit River

- The recommended effluent limits will reduce nutrient levels to minimise the impact on the river.
- The proposed Total Phosphorus (TP) limit of 0.045 mg/L will ensure the TP in the river will be below the objective of 0.024 mg/L, even at full buildout.
- The recommended effluent limits have been reviewed by MOECC and CVC and their comments have been addressed.

Parameter	**Full Build Out Effluent Limit**
pH	Within range of 7 – 8.6
Total Suspended Solids	5 mg/L
Total Phosphorus	**0.045 mg/L**
Total Ammonia Nitrogen	0.6 mg/L summer; 2 mg/L winter
Nitrate Nitrogen	5 mg/L
E.coli	100 cfu/100 mL
Dissolved Oxygen	4 mg/L
5-day Carbonaceous Biochemical Oxygen Demand (CBOD5)	5 mg/L

Septic System Review and Determination of Service Areas

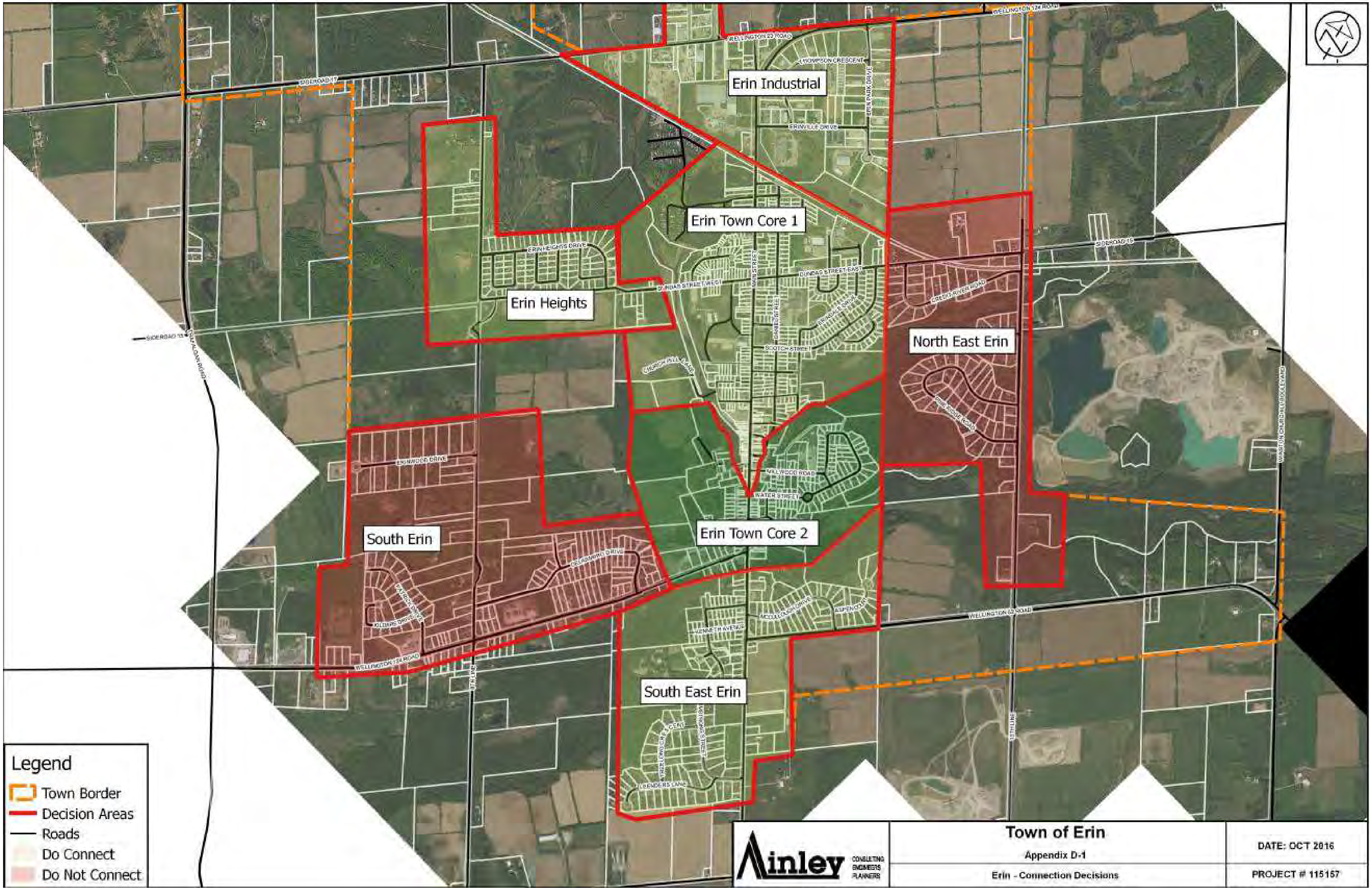
- There is a long history of concern over the number and concentration of septic systems in Erin Village and Hillsburgh.
- In 1995, a study by the Health Unit identified that properties in some areas of Erin Village close to the river were increasing the potential for contamination and that many were too small to comply with standards
- A 2005 MOECC septic investigation for Erin Village determined that septic systems in the community were a contributor to nutrients in the West Credit River
- The 2014 SSMP recommended that most of the core areas of Erin Village and Hillsburgh be serviced by a communal sewage system.

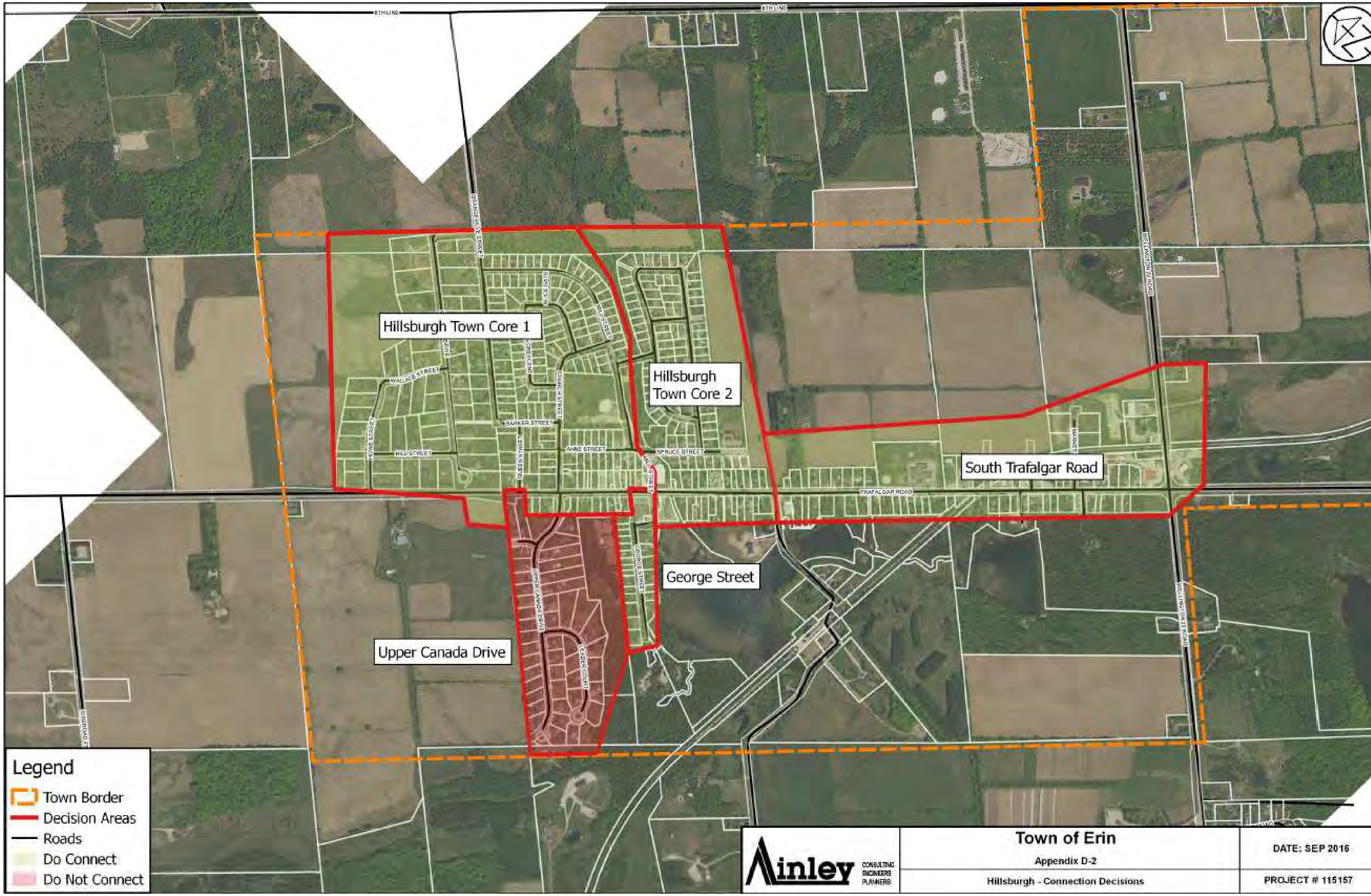
Septic System Review and Determination of Service Areas

A comprehensive review of existing septic systems was completed and it was determined that:

- Based on the current Building Code, the lot size must be approximately 1,400 m^2 (15,000 ft^2 or 0.35 acre) for a traditional septic system, to meet compliance requirements.
- Approximately 51% of the lots in the study area are less than 1,400 m^2 and in some areas, over 80% of the lots are less than 1,400 m^2.
- Many of the existing septic tanks are undersized based on the current Building Code requirements
- Depending on the area, average septic tank age ranges from 11-40 years
- Following slides shown the areas being recommended for inclusion or exclusion from a Municipal Wastewater system, based on the existing septic system review.

Town of Erin – Urban Centre Wastewater Servicing

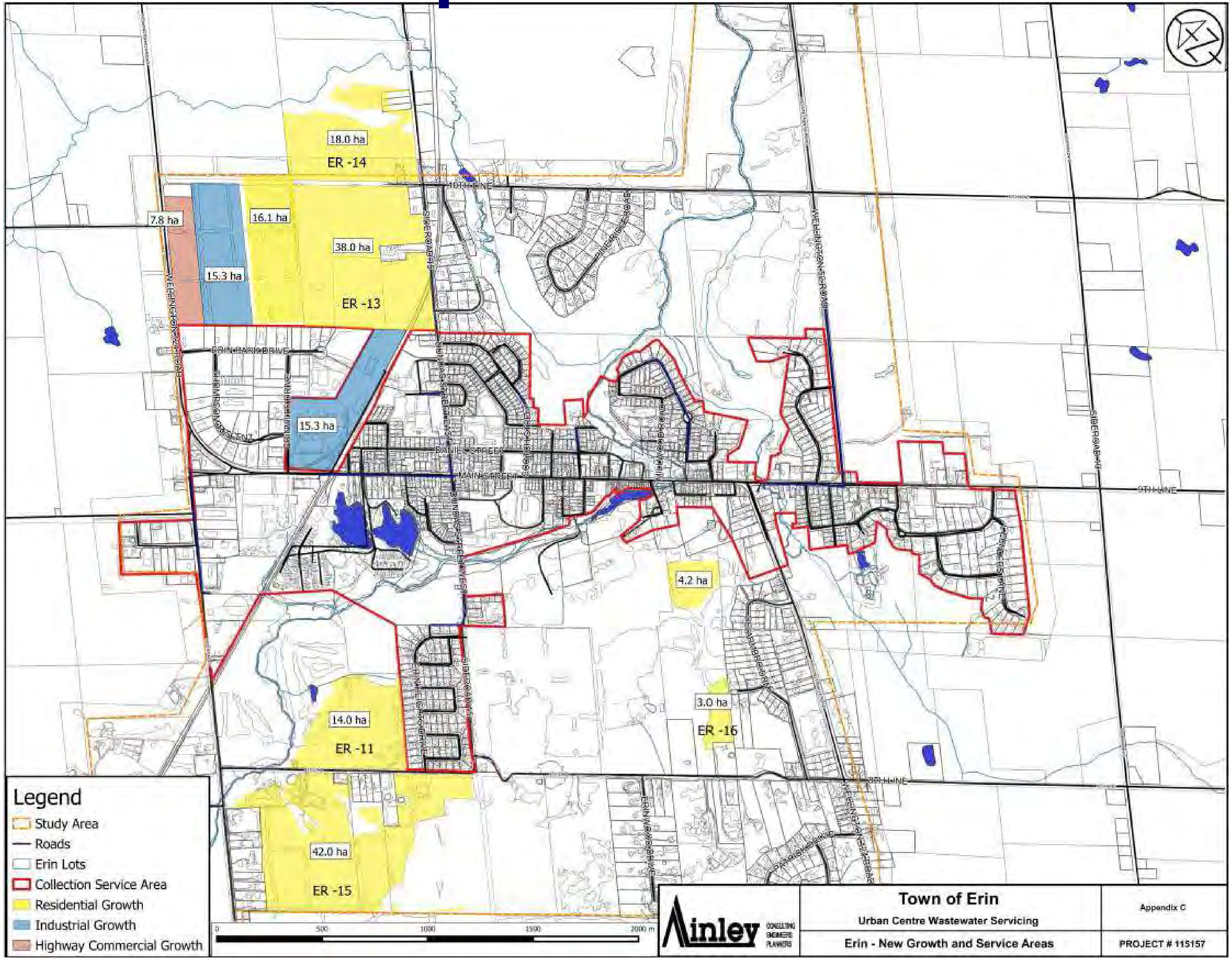



Hillsburgh Town Core 1
Hillsburgh
Town Core 2
South Trafalgar Road
George Street
Upper Canada Drive
Legend
Town Border
Decision Areas
Roads
Do Connect
Do Not Connect
Ainley CONSULTING ENGINEERS PLANNERS
Town of Erin
Appendix D-2
Hillsburgh - Connection Decisions
DATE: SEP 2016
PROJECT # 115157

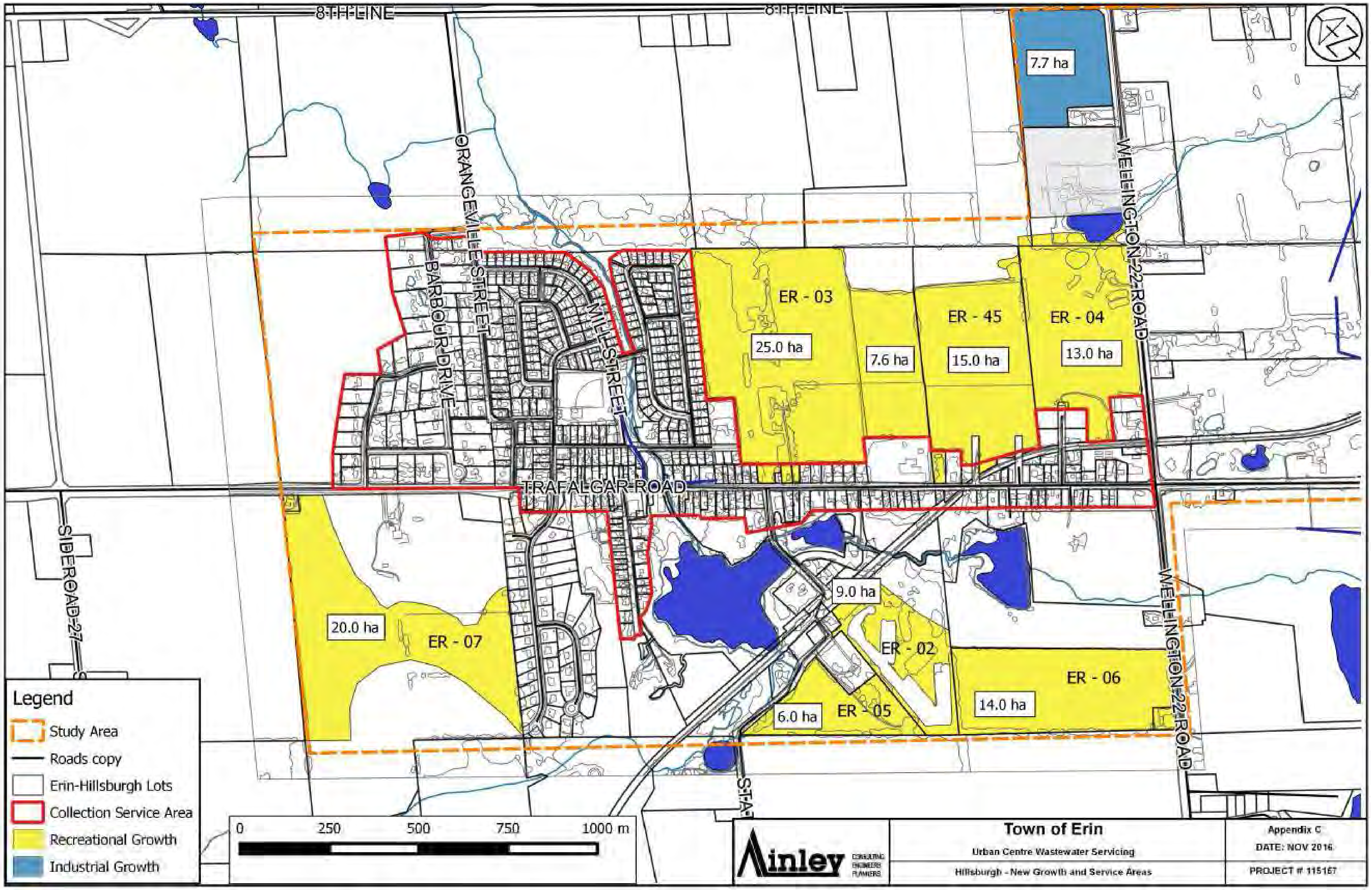
Population and Flow Projections

- The SSMP established a servicing limit of 6,000 persons
- Based on the use “Best Available Technology” at the Wastewater Treatment Plant, the updated ACS and the new effluent criteria, we have the potential to service a higher population
- The Town of Erin Official Plan (OP) has identified 267.3 Ha (660 acres) of land available for residential, commercial and industrial growth in the Town.
- We have determined that full buildout of these growth areas, would add an additional 9,943 residents to the existing population of 4,616 residents, giving a total full build out potential population of 14,559.
- However; the future population of the Town will be determined through an Official Plan review process and not through this Class EA.

Potential Development areas in Erin Village



Potential Development areas in Hillsburgh



Population and Flow Projections

Potential Full Buildout Residential Population

	Erin	Hillsburgh	Total
Existing Community	3,225	1,391	4,616
Growth Areas	5,340	4,603	9,943
Total	8,565	5,994	14,559

Potential Full Buildout Flow Projection (m^3/d)

	Erin	Hillsburgh	Total
Existing Community	2,244.1	599.4	2,843.5
Growth Areas	2,523.0	1,805.7	4,328.7
Total	4,767.1	2,405.1	7,172.2

Note: Actual Populations for Erin & Hillsburgh will be determined through Town's Official Plan update

Why has "Potential" Serviced Population increased from 6,000 in SSMP to 14,559 in current Class EA

There are a number of key difference between the assumptions made in the SSMP and in this Class EA as noted below:

Design Assumptions	Servicing and Settlement Master Plan (SSMP)	Urban Centre Wastewater Servicing EA
Total Phosphorus level in the treated sewage	0.15 mg/L	0.045 mg/L
Total Phosphorus in the river after mixing with the treated effluent	0.03 mg/L	0.024 mg/L
7Q20 Flow within the West Credit River as identified in Assimilative Capacity Study	202 Litres per second	225 Litres per second
Per-capita contribution of sewage (Litres per-person per day)	435 L/p/d	380 L/p/d
Resulting Potential Sewage flow	2,610 m^3/day	7,172 m^3/day
Resulting Potential Population	6,000	14,559

Alternative with Two Treatment Plants & Two Surface Discharge Locations

- The SSMP looked at a range of Alternatives including a two Treatment Plant solution but with a single surface water discharge south of Erin Village.
- This alternative (two plants with a single surface water discharge) was eliminated during the SSMP based on cost.
- A two plant solution based on two separate discharges to surface water was not seriously considered in the SSMP and this has been questioned by members of the Public Liaison Committee.
- At the May 2, 2017 Council Meeting, Council passed a resolution requesting this Alternative be reviewed.

Potential River Discharge Through Hillsburgh

- There is currently insufficient water quality or flow data to complete an Assimilative Capacity Study (ACS) to define effluent limits for a surface discharge through Hillsburgh
- No additional water quality or flow data has been collected, for the river through Hillsburgh, since the completion of the SSMP in 2014
- Based on the limited data currently available, it cannot be determined if the river, through Hillsburgh, could support a Treatment Plant discharge
- To complete an Assimilative Capacity Study would require collection of flow & quality data for up to 10 years and could cost in excess of $500,000, with no guarantee that a surface discharge would be approved near Hillsburgh

Two Treatment Plants Cost Comparison

The cost comparison between two Treatment Plants with two surface discharges versus a single Treatment Plant with one surface discharge are:

- A single Treatment Plant is 27% less expensive than a two Treatment Plants (with two discharges), for servicing the existing community
- A single Treatment Plant is 32% less expensive than a two Treatment Plants (with two discharges), for servicing full build-out of the OP

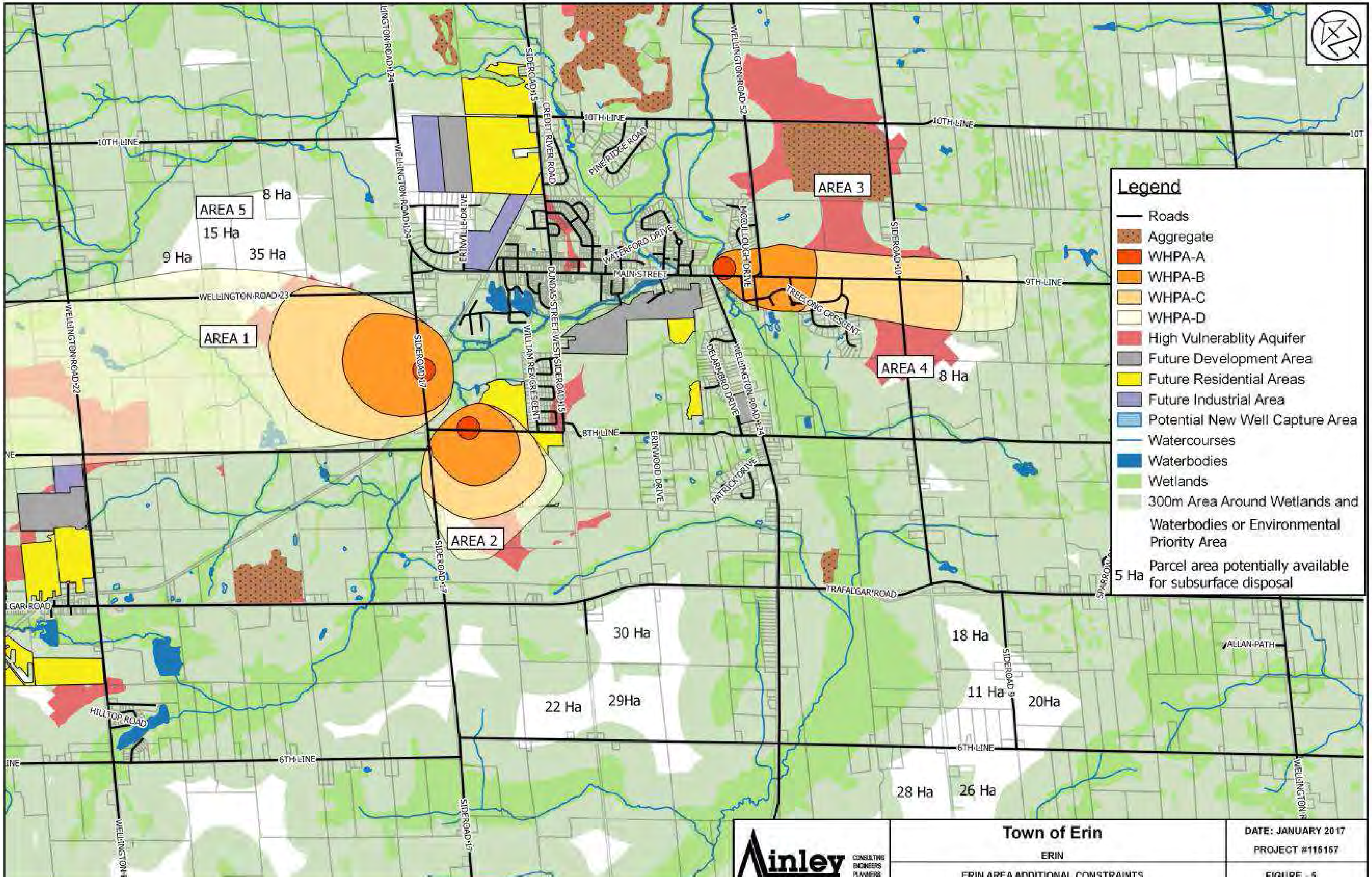
Through the work completed to date we have already demonstrated that a single Treatment Plant discharging to the West Credit River south of Erin Village, can support full build out of the Town Official Plan.

It is therefore recommended that the single Treatment Plant alternative be carried forward for more detailed evaluation in Phase 3 of the Class EA

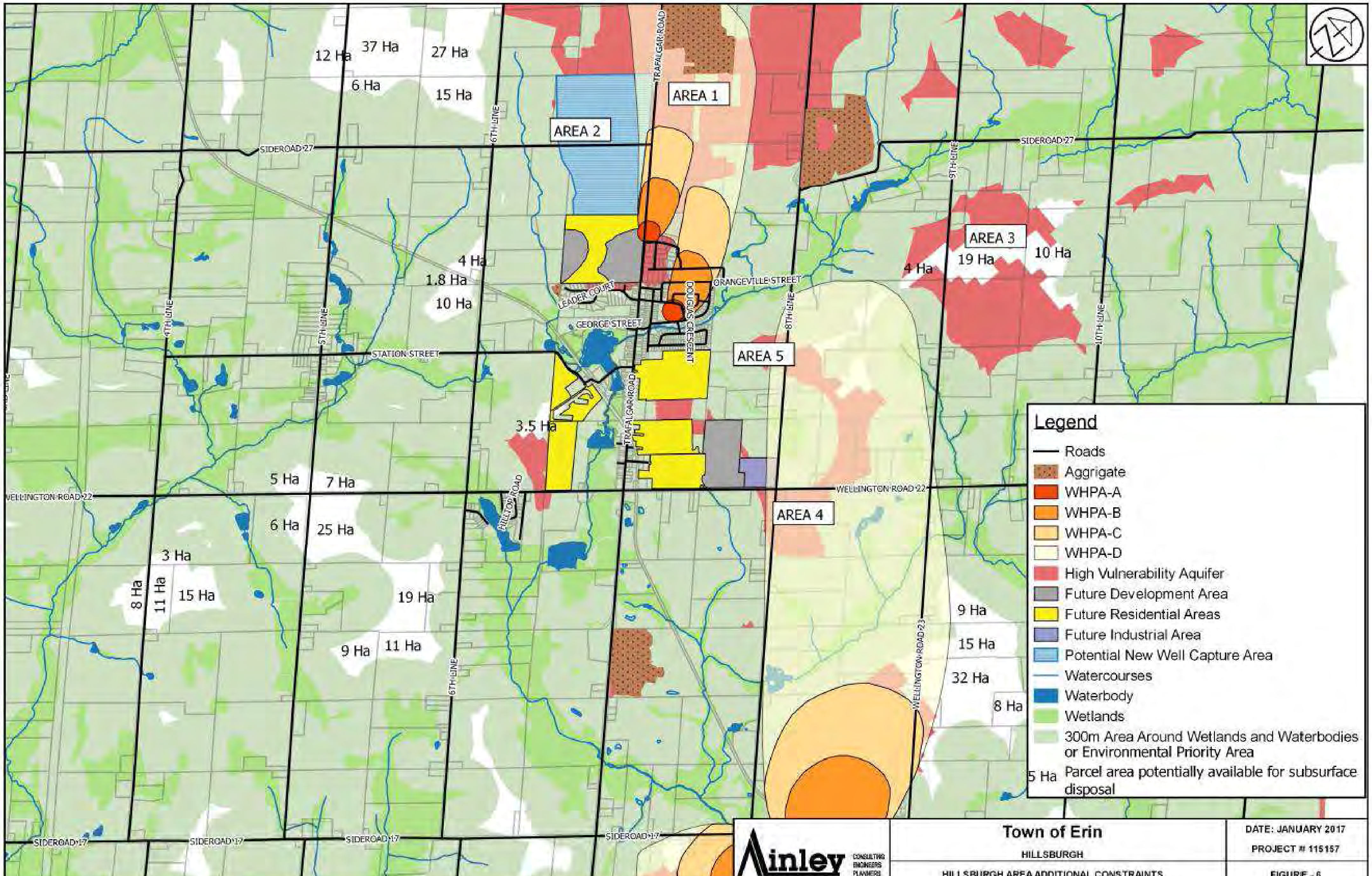
Discharge of Effluent to the Subsurface

- Upon review of the SSMP, it was determined that the issue of subsurface disposal need to be examined further
- Our evaluation of utilizing Subsurface Areas, included a review of legislative guidelines, geotechnical/ hydrogeological conditions, groundwater quality, land requirements and environmental constraints
- Conceptual level design requirements to support each community were determined as a basis for site selection and preliminary system costing
- Land requirements were established for the disposal fields to fully service Erin Village and Hillsburgh
- The potential for subsurface disposal in Erin and Hillsburgh was found to be highly constrained by surface water features, hydrogeological conditions, existing development, protection zones for existing drinking water wells, and woodland areas (see following slides)

Subsurface Disposal - Constrained Areas around Erin



Subsurface Disposal - Constrained Areas around Hillsburgh



Subsurface Disposal Challenges

- Subsurface disposal systems are highly sensitive to treatment upsets
- Short term treatment process failures will often result in plugging of the tile beds over time and contingency measures would be required
- Potential areas for subsurface disposal in Erin and Hillsburgh are limited due to environmental constraints
- The level of treatment required at a Treatment Plant is very similar to what is required for surface water disposal
- Extensive field investigations would be required to support the design and approval of subsurface disposal areas
- At this time the Town does not own lands suitable for subsurface disposal of effluent and limited lands are available making land purchase problematic

Subsurface Disposal Alternative Summary

- The opportunity for multiple or single disposal fields for each community is limited by topography, environmental constraints and available lands
- Capital cost estimates for a multiple Treatment Plants solution with subsurface discharges are 10-20% more expensive than a single Treatment Plant solution
- There would also be additional lifecycle costs for the operation & maintenance of the systems, due to the use of multiple facilities
- Extensive site-specific investigation is required to obtain approval for the use of subsurface disposal at significant cost to the Town
- It is concluded that the use of subsurface discharge for a multi-plant solution is **non-viable for Erin** due to existing constraints and **non-competitive for Hillsburgh** due to the higher capital and operating costs

Next Steps and Proposed Schedule

- Receive Public and Agency Comments until July 6, 2017.
- Provide an update to Council on Class EA progress in July, 2017.
- Proceed with Phase 3 activities looking at design alternatives.
- Host Public Information (PIC) Centre No. 2 in November 2017 to seek public input on the alternatives for the Collection System and Treatment System.
- Proceed to Phase 4 and prepare the Environmental Study Report (ESR) anticipated for February 2018.
- Initiate a 30 Day Public Review period in March 2018.

YOUR COMMENTS ARE IMPORTANT TO US

Please complete a Comment Sheet or take one home with you.

Comment Sheets may be placed in the comment box or returned to the study team by Email or regular Mail to:

Ms. Christine Furlong, P. Eng.
Project Coordinator, Town of Erin
Triton Engineering
Email: cfurlong@triton.on.ca
105 Queen St W – Unit 14
Fergus, ON
N1M 1S6

Mr. Joe Mullan, P. Eng.
President & CEO
Ainley Group
Email: erin.urban.classea@ainleygroup.com
195 County Court Boulevard, Suite 300
Brampton, ON
L6W 4P7

We would appreciate receiving your comments by July 6, 2017

11.
PIC 1 – Consultation Report

Public Information Centre – Consultation Report

PROJECT:	Town of Erin: Urban Centre Wastewater Municipal Class Environmental Assessment (EA)
DATE:	June 22, 2017
LOCATION:	Erin Community Centre / Centre 2000
TIME:	6:00 p.m. – 9:00 p.m.

These notes summarize the Public Information Centre event held on June 22, 2017 at the Erin Community Centre / Centre 2000.

This consultation report includes: attendance numbers; the agenda for the event; a description of the format and content presented; a summary of questions and comments received from the public; and copies of both the display boards and the PowerPoint presentation used at the event.

Please note that this record of comments includes comments from direct conversations, questions asked and answers received from the Q&A session, and comments submitted to the Project email address following the event. The summary of comments is not meant to be exhaustive and is not verbatim. Names of visitors have not been associated with comments made in order to protect privacy.

PIC Agenda

6:00 p.m.	Doors open
	Display boards can be viewed by public
	Project Team available to public for informal discussion and questions
7:30 p.m.	Presentation by Project Team
8:00 p.m.	Q&A Period
9:00 p.m.	PIC Concludes

Attendance

In total, 62 people attended the PIC event.

Visitors were invited to arrive at 6:00 p.m. for an opportunity to see the display boards and to have informal conversations with the Project Team. The majority of visitors arrived between 6:00 p.m. and 6:45 p.m., taking the time to review the boards and ask questions.

Event Goals

The primary purpose of this event was to share information with members of the public about the Erin Urban Centre Wastewater Servicing Class EA in order to give a better understanding of the project and the implications for the Town of Erin community.

The specific goals of this PIC were to:

- Introduce the project to residents who may not be familiar;
- Inform residents about the findings from the technical studies completed to date;
- Describe the process up to this point and explain why certain decisions have been made;
- Give residents an opportunity to ask questions of the Project Team;
- To hear back from the community about their thoughts and concerns for the project.

The desired outcome of the event was that community members would have all of the information that they may have been seeking about the Project, and that their concerns and questions have been appropriately addressed. It was also generally important for residents to become familiar with the Project Team and to feel comfortable to get in touch in the future if they have any questions or concerns.

Display Board Viewing

The PIC started at 6:00 p.m. and arriving visitors had an opportunity to see the display boards that were set up around the space and to have informal conversations with the Project Team. The boards provided an overview of the project up to this point as well as sharing the highlights of the technical studies that have been completed. Members of the Project Team were available to discuss the project and to answer questions on a one-on-one basis.

A copy of all display boards can be found in Appendix A of this report.

The following is a summary of questions asked of Project Team members and comments from visitors during the viewing of display boards.

- A visitor asked for an explanation of the Servicing Area Map, wondering why proposed but currently undeveloped areas weren't being depicted. A Project Team member explained that the map they were looking at was showing existing areas to be serviced and that a different display board had information about potential growth areas.
- A visitor expressed concern about the amount of growth that could happen.
- A visitor asserted that the community did not want this growth and expressed frustration that the Town was continuing to spend money to study something that people don't want.
- A visitor stated that this Project was very important for the future of the community and that both residential and commercial growth had been needed for years. They said that it was time to get on with it already and that the community was ready for growth.

- A visitor asked about whether the population projections included commercial and industrial growth. They stated that they were very concerned about ensuring that there was job growth for the community because that is what would keep people in town for the long term. Too many young people had moved away for better job prospects, so ensuring employment growth should be a top priority for the town. A Project Team member explained that the wastewater flow numbers did include commercial and industrial flows.
- Three visitors discussed what new residential growth would ultimately look like. The discussion included locations for development, design and aesthetics, and what kind of population density would make sense for the area.
- A visitor expressed how important having this conversation was for the future of the Town.
- A visitor said that it would be important to keep communications open with residents so that they understand the process and can have their voices heard.
- A visitor asked about what the impact would be on the West Credit River after full buildout. A Project Team member explained the impacts on water quality and what it would mean for aquatic species in the river.
- A visitor asked for more details on how the serviced population had increased between the SSMP and the Class EA and on how the 7Q20 statistic had been calculated and updated. A Project Team Member explained the details.
- A visitor asked for more details on the water quality results from Hillsburgh and potential influences on it. A Project Team Member explained potential influences on water quality and how any influence of existing septic systems could not be conclusively determined from existing data and that long-term monitoring (after any plant was built) would be required to establish this.
- A member of the Press asked for details on how the ACS was conducted and the numbers derived. Project Team Members explained this.
- A visitor provided Project Team Members with their experience in alternative sewage treatment technologies in Sechelt, BC.
- A visitor asked about the treatment technology that would be used. A Project Team member provided a general explanation of common treatment technologies but explained that the specific technology to be used had not yet be determined for this project.
- Two visitors asked about the overall growth decision process and how the wastewater Class EA fits into it. A Project Team member explained that the three major pieces that would need to be completed the wastewater Class Environmental Assessment, the completion of the water supply Class Environmental Assessment, and the updating of the Official Plan. It was pointed out that while the wastewater and water supply issues would determine the technical limits on potential growth, the decision on actually how much to grow would be made through the Official Plan process.

- A visitor expressed concern about what areas would be serviced and how that decision would be made. The visitor predicted that all of the community would inevitably want to connect to the communal system and that allowances should be made for that.
- A visitor stated that they were very happy with the amount of information and the availability of the Project Team to respond to questions.
- A visitor said that they were very optimistic about what this project could mean for the future of Erin.

Presentation Introduction

At 7:30 p.m. the formal presentation began.

Dave Hardy welcomed visitors and thanked them for coming out to spend the evening learning a bit more about the Project. The agenda for the presentation was reviewed. Dave then introduced the members of the Project Team. Finally, Dave reviewed a set of meeting courtesies that both visitors and the Project Team were asked to keep in mind in order to ensure that the meeting stayed focused, easy to understand, civil, and inclusive.

Main Presentation

Joe Mullan provided the formal presentation and covered the following topics:

1. Purpose of PIC & Project Background
2. Refresher on the Servicing and Settlement Master Plan (SSMP)
3. Update on Assimilative Capacity Study (ACS) and confirmed effluent objectives for the discharge to the West Credit River at 10th Line;
4. Overview of the existing Septic System Review and identified areas that should be connected to the Municipal Wastewater system;
5. Overview of the Potential Populations and Wastewater Flows for each Community, based on updated ACS and new effluent criteria;
6. Overview of the Assessment for Two Wastewater Treatment Plant discharge locations;
7. Overview of the Assessment for Large Subsurface Disposal Systems.
8. Next Steps & Schedule

A copy of the PowerPoint presentation slides can be found in Appendix B of this report.

Q&A Session

The following summarizes all questions from the public and answers by the Project Team.

Q: You collected a lot of information on the septic systems in Erin and Hillsburgh. I'm wondering if you could have just done a water quality test of the river before it gets to Hillsburgh and then after it leaves the town. Wouldn't that have told you what pollutants are coming from the town itself?

That could be done, but it would take quite a bit of additional testing to determine the water quality at those locations. While that testing might be able to show a higher level of pollutants in Hillsburgh, it wouldn't definitively show the source of that pollution. We did not take measurements from the river around Hillsburgh. That data is from the MOECC and CVC. We followed the SSMP which identified downstream of Erin Village as the preferred discharge location. Our testing focused on the most likely place that the disposal of effluents would be allowed.

Q: In terms of water consumption, it looks like you are saying it is 385 litres per capita per day. Given all the water saving technology that exists today I think that number is very high. The numbers in Victoria are more in the 140-150 range. If you just drop that number from 380 to 200 you could cut the size of the treatment system in half. Water is not inexpensive here. This really should be factored in, especially in new dwellings. The numbers we are using for subdivision use is 75 litres per dwelling per day.

We realize that we selected a water consumption number that was high and conservative. The number we quoted was based on the gravity collection system alternative and included an allowance for infiltration. We looked at the average drinking water consumption levels in Erin and it was around 160 litres per dwelling per day. We then bumped up those numbers significantly because with a new wastewater system consumption levels may go up and we wouldn't want to undersize. If the facility is developed and we find that the actual numbers are different then the plant would be able to service additional people.

Q: What population density did you use to calculate the overall population?

All of the growth numbers came from the County. We used their density estimate of 45 persons per hectare.

Q: The SSMP said that the maximum number of individuals that can be handled by the river is 6000. Now you have said that it can handle up to 14,500. And you have said that you have taken conservative numbers. How many people can the plant actually handle?

It is important to remember that this study is only one part of the process. We are looking at what is technically possible given the river conditions and available technology. The actual decision on how much growth will occur will be made through the Official Plan process.

In regards to how many people the treatment facility could handle, that is variable based on the size of the facility and the treatment technology. There is not yet a specific system design or treatment technology identified for this project. We were asked to study whether it is possible to provide wastewater treatment for Erin Village and Hillsburgh up to the full buildout population currently stated in the Official Plan. We are saying that it's possible.

Q: What if the County comes back and says that they want to put 25,000 people in Erin. Will the treatment plant be able to handle that?

Given our understanding of the river and with current treatment technology, no, the treatment plant could not handle 25,000 people in Erin.

Q: I am on the Environmental Sustainability Committee in Erin and in January we asked if we could expand the scope of the study and the Town put aside $30,000 for the expanded study. Two weeks later we were already hearing that subsurface disposal was not possible. Then we sent a letter in February and didn't get a response back until June. Could you explain what happened?

We first met with you in January to discuss the possibility of subsurface disposal as an alternative to a centralized treatment system. The gentleman you brought along did not have experience with wastewater systems in Ontario, where regulations are much stricter. Following that meeting we went back to the SSMP and determined that the whole issue of subsurface disposal had not been fully examined. We then went to Council for approval to complete that investigation. Over the next few months the study was completed and we have now confirmed that subsurface disposal would not be a viable alternative for the community.

Q: Do you know why the 7Q20 flow rate increased given that 2016 was a drought year?

We worked with Credit Valley Conservation (CVC) to get this information. The 7Q20 low flow statistic was derived by comparing flow between water gauges located at 8th Line and 10th Line. In 2013, CVC put a new water gauge in at 10th Line and we now have two more years of data to derive the 7Q20 than they did previously. CVC were able to statistically compare the flow from the two flow stations to better estimate the 7Q20. Interestingly, it was found that the lowest flow rate measured during the 2016 summer drought was still higher than the 7Q20 (the 7 day low flow rate over a period of the last 20 years).

Q: You keep talking about phosphorus but there's a lot of other things that you need to be sure you're cleaning up. One of the latest things being found as environmental contaminant is prescription drugs that go through our bodies and cosmetics.

We have not specifically addressed either of those contaminants at this stage of this study. This issue has come up over the last ten years all over the world and, so far, there have not been standards developed yet to address this. I know that this is not a great answer, but the sewage treatment facility would be able to remove some of these contaminants from the water. New standards and treatment approaches could be added in future years as any risks are identified and an approach for treating those contaminants becomes standardized.

Q: You mentioned that the treatment plant would be between 10th Line and Winston Churchill Road. Do you have a specific area in mind of where it would be built?

That is a good question, but it is a matter that will to be discussed further in Phase 3 of this project. We have started that process and we will soon be starting to talk to land owners and to evaluate potential sites.

Q: There is a spot near 10th Line where lots of people fill water bottles and take water directly from the river and kids fish and swim.

Thank you for that information. The ACS identified a site at Winston Churchill Blvd. where people take water from a spring adjacent to the river but we were not aware of any Site at 10th Line. This is very important info. [The commenter later provided a map of the specific location through email.]

Q: There's a gravel pit that is going to be expanding towards Bush Street. So you'll have a sewage treatment facility on one corner and a gravel pit on the other. That's got to affect groundwater.

The wastewater treatment plant would not impact groundwater. By design it would not leak and would not impact groundwater and regulations are in place to ensure that it never does. Thank you for letting us know about the gravel pit location being moved. That is important information.

Q: One of the major issues is the sequencing of what you're going to do. You don't currently have a collection system or a treatment plant. It's kind of a chicken or egg scenario. Which will come first, the treatment or the collection?

The staging and phasing of implementation is an issue that is will be looked at in Phase 3. We will certainly be looking at how phasing will effect both costs and project timelines.

Q: In the SSMP, the price tag presented was very high. I hope that every resident here understands that the cost will be on them and it won't come from any grant scenario. The community has to know that cost number as soon as possible.

Actually, there have already been initial conversations going on between your Council and higher levels of government about funding. A key thing to recognize is that the Federal and Provincial governments have both said that they would not provide grants for any projects that aren't fully studied and planned. The process we are going through now is one of the key steps in that direction. Completing this work is a significant required step for getting funding for implementation.

Q: There hasn't been any conversation about whether rural residents will have to pay for a portion of the system even though they won't be connected. Could you comment on other places in Ontario and what they have done?

In Ontario the full cost of financing water and wastewater services is bourn by the actual customers. Rural residents who are not going to be connected will not be required to pay for the wastewater system.

Comment Forms and Email Submissions

The following comments and questions were submitted either through the available comment forms at the PIC or through the project email following the event. Answers to the questions have been provided by the Project Team.

Q: I am concerned about the natural ecosystems once development begins and our population increases. Will development occur with this in mind? Or will Erin end up looking like Brampton or Mississauga?

The form of any future development is not a topic that was considered within this wastewater Class environmental assessment. However, under the Official Plan process it is within the Town's ability to set guidelines for any new development in a way that fits with the existing community.

Comment: I think that a big pipe single treatment facility is the best solution rather than continuing with septic systems, doing subsurface disposal, or making a second treatment plant in Hillsburgh.

Comment: I agree that there are a significant number homes in the old village of Erin that have lot sizes that are inadequate for private sewage disposal systems. The Province has historically funded community improvement projects like this and should step up to help Erin too. The Town should be seeking upper tier financial assistance.

Comment: An expansion of the Town's municipal water supply should be considered in conjunction with or prior to the provision of a sanitary sewer system in Erin. A full sanitary sewer system in Erin as outlined by the Consultant is not viable without expansion to the water system.

Comment: There are a number of relatively new subdivisions in the Town that are on large lots and have modern private sewage systems. The consultant seems to advocate for some of these subdivisions to be connected to the sewer system while others won't be. Some of those properties shouldn't need to connect and they would bear the financial cost in a seemingly unfair way.

Comment: It seems to me that the only way the project will proceed is properly identifying the properties that are of sufficient size and nature where a private sewage system is viable and not including those properties in the service area. The serviced area should be limited to the undersized lots and new development.

Comment: Hillsburgh is in need of an expanded water supply system. Erin has many small lots needing sanitary sewers. It appears to me that these two urban centres have different priorities.

Comment: We live in the area and have our own well and septic system that was approved in 2017. I am not in favour of hooking up to the proposed plan for our area.

TOWN OF
ERIN

Town of Erin – Urban Centre
Wastewater Municipal Class Environmental Assessment

Public Information Centre

Thursday, June 22, 2017

Comment Form

Name:

Email:

Given what you have heard tonight, do you have any thoughts or comments that you would like to share with the Project Team about the Study?

WE LIVE AT THE AREA, NINTH LINE & ARMSTRONG ST.
HAVING OUR OWN WELL AND SEPTIC SYSTEM
WITH 5/8 ACRE LOT - THE SEPTIC SYSTEM APPROVED
IN 2017
I AM NOT IN FAVOUR OF HOOKING UP TO THE
PROPOSED PLAN FOR OUR AREA

As the Town moves into the next phase of the study, what questions and concerns will most be on the mind of residents or interested parties (that Team needs to focus on)?

For more information on the *Town of Erin Urban Centre Wastewater Municipal Class Environmental Assessment*, please visit: www.erin.ca/town-hall/wastewater-ea

Comments and questions can also be submitted directly to the Project email at: erin.urban.classea@ainleygroup.com

Simon Glass

From: [redacted]
Sent: June 26, 2017 8:00 AM
To: erin.urban.classea
Subject: Erin EA

Subject: Town of Erin's EA

There is no doubt in my mind that there are a significant number of homes in the old village of Erin that have lot sizes that are totally inadequate for private sewage disposal systems. The Province should recognize this and it has historically funded community improvements in Ontario to address these issues.

It seems to me that an expansion of the Town's municipal water supply would be considered either in conjunction with or prior to the provision of a sanitary sewer system in Erin. It seems to me that the Town should be seeking upper tier financial assistance to expand the current water system and the primary drivers would be protection of our only source of domestic water (ground water). A full sanitary sewer system in Erin as outlined by the Consultant is not very viable without expansions to the water system.

The Consultant refers to a Health Dept (1995) study of private septic systems in Erin. As I recall this study paints a dark picture of the situation in Erin and the criteria for minimum lot size is totally different from what the Consultant is currently using. (1400 square metres) This 1995 study (as I recall) had no legal basis for the minimum lot size that it referenced and it is out of date today. if the intent was to present a dark picture for funding purposes, then I guess it serves that purpose.

There are a number of relatively new residential subdivisions in the Town that are on large lots and have modern sewage systems. These subdivisions seem to be classified differently and the rationale seems inconsistent. The consultant seems to advocate for certain of these subdivisions to be sewered while others are classified as not needing sewers. Both the 1995 study and the current mapping by the consultant seems to indicate certain large residential lots are needing sewers and they would bear the financial cost of that in a seemingly unfair way.

When the study references OBC standards, this seems to be somewhat if an irritant. In the case of septic tanks, the industry phased out the smaller tanks. Labelling smaller tanks as inadequate does not take into account the advances made with low volume toilets and energy efficient clothes washing machines that use considerably less water.

It seems to me that the only way the project will proceed is properly identifying the properties that are of sufficient size and nature where a private sewage system is viable forever. These properties should be eliminated from the serviced area. The serviced area should be limited to the undersized lots and new development. That way there would be the most likely opportunity for upper tier funding and I am sure that developers would be quite able to afford a municipal treatment plant provided their projects have sufficient numbers and density.

Our Town Council has a difficult task in that the town has 2 major centres. In my opinion these two centres have some similarities and some differences. Hillsburgh does not have a well developed municipal water system as is found in the old village of Erin. In Hillsburgh there are many community buildings still serviced by private wells. Hillsburgh is in dire need of a expanded water system. On the other hand In the old village of

Erin there seems to be many small lots needing sanitary sewers. It appears to me that these two urban centres have different priorities.

Simon Glass

From: [redacted]
Sent: June 26, 2017 1:21 PM
To: erin.urban.classea@ainleygroup.com
Subject: Water in Erin, ON
Attachments: Winston Churchill.JPG

Hi there,

I attended the public information night on June 22 at the Erin Centre 2000 and mentioned that people have been known to take water from a river that cuts across Winston Churchill just north of Wellington Road 50. I was asked to identify the spot where people have been taking water. I've attached the area and marked the exact spot for your information. I hope you find this useful and investigate the spot before any decisions are made regarding the water treatment plant.

Many thanks,
[redacted]

Ministry of Tourism, Culture and Sport

Heritage Program Unit
Programs and Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel: 416 314 7145
Fax: 416 212 1802

Ministère du Tourisme, de la Culture et du Sport

Unité des programmes patrimoine
Direction des programmes et des services
401, rue Bay, Bureau 1700
Toronto ON M7A 0A7
Tél: 416 314 7145
Téléc: 416 212 1802

June 20, 2016 (EMAIL ONLY)

Joe Mullan, P. Eng.
Ainley & Associates Limited
280 Pretty River Parkway
Collingwood, ON L9Y 4J5
E: mullan@ainleygroup.co

RE: MTCS file #: 0004911
Proponent: The Corporation of the Town of Erin
Subject: Notice of Commencement, Municipal Class Environmental Assessment Urban Centre Wastewater Servicing
Location: Town of Erin, County of Wellington, Ontario

Dear Joe Mullan:

Thank you for providing the Ministry of Tourism, Culture and Sport (MTCS) with the Notice of Commencement for your project. MTCS's interest in this Environmental Assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- Archaeological resources, including land-based and marine;
- Built heritage resources, including bridges and monuments; and,
- Cultural heritage landscapes.

Under the EA process, the proponent is required to determine a project's potential impact on cultural heritage resources. The recommendations below are for a Schedule C Municipal Class EA project, as described in the notice of study commencement. If any municipal bridges may be impacted by this project, we can provide additional screening documentation as formulated by the Municipal Engineers Association in consultation with MTCS.

While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation. Aboriginal communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Aboriginal communities includes a discussion about known or potential cultural heritage resources that are of value to these communities. Municipal Heritage Committees, historical societies and other local heritage organizations may also have knowledge that contributes to the identification of cultural heritage resources.

Archaeological Resources
Your EA project may impact archaeological resources and you should screen the project with the MTCS *Criteria for Evaluating Archaeological Potential* to determine if an archaeological assessment is needed. MTCS archaeological sites data are available at *archaeology@ontario.ca*. If your EA project area exhibits archaeological potential, then an archaeological assessment (AA) should be undertaken by an archaeologist licenced under the *OHA*, who is responsible for submitting the report directly to MTCS for review.

Built Heritage and Cultural Heritage Landscapes
The MTCS *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* should be completed to help determine whether your EA project may impact cultural heritage resources. The Clerks for the Town of Erin and County of Wellington can provide information on property registered or designated under the *Ontario Heritage Act*. Municipal Heritage Planners can also provide information that will assist you in completing the checklist

If potential or known heritage resources exist, MTCS recommends that a Heritage Impact Assessment (HIA), prepared by a qualified consultant, should be completed to assess potential project impacts. Our Ministry's *Info Sheet #5: Heritage Impact Assessments and Conservation Plans* outlines the scope of HIAs. Please send the HIA to MTCS for review, and make it available to local organizations or individuals who have expressed interest in review.

Environmental Assessment Reporting
All technical heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MTCS whether any technical heritage studies will be completed for your EA project, and provide them to MTCS before issuing a Notice of Completion. If your screening has identified no known or potential cultural heritage resources, or no impacts to these resources, please include the completed checklists and supporting documentation in the EA report or file.

Thank-you for consulting MTCS on this project: please continue to do so through the EA process, and contact me for any questions or clarification.

Sincerely,

Joseph Muller, RPP/MCIP
Heritage Planner
Joseph.Muller@Ontario.ca

Copied to: Dina Lundy, Town Clerk, Town of Erin

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. MTCS makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MTCS be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Please notify MTCS if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists.

If human remains are encountered, all activities must cease immediately and the local police as well as the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services must be contacted. In situations where human remains are associated with archaeological resources, MTCS should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.

ASTRID J. CLOS

PLANNING CONSULTANTS

June 2, 2014 Project No. 1212

Town of Erin Municipal Office
5684 Trafalgar Rd.
Hillsburgh, Ontario
N0B 1Z0

Sent via email only

Attention: Mayor Maieron and Members of Council

Re: Settlement Servicing Master Plan Options
Draft Plan of Subdivision 23T-95001
Erin Heights Golf Course
Part of Lot 19, Registrar's Compiled Plan 686 (Village of Erin) Town of Erin
5525 8th Line and 17th Sideroad

I have been retained by the owner of the Erin Heights Golf Course with respect to the proposed residential development for this property. The owner of this property, Jim Holmes, has been involved in the issue of municipal services for Erin since 1992.

In 1992, the first proposal for a Draft Plan of Subdivision to create 350 residential units was presented to Town Council. In 2001 a revised plan for 173 units was presented to Council. Over the years revised plans were submitted with various servicing options proposed. The owner was advised to wait for the pending outcome of a search for a sewage treatment servicing solution for the Village of Erin.

The Erin Heights Golf Course property is located within the Erin Urban Area as shown on Schedule A-2 of the Town of Erin Official Plan. The subject property is designated as "Residential" where future residential is proposed on the property. In addition, the subject property is located within the Built Boundary as identified by Places to Grow. The current use of the property is a golf course which means that agricultural land will not be required to be taken out of production in order for this property to be developed for residential. This is consistent with the Provincial Policy Statement 2014.

The owner of the Erin Heights Golf Course property intends to pursue the existing Draft Plan of Subdivision application at the appropriate time when a servicing solution for Erin becomes evident.

In December 1995 Triton Engineering Services Limited completed the "West Credit River Assimilative Capacity – Supplementary Report" on behalf of the Town of Erin. On page 13 of this report, it is indicated that the addition of a WPCP serving an expanded population in the Village of Erin will reduce the existing urban contribution of E.coli to the West Credit River from septic systems for every month of the year. In addition, with the construction of a WPCP for Erin the potential future impact of phosphorous plumes from faulty septic systems will be arrested. On page 14 the report states that, despite the increase in population in Erin, the nitrate nitrogen addition to the West Credit River would be reduced with the elimination of individual septic systems. This would reduce the overall loadings from the Village of Erin to the West Credit River.

423 Woolwich Street, Suite 201, Guelph, Ontario, N1H 3X3
Phone (519) 836-7526 Fax (519) 836-9568 Email astrid.clos@ajcplanning.ca

Now that the Assimilative Capacity Study has been updated and has confirmed that approximately 500 additional homes can be accommodated, there are a number of decision points to be made by Council once various scenarios have been costed and evaluated.

Given the potential impacts to the West Credit River of the existing septic systems in the Erin Urban Area, as identified in 1995, a Sewage Treatment Plan that includes both the existing and future population of Erin for 6,000 residents appears to be a prudent option.

Please provide me with notice of any meetings related to this process. The owner of the Erin Heights Golf Course would like to ensure that adequate sewage treatment plant capacity is allocated to allow for the residential development of their property.

Yours truly,

Astrid Clos, RPP, MCIP

cc: Jim Holmes, Erin Heights Golf Course
Matt Pearson, B. M. ROSS and Associates Limited

ASTRID J. CLOS

PLANNING CONSULTANTS

January 21, 2016 Project No. 1212

Town of Erin Municipal Office
5684 Trafalgar Rd.
Hillsburgh, Ontario
N0B 1Z0

Sent via email only

Attention: Mayor Allan Alls and Members of Council

Re: Settlement Servicing Master Plan EA
Draft Plan of Subdivision 23T-95001
Erin Heights Golf Course
Part of Lot 19, Registrar's Compiled Plan 686 (Village of Erin) Town of Erin
5525 8th Line and 17th Sideroad

Further to my letter to Council dated June 2, 2014 which is appended, I have been retained by the owner of the Erin Heights Golf Course with respect to the proposed residential development for this property. The owner of this property, Jim Holmes, has been involved in the issue of municipal services for Erin since 1992.

The Erin Heights Golf Course property is located within the Erin Urban Area as shown on Schedule A-2 of the Town of Erin Official Plan. The subject property is designated as "Residential" where future residential is proposed on the property. In addition, the subject property is located within the Built Boundary as identified by Places to Grow. The current use of the property is a golf course which means that agricultural land will not be required to be taken out of production in order for this property to be developed for residential. This is consistent with the Provincial Policy Statement 2014. **Please include the Erin Heights Golf Course property in any mapping and for servicing consideration for residential development.**

In 1992, the first proposal for a Draft Plan of Subdivision to create 350 residential units was presented to Town Council. In 2001 a revised plan for 173 units was presented to Council. Over the years revised plans were submitted with various servicing options proposed. The owner of the Erin Heights Golf Course property intends to pursue the existing Draft Plan of Subdivision application at the appropriate time when a servicing solution for Erin becomes evident.

Please provide me with notice of any meetings and the release of any reports related to this process.

Yours truly,

Astrid Clos, RPP, MCIP

cc: Jim Holmes, Erin Heights Golf Course
Kathryn Ironmonger, CAO, Town of Erin
Gary Cousins, County of Wellington

12.
General Public Communication Records

Simon Glass

From: [redacted]
Sent: June 23, 2017 10:27 AM
To: Simon Glass; erin.urban.classea@ainleygroup.com
Cc: [redacted]
Subject: RE: Town of Erin Urban Centre Wastewater Servicing - Public Information Centre 1

[redacted]

Thank you Simon.

[redacted]

Regards,

[redacted]

Planning Consultants
423 Woolwich Street
Suite 201
Guelph, Ontario
N1H 3X3

[redacted]

From: Simon Glass [mailto:glass@ainleygroup.com]
Sent: Friday, June 23, 2017 8:49 AM
[redacted]
Subject: RE: Town of Erin Urban Centre Wastewater Servicing - Public Information Centre 1

Hi [redacted]

As discussed at the PIC we have received your email and we have been sure to include the golf course lands within our assessment of future flows/population.

I'll file your letters in our project communications folder for documentation within the ESR.

Regards,

Simon Glass, E.I.T.

Ainley

www.ainleygroup.com

glass@ainleygroup.com
Tel: (905) 452-5172 x 220
Cell: (289) 654-2865
Fax: (905) 595-6701

[redacted]
Sent: June 22, 2017 11:35 AM
To: Simon Glass; erin.urban.classea@ainleygroup.com
[redacted]
Subject: RE: Town of Erin Urban Centre Wastewater Servicing - Public Information Centre 1

Hi Simon,

Thank you for providing notice of the PIC this evening. We will be attending.

I have attached letters previously provided to Council regarding the Erin Heights Golf Course lands which are designated Residential and are within the Erin Urban Boundary and abut the existing Erin Heights residential subdivision. Municipal water is available to the Erin Heights Golf Course lands.

Given the small size of the abutting Erin Heights residential lots, municipal sanitary services will need to be extended to this area as a priority over areas with larger lots. This would bring municipal services to the doorstep of the Erin Heights Golf Course property making this property cost effective to service.

Please ensure that the Erin Heights Golf Course lands are included in the consideration for fully serviced land within the this EA process.

Could you also please ensure that the attached letters become part of the public input record related to this EA.

These lands which are within the Erin Urban Area were mistakenly excluded in earlier phases of the study. **Could you please confirm that the Erin Heights Golf Course lands are included within the study area for consideration for full urban services.**

Thanks very much.

Regards,

[redacted]

[redacted]

[redacted]

[redacted]

From: Simon Glass [mailto:glass@ainleygroup.com]
Sent: Thursday, June 08, 2017 11:31 AM
To: erin.urban.classea@ainleygroup.com
Subject: Town of Erin Urban Centre Wastewater Servicing - Public Information Centre 1

Hello,

This letter is to inform you about the upcoming Public Information Centre (PIC) for the Town of Erin Urban Centre Wastewater Servicing Class Environmental Assessment (Class EA). The PIC will be held on June 22, 2017 at the Erin Community Centre (Centre 2000). The doors will be open at 6.00 pm. For full details about the event, please see the attached notice.

We appreciate your ongoing interest in the project and look forward to meeting with you and discussing the project at the PIC.

Regards,

Simon Glass, E.I.T.
Ainley
www.ainleygroup.com

glass@ainleygroup.com
Tel: (905) 452-5172 x 220
Cell: (289) 654-2865
Fax: (905) 595-6701

Simon Glass

From: Dave Hardy <davehardy@hardystevenson.com>
Sent: May 25, 2017 3:28 PM
To: erin.urban.classea@ainleygroup.com
Subject: PLC Update

Hello to all PLC members,

Here is a status update for Public Liaison Committee (PLC) members regarding the Erin Wastewater Servicing Class EA.

In the previous email update at the end of March, we informed you that the Technical Memorandum examining the viability of subsurface disposal of treated wastewater effluent had been completed and had been sent to the Ministry of Environment and Climate Change (MOECC) and Credit Valley Conservation (CVC) for comment. We are now able inform you that those comments have been received and the Memorandum was finalized and presented to Council on May 16, 2017.

To briefly summarize the responses from MOECC and CVC, MOECC found that:

> *"…there is no significant benefits in terms of capital costs for the inclusion of a subsurface disposal option in Hillsburgh, [and that] a detailed feasibility investigation will involve significant time, cost and uncertainties, which may further negate the option of subsurface disposal in Hillsburgh.*
>
> *Further investigation (i.e., geotechnical, hydrogeological, modeling, and risk assessments) to support a subsurface disposal option for Hillsburgh is not recommended while there is a feasible option for surface disposal with known constraints and risks exists."*

CVC found that:

> *"...while a large subsurface system may be feasible, there is a significant risk to the Town that they will not be able to confirm the viability of this mode of servicing. In addition, there is also concern with respect to the long-term effects that could result to the natural environment. Therefore, CVC would recommend that the Town continue with determining the viability of the surface water discharge.*

Given the findings from the Technical Memorandum by Ainley Group and the support for those findings from both the MOECC and CVC, no further steps will be taken to assess the viability of the subsurface disposal approach in Hillsburgh.

The full memorandum can be found at:
http://www.erin.ca/uploads/userfiles/files/LSSDS%20Viability%20Report%20Final_compressed.pdf

We would also like to inform you that at the Erin Town Council meeting on May 2nd, a resolution was passed asking Ainley Group to prepare an additional Technical Memorandum on the feasibility of a surface water discharge for a wastewater treatment plant to service Hillsburgh specifically (a two plant solution). The study for that memo is currently under way and you will be updated once completed and MOECC and CVC have commented. At this time, the intention is to present this Technical Memorandum to Council on June 6, 2017.

Our **next PLC meeting will be held on June 8th at 7:00 PM – 9:00 PM**. At that meeting, we will discuss and address any final questions regarding the technical memorandum on subsurface disposal, a two plant solution and will have a chance to preview and comment on the display boards that will be used at the Public Information Centre (PIC) on June 22nd. Additional information on the PIC will be sent out at a later date.

Regards,

David R. Hardy R.P.P.
Principal
Hardy Stevenson and Associates Limited
364 Davenport Road
Toronto, Ontario
M5R 1K6

Cell: (416) 358-9881
Telephone: (416) 944-8444 x 222
Toll Free: 1-877-267-7794
Fax: (416) 944-0900

Follow us on *twitter*
Follow our *blog*
Visit us on *Facebook*

Simon Glass

From: Simon Glass
Sent: October 19, 2017 10:00 AM
To: Simon Glass
Subject: FW: Beaver traps and dams at 10th line Erin

-----Original Message-----
[redacted]
Sent: August 10, 2016 4:41 PM
[redacted]
Subject: Beaver traps and dams

To - Allan Alls, Mayor, Councillors - John Brennan, Jeff Duncan, Matt Sammut, Rob Smith and Bob Morris

Four weeks ago, Bob orris called me regarding setting traps for the beavers in order to move them to another area. At that time I told Mr.
Morris that I would like to discuss the matter with him and I suggested meeting with him at his office. He told me he would contact the people involved and they would come to my property to discuss it. I spoke with him again on August 9th and was told, once more, they would come to my property to discuss it. My property is Pt. of the West 1/2 of Lot 13 concession 11 - with the West Credit River as its South border and consists of 7.3 acres. I have lived on this property for 32 years. The beavers have never been an aggrevation or a nuisance to me. They enjoy their natural habitat. Under no circumstances and to be perfectly clear I will not give permission to set traps on my property to remove the beavers and/or their dams - their natural habitat, to the Credit Valley Conservation Authority, The Town of Erin, or any other Agency or Organization,

[redacted]

Simon Glass

From: Simon Glass
Sent: October 19, 2017 10:20 AM
To: Simon Glass
Subject: FW: Beaver damat 10th Line stream gauge, Erin

From: Morris, Bob
Sent: August 18, 2016 10:02 AM
To: James Boyle; sales@pangaeasciences.com; pafflora@sympatico.ca; jan.kulhay@gmail.com
Cc: council@erin.ca.-.allan.alls; "councillors - john brennan, jeff duncan, matt sammut, rob smith, derek.mccaughan"@erin.ca; Mereu, Tim; Martin-Downs, Deborah; Kuntz, Tim; Gupta, Neelam; Sinnige, John; Dougherty, Jennifer; Marray, Liam
Subject: Beaver damat 10th Line stream gauge, Erin

August 17, 2016

Dear [redacted] and others present at the site meeting:

Thank you [redacted] or hosting the site meeting on August 15 parties to discuss the beaver dam and related matters and for inviting other interested parties. I am writing to summarize our discussions and recommended actions.

BACKGROUND

In early July I was informed by Tim Kuntz, our CVC Water Resources Specialist responsible for operations of our flow gauges that the backwater of a beaver dam was interfering with the accurate collection and analysis of flow data at the 10th Line Erin gauge. The data collected at this gauge is very important in determining the assimilative capacity or dilution of effluent from a proposed wastewater treatment plant (WWTP) for Erin. In addition the information is used for flood forecasting, the assessment of low flows and a range of other ecological conditions such as maintenance of the sensitive brook trout fishery of the West Credit River.
When initially contacted you expressed to CVC and others at the Town that you did not want the beavers trapped or the dam removed but agreed to a site visit to investigate conditions and a range of options. In attendance were other landowners [redacted] in the area and including [redacted] mother of the landowner on the opposite bank to yours, where the beaver dam is located and the local councillor, Mr. Matt Sammut. I am also copying others you notified of your position including the Mayor, Allan Alls and Councillors John Brennan, Jeff Duncan and Rob Smith.

CVC Water Resources staff and I met with you all on site and discussed a broader range of issues in the area, but the purpose of my visit and continued communications will remain on the beaver dam. This situation is somewhat unique in that in that generally CVC has no issues with beavers and their dams as part of the natural ecology of the Credit River and that any beaver management decisions, including to leave them alone, reside with the landowners and the Ministry of Natural Resources and Forestry policies regulating such wildlife. I also noted that beaver dams do not generally have the same negative impacts that many manmade dams do. Beavers and brook trout evolved together and their dams are more temporary and often “rough” enough or with side channels that allow for fish passage. Nevertheless CVC feels that reinstating flow conditions for the stream gauge for the purposes of protecting the water quality of the West Credit River with accurate assimilative capacity studies and long term monitoring outweighs not mitigating or removing the dam.

I was also asked whether beaver dams would affect the assimilative capacity of the river and would have to be controlled in the future for the operation of the WWTP. In short the answer was that there are no anticipated effects on assimilative capacity except possibly minor effects on the extent of a dilution mixing zone, given only flow velocities change as they vary along any given reach, but that the actual volume of discharge does not change for dilution purposes. Beaver control may be exercised on lands secured for the WWTP if the proposed outfall is back-flooded.

My observations of the beaver dam and adjacent river reaches suggests that there is no evidence of the dam directly supporting a lodge in the back water, unless much further upstream of 10th line that was not accessed. In addition the dam had a lot of cedar that is used for dam building but is not a preferred food source. There is little evidence of feeding (debarked sticks) or caches of the poplar/aspen trees cut in the area but some evidence of them perhaps crossing the road and taking it upstream where other dams have been reported. I suspect the lodge(s) or bank dens are upstream and that there may be a good chance the dam inspected may not be as important to the beaver colony and may be abandoned if damaged by floods. It should also be noted that the dam is close to its maximum height before it spills into a wider adjacent floodplain that would require much more work by the beavers to build up and maintain.

I also assessed the reach for two options, the first being to encourage the beavers to relocate their dam a little further downstream where the backwater effect could be eliminated at the gauge site. Unfortunately the river gradient flattens out below the existing dam such that relocation would have to be significantly further downstream and would not likely be successful. The second option would be installing submerged pipes at the base of the dam to drain the backwaters and encourage the beavers to abandon the dam as they are unable to stop the leakage unless they can hear and plug the escaping water. The depth downstream of the dam is quite shallow such that only small pipes could be fully submerged and there would not be enough capacity in these pipes to prevent backwaters at moderate and higher flows such that stream gauge readings would still be compromised. Nevertheless this option might help drain the backwaters at low flows and encourage the beavers to abandon this dam.

RECOMMENDATIONS

Given that these dam modifications investigated could have a limited chance of success and that the landowner(s) at this time are opposed to disturbing the beavers, CVC will respect your decision as a landowner. CVC would like permission to continue to monitor beaver activity and the condition of the dam, particularly following the first rain event that occurred Tuesday August 16, following our low water conditions this year and until after next spring's freshet. In the meantime, CVC staff may attempt to re-calibrate the flow gauge readings with the backwater but this is challenging unless dam conditions stabilize. Furthermore alternate gauge locations may be discussed but at this time seem very limited. Hopefully we can revisit options in the future if for example the dam is breached or abandoned or a better appreciation for the value of the flow data is accepted.

OTHER ISSUES

While on site we discussed a number of other topics including older water quality studies, ongoing assimilative capacity studies, population growth in Erin, and two aggregate operations in the vicinity. Regarding these issues, other CVC staff should be consulted including Jennifer Dougherty, Manager, Water Quality Protection on the assimilative capacity and Liam Marray, Manager, Planning Ecology on other planning matters such as aggregate operations. CVC can provide advice on these matters but the ultimate responsibilities are with the Provincial Ministries or the municipality and its consultants.

Aside from your general concern for the river, you expressed concerns that the proposed effluent might contaminate your well that is located between your house and the river and is 22 ft deep. I am recommending that Councillor Sammut request a response from the Town's consultants on this matter and then CVC's experts could be asked to comment on any such assessment provided.

Another request made of the landowners present, that the Town should address, assuming the dye test to assess the mixing zone has been delayed, is that the landowners be personally informed of when the consultants will conduct this test. Likewise the Councillor could request this of the Town's consultants. I also assured all that there are no toxic or other negative ecological impacts associated with the dye.

A specific request was also made to track down a letter sent by [redacted] to Brian Kristy at out Terra Cotta Conservation Area regarding concerns about the potential negative effects such as debris and erosion on the West Credit River from the new Halton Sand and Gravel operation off Bush St. in Erin. This letter has been forwarded to Liam Marray, who will consider its contents and provide a reply to [redacted]

I would like to personally thank all stakeholders in this situation for their interest in the West Credit River, beaver ecology and the value of collecting flow data for its protection and management and am confident a reasonable solution will emerge with continued cooperation and exchange of information.

Thank you.

Robert Morris
Watershed Specialist | Credit Valley Conservation
905.670.1615 ext 379 | C: 647.309.5104 | 1.800.668.5557
bmorris@creditvalleyca.ca | creditvalleyca.ca

Simon Glass

From: Simon Glass
Sent: August 24, 2016 10:30 AM
To: [redacted]
Cc: Tara Roumeliotis (tara@environmentalsciences.ca); Deborah Sinclair (Deborah.Sinclair@environmentalsciences.ca); Christine Furlong (cfurlong@tritoneng.on.ca); noahbrotman@hardystevenson.com; Gary Scott
Subject: 116091 - West Credit River Dye Study Update

Hello,

Please be informed that the previously postponed dye testing in the West Credit River will now take place tomorrow, Thursday, August 25, 2016 from approximately 9:30 am to 5:00 pm.

As a reminder, Town of Erin is currently undertaking a Class Environmental Assessment for Urban Centre Wastewater Servicing for the communities of Hillsburgh and Erin Village. As part of this study, Hutchinson Environmental Sciences Ltd. (HESL) will be conducting a Rhodamine WT dye study on the West Credit River to determine hydrologic characteristics of the river in the vicinity of 10th Line and Winston Churchill Boulevard. The results of this testing will assist the project team in evaluating discharge options for a wastewater treatment facility.

Rhodamine WT dye is the preferred dye tracer for use in hydrologic studies. At the concentrations to be used in this study, it is non-toxic to humans and aquatic life. The dye tracer will cause the water in the West Credit River to have a pink coloration at the site of injection (10th Line and Winston Churchill Boulevard). This effect will become diluted and much less distinct with distance from the study site (e.g., by 1.5 km downstream, at Winston Churchill Boulevard and Shaws Creek Road, respectively). The dye will no longer be visible approximately six hours after being placed in the river. Credit River Conservation and the Ministry of Environment and Climate Change are both aware of the testing program.

Deborah Sinclair and Tara Roumeliotis of HESL will be conducting the dye testing.

Regards,

Simon Glass, E.I.T.

Ainley

www.ainleygroup.com

glass@ainleygroup.com
Tel: (905) 595-6862
Cell: (289) 654-2865

Welcome back from what we hope has been a relaxing and fun summer for everyone. This email provides a status update of the progress on the Erin Wastewater Servicing Class EA.

Throughout the summer our team has been hard at work on a number of technical studies that are key components of the Class EA process. Our primary focus has been on the following activities:

1. Completing the septic survey of systems in Erin.
2. Completing a detailed topographical survey of the study area
3. Identifying collection system alternatives
4. Identifying potential wastewater treatment plant sites
5. Completing a peer review of the 7Q20 flows in the West Credit River
6. Completing the Rhodamine WT dye study in order to determine hydrologic characteristics of the West Credit River that will be used in evaluating discharge options for the wastewater treatment facility.

At this time, we are pleased to report that the field work for these tasks have been completed and we are now analysing the new information, assessing potential sewage flows from the existing communities and analysing collection system alternatives.

The focus of the next Public Liaison Committee (PLC) meeting will be on providing you with updates and obtaining your comments about the revised CVC flow data and the assimilative capacity study. We will also look at the extent of the existing communities to be serviced and the potential service population. Your comments on these matters will also be important.

Once we have completed our associated technical memos on the septic systems, updated river flow and assimilative capacity, and collection system alternatives, the Core Management Team (CMT) will review and comment on the technical memos. The technical memos will remain in draft form through submission to Council, and to you as PLC members for comment. Thereafter, our team will prepare for the first Public Information Centre (PIC) still planned for November 2016. We will be reviewing PIC info with you before we finalize the PIC approach.

After receiving all comments through the PIC process, we will close out Phase 2 of the study which will define the extent of the service area including existing communities and areas for planned growth. As a heads up to future activities, starting next year we will start to define and analyse treatment processes and sites and effluent discharge alternatives. We encourage all questions and comments. If you have any further questions, please send a message to the project email address: erin.urban.classea@ainleygroup.com

Simon Glass

From: [redacted]
Sent: August 30, 2016 6:11 PM
To: erin.urban.classea@ainleygroup.com
Cc: allan.alls@erin.ca
Subject: Erin EA

Hi…

I am a member of the public liaison committee. In the last meeting we discussed a number of areas where we need more information and updates. The next meeting is coming up quickly in October and I was wondering when we could expect the following information:

1.When can we expect to see the updated CVC flow data and assimilative capacity number?

2.Any informational materials that would help us understand the technologies or any links to youtube videos that would better inform us (requested at the last meeting).

3. An idea of what is going to be discussed at the next meeting or any reports that you will present to us.Remember, we all represent various communities and need to take the information to them prior to the next meeting.

4. Even a general update on your progress to date would be helpful in advance of the next meeting. There has been little communication since the last meeting and a few of us are wondering what is going on. An all member email on progress would be helpful. I would suggest an email that addresses items brought up in the minutes of the last meeting would be a good idea.

[redacted]
Erin Environment and Sustainability Committee.

Simon Glass

From: Simon Glass
Sent: October 19, 2017 2:29 PM
To: Simon Glass
Subject: FW: PLC Questions -- Jay Mowat

Responses in red:

[redacted]
Sent: November 22, 2016 4:00 PM
To: erin.urban.classea@ainleygroup.com
Subject: PLC Questions

Here is a list of questions I would like to discuss at the PLC meeting on Thursday:

1. Two years ago, BM Ross suggested that the West Credit could handle waste from some 6000 people. Now Ainsley is suggesting that the number is 14,559 - nearly 2.5 times higher than the figure quoted by BM Ross.

How did Ainsley come up with a number nearly 2.5 times higher than BM Ross using basically the same data? Could you explain the differences between the BM Ross study and the Ainsley study. The differences are not clear in the documents.

The largest difference between the Ainley assessment and the BM Ross assessment of the future population is the level of treatment assumed at the treatment facility. The BM Ross report assumed a non-compliance effluent concentration of 0.15 mg/L phosphorus whereas Ainley is suggesting that using “Best Available Technology” a 0.045 mg/L phosphorus concentration in the effluent can be achieved. This factor alone represents 0.15/0.045 = 3.33 times the volume that can be discharged between the BM Ross Study and the present Class EA.

2. You’ve allowed for a 10% reduction in water flow in the West Credit due to climate change Given that a potential sewage treatment plant will last for decades, shouldn’t you be allowing for a much greater reduction in water flow due to climate change perhaps as great as 20%. The 10% reduction in flow due to climate change for the ACS is the same assumption that was made for both the current and the previous ACS. This is the number that CVC and MOECC are comfortable with.

3. The Ainsley report suggests a number of areas in Hillsburgh and Erin don’t need to be connected to a treatment facility basically because of larger lot sizes. In the past, there was worry that this would create two classes of housing which would have a negative effect on some property values. The excluded areas don’t seem to be that large in number. Will Ainsley also provide data on an option to include all housing in the Erin and Hillsburgh village areas. Ainley was unable to determine adequate justification for the connection of properties in the areas which were excluded. This is an issue that will likely invite some public comment and this may have to be taken into consideration.

4. In the minutes of the May 30, 2016 ACS Pre-consultantion meeting, the following was recorded:

"The MOECC recommended against any radical changes in the ACS from what BM Ross has completed. The MOECC had approved in principal what BM Ross had put forward in the preliminary ACS. West Credit River is a Policy 1 receiver.”

and

"MOECC noted that they would prefer to not be involved in the whole ACS process, but would rather just review the finalized ACS report."

Ainsley's suggestion that the river can handle 14,559 residents seems a significant departure from BM Ross. Can Ainsley outline any discussions with MOECC (and the CVC for that matter) that would indicate support for the much larger ASC number? The ACS is only one component of the change in in suggested service population. As noted above, by far the largest contributing factor is the level of treatment technology. The ACS results are not substantially different from the previous results, however our team also developed a Site Specific Water Quality Objective for phosphorus in the river to further protect the river. Discussions with MOECC indicated that the Class EA team should consider whether it is appropriate to assume going from 0.016 mg/l in the river all the way up to the PWQO of 0.03 mg/l. Our team considered this and has suggested that the Class EA be based on going to no higher than 0.024 mg/l. This is our Site Specific Water Quality Objective. This is outlined in an appendix to the ACS.

Also, is there any chance that either the MOECC or the CVC will reject the new ASC report? While MOECC and CVC have participated in the study, they retain their approval rights. The completed reports to date are now being sent to these agencies for their official review. We anticipate receiving comments before the Public Information Centre.

Thanks for your consideration. See you Thursday.

[redacted]

Simon Glass

From: Simon Glass
Sent: October 19, 2017 2:19 PM
To: Simon Glass
Subject: FW: PLC Questions

[redacted]
Sent: November 22, 2016 4:00 PM
To: erin.urban.classea@ainleygroup.com
Subject: PLC Questions

Here is a list of questions I would like to discuss at the PLC meeting on Thursday:

1. Two years ago, BM Ross suggested that the West Credit could handle waste from some 6000 people. Now Ainsley is suggesting that the number is 14,559 - nearly 2.5 times higher than the figure quoted by BM Ross.

How did Ainsley come up with a number nearly 2.5 times higher than BM Ross using basically the same data? Could you explain the differences between the BM Ross study and the Ainsley study. The differences are not clear in the documents.

2. You've allowed for a 10% reduction in water flow in the West Credit due to climate change Given that a potential sewage treatment plant will last for decades, shouldn't you be allowing for a much greater reduction in water flow due to climate change perhaps as great as 20%.

3. The Ainsley report suggests a number of areas in Hillsburgh and Erin don't need to be connected to a treatment facility basically because of larger lot sizes. In the past, there was worry that this would create two classes of housing which would have a negative effect on some property values. The excluded areas don't seem to be that large in number. Will Ainsley also provide data on an option to include all housing in the Erin and Hillsburgh village areas.

4. In the minutes of the May 30, 2016 ACS Pre-consultantion meeting, the following was recorded:

"The MOECC recommended against any radical changes in the ACS from what BM Ross has completed. The MOECC had approved in principal what BM Ross had put forward in the preliminary ACS. West Credit River is a Policy 1 receiver."

and

"MOECC noted that they would prefer to not be involved in the whole ACS process, but would rather just review the finalized ACS report."

Ainsley's suggestion that the river can handle 14,559 residents seems a significant departure from BM Ross. Can Ainsley outline any discussions with MOECC (and the CVC for that matter) that would indicate support for the much larger ASC number?

Also, is there any chance that either the MOECC or the CVC will reject the new ASC report?

Thanks for your consideration. See you Thursday.

Simon Glass

From: [redacted]
Sent: December 6, 2016 9:20 AM
To: Gary Scott
Cc: 'Christine Furlong'; garyc@wellington.ca; Derek.McCaughan@erin.ca; Simon Glass; Joe Mullan
Subject: RE: Erin Wastewater Environmental Assessment

Dear sir,

Thank you for your response to my inquiry on behalf of my client. We will review the development potential of my client's lands with Wellington County planning staff as our background studies proceed.

Nonetheless, the proposed level of servicing for the lands within the Environmental Assessment is a critical part of any planning approval process required moving forward. Please keep us advised as to how the subject lands are proposed to be serviced as the study moves forward.

Regards,

[redacted]

[redacted]

From: Gary Scott [mailto:scott@ainleygroup.com]
Sent: Monday, November 28, 2016 11:36 AM
[redacted]
Cc: Christine Furlong; 'garyc@wellington.ca'; Derek.McCaughan@erin.ca; Simon Glass; Joe Mullan
Subject: FW: Erin Wastewater Environmental Assessment

Thank you for your email in connection with the Erin Wastewater Class EA.
The information presented to Council was a summary of our Sewage Flow and Capacity Technical Memorandum which is available on the Town website. The purpose of this Technical Memorandum was to establish the required capacity of a communal wastewater to service existing developed areas of Erin and Hillsburgh and to establish the required capacity to service all of the lands presently allocated to growth under the Town Official Plan. The lands designated for growth were agreed with Wellington Planning Department.
The suggested ultimate servicing capacity of a communal wastewater system is still subject to review by the public and relevant agencies. The Class EA is anticipated to be completed in April of 2018. While the completion of the Class EA for Wastewater identifies the potential for servicing by a communal wastewater system, any decisions regarding future servicing will still be subject to all of the relevant planning approvals.

For any discussion on planning issues related to the lands you reference, we would refer you to Wellington County Planning Department.

Gary Scott
scott@ainleygroup.com

Tel: (905) 595- 6859
Cell: (905) 767-1284

[redacted]
Sent: November 25, 2016 10:47 AM
To: erin.urban.classea@ainleygroup.com
Cc: 'Dina Lundy'; 'Gary Cousins'; [redacted]
Subject: Erin Wastewater Environmental Assessment

Dear Mr. J Mullan,

I represent Mr.[redacted] who is the owner of the former Chambers property, consisting of Part of the West Half of Lot 14, Concession 9, Town of Erin. The lands are located within the Erin Urban Area boundary, and are designated a combination of Residential, Greenlands and Core Greenlands in the Town of Erin Official Plan. My client is currently undertaking environmental and engineering studies of the property to support a development application on the site.

I have reviewed the Urban Centre Wastewater servicing brief presented to Council on November 8th, 2016. The subject property is located partially within the area identified as South Erin in the septic system survey which formed part of the study. South Erin was further recommended to not be connected to the future wastewater collection system. On the map of New Growth Areas (attached) in the brief part of the property is identified as a residential growth area (ER-16). A portion of the remainder of the property may be included in the new growth area of 4.2ha also identified in this area but that is not clear from the mapping.

The owner is examining development options for his entire holding. The level of servicing to be considered by the Town for the entire property is an essential part of that examination.

Can you please provide further information on how the entire holding is intended to be dealt with in the wastewater study? Please contact me if you have any questions related to the property.

Regards,

[redacted]

[redacted]

Simon Glass

From: [redacted]
Sent: August 10, 2016 10:59 AM
To: Gary Scott
Cc: Simon Glass; Noah Brotman; Christine Furlong; Joe Mullan; Dina Lundy; Deborah Sinclair
Subject: RE: Erin Wastewater Class EA

Gary,

Thank you for your email.

I will wait for information once its available.

Thanks again,

[redacted]

From: Gary Scott [mailto:scott@ainleygroup.com]
Sent: Monday, August 08, 2016 9:51 PM
[redacted]
Cc: Simon Glass; Noah Brotman; Christine Furlong; Joe Mullan; Dina Lundy; Deborah Sinclair
Subject: RE: Erin Wastewater Class EA

Sorry [redacted] we have not been able to clarify MOECC position on something and cannot confirm this aspect of the ACS work plan. We would certainly like to get this compleded and provided to the Core Management Team (CMT) in the near future and are working towards this. Meanwhile aspects of the ACS workplan are proceeding and we will be doing dye testing in the river on Monday Aug 15 2016. This should be on the project website and adjacent landowners should be informed (Im presuming including you).
We understand your interest! We are nearing completion of assessing existing septic systems and working on comparing alternative collections systems for the existing community. This will all come together in the next two months.
We do give project updates for monthly Council meetings and the PLC committee will be able to review materials after review by the Core Management Team.

Gary Scott
scott@ainleygroup.com
Tel: (905) 595- 6859
Cell: (905) 767-1284

[redacted]
Sent: August-08-16 11:32 AM
To: Gary Scott
Cc: Simon Glass; Noah Brotman; Christine Furlong; Joe Mullan; Dina Lundy
Subject: RE: Erin Wastewater Class EA

Gary,

Just following up to my request below.

Thank you,

[redacted]

From: Gary Scott [mailto:scott@ainleygroup.com]
Sent: Monday, August 01, 2016 9:20 AM
[redacted]
Cc: Simon Glass; Noah Brotman; Christine Furlong; Joe Mullan; Dina Lundy
Subject: RE: Erin Wastewater Class EA

Let me see where we are tomorrow. I'll get back to you shortly.

Gary Scott
scott@ainleygroup.com
Tel: (905) 595- 6859
Cell: (905) 767-1284

[redacted]
Sent: August-01-16 9:16 AM
To: Gary Scott
Cc: Simon Glass; Noah Brotman; Christine Furlong; Joe Mullan; Dina Lundy
Subject: Re: Erin Wastewater Class EA

Gary,

Hope all is well.

Further your correspondence below, I am writing to see if there is an update on submitting the ACS Work Plan update?

We at Solmar have a keen interest in this work and therefore would like the opportunity to review the same.

Please let me know.

Thank you,

[redacted]
SOLMAR DEVELOPMENT CORP.
www.solmar.ca

From: Gary Scott
Sent: Monday, July 18, 2016 11:47 AM
[redacted]
Cc: Simon Glass; Noah Brotman; Christine Furlong; Joe Mullan; Dina Lundy
Subject: Erin Wastewater Class EA

[redacted]
Apologoes for delay in responding to your request for our ACS workplan. Joe and I have been on vacation. Work plans included in our proposal were preliminary. We did develop an ACS work plan and have met with MOECC and CVC and we are now working on elements of that plan. We still have an ongoing discussion we need to complete with MOECC. We anticipate completing this soon and submitting an update on the ACS to our core management team at the next meeting.

For these deliverables the team has established a protocol wherein they will be presented to our Core Management Team and then will go to Council and then provided to the PLC for discussion/input.

Gary Scott, M. Sc., P. Eng.
Vice President, Water Business

Ainley
www.ainleygroup.com

2 County Court Blvd., 4th Floor
Brampton, ON L6W 3W8
scott@ainleygroup.com
Tel: (905) 595- 6859
Cell: (905) 767-1284

Simon Glass

From: Simon Glass
Sent: October 19, 2017 11:56 AM
To: Simon Glass
Subject: FW: FW: Erin: Assimilative capacity

From: Slattery, Barbara (MOECC) [mailto:barbara.slattery@ontario.ca]
Sent: October-14-16 8:26 AM
[redacted]
Cc: Christine Furlong; Gary Scott; Dougherty, Jennifer; Neil Hutchinson (Neil.Hutchinson@environmentalsciences.ca)
Subject: RE: FW: Erin: Assimilative capacity

[redacted]

The following is provided as a response to your email:

With respect to the use of a 10% reduction to account for climate change, the rationale used by both B.M. Ross and the current consulting team is reasonable and is consistent with what other municipalities are using. In the absence of having a better understanding of climate change at this scale, and utilizing the "precautionary approach" a 10% reduction is a reasonable estimation rather than completely discounting climate change impacts. Obtaining flow data over the last few years is reflective of climate (and climate change) that is being experienced in streams presently. Accounting for an additional 10% reduction in flow is a conservative and reasonable approach.

The 10% reduction value has remained because of the timescales that are involved. A two year window is not a sufficient enough window to make conclusions on how flow values will change. It is possible in the future that more information will be available that will allow for further refinement of climate change impacts.

I understand that you have also posed questions to both the consultants and to the CVC so they will also be providing you with their responses.

Thank you,

Barb Slattery, EA/Planning Coordinator
Ministry of the Environment and Climate Change
West Central Region
(905) 521-7864

[redacted]
Sent: October 12, 2016 5:05 PM
To: Slattery, Barbara (MOECC)
Subject: Re: FW: Erin: Assimilative capacity

Hello Barb Slattery,

Thank you so much for you're informative, thoughtful, and quick response. The Concerned Erin Citizens very much appreciate it!!

I just have a few follow up questions regarding this quote "the work being done is using a 10% reduction in water availability to account for climate change which has been deemed to be reasonable":

It is true that BP Ross used a 10% reduction in water availability to account for climate change in calculating their assimilative capacity figures during the SSMP back in 2014. But have current studies carried out by Ainley Group and Triton Engineering this past year also adopted this 10% figure? Why has the figure stayed the same? How is this figure calculated? Is it based on west credit river flow reductions?

Also, what are the timeframes for this anticipated 10% reduction in water flow (5 years....50 years)?

Lastly, how does the Credit Conservation Authority fit into the picture in determining assimilative capacity?

Again, thank you very much in advance!! Very Sincerely,[redacted]

[redacted]

On Wed, Oct 12, 2016 at 12:22 PM, Slattery, Barbara (MOECC) <barbara.slattery@ontario.ca> wrote:

Hello [redacted]

We have prepared the following in response to your email. However, please understand that there is no requirement in the Class EA process to undertake an assimilative capacity study. It has become our practice to have them completed by any municipality that is undertaking an EA for a new plant or existing plant expansion, we feel that is how feasibility and acceptable impact to the surface water receiver can be demonstrated. The assimilative capacity study also determines the effluent quality that will need to be achieved which in turn, serves as the starting point for the design of the treatment facility.

Once a proponent completes the assimilative capacity study, MOECC staff review the study and comment on methodology, breadth of actual data used in the model, the assumptions of the model in order to determine whether it is reasonable to accept the conclusions so that the next phases of the EA can continue.

Here are our responses to the questions in your email:

1. The MOECC evaluates point source discharges to surface water bodies primarily by using two documents: 1. *Deriving Receiving-Water based, Point Source Effluent Requirements for Ontario Waters*, MOEE July 1994; and 2. *Water Management – Policies, Guidelines, and Provincial Water Quality Objectives*, MOEE July 1994. These documents do not provide a lot of information on how to conduct an ACS, but do provide water management policies that guide the process. Generally, an

ACS will evaluate the type of discharge and waterbody, flow analysis of the receiver, examine background water quality, characterize effluent parameters of concern, assess mixing (mass balance/mixing zone), and determine waste assimilation capacity. All of this together forms the ACS and is used in a site specific context to determine impacts to environment, habitat, sensitive species, etc. The MOECC works with the environmental firms to ensure the water management policies/guidelines/legislation are being followed, any assumptions are appropriate, and the conclusions of the study are reasonable. The process is not entirely prescriptive as professional judgement is used both from the MOECC and the consultants and the scope of MOEC review is specific to water quality and quantity considerations.

2. Climate change models are generally done on a large scale and are difficult to apply on small scale. There are multiple climate change models that can provide a range in temperature/precipitation outputs which confounds the application of results. T he work being done is using a 10% reduction in water availability to account for climate change which has been deemed to be reasonable, but at this time, there are no guidance or tools available to incorporate climate change models. As was mentioned, the past summer was very dry and summer flows were very low. The empirical data collected by the monitoring program is representative of climate change so the benefits of modelling are diminished.

3. The guidance documents that the ministry uses for evaluating discharges is attached to this email. However, there isn't a set of standards (outside the PWQOs or CWQGs) or models used by the ministry. There are models, particular to predicting mixing, available commercially to consultants that are more common than others, but the ministry doesn't develop or endorse any specific model whether it be for climate impacts or for effluent mixing.

For further information on the study and the EA in general, please consider contacting either Ms Christine Furlong of Triton Engineering, acting on behalf of the Town, or Mr. Gary Scott of Ainley Group, consultant for the job.

Best regards,

Barb Slattery, EA/Planning Coordinator

Ministry of the Environment and Climate Change

West Central Region

(905) 521-7864

From: Fowler, Craig (MOECC)
Sent: October 12, 2016 10:40 AM
To: Slattery, Barbara (MOECC); Odom, Paul (MOECC)
Subject: RE: Erin: Assimilative capacity

Hi Barb,

I think it would be beneficial for the CEC to contact the Town (and their consultants) for additional info on how the ACS is being completed. In terms of responses to the three questions I see (and numbered below) I offer the following:

1. The MOECC evaluates point source discharges to surface water bodies primarily by using two documents: 1. *Deriving Receiving-Water based, Point Source Effluent Requirements for Ontario Waters*, MOEE July 1994; and 2. *Water Management – Policies, Guidelines, and Provincial Water Quality Objectives*, MOEE July 1994. These documents do not provide a lot of information on how to conduct an ACS, but do provide water management policies that guide the process. Generally, an ACS will evaluate the type of discharge and waterbody, flow analysis of the receiver, examine background water quality, characterize effluent parameters of concern, assess mixing (mass balance/mixing zone), and determine waste assimilation capacity. All of this together forms the ACS and is used in a site specific context to determine impacts to environment, habitat, sensitive species, etc. The MOECC works with the environmental firms to ensure the water management policies/guidelines/legislation are being followed, any assumptions are appropriate, and the conclusions of the study are reasonable. The process is not entirely prescriptive as professional judgement is used both from the MOECC and the consultants and the scope of my review is specific to water quality and quantity considerations.

2. Climate change models are generally done on the large scale and are difficult to apply on small scale. There are multiple climate change models that can provide a range in temperature/precipitation outputs which confounds the application of results. I believe BM Ross used a 10% reduction in water availability to account for climate change which was deemed to be reasonable at the time, but there are no guidance or tools available to incorporate climate change models. As was mentioned, the past summer was very dry and summer flows were very low. The empirical data collected by the monitoring program is representative of climate change so the benefits of modelling are diminished.

3. I've attached the guidance documents that the ministry uses for evaluating discharges, but there isn't a set of standards (outside the PWQOs or CWQGs) or models used by the ministry. There are models, particular to predicting mixing, available commercially to consultants that are more common than others, but to my knowledge the ministry doesn't develop or endorse any specific model whether it be for climate impacts or for effluent mixing.

Craig Fowler, M.Sc.| Surface Water Specialist | Technical Support Section| Ministry of the Environment and Climate Change| 119 King St. West, 12th Floor, Hamilton, Ontario, L8P 4Y7 | ph: 905-521-7823 | fax: 905-521-7820 | craig.fowler2@ontario.ca

---

From: Slattery, Barbara (MOECC)
Sent: October 12, 2016 8:48 AM
To: Fowler, Craig (MOECC); Odom, Paul (MOECC)
Subject: FW: Erin: Assimilative capacity

Gents, could you please help me with a response to this gentlemen as I can't think of a nice "definition/explanation" of how we assess ACS in lay terms. I also intend to suggest that he may wish to contact Triton to have it explained.

Thank you

[redacted]
Sent: October 10, 2016 4:18 PM
To: Slattery, Barbara (MOECC)
Subject: Erin: Assimilative capacity

Hello Barbara Slattery,

I am a member of Concerned Erin Citizens (CEC). It is a ratepayer association in the town of Erin which champions issues ranging from economic to environmental.

Our town has decided it wants a municipal wastewater collection and treatment system and is currently undertaking a Schedule C- Municipal Class EA. Effluent from the future wastewater plant will flow into the west credit river. Last summer Hutchinson Environmental Sciences Limited and the Credit Valley Conservation Authority (CVC) carried out assimilative capacity studies. These studies will determine discharge limits for the treated effluent and servicing limits for our town, ultimately dictating how large our town can grow.

Assimilative capacity studies have been undertaken several times in Erin's past, most recently in 2014 during the servicing and settlement master plan- the precursor to our current EA. However, given that the west credit river was at a record low this past summer and that this past summer was the hottest on record, we at the CEC hope that the very latest climate change

models/projections will ensure the assimilative capacity is lowered from its 2014 figure to reflect new realities.

The CEC is very interested in knowing exactly how the MOECC fits into the picture in determining assimilative capacity. 1. How does the MOECC work with the environmental firms hired by the town and the CVC?

2. Which climate change models have been referenced in determining the assimilative capacity?

3. Is it possible you could provide us with your set of standards/models which you use in determining assimilative capacity?

Any help and information you can provide us with would be greatly appreciated!!!

Very Sincerely, [redacted]

Simon Glass

From: Gary Scott
Sent: April 10, 2017 1:51 PM
[redacted]
Cc: Joe Mullan; Simon Glass; 'Noah Brotman'; 'Christine Furlong'
Subject: RE: sub-surface discharge/ inter-rural w/w pipe connections

[redacted] with respect, there are likely hundreds if not thousands of examples of subsurface disposal systems throughout the Province servicing rural facilities such as schools, highway service stations, recreation facilities, parks, rural subdivisions etc and we simply don't have the resources, budget or need to list them.
The Stayner Sewage Pumping Station forcemain is likely around 5 km long and discharges into a Wasaga Beach sewer. From where it flows to another SPS and is pumped again to the Wastewater Treatment System. Again we not aware of all or even many of the sewage systems that convey sewage between communities and don't necessarly need to know this to complete our evaluation of alternatives foe Erin and Hillsburgh.

Gary Scott
scott@ainleygroup.com
Tel: (905) 452- 5172 ext 202
Cell: (905) 767-1284

[redacted]
Sent: April-10-17 11:56 AM
To: Gary Scott
Cc: Joe Mullan; Simon Glass; 'Noah Brotman'; 'Christine Furlong'
Subject: RE: sub-surface discharge/ inter-rural w/w pipe connections

Thanks Gary..

Re. **Inter-community wastewater connections** (excluding the "Big Pipe" scenarios that pump to Lake Ontario – that require an extremely large population to cover cost);

1. What is the distance for Stayner's wastewater to travel to Wasaga beach? How many pumping stations were required?
2. Any other inter-community arrangements in moving wastewater from one development to one that has available wastewater servicing? (i.e Rockwood > Guelph)?

Re **Sub-surface discharge**: You had mentioned in our conversation of a number of communities who had implemented sub-surface discharge .. all I am asking is a listing of these communities - other than Pine Meadows (between Belwood and Fergus). I can wait for such a list if, as I understand, this info will be incorporated in Ainley's report re subsurface discharge.

Thanks
[redacted]

From: Gary Scott [mailto:scott@ainleygroup.com]
Sent: April-10-17 11:19 AM
[redacted]

Cc: Joe Mullan; Simon Glass; Noah Brotman; Christine Furlong
Subject: RE: sub-surface discharge/ inter-rural w/w pipe connections

Thanks for reminder [redacted]
We are not really in a position to comment in detail on these project solutions. We have used a couple of examples we are more familiar with in our subsurface disposal technical memo which is under review and hopefully will be presented to Council and PLC in the coming month.

We will respond directly to the letter from Transition Erin as soon as we are through the review process of our technical memo.

An example of a rural community being connectd to another rural community would be the Stayner connection to Wasaga Beach. With the planned growth in Stayner it was found to be more advantageous to decommission the Stayner lagoons and pump all flow to Wasaga Beach for treatment in one larger facility. An example of a big pipe solution connection to a larger system would be King City where all the septics were replaced by a communal system discharging into the York Durham Sewage System. From King City, Newmarket, Aurora Richmond Hill, Vaughan all the sewage is pumped all the way to Pickering for treatment in the Duffins Creek WWTP.

Gary Scott
scott@ainleygroup.com
Tel: (905) 452- 5172 ext 202
Cell: (905) 767-1284

[redacted]
Sent: April-10-17 11:01 AM
To: Gary Scott; Joe Mullan
Subject: RE: sub-surface discharge/ inter-rural w/w pipe connections

Dear Joe and Gary,

Never did receive a response to the below questions posed back in January?

Please advise when responses might be forthcoming.

Thanks

[redacted]

[redacted]
Sent: January-20-17 5:13 PM
To: 'Gary Scott'; 'mullan@ainleygroup.com'
Subject: sub-surface discharge/ inter-rural w/w pipe connections

Dear Joe and Gary,

Thanks for the time afforded me after your delegation to council this week.

Just to follow up on our side-bar conversation on sub-surface discharge, you had mentioned several examples of communities who have employed this method. I recall you mentioned the Pines Meadow development in Belwood is one: (195 homes/65 ac, located very close to the Grand River and Irvine Creek .. curious why they had chosen sub-surface with water so close by and located merely 7 km from Fergus's full servicing capabilities)

You had mentioned a number of other examples, can you confirm some additional examples?

You also cited several examples of rural communities currently connected to wastewater by a big pipe to a larger rural community (aside from Rockwood). Can you confirm those examples as well?

Thanks

[redacted]

Think Green. Read the screen

Simon Glass

From: Allan Alls <Allan.Alls@erin.ca>
Sent: August 22, 2017 2:29 PM
To: [redacted]Noah Brotman
Cc: Dave Hardy; Nathan Hyde
Subject: RE: Emailing - Erin PLC 3 Notes Final(1).pdf

[redacted]

Unforunately Dina is away this week on holidays but both Nathan and I don't recall asking for this. Prior to agenda items going on the Council agenda Nathan, Dina, and myself review for accuracy and content.
Al

[redacted]
Sent: August-17-17 4:19 PM
To: 'Noah Brotman'; Allan Alls
Cc: 'Dave Hardy'; Nathan Hyde
Subject: RE: Emailing - Erin PLC 3 Notes Final(1).pdf

Thanks Noah, .. and to Mayor Alls.

But waiting 2 months to comment on the minutes is somewhat unreasonable for anyone to remember the various questions and responses and is certainly not in compliance to the Terms of Reference as outlined below.

The PIC and PLC minutes are quite separate events. I can perhaps appreciate the Town's request to review the PIC meeting. I am not clear why there was a need for the minutes of the PLC#3 to be reviewed by the Town in advance of the committee members?

Not a big deal, but if this is to be the trend for the future PIC meetings, I believe the Terms of Reference ought to stipulate this and the corresponding justification for the change. Will we now need to wait 2 months for the draft minutes so that the Town can review/edit? I propose this subject be added to the agenda for PLC #4 meeting.

Question for Mayor Alls: Could you weigh in on why the Town felt the need to review the minutes of PLC#3 when it did not for the previous 2 PLC meeting minutes and why it took 2 months to do so?

Thank you,
[redacted]

From: Noah Brotman [mailto:noahbrotman@hardystevenson.com]
Sent: August-17-17 1:56 PM
[redacted]
Cc: Dave Hardy
Subject: RE: Emailing - Erin PLC 3 Notes Final(1).pdf

Hi Roy,

The Town requested that they would have the opportunity to review notes before being posted or sent out. This has slightly changed the timing of how we approach getting comments back, but we are certainly still accepting suggested edits on the notes and will incorporate the feedback provided where appropriate.

Regards,

Noah Brotman
Urban Environmental Planner
Hardy Stevenson and Associates Limited
364 Davenport Road
Toronto, ON
M5R 1K6
T (416) 944-8444 ext. 226
Toll Free 1 (877) 267-7794
Email: noahbrotman@hardystevenson.com
Web: www.hardystevenson.com
Twitter: twitter.com/HardyStevenson

[redacted]
Sent: Thursday, August 17, 2017 1:51 PM
To: Noah Brotman <noahbrotman@hardystevenson.com>
Cc: Dave Hardy <davehardy@hardystevenson.com>
Subject: RE: Emailing - Erin PLC 3 Notes Final(1).pdf

Thanks Noah…

In reviewing the Terms pf Reference:

Minutes
Minutes of meetings with the PLC will be taken by a member of the Project Team. Draft meeting minutes will be circulated to the PLC for suggested edits following each meeting. Members will have three business days to provide suggested edits (only information that was recorded erroneously or was incorrect will be incorporated – no new comments will be added); then, the minutes will be finalized (incorporating suggested edits, if applicable), re-circulated and posted on the project website.

Noah, I'm a little confused. Why were the members (who attended) not given the opportunity review prior to being posted? The minutes of PIC#3 would have been published shortly after the June 7th meeting, and only became public on August 4th as part of the Council Agenda and posted on the Town's web site shortly after the august 8th Council meeting?

Thanks
[redacted]

From: Noah Brotman [mailto:noahbrotman@hardystevenson.com]
Sent: August-17-17 12:56 PM
[redacted]
Cc: Dave Hardy
Subject: Re: Emailing - Erin PLC 3 Notes Final(1).pdf

Hi [redacted]

The Town had asked us to wait on circulating the notes for both the PLC meeting and the PIC until they had a chance to review and comment. It had been my intention to send along the reports to PLC members earlier this week but I was pulled away by other matters. Will be sending out to all PLC members shortly.

Thanks,

Noah Brotman
Urban Environmental Planner
Hardy Stevenson and Associates Limited
364 Davenport Road
Toronto, ON
M5R 1K6
T (416) 944-8444 ext. 226
Toll Free 1 (877) 267-7794
Email: noahbrotman@hardystevenson.com
Web: www.hardystevenson.com
Twitter: twitter.com/HardyStevenson

[redacted]
Sent: August-16-17 1:31 PM
To: 'Dave Hardy'
Cc: 'Joe Mullan'
Subject: FW: Emailing - Erin PLC 3 Notes Final(1).pdf

Attention: Dave

In last week's Council meeting, the minutes of PLC#3 meeting was part of the agenda package and subsequently posted thereafter on the Town's web site.

I was under the impression the minutes would first be circulated to those who attended for comment, then thereafter a final coy emailed to the PLC members. Not clear members received the attached .. … not sure each member would check the website.

Perhaps sending out the "Public Information Centre – Consultation Report" to each of the members would be also a good thing.

Thank you
[redacted]

Simon Glass

From: Simon Glass
Sent: October 19, 2017 2:29 PM
To: Simon Glass
Subject: FW: PLC questions Response to [redacted]

Responses in red.

From: Neil Hutchinson [mailto:Neil.Hutchinson@environmentalsciences.ca]
Sent: November-23-16 12:08 PM
To: Gary Scott; Christine Furlong; Allan Alls (Allan.Alls@erin.ca); Derek.McCaughan@erin.ca; Joe Mullan; Dave Hardy; Noah Brotman; Deborah Sinclair
Subject: RE: PLC questions Response to Roy Val

Thanks Gary – see comments below on A1 – also some of the HESL responses below do not reflect the edits I sent earlier today

Wrt: B4 The CVC recommended 7Q20 value has been increased. The Ainley team recommended downstream phosphorus concentration in the river has been reduced. Both of these combined, reduce the potential for the serviced population.

- This is not accurate - increasing the 7Q20 will increase the serviced population (allows more effluent). Reducing the recommended downstream, P concentration will reduce the allowable effluent, all else being equal

B5 – precipitation /climate – see earlier email where IO provided measured values to show that flow was > 7Q20 in 2016
HESL Response: Please see CVC response to your similar question posed to them: Precipitation was noticeably lower than average this year, however, the minimum streamflows measured at 10th Line by HESL field crews in 2016 were 381 L/sec (July 27), 370 L/sec (Aug. 25 and 305 L/sec (September 28). These are well above the 7Q20 value of 225 L/sec.

From: Gary Scott [mailto:scott@ainleygroup.com]
Sent: Wednesday, November 23, 2016 11:25 AM
To: Christine Furlong (cfurlong@tritoneng.on.ca) <cfurlong@tritoneng.on.ca>; Allan Alls (Allan.Alls@erin.ca) <Allan.Alls@erin.ca>; Derek.McCaughan@erin.ca; Joe Mullan <mullan@ainleygroup.com>; Dave Hardy <davehardy@hardystevenson.com>; Noah Brotman <noahbrotman@hardystevenson.com>; Neil Hutchinson <Neil.Hutchinson@environmentalsciences.ca>; Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Subject: RE: PLC questions Response to [redacted]

Questions received from [redacted] with suggested response in red. We may want to get a response out before the meeting. Please send me any suggested changes. We can also discuss this afternoon if necessary.

Gary Scott
scott@ainleygroup.com
Tel: (905) 595- 6859
Cell: (905) 767-1284

To the Ainley group:

I, along with some of my neighbours, have reviewed the technical memorandums on Septic and Flow, available on the Town's web site. We have listed below a number of questions in advance of the Liaison meeting on the 24th. Some questions perhaps can be answered quickly and before the meeting by return, others I assume can be discussed at the meeting, and still some other questions may be a bit early in the process.

It was mentioned the requested glossary of terms and acronyms would be made available on the website ..... I was unable to locate them on the Town's website. We are working on this and will post it as soon as we can.

Thank you

[redacted]

Resident and Liaison committee member

A. Questions to the November 2016 Ainley's Technical Memorandum <u>Septic System</u> Overview draft for comments.

1. The West Credit River, a Policy 1 stream, has a Total Phosphorus (TP) concentration of between 0.011 – 0.015 mg/L well below the Provincial Water Quality Objective (PWQO) of 0.03 mg/L. Is it safe to say there is no evidence currently of septic leakage in the Village of Erin even with some septic systems as old as 60 years? The use of septic systems does have an impact on groundwater phosphorus and nitrate concentrations and groundwater does flow to the river. In addition, septic systems in several areas in Erin are close to the river. The minimum required distance from a surface water to a leaching bed in Ontario is 15m. Concern over this has been expressed in previous reports. The extent to which this impact influences the background phosphorus and nitrate concentrations in the river is an unknown and it is difficult to separate phosphorus and nitrate inputs from septic systems from other sources such as agriculture.. It has been noted that the Phosphorus concentration has not changed significantly over the years, however, this may be due to a steady state being achieved. It can also be stated that phosphorus levels do not appear to be compromising the Policy 1 status of the river. Nitrate concentrations are also elevated in the river at Winston Churchill Blvd. (CVC 2011) and are increasing.

2. Is there a statutory/legal requirement to have homes connect to wastewater if they are greater than 1400 m2 (0.342 acre) and already on municipal water? If there are homes on the street that are less than 1400, would other properties meeting the building code be required to connect? In our septic system report we suggest 1400 m2 as one of our decision criteria to suggest whether an area should be "in or out". This was the lot size used in the SSMP for a similar purpose. We reviewed this considering the average percolation rates we found in the applications for approval of septic systems in Erin, required setbacks from property lines and average house size. Using the calculations outlined in the building code this is likely the approximate lot size that would be needed to comply with the code. The 1400 m2 is not a regulated number. To comply with the code each individual property needs to perform the necessary code compliance calculations for their own property. Our suggested approach is to make a decision on an area by area basis and so we have selected 1400 m2 as one of the basis for this. We are suggesting that if there is sufficient rationale for an area to be connected, all properties within the area will be required to connect. It's understood lots greater than 2,784 m2 (0.688 acre) with their own water well and septic system are considered in in compliance to the building code. The SSMP states "Under current standards, properties must be at least 1,400 m2 to accommodate a septic system and observe the required setbacks. Another 20% of the properties do not have sufficient space for both a septic system and a private well (or are between 1,401 m2 and 2,787 m2 in size)." It may be possible for a septic system and well to be on the same 2,788 m2 lot and meet the requirements however, it should be noted that, a 15 m setback is required between the well location and the tile bed and as such blanket approval of lots with an area of 2,788 m2 with a well is not advisable. Compliance with the building code would need to be conducted on a case by case basis to ensure adequate setbacks and approval.

3. Ainley's Technical Memorandum states there are 1851 properties in Erin and Hillsburgh .. does this number include industrial properties as well, or only residential properties? Yes. This is a gross lot count based on the Town's GIS database, all property types are included.

4. There are "140 properties within the wellhead protection plan that have septic systems that require a 5-year maintenance program to be created and an annual report to be submitted to the MOECC equivalent to Section 65 of O.Reg. 287/07." Of the 140 properties, how many are in Erin and how many in Hillsburgh? How many of the 140 properties are not in compliance to the building code? 114 properties in Erin and 25 properties in Hillsburgh fall within a WHPA with a vulnerability score of 10. These properties will require the 5-year maintenance program to be created and an annual report to be submitted to the MOECC equivalent to Section 65 of O.Reg. 287/07. Based on our rationalisation that lots < 1400 m2 may not be in compliance with the building code, approximately 90 of these properties may not be in compliance. It should be noted that compliance with the building code and proximity to the wellhead protection area are separate rationalisations for connection to the communal system that are not inherently linked.

5. How many properties in Erin and properties in Hillsburgh that are less the 1400m2 are not currently on municipal water? There are properties within Erin and Hillsburgh that are currently serviced by private wells which have been included in the proposed service area.

6. For the 17% of properties with undersized septic tanks, what is the approx. cost to replace a septic tank in order to ensure compliance to the building code? This would depend on the size determined by the calculations in the building code. A 1,000 gallon tank may cost around $1,500 and a 1,500 gallon tank around $2,200 plus installation and removal of old tank which may double this cost, however, based on the recommended solution adopted in the SSMP, the mandate of this phase of the Class EA is not to examine upgrade costs for private systems. Are there any Erin and Hillsburgh properties that are >1400 m2 where the septic tank is less than the 3600 litres (792 gallons) required by the building code? There are a few properties within our database with a property size > 1400 m2 and a septic tank < 3600 L. These instances are limited but do exist within the data set.

7. For the 26% of properties with at risk leaching beds and tank effluent levels, is Ainley familiar with the newer technologies to remediate these situations, can they be considered a possible solution? Yes we are familiar with the wide range of tertiary treatment systems, however, based on the recommended solution adopted in the SSMP, the mandate of this phase of the Class EA is not to examine alternative solutions based on private systems.

8. The report states Erin's oldest septic tank is 62 years (Dundas East). Has Ainley performed an inspection of a system of that vintage? What were the findings? We are not in a position to answer this question. We would however, comment that Septic system components fail for many reasons. Tanks can fail structurally or through failure to maintain them and empty solids at regular intervals. More often, leaching beds fail through plugging with solids, inadequate percolation rates, high groundwater levels, higher than capacity water use etc. The likelyhood of failures increases with age. During our study we were able to find a considerable amount of data on the existing septic systems from Building Department records. This data was considered far more accurate and reliable than information we could have gathered from a field inspection of each system. Analysis of this data combined with the recommendation to make a decision on an area by area basis, combined with the use of general decision criteria led to our suggested servicing area for the communal system.

9. Is Ainley familiar with the advanced septic systems that are designed to be used in lots less than 1400 m2.. ref: Ontario Rural Wastewater Centre at the University of Guelph?. Generally yes. This Centre conducts a wide range of research on private sewage systems and septage treatment, however, based on

the recommended solution adopted in the SSMP, the mandate of this phase of the Class EA is not to examine alternative solutions based on private systems.

10. South East Erin sector is dominated by a Well Head Protect Area (WHPA) of the Bel-Erin Well, considered a Groundwater Under Direct Influence (GUDI) of surface water, but this well is inoperative. The current drilling at Kenneth /9th is expected have a much smaller WHPA footprint, if successful. Will this change your recommendation to service this sector? We understand that the proposed well is anticipated to have a smaller wellhead protection area, however, our philosophy is to progress the study using current day information. It is possible that future well drilling results could affect the service area decisions.

11. North East Erin Sector with 95 properties is considered Rural Residential and not within the urban boundary. Similarly, South Erin Sector, 69 of the 163 properties lie outside of the urban boundary. The SSMP study was limited to the urban area of both villages with the preliminary suggestion to service all 4500 people. The current report suggests we not service 46 lots in urban Hillsburgh and 94 lots (163-69) in urban Erin. (approximate 400 of the 4500 population). Why were rural residential properties included in the Request for Proposal (RFP) for the "Urban Centre wastewater Class EA"? North East Erin is correctly identified as lying outside of the Urban Boundary. It was included in the study area and it has been determined that these properties will not be included in the communal system. We are working within the Study Area Boundary defined in the Terms of Reference of the Class EA.

12. The existing communal septic systems at Centre 2000 (Erin High School and Erin Community Centre), Stanley Park mobile homes and the St. John Brebeuf Catholic School were included in the flow calculation study. Will the cost to decommission these systems be identified and the cost to connect to a municipal system be estimated? Yes. Similarly, what is the approx. cost to the individual property owners to decommission their septic systems and connect to a municipal wastewater system? Ainley is working on a Technical Memoramdum On Alternative Wastewater Collection Systems. This will identify all costs to convey sewage from the proposed service areas (not including growth areas) to a treatment plant site. The work is at an advanced stage, however it cannot be finalised until there is reasonable agreement on the areas to be serviced. Costs will be identified for the collection system and for connection for each alternative. It is anticiapted this will be completed and released after the upcoming public consultation process.

13. It's assumed the following terms are used interchangeably: "properties", "lots" and "households". We will review our reports and clarify, however they are not necessarily interchangeable. The SSMP stated for 2016; 1090 households in Erin and 460 households in Hillsburgh within the urban area . So taking away the 69 and 95 properties outside of the urban area from the 1259 properties in Ainley's report would result in the same 1090 households reported in the SSMP. Similar results for Hillsburgh. Please then confirm the difference of 80 properties in Erin and 8 properties in Hillsburgh that are not accounted for in the various sectors studied when Ainley refers to a total 1339 in Erin and 512 in Hillsburgh? "Total properties" within the village of Erin and Hillsburgh includes both industrial and commercial properties. We will conduct a final check on property numbers after receiving all comments.

	Ainley's count				
Erin	**1339**	total lots		total undersized lots	
Core 1		521	86%	448	
Core 2		174	61%	106	
South Erin		**163**	**2%**	**3**	**no connection; 69 rural lots**
Erin Heights		115	38%	44	
SE Erin		191	24%	46	

N.E Erin		95	0%	0	No connection; 95 rural lots	
Total		**1259**		**647**		**51%**
Hillsburgh	**512**					
Core 1		230	63%	145		
Core 2		126	85%	107		
Upper Canada		**46**	**0%**	**0**	**no connection**	
George St		24	67%	16		
S. Trafalgar		78	42%	33		
Total		**504**		**301**		**60%**
Total	**1851**	**1763**	Diff: 88			

B. Questions to the November 2016 Ainley's Technical Memorandum System Capacity and Sewage Flows draft for comments.

1. The 2014 SSMP conclusion was restated by Ainley as follows: population of Erin and Hillsburgh at a total serviceable population of **6,000** was based Average Daily Flow (**ADF) of 435 L/c/d** a wastewater **flow of 2,610 m3/d** discharging to the West Credit River at an **effluent phosphorus concentration of 0.15 mg/**l to achieve a downstream phosphorus concentration in the West Credit River of **0.03 mg/l** corresponding to the Provincial Water Quality Objective for Phosphorus. Why did Ainley refer to the non-compliance objective of 0.15 mg/l phosphorous and not the MOE proposed objective of 1.0 mg/L which were used to calculate the 6000? (note 6000 is related to the above bolded factors; changing any will affect the total population calculation). The non-compliance limit of 0.15 mg/l was used during the SSMP in the determination of the total population of 6,000, not the objective concentration of 0.10 mg/l.

2. Ainley reports "the 2,610 m3/d discharge potential identified in the SSMP associated with a downstream phosphorus concentration of 0.03 mg/L can no longer be achieved at a wastewater effluent concentration of 0.15 mg/L". Cannot be achieved for what reason? Mandated by the CVC , MOECC .. if so why the change within 2 years? What has changed? In their calculations, BMRoss (2014) used an effluent flow rate of 2610 m^3/d and an TP concentration of 0.15 mg/L coupled with monthly 7Q20 flow values (which were not always the lowest 7Q20 value) to calculate resulting downstream TP concentrations. Using the updated 7Q20 flow statistic of 225 L/s, and an effluent concentration of 0.15 mg/L, only 2,268 m^3/d of wastewater flow can be treated and meet a downstream phosphorus concentration of 0.03 mg/L. Any flow beyond 2268 m3/day would cause the river to exceed the PWQO of 0.03 mg/L during low flow conditions, in contravention of MOECC Policy 1 for Surface Water Quality Management.

3. Ainley confirmed the CVC reports the West Credit river now has a flow rate of 225 litres per second and that this flow rate includes a 10% Climate Change adjustment. In 2014, the CVC reported a flow rate of 202 litres per second. Could the West Credit's s flow rate have increased by 20% in the last two years? (in spite of the beaver dam down river from the CVC flow metre). Has CVC's criterion to calculate flow changed since 2014? The revised 7Q20 estimate reflects more data and additional analysis and should not be interpreted as an increase in flow over a 2 year period. A flow gauging station was established at 10th Line in July 2013 by Credit Valley Conservation (CVC). A minimum of 10 years of data is required at a flow station to calculate a 7Q20 flow statistic. Flows measured at this gauge were used by CVC to develop a flow transposition factor between the 8th Line (1983 – present) and the 10th Line flow data (2013-present). The preliminary ACS (BMRoss 2014) used 7Q20 flows for 10th Line as

determined by CVC using a transposition factor based on stream flows collected for four months (July to October) in 2013 at 10th Line. Additional flow data have been collected since the preliminary ACS to refine the transposition factor used to calculate the 7Q20. In 2016, CVC recalculated the 7Q20 low flow statistic for 10th Line, using data from July 2013 to December 2015. The new 7Q20 flow statistic for 10th Line of 225 L/s is now based on a transposition factor based on 2.5 years of flow data for 10th Line, instead of only 4 months. The revised 7Q20 flow also includes the 10% adjustment for climate change. The revised 7Q20 flow of 225 L/sec is 10% higher that the value of 202 L/sec that was calculated previously.

Please also see CVC's response your similar question posed to them.

4. Why did the MOECC and the CVC request updates to the work completed in the SSMP including revisiting the 7Q20 flow values and re-evaluating the assimilative capacity of the West Credit River? With the admitted low flows of the W. Credit (by the CVC) over the last 2 years, how did the updated 7Q20 flow data, along with a more stringent effluent objective, translate into a substantially higher serviceable population? The intent of the preliminary ACS was to assess the feasibility of a wastewater treatment plant (WWTP) with surface water discharge to the West Credit River in the reach between 10th Line and Winston Churchill Blvd. The preliminary ACS demonstrated that this was feasible but recommended that the next phases of the EA should include a review of dissolved oxygen and temperature impacts, and potential for effluent storage. In their review of the 2014 ACS the MOECC confirmed (letter from Ms. Barbara Slattery dated October 31, 2015 to Ms. Christine Furlong, Triton Engineering) that the original ACS be updated to include:

- Mixing zone analysis to include both the lateral and longitudinal plume dimensions;
- Hydrodynamic modelling to predict dissolved oxygen and temperature;
- Worse-case flow scenario should be September (i.e. month with lowest flow); and
- Update ACS to incorporate additional streamflow data (finalize 7Q20 estimate).

The CVC recommended 7Q20 value has been increased. The Ainley team recommended downstream phosphorus concentration in the river has been reduced. Both of these combined, reduce the potential for the serviced population. The Ainley team has also identified the potential to achieve effluent limits more in line with available treatment technologies. This demonstrates that, while still providing for the projected 7Q20 and protecting the river to a higher level, it is still possible to service all of the existing population and new growth areas on the Town Official Plan.

www.farmzone.com reported for Peel North, 662 mm of precipitation in 2014, 604 mm in 2015 and 514 mm in 2016. http://app.toronto.ca/tpha/heatStats.html reports 2016 had 22 Heat Alert days, 8 were Extreme Heat Alerts, in 2015 there were 12, with 4 Extreme Heat Alerts, while 2014 merely had one Heat Alert. Would the downward trend in precipitation along with the increase in the number of heat advisories over the last 3 years not suggest a lower flow rate? Please see CVC response to similar question posed to them: Precipitation was noticeably lower than average this year, however, the yearly minimum streamflow measured in 2016 is consistent with (slightly higher than) the average yearly minimum streamflow measured over the past 33 years recorded at the Water Survey of Canada gauge at 8th Line.

5. The Rhodamine Dye test was completed this August at the request of the MOE/CVC in 2014. The test was initiated downstream from the beaver dam, with the installed Flow Meter located further upstream some 100 meters on the west side of 10th line. Is the data generated from this test relevant with respect to calculating the assimilative capacity of the river if the discharge point would be located at 10th line? As I understand, "CVC staff may attempt to re-calibrate the flow gauge readings with the backwater but this is challenging unless the beaver dam conditions stabilize". The purpose of the dye study was to determine the "time of travel" of the river as input into the water quality models. Some factors that influence the time of travel include: obstructions (e.g. dams, large woody debris), river gradient, substrate composition, river meander characteristics, river shape, and

vegetation. The stream characterization completed on June 10th determined that these characteristics are fairly consistent between 10th Line and Winston Churchill. The dye study determined that the velocities were similar between 10th Line and Winston Churchill, confirming this interpretation. Therefore the data generated from the dye study is relevant with respect to assessing the effects of a discharge at 10th Line. The recommended preferred location for the outfall has not yet been determined.

6. Why was the MOE/CVC in 2014 recommending that because of the reduced flow at 10th Line, the optimum discharge point would need to be closer to Winston Churchill? A preferred discharge point has not yet been selected. It is likely alternative discharge locations will include a point closer to Winston Churchill.

7. With input from the CVC/MOE in 2014, why did the SSMP assume a downstream phosphorus concentration of 0.03 mg/L after mixing with the wastewater effluent, and now both agencies think it is "appropriate to recommend that a downstream Site Specific Water Quality Objective (SSWQO) for a Total Phosphorous of 0.024 mg/L be adopted to protect the cold water habitat and water quality in the West Credit River"? Does the difference between 0.03 and 0.024 actually affect the temperature of the water, noting that the following statement; "effect of changing the trophic status of the river on brook trout and other aquatic life in the West Credit River is not well understood at this time". What is the incremental cost increase to reach this higher level of protection for the lower limit of 0.024 down river? The intent of the preliminary ACS was to assess the feasibility of a wastewater treatment plant (WWTP) with surface water discharge to the West Credit River in the reach between 10th Line and Winston Churchill Blvd. The preliminary ACS demonstrated that this was feasible. The PWQO of 0.03 mg/L represents a two-fold increase over the current 75th percentile TP (0.015 mg/L) concentration and a change in trophic status from oligotrophic to mesotrophic in the West Credit River between 10th Line and Winston Churchill Boulevard. CVC has designated the West Credit River downstream of 10th Line as a cold-water aquatic community due to the presence of brook trout. The most productive brook trout spawning reaches and the best brook trout populations in the West Credit River are located downstream of Erin Village (CVC 2011). The effect of doubling the TP concentration, thus changing the trophic status of the river, on brook trout and other aquatic life in the West Credit River is not well understood but detrimental changes would include increased growth of algae attached to bottom substrate (periphyton) which impairs habitat for fish spawning and benthic invertebrates and increased dissolved oxygen concentrations during the day and decreased concentrations at night in response to increased algal respiration which would stress aquatic life. A cautionary approach to establishing a target downstream TP concentration for the purposes of defining the flow and treatment limits was therefore recommended to protect aquatic life. This is the recommendation of the consulting team and not necessarily that of MOECC or CVC although these agencies were party to the discussion. There is no connection between this decision and temperature if the water.

Costs to treat the wastewater are more related to the effuent limit to be achieved through the treatment process rather than the decision on the downstream phosphorus level. The downstream phosphorus level affects the numbers of people who can be serviced.

8. If the Preferred Solution for the current EA for the Hillsburgh dam/pond (Triton) is to bring the West Credit river back to a "meandering stream" by decommissioning the dam/draining the pond, would this affect the flow and/or the velocity of the river? Would this affect the Assimilative Capacity of the river? How will it affect the Assimilative capacity? The Class EA for the Hillsburgh dam is incomplete and as a result, it is premature to comment on the impact the various alternatives may have on the West Credit River at this time. However, the assimilative capacity of the river is being assessed at a significant distance downstream of the Hillsburgh dam. Between the Hillsburgh dam and the reach of the river where CVC has indicated that a WWTP discharge should occur (between the 10th Line and Winston Churchill Blvd.), there are several dams and several tributaries that contribute to flow in the river. These

river features downstream of the Hillsburgh dam will not change with the implementation of the possible alternatives under consideration for the Hillsburgh dam. It is anticipated that there will be no impact on the assimilative capacity of the river or the flow velocity in the reach of the river, where a WWTP discharge is proposed, resulting from the status quo or potential configuration changes at the dam in Hillsburgh.

9. Will the wastewater EA review the impact of a failing 100 year old dam(s) upstream in the village of Erin and if necessary include the cost to remediate? Has Ainley requested the report completed several years ago as to the integrity of all the dams in town?

The impact of constructing/modifying/repairing/removing dams in the West Credit River watershed would typically be assessed on a case by case basis when such a project involving a dam is initiated. As with the Hillsburgh dam, an environmental assessment, as mandated by Provincial regulations, would need to be completed to identify and assess viable alternatives to address the problem/opportunity identified for the specific dam in question. Assessing the impact of all the dams in the West Credit River watershed on the assimilative capacity of the river, in the reach of the river where CVC has indicated that a WWTP discharge should occur, is beyond the scope of the wastewater Class EA.

10. Will the wastewater EA take in consideration the net effect of adjacent and (potentially) approaching aggregate pits given the fact there are several springs entering the West Credit from the direction of the pits ? The regulation of aggregate pits falls under the jurisdiction of various government approval agencies. Typically, detailed technical studies are required for the approval of aggregate sites in order to protect existing natural features in the area of the proposed pit. However, it is important to know that the studies completed to date for the wastewater Class EA have been undertaken under existing environmental conditions including the operation of the existing aggregate pits.

11. With input from the CVC/MOE in 2014, the MOE proposed a Total Phosphorous of 0.1mg/L to generate a flow of 2610 m3/d equal to a serviceable population of 6000 (SSMP). Why is the new phosphorous proposal reduced to 0.07 mg/L to allow for a higher discharge volume and therefore the larger serviceable population? In the last 2 years, has the MOECC official changed the discharge criteria for phosphorous? Can the cost to reach the lower objective be quantified? The SSMP recommended an effluent limit of 0.15 mg/l for TP, not 0.1 mg/l. The Ainley team has indicated that the limit of technology for TP removal through wastewater treatment plants is substantially lower than was considered in the SSMP. In fact it is possible to achieve the effluent limit of 0.045 mg/l needed to service full build out of the town official plan including growth. There is no fixed MOECC discharge criteria for TP. This would be a site secific consideration based on the treatment technologies adopted for each treatment plant.

There is certainly a cost increase to achieve higher levels of TP removal and these will be considered in Phase 3 of the Class EA

12. Will the incremental increase in costs be estimated to reduce the phosphorous levels in the discharge from 0.10 to 0.07, 0.07 to 0.05 and 0.05 to 0.046? Can the calculation include the per capita cost increases based on the various projected populations for each discharge objective? Yes this will be addressed in Phase 3 of the Class EA based on agreed phasing for the project.

13. With the maximum 7,172 m3/day of flow from a population of 14,559 people equal to a ADF of 493 L/day for each person assumes Best Available Technology (BAT)…a.k.a. Gravity fed collection sewers and includes infiltration of ground water. What percent of infiltration is incorporated in the flow? If a small bore collection system is put in place, what is the net effect on the serviceable population? Our capacity analysis to date has been based on a gravity sewer solution which represents the lowest serviced population scenario due to the inclusion of inflow and infiltration (I&I). Should other collection system alternatives be selected it may be possible to service additional population through elimination of I&I flows. The flows allocated for I&I are shown in our report.

14. The population at full build out of 14,599 (18,873 including equivalent population), means almost doubling Erin's population and more than tripling Hillsburgh's. If a treatment facility is considered for Hillsburgh would a new Assimilative Capacity Study be required? Is it a fair assumption to believe a south Hillsburgh wastewater plant would not effect a wastewater facility some 10 km south in south Erin? A centralised treatment system for both communities has been selected as the preferred alternative from the SSMP. Phase 3 of the Class EA will focus on selecting a preferred site in the area South of Erin as identified in the SSMP.

15. In real life conditions, would 250 L/day per person not be more realistic? The lower this number, the more can be serviced.

For the purposes of planning in the absence of actual flow data, conservative estimates are used to ensure that the wastewater system is adequate for the projected service population. As actual flow data is obtained through system operation, the serviceable population may change. Municipalities are required to report their System Reserve Capacity" to MOECC on an ongoing basis and they must demonstrate that sufficient capacity is available prior to approving new connections.

16. The total population in the Town of Erin (Advocate 11/16/20016) is 12,300, the two villages at 4500 and the rural population at 7,800. Has the rural septage for 7,800 people been addressed and included in the ACS as part of the reserved capacity? The capacity for septage treatment will be addressed within the design of the treatment facility and ultimately has very minimal impact on flow volumes at the facility.

17. With the projected increase in serviceable populations, will this Wastewater EA address the municipal water requirements - both feasibility and costing - in order to offer full servicing to all? Currently, there are 1010 water connections (+110 potential to connect) in Erin and 280 connections (230 potential to connect). Could water availability be a rate determining factor for the amount of growth for both villages? The SSMP stated another $2.7million to connect all existing residents (table 7-15) and another $4.5 million to connect 1500 of new growth (table 7-16). The Urban Centre Wastewater Servicing Class EA addresses wastewater servicing and the Urban Centre Water Servicing Class EA addresses water servicing. The revised populations from the wastewater Class EA will be taken into account in the water Class EA. The water Class EA is on-going and it is premature to comment on the impact the recently released population projections will have on the alternatives available to the Town to address water supply issues for the urban centres.

18. Given the information gathered to date, with respect to the technical possibilities to increase our population and which of the existing areas that ought to be serviced, at what point can the Town/Council decide to procced to a Performance-Based Class Environmental Assessment (MOECC correspondence of June 19, 2013 to Infrastructure Ontario)? At what point would Council propose how much growth and where growth is preferred? Or will Ainley, only after completing phase 4 of the EA, prescribe how much growth and where? Subject to public input over the next two months, it is expected that this Class EA will be completed based on servicing the two communities up to full build out of the present official plan. It is expected that a parallel planning process will be undertaken in the coming year to consider growth levels. This Class EA will not allocate capacity to growth areas other than those established through the planning process.

19. The SSMP was governed by a Terms of Reference available to the public. Is there a Terms of Reference published and publically available for the current EA? Should it be listed on the web site? There is a Terms of Reference for the study.

20. It appears the ACS used in the SSMP 2014 was in fact peer reviewed and agreed upon - i.e. 6000 people [ref. Advertiser 11/18/2016]. With a substantially larger population that can now be

serviced, will the current ACS be peer-reviewed by the CVC, MOECC, and/or an outside engineering firm? The CVC and MOECC will be reviewing the ACS update.

21. Regarding the below chart:
- Why is Total Suspended solids actually higher in the new guidelines (from 3 on 2014 to 5 mg/l in 2016) ?
- Why is Total Ammonia actually higher in the new guidelines (from 0.4 on 2014 to 2.0 mg/l in 2016) ?

	West credit River: Policy One Receiver		**Credit River: Policy T**	
	Erin		Orangeville comparis	
	MOE Aug 27, 2014 Proposed Treatment Objectives	MOE ~1995 Objectives	Objectives	Actuals
pH	<7 and >8.6	6.8 -7.6		
Total Suspended Solids mg/L	3	10	5	7.5
Total Phosphorous mg/L	**0.1**	**0.3**	**0.4**	**0.5**
Total Ammonia mg/L	0.4	2	2	3
Total Kjeldahl Nitrogen mg/l	6	3		
Nitrate Nitrogen mg/L	5	10	10	2.5
E.coli organisms/100 mls	100	100	150	?
Dissolved oxygen mg/L	5 minimum	2		
BOD 5 mg/l	3.6	5	5	?
temperature	17	8 to 16		

From BMRoss' SSMP: 2014			**From Ainley: 201**	
Table 6-1: Effluent Quality Criteria (Current Study) Objectives and non-compliance			Stage 1	Full buil
Design Values				
Effluent Flow (m3/d)	**2610**	**2610**	**3380**	**717**
	Treatment Objective	Non-Compliance objective		
Total Suspended Solids (mg/L)	3	10	5	
Total Phosphorous (mg/L)	0.1	0.15	0.07	0.04
Total Ammonia (mg/L)	0.4	2	1.3	0.
			2	
Nitrate Nitrogen (mg/L)	5	6	5	
E. coli (cfu/100 mL)	100	100	100	10
Dissolved Oxygen (mg/L)	5 (min)	4 min.	4	
BOD_5 (mg/L)	4	8	5	

The Ainley 2016 values presented above and the HESL 2016 values are effluent limits suggested by our team and subject to review by MOECC. The TSS limit of 5 mg/L is recommended and is lower than the effluent limit proposed by BMRoss (2014) of 10 mg/L mainly due to the more strict level proposed for Total Phosphorus. The total ammonia limit of 1.3 mg/L was derived based on receiver characteristics presented in HESL 2016, and is less than the BMRoss (2014) limit of 2 mg/L. The effluent limits for these two parameters are therefore more stringent than the BMRoss values.

Simon Glass

From: Gary Scott
Sent: November 22, 2016 11:31 AM
To: Neil Hutchinson; Deborah Sinclair; Tara Roumeliotis; Christine Furlong
Cc: Joe Mullan; Simon Glass
Subject: FW: PLC questions

Neil/Deborah or Tara can you please do a draft response to the questions in yellow.
Christine can you please do a draft resonse to the items in pink.
We have nearly finished other answers and will compile and send to team for comments before responding to [redacted]

Gary Scott
scott@ainleygroup.com
Tel: (905) 595- 6859
Cell: (905) 767-1284

To the Ainley group:

I, along with some of my neighbours, have reviewed the technical memorandums on Septic and Flow, available on the Town's web site. We have listed below a number of questions in advance of the Liaison meeting on the 24th. Some questions perhaps can be answered quickly and before the meeting by return, others I assume can be discussed at the meeting, and still some other questions may be a bit early in the process.

It was mentioned the requested glossary of terms and acronyms would be made available on the website .... I was unable to locate them on the Town's website.

Thank you

[redacted]

Resident and Liaison committee member

A. Questions to the November 2016 Ainley's Technical Memorandum <u>Septic System</u> Overview draft for comments.

1. The West Credit River, a Policy 1 stream, has a Total Phosphorus (TP) concentration of between 0.011 – 0.015 mg/L well below the Provincial Water Quality Objective (PWQO) of 0.03 mg/L. Is it safe to say there is no evidence currently of septic leakage in the Village of Erin even with some septic systems as old as 60 years?

2. Is there a statutory/legal requirement to have homes connect to wastewater if they are greater than 1400 m2 (0.342 acre) and already on municipal water? If there are homes on the street that are less than 1400, would other properties meeting the building code be required to connect? It's understood lots greater than 2,784 m2 (0.688 acre) with their own water well and septic system are considered in in compliance to the building code.

3. Ainley's Technical Memorandum states there are 1851 properties in Erin and Hillsburgh .. does this number include industrial properties as well, or only residential properties?

4. There are "140 properties within the wellhead protection plan that have septic systems that require a 5-year maintenance program to be created and an annual report to be submitted to the MOECC equivalent to Section 65 of O.Reg. 287/07." Of the 140 properties, how many are in Erin and how many in Hillsburgh? How many of the 140 properties are not in compliance to the building code?

5. How many properties in Erin and properties in Hillsburgh that are less the 1400m2 are not currently on municipal water?

6. For the 17% of properties with undersized septic tanks, what is the approx. cost to replace a septic tank in order to ensure compliance to the building code? Are there any Erin and Hillsburgh properties that are >1400 m2 where the septic tank is less than the 3600 litres (792 gallons) required by the building code?

7. For the 26% of properties with at risk leaching beds and tank effluent levels, is Ainley familiar with the newer technologies to remediate these situations, can they be considered a possible solution?

8. The report states Erin's oldest septic tank is 62 years (Dundas East). Has Ainley performed an inspection of a system of that vintage? What were the findings?

9. Is Ainley familiar with the advanced septic systems that are designed to be used in lots less than 1400 m2.. ref: Ontario Rural Wastewater Centre at the University of Guelph?.

10. South East Erin sector is dominated by a Well Head Protect Area (WHPA) of the Bel-Erin Well, considered a Groundwater Under Direct Influence (GUDI) of surface water, but this well is inoperative. The current drilling at Kenneth /9th is expected have a much smaller WHPA footprint, if successful. Will this change your recommendation to service this sector?

11. North East Erin Sector with 95 properties is considered Rural Residential and not within the urban boundary. Similarly, South Erin Sector, 69 of the 163 properties lie outside of the urban boundary. The SSMP study was limited to the urban area of both villages with the preliminary suggestion to service all 4500 people. The current report suggests we not service 46 lots in urban Hillsburgh and 94 lots (163-69) in urban Erin. (approximate 400 of the 4500 population). Why were rural residential properties included in the Request for Proposal (RFP) for the "Urban Centre wastewater Class EA"?

12. The existing communal septic systems at Centre 2000 (Erin High School and Erin Community Centre), Stanley Park mobile homes and the St. John Brebeuf Catholic School were included in the flow calculation study. Will the cost to decommission these systems be identified and the cost to connect to a municipal system be estimated? Similarly, what is the approx. cost to the individual property owners to decommission their septic systems and connect to a municipal wastewater system?

13. It's assumed the following terms are used interchangeably: "properties", "lots" and "households". The SSMP stated for 2016; 1090 households in Erin and 460 households in Hillsburgh within the urban area . So taking away the 69 and 95 properties outside of the urban area from the 1259 properties in Ainley's report would result in the same 1090 households reported in the SSMP. Similar results for Hillsburgh. Please then confirm the difference of 80 properties in Erin and 8 properties in Hillsburgh that are not accounted for in the various sectors studied when Ainley refers to a total 1339 in Erin and 512 in Hillsburgh?

Ainley's count

Erin	**1339**	total lots		total undersized lots		
Core 1		521	86%	448		
Core 2		174	61%	106		
South Erin		**163**	**2%**	**3**	**no connection; 69 rural lots**	
Erin Heights		115	38%	44		
SE Erin		191	24%	46		
N.E Erin		**95**	**0%**	0	**No connection; 95 rural lots**	
Total		**1259**		**647**		**51%**
Hillsburgh	**512**					
Core 1		230	63%	145		
Core 2		126	85%	107		
Upper Canada		**46**	**0%**	**0**	**no connection**	
George St		24	67%	16		
S. Trafalgar		78	42%	33		
Total		**504**		**301**		**60%**
Total	**1851**	**1763**	Diff: 88			

B. Questions to the November 2016 Ainley's Technical Memorandum System Capacity and Sewage Flows draft for comments.

1. The 2014 SSMP conclusion was restated by Ainley as follows: population of Erin and Hillsburgh at a total serviceable population of **6,000** was based Average Daily Flow (**ADF) of 435 L/c/d** a wastewater **flow of 2,610 m3/d** discharging to the West Credit River at an **effluent phosphorus concentration of 0.15 mg/**l to achieve a downstream phosphorus concentration in the West Credit River of **0.03 mg/l** corresponding to the Provincial Water Quality Objective for Phosphorus. Why did Ainley refer to the non-compliance objective of 0.15 mg/l phosphorous and not the MOE proposed objective of 1.0 mg/L which were used to calculate the 6000? (note 6000 is related to the above bolded factors; changing any will affect the total population calculation).

2. Ainley reports "the 2,610 m3/d discharge potential identified in the SSMP associated with a downstream phosphorus concentration of 0.03 mg/L can no longer be achieved at a wastewater effluent concentration of 0.15 mg/L". Cannot be achieved for what reason? Mandated by the CVC , MOECC .. if so why the change within 2 years? What has changed?

3. Ainley confirmed the CVC reports the West Credit river now has a flow rate of 225 litres per second and that this flow rate includes a 10% Climate Change adjustment. In 2014, the CVC reported a flow rate of 202 litres per second. Could the West Credit's s flow rate have increased by 20% in the last two years? (in spite of the beaver dam down river from the CVC flow metre). Has CVC's criterion to calculate flow changed since 2014?

4. Why did the MOECC and the CVC request updates to the work completed in the SSMP including revisiting the 7Q20 flow values and re-evaluating the assimilative capacity of the West Credit River? With the admitted low flows of the W. Credit (by the CVC) over the last 2 years, how did the updated 7Q20 flow data, along with a more stringent effluent objective, translate into a substantially higher serviceable population?

5. www.farmzone.com reported for Peel North, 662 mm of precipitation in 2014, 604 mm in 2015 and 514 mm in 2016. http://app.toronto.ca/tpha/heatStats.html reports 2016 had 22 Heat Alert days, 8 were Extreme Heat Alerts, in 2015 there were 12, with 4 Extreme Heat Alerts, while 2014 merely had one Heat Alert. Would the downward trend in precipitation along with the increase in the number of heat advisories over the last 3 years not suggest a lower flow rate?

6. The Rhodamine Dye test was completed this August at the request of the MOE/CVC in 2014. The test was initiated downstream from the beaver dam, with the installed Flow Meter located further upstream some 100 meters on the west side of 10th line. Is the data generated from this test relevant with respect to calculating the assimilative capacity of the river if the discharge point would be located at 10th line? As I understand, "CVC staff may attempt to re-calibrate the flow gauge readings with the backwater but this is challenging unless the beaver dam conditions stabilize".

7. Why was the MOE/CVC in 2014 recommending that because of the reduced flow at 10th Line, the optimum discharge point would need to be closer to Winston Churchill? A preferred discharge point has not yet been selected. It is likely alternative discharge locations will include a point closer to Winston Churchill.

8. With input from the CVC/MOE in 2014, why did the SSMP assume a downstream phosphorus concentration of 0.03 mg/L after mixing with the wastewater effluent, and now both agencies think it is "appropriate to recommend that a downstream Site Specific Water Quality Objective (SSWQO) for a Total Phosphorous of 0.024 mg/L be adopted to protect the cold water habitat and water quality in the West Credit River"? Does the difference between 0.03 and 0.024 actually affect the temperature of the water, noting that the following statement; "effect of changing the trophic status of the river on brook trout and other aquatic life in the West Credit River is not well understood at this time". What is the incremental cost increase to reach this higher level of protection for the lower limit of 0.024 down river?

9. If the Preferred Solution for the current EA for the Hillsburgh dam/pond (Triton) is to bring the West Credit river back to a "meandering stream" by decommissioning the dam/draining the pond, would this affect the flow and/or the velocity of the river? Would this affect the Assimilative Capacity of the river? How will it affect the Assimilative capacity?

10. Will the wastewater EA review the impact of a failing 100 year old dam(s) upstream in the village of Erin and if necessary include the cost to remediate? Has Ainley requested the report completed several years ago as to the integrity of all the dams in town?

11. Will the wastewater EA take in consideration the net effect of adjacent and (potentially) approaching aggregate pits given the fact there are several springs entering the West Credit from the direction of the pits ? Im presuming that approval of any pits would not be allowed to affect base flow in the river???

12. With input from the CVC/MOE in 2014, the MOE proposed a Total Phosphorous of 0.1mg/L to generate a flow of 2610 m3/d equal to a serviceable population of 6000 (SSMP). Why is the new phosphorous proposal reduced to 0.07 mg/L to allow for a higher discharge volume and therefore the larger serviceable population? In the last 2 years, has the MOECC official changed the discharge criteria for phosphorous? Can the cost to reach the lower objective be quantified?

13. Will the incremental increase in costs be estimated to reduce the phosphorous levels in the discharge from 0.10 to 0.07, 0.07 to 0.05 and 0.05 to 0.046? Can the calculation include the per capita cost increases based on the various projected populations for each discharge objective?

14. With the maximum 7,172 m3/day of flow from a population of 14,559 people equal to a ADF of 493 L/day for each person assumes Best Available Technology (BAT)…a.k.a. Gravity fed collection sewers and includes infiltration of ground water. What percent of infiltration is incorporated in the flow? If a small bore collection system is put in place, what is the net effect on the serviceable population?

15. The population at full build out of 14,599 (18,873 including equivalent population), means almost doubling Erin's population and more than tripling Hillsburgh's. If a treatment facility is considered for Hillsburgh would a new Assimilative Capacity Study be required? Is it a fair assumption to believe a south Hillsburgh wastewater plant would not effect a wastewater facility some 10 km south in south Erin?

16. In real life conditions, would 250 L/day per person not be more realistic? The lower this number, the more can be serviced.

17. The total population in the Town of Erin (Advocate 11/16/20016) is 12,300, the two villages at 4500 and the rural population at 7,800. Has the rural septage for 7,800 people been addressed and included in the ACS as part of the reserved capacity?

18. With the projected increase in serviceable populations, will this Wastewater EA address the municipal water requirements - both feasibility and costing - in order to offer full servicing to all? Currently, there are 1010 water connections (+110 potential to connect) in Erin and 280 connections (230 potential to connect). Could water availability be a rate determining factor for the amount of growth for both villages? The SSMP stated another $2.7million to connect all existing residents (table 7-15) and another $4.5 million to connect 1500 of new growth (table 7-16).

19. Given the information gathered to date, with respect to the technical possibilities to increase our population and which of the existing areas that ought to be serviced, at what point can the Town/Council decide to procced to a Performance-Based Class Environmental Assessment (MOECC correspondence of June 19, 2013 to Infrastructure Ontario)? At what point would Council propose how much growth and where growth is preferred? Or will Ainley, only after completing phase 4 of the EA, prescribe how much growth and where?

20. The SSMP was governed by a Terms of Reference available to the public. Is there a Terms of Reference published and publically available for the current EA? Should it be listed on the web site?

21. It appears the ACS used in the SSMP 2014 was in fact peer reviewed and agreed upon - i.e. 6000 people [ref. Advertiser 11/18/2016]. With a substantially larger population that can now be serviced, will the current ACS be peer-reviewed by the CVC, MOECC, and/or an outside engineering firm?

22. Regarding the below chart:
    - Why is Total Suspended solids actually higher in the new guidelines (from 3 on 2014 to 5 mg/l in 2016) ?
    - Why is Total Ammonia actually higher in the new guidelines (from 0.4 on 2014 to 2.0 mg/l in 2016) ?

West credit River: Policy One Receiver		**Credit River: Policy T**	
Erin		Orangeville comparis	
MOE Aug 27, 2014 Proposed Treatment Objectives	MOE ~1995 Objectives	Objectives	Actuals

pH	<7 and >8.6	6.8 -7.6		
Total Suspended Solids mg/L	3	10	5	7.5
Total Phosphorous mg/L	**0.1**	**0.3**	**0.4**	**0.5**
Total Ammonia mg/L	0.4	2	2	3
Total Kjeldahl Nitrogen mg/l	6	3		
Nitrate Nitrogen mg/L	5	10	10	2.5
E.coli organisms/100 mls	100	100	150	?
Dissolved oxygen mg/L	5 minimum	2		
BOD 5 mg/l	3.6	5	5	?
temperature	17	8 to 16		

From BMRoss' SSMP: 2014

From Ainley: 201

Table 6-1: Effluent Quality Criteria (Current Study) Objectives and non-compliance

Design Values			Stage 1	Full buil
Effluent Flow (m3/d)	**2610**	**2610**	**3380**	**717**
	Treatment Objective	Non-Compliance objective		
Total Suspended Solids (mg/L)	3	10	5	
Total Phosphorous (mg/L)	0.1	0.15	0.07	0.04
Total Ammonia (mg/L)	0.4	2	1.3	0.
			2	
Nitrate Nitrogen (mg/L)	5	6	5	
E. coli (cfu/100 mL)	100	100	100	10
Dissolved Oxygen (mg/L)	5 (min)	4 min.	4	
BOD_5 (mg/L)	4	8	5	

Simon Glass

From: Gary Scott
Sent: October 17, 2016 12:15 PM
To: [redacted]
Cc: Simon Glass; Joe Mullan; 'Noah Brotman'; 'Christine Furlong'; Derek.McCaughan@erin.ca
Subject: RE: 7Q20 and Rhodamine tracing study of the West Credit

[redacted] further to your email today, on this particular issue we do understand your concerns re the beaver dams and other issues related to the ACS and we do hope to be able to answer your concerns in our reports. We have preliminary ACS results but we do not yet have Hutchinson's report. We do hope you understand that where we have not completed our work and researched issues, we are not in a position to respond.

Gary Scott
scott@ainleygroup.com
Tel: (905) 595- 6859
Cell: (905) 767-1284

From: [redacted]
Sent: August-10-16 2:21 PM
To: Gary Scott
Cc: Simon Glass; Joe Mullan; 'Noah Brotman'; 'Christine Furlong'; 'Council'
Subject: RE: 7Q20 and Rhodamine tracing study of the West Credit

Thank you Gary for your quick response re the Rhodamine test. I remain interested in receiving Hutchinson's response to the question posed below, whether the presence of beaver dams in the area will affect the outcome of tracking river flow with the rhodamine dye.

In the meantime, could you respond to the question regarding beaver dams and flow rates from a 7Q20 perspective. Would the data be biased, or is there a correction added to the calculation? Would the assimilative capacity of the river at the point of discharge not be affected by the presence of beavers dams up-stream as well as down-stream? Would this mean that once we are discharging effluent, we will need to prevent beavers in settling on the river, preventing dams?

In last night's council meeting, the mayor suggested there were no longer beavers on-site. As it turns out, when I took the attached photos yesterday, my dog did give chase to what was surely a beaver.

I look forward to your response(s).

Thanks
[redacted]

From: Gary Scott [mailto:scott@ainleygroup.com]
Sent: August-10-16 1:44 PM
[redacted]
Cc: Simon Glass; Joe Mullan; Noah Brotman; Christine Furlong
Subject: RE: 7Q20 and Rhodmine tracing study of the West Credit

Thank you [redacted]

We have passed this along to Hutchinson staff who are doing the dye study and we will consider the effect of this before we start.

Gary Scott
scott@ainleygroup.com
Tel: (905) 595- 6859
Cell: (905) 767-1284

From: Simon Glass
Sent: August-10-16 10:23 AM
To: Gary Scott; Jatin Singh
Cc: Christine Furlong (cfurlong@tritoneng.on.ca); Joe Mullan; noahbrotman@hardystevenson.com
Subject: FW: 7Q20 and Rhodmine tracing study of the West Credit

FYI

Regards,

Simon Glass, E.I.T.
www.ainleygroup.com

glass@ainleygroup.com
Tel: (905) 595-6862
Cell: (289) 654-2865

[redacted]
Sent: August 9, 2016 4:07 PM
To: erin.urban.classea@ainleygroup.com
Cc: 'Council'
Subject: 7Q20 and Rhodmine tracing study of the West Credit

To the Ainley Group re Erin's Wastewater EA

Dear Sirs,

I understand that the 7Q20 memo was received from the CVC as per your monthly report dated July 27, 2016 for the month of June.

I have attached photos of the West Credit at 10th line... based on the beaver activity this year and the subsequent lower flow, could you confirm if the data collected to calculate the 7Q20 took into consideration this year's beaver activity. From the attached, the river is substantially higher without much velocity.

Moreover, I understand later this month a rhodamine tracing dye study will be performed. With the existing beaver dams on the east and west side of 10th, will the results of such a study be an accurate indication of river flow?

Look forward to your response.

Thank you

[redacted]
Erin Resident & Member of the Liaison committee

Simon Glass

From: Gary Scott
Sent: October 17, 2016 12:25 PM
To: [redacted]
Cc: Jatin Singh; noahbrotman@hardystevenson.com; Joe Mullan; Christine Furlong; Simon Glass
Subject: RE: Hillsburgh Pond/Station Street Dam EA, effect on Assimilative capacity and the wastewater EA/ septage disposal.

[redacted]

With these other issues that you raised we responded as below. As noted, we are still working on the ACS report and still not in a position to address your issue. Likewise with septage we have calculated loads of septage from various alternatives and will be evaluating these are part of Phase 3 of the Class EA. Our main objectives at this time remain closing out Phase 2 issue. We have to address all of the components of the Class EA as a step by step process and that is our main focus.

Gary Scott
scott@ainleygroup.com
Tel: (905) 595- 6859
Cell: (905) 767-1284

From: Gary Scott
Sent: July-19-16 8:21 PM
[redacted]
Cc: Jatin Singh; noahbrotman@hardystevenson.com; Joe Mullan; 'Christine Furlong'; Simon Glass
Subject: RE: Hillsburgh Pond/Station Street Dam EA, effect on Assimilative capacity and the wastewater EA/ septage disposal.

[redacted]

With respect to your emails below we offer the following response:

1 The Class EA for the Hillsburgh dam is incomplete and as a result, it is premature to comment on the impact the various alternatives may have on the assimilative capacity of the West Credit River at this time.
2 We understand that septage from private sewage systems throughout Erin is handled by private haulers who use existing Wastewater Treatment Plants that accept septage. The issue of Septage will be addressed within the Class EA.

Thanks for your input.

Gary Scott, M. Sc., P. Eng.
Technical Lead Erin Wastewater Class EA

Ainley
www.ainleygroup.com

2 County Court Blvd., 4th Floor
Brampton, ON L6W 3W8

scott@ainleygroup.com
Tel: (905) 595- 6859
Cell: (905) 767-1284

[redacted]
Sent: July 18, 2016 4:09 PM
To: erin.urban.classea@ainleygroup.com
Subject: RE: Hillsburgh Pond/Station Street Dam EA, effect on Assimilative capacity and the wastewater EA/ septage disposal.

To the Ainley Group,

I addition to the below inquiry of June 29th, could someone at Ainley confirm how/where Erin's pumped septage is disposed of ?

Can Erin's septage be processed at wastewater plants that are operating at below design capacity, like the Nobleton plant?

Thanks
[redacted]
Liaison Committee member

[redacted]
Sent: June-29-16 4:17 PM
To: 'erin.urban.classea@ainleygroup.com'
Cc: 'Council'
Subject: Hillsburgh Pond/Station Street Dam EA, effect on Assimilative capacity and the wastewater EA

To the Ainley group,

As directed by David in our first Liaison committee meeting, any questions should be directed generically to the above email for distribution.

In conversation with some folks in town, the subject of the Hillsburgh Pond and Station Street Dam surfaced with respect to the Assimilative Capacity of the West Credit at the south-east corner of town. Although unlikely, but if the Preferred Solution for the current EA for the Dam/pond was to bring the W. Credit back to a "meandering stream", would this not affect the flow and/or the velocity of the river, thereby affecting the AC? Will those agencies (CVC, MOECC) responsible for the oversight of the EA for the Dam and the EA for wastewater monitor these variables jointly and collectively? If I'm not mistaken, the option to revert to its natural state is more costly than to remediate.

That said, I believe there may be a recent report on file that addresses the structural integrity of the various dams in the Town of Erin. Will the wastewater EA address the unlikely (but possible) event if one of the dams breached or malfunctioned. I assume the EA will address and quantify the costs to upgrade these dams where needed. As I understand some of the dams are privately owned which may complicate matters.

Be interested in your initial thoughts…

Simon Glass

From: [redacted]
Sent: October 18, 2016 1:12 PM
To: Gary Scott
Cc: Simon Glass; Joe Mullan; 'Noah Brotman'; 'Christine Furlong'; Derek.McCaughan@erin.ca; Jatin Singh; 'Council'
Subject: RE: 7Q20 and Rhodamine tracing study of the West Credit

Thanks Gary
Much appreciated.
[redacted]

From: Gary Scott [mailto:scott@ainleygroup.com]
Sent: October-18-16 12:55 PM
To: [redacted]
Cc: Simon Glass; Joe Mullan; 'Noah Brotman'; 'Christine Furlong'; Derek.McCaughan@erin.ca; Jatin Singh; 'Council'
Subject: RE: 7Q20 and Rhodamine tracing study of the West Credit

[redacted]

I think the answering of questions from individual members likely requires further discussion at the next meeting just to clarify everyone is ok with that. I'll leave that to Dave and Noah.
Hutchinson just presented preliminary results. No report. Its due end of month. I'll remind them to capture this issue.

Gary Scott
scott@ainleygroup.com
Tel: (905) 595- 6859
Cell: (905) 767-1284

[redacted]
Sent: October-18-16 12:51 PM
To: Gary Scott
Cc: Simon Glass; Joe Mullan; 'Noah Brotman'; 'Christine Furlong'; Derek.McCaughan@erin.ca; Jatin Singh; 'Council'
Subject: RE: 7Q20 and Rhodamine tracing study of the West Credit

Gary,

Thank you for re-sending your responses of July 19.

Since the ACS was already presented to the CMT on October 3, I just wondered if the presence or absence of the Hillsburgh dam and/or beaver dams or breached dams in the village would actually affect the river flow, volume or velocity and if these issues can affect the current preliminary assimilative capacity (population number) of the river at point of discharge?

Could the Hutchinson's report (Rhodamine tracing flow study) once received affect the preliminary ACS?

I would still be interested to know if Ainley intends to capture the Q&A of the PLC members in between meetings.

Thanks
[redacted]

From: Gary Scott [mailto:scott@ainleygroup.com]
Sent: October-17-16 12:15 PM
[redacted]
Cc: Simon Glass; Joe Mullan; 'Noah Brotman'; 'Christine Furlong'; Derek.McCaughan@erin.ca
Subject: RE: 7Q20 and Rhodamine tracing study of the West Credit

[redacted] further to your email today, on this particular issue we do understand your concerns re the beaver dams and other issues related to the ACS and we do hope to be able to answer your concerns in our reports. We have preliminary ACS results but we do not yet have Hutchinson's report. We do hope you understand that where we have not completed our work and researched issues, we are not in a position to respond.

Gary Scott
scott@ainleygroup.com
Tel: (905) 595- 6859
Cell: (905) 767-1284

[redacted]
Sent: August-10-16 2:21 PM
To: Gary Scott
Cc: Simon Glass; Joe Mullan; 'Noah Brotman'; 'Christine Furlong'; 'Council'
Subject: RE: 7Q20 and Rhodamine tracing study of the West Credit

Thank you Gary for your quick response re the Rhodamine test. I remain interested in receiving Hutchinson's response to the question posed below, whether the presence of beaver dams in the area will affect the outcome of tracking river flow with the rhodamine dye.

In the meantime, could you respond to the question regarding beaver dams and flow rates from a 7Q20 perspective. Would the data be biased, or is there a correction added to the calculation? Would the assimilative capacity of the river at the point of discharge not be affected by the presence of beavers dams up-stream as well as down-stream? Would this mean that once we are discharging effluent, we will need to prevent beavers in settling on the river, preventing dams?

In last night's council meeting, the mayor suggested there were no longer beavers on-site. As it turns out, when I took the attached photos yesterday, my dog did give chase to what was surely a beaver.

I look forward to your response(s).

Thanks
[redacted]

From: Gary Scott [mailto:scott@ainleygroup.com]
Sent: August-10-16 1:44 PM
[redacted]

Cc: Simon Glass; Joe Mullan; Noah Brotman; Christine Furlong
Subject: RE: 7Q20 and Rhodmine tracing study of the West Credit

Thank you [redacted]
We have passed this along to Hutchinson staff who are doing the dye study and we will consider the effect of this before we start.

Gary Scott
scott@ainleygroup.com
Tel: (905) 595- 6859
Cell: (905) 767-1284

From: Simon Glass
Sent: August-10-16 10:23 AM
To: Gary Scott; Jatin Singh
Cc: Christine Furlong (cfurlong@tritoneng.on.ca); Joe Mullan; noahbrotman@hardystevenson.com
Subject: FW: 7Q20 and Rhodmine tracing study of the West Credit

FYI

Regards,

Simon Glass, E.I.T.

Ainley
www.ainleygroup.com

glass@ainleygroup.com
Tel: (905) 595-6862
Cell: (289) 654-2865

[redacted]
Sent: August 9, 2016 4:07 PM
To: erin.urban.classea@ainleygroup.com
Cc: 'Council'
Subject: 7Q20 and Rhodmine tracing study of the West Credit

To the Ainley Group re Erin's Wastewater EA

Dear Sirs,

I understand that the 7Q20 memo was received from the CVC as per your monthly report dated July 27, 2016 for the month of June.

I have attached photos of the West Credit at 10th line... based on the beaver activity this year and the subsequent lower flow, could you confirm if the data collected to calculate the 7Q20 took into consideration this year's beaver activity. From the attached, the river is substantially higher without much velocity.

Moreover, I understand later this month a rhodamine tracing dye study will be performed. With the existing beaver dams on the east and west side of 10th, will the results of such a study be an accurate indication of river flow?

Look forward to your response.

Thank you

[redacted]
Erin Resident & Member of the Liaison committee

Phase 3 Consultation Records

Listing of Contents

1. PLC 4 – Meeting Notes
2. PIC 2 – Media Advisory
3. PIC 2 – Presentation Boards
4. PIC 2 – Consultation Report
5. PIC 2 – Public Responses
6. Cost and Financing FAQ
7. RE: Per Capita Wastewater Flows

1.
PLC 4 – Meeting Notes

Public Liaison Committee Meeting #4 – January 24, 2018

PROJECT:	Town of Erin: Urban Centre Wastewater Municipal Class Environmental Assessment (EA)
DATE:	January 24, 2018
LOCATION:	Town of Erin Municipal Office
TIME:	7:00 p.m. – 9:00 p.m.

ATTENDEES:

PLC members	Organization
Allan Alls	Mayor
Valerie Bozanis	General public
Don Fysh	Riverwalk Trails Committee and Rotary Club
Nathan Hyde	Chief Administrative Officer
Eric Mathisen	Urban Erin
Justin Morrow	Copper Hills Development
Jay Mowat	Environment and Sustainability Advisory Committee
Linda Rosier	General public
Lloyd Turbitt	Let's Get Hillsburgh Growing Committee
Maurizio Rogato	Solmar
Nancy Shoemaker	Black, Shoemaker, Robinson and Donaldson Limited (Planner for Tavares Group)
Roy Val	General public
Josie Wintersinger	Former Councillor
Project Team	
Christine Furlong	Triton Engineering
Joe Mullan	Ainley Group
Gary Scott	Ainley Group
Simon Glass	Ainley Group
Gary Scandlan	Watson & Associates Economics Ltd.
Deborah Sinclair	Hutchinson Environmental Sciences
Brent Parsons	Hutchinson Environmental Sciences
Dave Hardy	Hardy Stevenson and Associates Limited
Noah Brotman	Hardy Stevenson and Associates Limited

Public Liaison Committee Meeting #4 – January 24, 2018

MEETING PURPOSE: To review and discuss Phase 3 background reports and technical memoranda and to discuss PLC recommendations for the Public Information Centre.

MEETING AGENDA

1. **Welcome Remarks** (5 mins)
   Remarks by Mayor Alls

2. **Chair's Remarks** (5 mins)
   Welcome PLC members
   Review Agenda
   Top 5 Issues to highlight

3. **Review of Phase 3 Technical Memoranda** (60 mins)
   Presentation by Ainley Group and Hutchinson Environmental
   Topics will have brief presentations of key findings with time after each for Q&As.
   - Natural Environment Report
   - Effluent Outfall Site Selection
   - Wastewater Treatment Plant Site Selection
   - Collection System Pumping Stations and Forcemains Alternatives
   - Treatment Technology Alternatives
   - Geotechnical Investigations; Natural Heritage; and Archaeological Investigations will be discussed if time allows.

4. **Discussion on Costs** (30 mins)
   Presentation by Ainley Group and Watson & Associates Economists Ltd.
   - Overview of preliminary cost estimates.
   - Discussion about anticipated cost issues for presentation at PIC.

5. **Public Information Centre Preparations** (15 mins)
   Discussion led by Hardy Stevenson and Associates
   - Discussion of setup for PIC.
   - PLC recommendations for the event.
   - Overview of key messages for certain topics.

6. **Next Steps** (5 mins)

7. Adjournment

Welcome Remarks

The meeting started with a brief welcome from Mayor Allan Alls and an introduction from Dave Hardy (PLC Chair), providing a brief overview of the agenda for the fourth PLC meeting.

It was noted that there was a significant amount of technical material to discuss, so the meeting would have a brief presentation on each technical report with an opportunity for questions following each. The second topic for the meeting was a discussion of costs, both overall project costs and anticipated costs per household. A brief presentation of key points was provided followed by a Q&A and discussion period. In addition to explaining the projected costs, there was discussion about how best to present this material to the community. Finally, a description of the setup for the Public Information Centre (PIC) was provided and PLC members were asked to provide comments on general setup for the event and any key topics that they would like to see covered.

Introductions

The Project Team and PLC members briefly introduced themselves, mentioning the organizations that they were there to represent.

Review of Phase 3 Technical Memoranda

Joe Mullen started with a general update on the progress of the overall Environmental Assessment and how the technical memoranda being discussed today fit into that process. He then led the presentations on the Phase 3 Technical Memoranda, which included the:

- Natural Environment Report (Presented by Hutchinson Environmental)
- Effluent Outfall Site Selection
- Wastewater Treatment Plant Site Selection
- Collection System Pumping Stations and Forcemains Alternatives
- Treatment Technology Alternatives

Each presentation was around 10 minutes long and included a review of the purpose of the study, and methodology used to complete the study, and the key findings and how they fit into the overall Environmental Assessment.

Natural Environment Report

Deborah Sinclair and Brent Parsons of Hutchinson Environmental presented on the Natural Environment Report, providing an overview of the work undertaken for the study and the key findings. It was noted that the Assimilative Capacity Study was completed in 2016/2017, and comments have been received from Credit Valley Conservation (CVC) and the Ministry of Environment and Climate Change (MOECC). CVC submitted a letter saying that the study was acceptable. The Project Team had worked with MOECC to update effluent objectives and loading rates. The key findings for the studies completed are generally that the West Credit

River has the capacity to safely accept treated effluent in the proposed volumes and that it is anticipated that there will not be a significant impact on local flora or fauna, including any at-risk species in the study area.

The methodology of the Aquatic Ecology Study was reviewed and it was explained how the findings of this study would contribute to the selection of the preferred outfall location by identifying the area of the river with the least sensitivity. The presence of brook trout spawning grounds (redds) was discussed, which are prevalent between 10th Line and Winston Churchill Blvd. Notably fewer brook trout redds are located downstream of the proposed outfall location. The characterization and impact assessment analysis for amphibians, birds, and snapping turtle populations was discussed. Sensitivity criteria were developed that were fed into the outfall location assessment. An overview of local terrestrial ecology was provided and how the ecology fed into the identification of the preferred treatment plant location. Finally, recommended mitigation measures were discussed.

Q: It is stated that preferred outfall location is at Winston Churchill Boulevard, and we also know that there is additional natural infiltration due to a nearby artesian spring. Is that spring flow already calculated in the Assimilate Capacity Study (ACS) or does it represent additional flow?

The flow from the artesian spring is actually additional flow which would further dilute the treated effluent in the river. The ACS was completed using flow and water quality measurements both at Winston Churchill Blvd. and at 10th Line through the CVC's permanent flow monitoring stations. Field measurements showed that there was additional flow at Winston Churchill Blvd.

Q: Many people who don't like fluoride will take water at the artesian spring at Winston Churchill Blvd. Will the well's water quality be affected by the effluent outfall location?

The potential impact of the effluent outfall location on the artesian spring was not within the scope of this study. However, if the PLC wanted to provide some information on the artesian spring, the Project Team would be willing to review.

It was noted by the Project Team that if the artesian spring is deep, which they tend to be, it is unlikely that the water would be affected. Artesian well flows and surface river flows tend to be separate.

Project Team members commented that the spring is not a safe drinking water supply and those using it do so at their own risk.

A PLC member noted that there is a warning sign at the artesian spring warning people that the water quality is not tested, however people have taken this water to be tested and the PLC member stated that it is very good.

Q: We know that beaver dams are a fairly common feature in this area. There is a push from the MOECC and CVC to remove beaver dams in waterways throughout Ontario. Does this have an impact on the assimilative capacity?

The beaver dams are an inherent feature of the area and were taken into account in these studies. When the ACS was completed, the river did not have a beaver dam. The dye test done to determine the flow rate was done downstream from the one beaver dam that has since been removed. In general, beaver dams do not have a notable impact on flow rates because while there can be an initial impact to the flow due to a dam, the flow returns to normal fairly soon after.

Q: Do beaver dams cause additional sedimentation? Would decommissioning of dams up-river impact the flow?

Beaver dams and minor man-made obstructions can cause some sedimentation build-up but not normally a significant enough amount to impact flow rates. The decommissioning of dams up-river will not have a significant impact on the flow rate of the river.

Q: We know that this is the preferred location that will do the least damage, but is there any way to know what damage it will do?

The effluent is treated to the point where it will not have a negative impact based on the lowest flow situation based on 7-day low flow statistics over a 20-year period. Outside of these extreme periods the river's flow will be greater, further reducing any potential impact. The routes for the collection system will be mostly under existing roadways and trails, meaning that there will be a relatively small footprint. As well, the mitigation measures that have been identified will mean that there is very little impact on river health.

Alternatives Evaluation Process

An overview of the evaluation process for the wastewater collection system routes and treatment plant locations was provided. This helped PLC members better understand how the preferred routes and locations were identified and what specific criteria were used.

It was noted that the overall evaluation approach is common to the wastewater industry and had been adapted to be relevant to Erin and Hillsburgh's specific situation.

The four major categories of criteria were described: Social / Cultural; Technical; Environmental; Economic. The secondary criteria that were examined under each of these categories were further described.

Finally, the specific evaluation criteria scores were shared with the PLC. It was noted that the 'blended gravity / low pressure system' emerged as the top scoring alternative based on the current primary criteria weighting.

Q: With the weighting, there was a difference between social and environment in the two evaluations. Why is social 10% for the treatment technology but 15% for the outfall location?

The treatment technology evaluation and the outfall location have different characteristics, impacts, and secondary criteria. For example, the aesthetic considerations of a building that will be visible from the road would have a greater visual impact compared to the outfall pipes and diffuser system which would be underwater in the river and not have a significant visual impact. Another example is that there would be traffic impacts due to construction of the wastewater treatment plant, but not of the outfall pipes. There are a number of other differences between the two evaluations, but the key point is that the criteria utilized in each evaluation are different and specific to each piece of work.

Q: If I looked at that chart and we were in a random village, would those numbers actually be the same? How generic are those numbers? Is this a cookie cutter solution?

These numbers would be fairly common to comparable towns however evaluations of this kind must be tailored to the specific circumstances of each town so there would be differences. The overall approach and criteria weightings are fairly standard. The secondary criteria are specific to Erin and Hillsburgh though they would not be unlike what you might see in a comparable village.

Q: You talked about the sensitivity analysis. I remember seeing it in one report, but didn't see it in every report.

The sensitivity analysis was in most reports. We are certainly able to do the sensitivity analysis for all reports, so we can go back and take a look to see if it is missing from any.

Treated Effluent Outfall Alternatives

The Project Team presented the three alternatives for the effluent outfall location and pipe routes that had been evaluated. The three alternatives for discharge into the West Credit River were: 1A) the west side of 10th Line; 1B) the east side of 10th Line; and 2) the west side of Winston Churchill Blvd. Alternative 2 was identified as the preferred outfall location as it avoids the fish spawning areas between 10th Line and Winston Churchill Blvd, as well as allowing for better mixing of the effluent thanks to increased flow at the preferred location.

Q: Has anyone been in contact with Peel Region and Caledon about this? Because our waste will go right down to them.

Completed reports have been sent to the Region of Peel and Caledon for their information and they have not responded with any issues.

Q: For the discharge point, will the public information include a description or

images to show what the outfall would actually look like? Will it be a pipe above ground dropping stuff into the water or below the water and not really visible? The perception of the outfall pipe will have an impact for the community. Showing what it will look like will help mitigate potential blowback.

The Project Team thanked the PLC member for the suggestion, noted that it was a good idea, and that they would have images of what the outfall will look like for the PIC. Overall the outfall pipe itself will not be visible because it will be under the surface of the water.

Q: Will there be smell from this plant like the treatment plants in Toronto and other areas? Would trucks be coming in with septic waste?

There should not be odors at all comparable to that. Many of the treatment facilities in Toronto and other large cities were constructed quite a long time ago. Newer technologies and approaches have drastically reduced the odor that comes from wastewater treatment plants. Erin's system will be newer and will have the improved technology that those larger volume treatment plants are only now starting to implement.

Wastewater Treatment Plant Site Selection

The Project Team presented the four potential sites that had been evaluated:

Site 1	Solmar Lands
Site 2A	Halton Crushed Stone (west property)
Site 2B	Halton Crushed Stone (east property)
Site 2C	Halton Crushed Stone (east of 10th Line)

The general characteristics of each site were described, including a description of some of the key differentiating features. A typical layout of a common WWTP facility were shown in order to give PLC members a better understanding of how the lands would be used. The Project Team said that the site could be designed and landscaped in a way to minimize any potential visual impacts for neighbours or anyone driving by.

One of the considerations for the evaluation of the Halton Crushed Stone properties was that there would be a difference in the cost of acquisition if the WWTP would be constructed after the aggregates were extracted.

If the WWTP were to be constructed prior to the removal of aggregates, Site 1 emerged as the preferred alternative. However, if the aggregates were to be extracted prior to the land acquisition process, the preferred alternative would become Site 2B.

Q: It was brought up during the recent Council meeting that there are two sections of land that have already been extracted in the quarry. There are also two sites that are a little further south.

The Project Team responded that as a result of that comment at the Council meeting they are now looking into the current status of aggregate extraction for the sites.

Q: I have heard that Halton Crushed Stone may want to shut down 10th Line in order to get at the aggregate under it.

Mayor Als responded that there have not yet been any discussions between the Town and Halton Crushed Stone about this happening.

Q: Was there any cost differential between the four sites?

If the aggregate is still in place then there would be a resource cost on top of the land acquisition cost. This would mean that the Solmar lands would be preferred.

Q: Is there any impact on the piping costs to get to the outfall between the different sites?

The piping costs would be fairly comparable for all sites.

Collection System Alternatives

The evaluation of the collection system alternatives looked at five scenarios in great detail:

- A1 Gravity Collection System
- A2 Low Pressure Collection System
- A3 Vacuum Collection System
- A4 STEP/STEG Collection System
- A5 Blended Gravity / Low Pressure Collection System

The Project Team provided an overview of each of the five alternatives, showing the collection system maps and discussed the key features of each.

Alternative A5 Blended Gravity / Low Pressure Collection System was identified as the preferred solution for the following reasons:

- Gravity system most commonly used system
- Gravity system best suited to Erin/Hillsburgh topography
- Provides the most secure, sustainable long term solution
- Provides the highest level of service to properties
- Lowest operating cost
- Not a proprietary system and does not depend on power supply at each property

Comment: The working group of Transition Erin spent a lot of time reviewing collection system alternatives. We made a presentation to Council in 2014 promoting the STEP/STEG system.

Q: Is the proposed new library not planned to be connected? Do the flow numbers

allow for inclusion of that waste?

There is a potential pipe that will be able to pick up that waste and connect it to the collection system. The potential pipe location referenced was pointed out on the maps. This waste could certainly be accommodated within the existing waste flow numbers as there was an allowance for growth built into those calculations.

Q: Why does the map show the study area boundary for Erin Village stopping at 10th Line?

The study area boundary extends slightly beyond what you are able to see on the map. We will double check to confirm exactly what happened with the map, but this seems to be just a rendering decision in order to see other areas in greater detail.

Q: There has been concern from some community members about the potential noise and smell of the pumping stations that will be required for certain areas.

With the typical pumping station you would not hear any noise from day to day. Even when you open the hatch and are standing over it the pumps are still very quiet. The only noise people might hear would be from a standby generator that would only be activated if power to the station was otherwise lost. There would be noise suppression on that generator. The Ministry of Environment and Climate Change has much more stringent regulations than it used to regarding noise from generators.

Normally there is no smell coming from these small pump stations. Pump stations like this exist in many subdivisions in the developed world and there are rarely issues.

A PLC member commented that at the PIC there should be graphics to show the size and scale of these pumping stations.

Q: What would the power system be for the pumping station?

The pumping station would be primarily powered by hydro with a fallback likely being a generator. The type of generator would not be specified, just the capacity it would require.

A PLC member commented that loss of power is not infrequent for the area as extreme weather events have increased in recent years. The Project Team responded that when the project gets to the detailed design phase it could specify the requirements for the backup power system to address this as best as possible.

Q: I was speaking with someone in that housing development and they were concerned that the pumping station would be located on their property. Will it be?

It is not the intention to expropriate land for this. The Pumping Station should be small enough to fit within Town property or right-of-ways.

Forcemain Alignment Routes

The Project Team presented the three alternatives for forcemain routes to connect the Hillsburgh and Erin Village collection systems. The three routes studied were: 1) The Elora Cataract Trail; 2) Wellington Road 22 / Eighth Line; and 3) Trafalgar Road / Side Road 17. A map of the routes was shown and the key considerations of each route was discussed. The preferred alternative was identified as being Alternative 1, the Elora Cataract Trail.

Q: Was the possibility considered of following the Elora Cataract Trail all the way to 10th Line rather than going through Erin Village?

This was considered but it was identified early that there would be a cost benefit to sharing the infrastructure of the large sewer pipe that would be going through Erin Village to collect that waste. Rather than building an additional pipe to continue along the Cataract Trail, the proposed route will feed into the Erin gravity sewer on Main street which has been appropriately sized to accept this flow.

Q: Is it mainly topography that determines the need for only two pumping stations in Hillsburgh and 7 or 8 in Erin?

Yes, topography is the primary consideration. There are a number of lower areas in Erin that will need to pump the flows to reach the appropriate elevation to feed into the gravity sewer system.

Wastewater Treatment Technology Alternatives

An overview of the standard treatment approach for modern wastewater plants was presented. The Project Team discussed some of the key factors that were considerations in the identification of appropriate technologies, such as the use of very strict effluent criteria (limits and objectives) to protect river water quality and the enhanced tertiary treatment to achieve high removal rates for contaminants and nutrients. The treatment technology evaluation process looked at separate components for the liquid and solids trains.

In order to develop the list of alternatives for evaluation, a “long list” of candidates were identified and appropriate processes for the specific circumstances in Erin and Hillsburgh were then short-listed. A detailed evaluation was then undertaken of the short-listed processes and a recommended treatment train was identified for all components. For treatment technologies to make the long list they had to: have proven to reliably treat municipal wastewater in similar size and climate; be able to achieve regulatory compliance; be able to achieve effluent compliance; and be cost effective. Short-listed processes were then sized, costed, conceptually designed and compare against a set of evaluation criteria.

Based on this evaluation, the following emerged as the recommended treatment process:

Process	Brief Description and Treatment Focus
Preliminary / Primary Treatment	Coarse screens and grit removal followed by Rotating Belt Filter
Secondary Treatment	Membrane Bioreactor (MBR)
Tertiary Treatment	Membrane Bioreactor (MBR)
Disinfection	Ultraviolet Light (UV)
Biosolids Management	Autothermal Thermophilic Aerobic Digestion (ATAD)

Diagrams of the conceptual treatment flow were shown in order to give a good understanding of the process and to show how this information would be displayed at the upcoming PIC.

Q: Will there be anything open to the air or is it all underground? Will there be any septage receiving outdoors?

The fine screens and preliminary treatment will be in a building. The aeration tank is planned to be open but could be closed. Septage dumping will also occur inside a building.

Q: There are P3s (Public Private Partnerships) that are saying that their system can guarantee to eliminate all odor. Is this possible?

To our knowledge there are no treatment systems that can guarantee to eliminate all odor.

Q: How would the usable treated sludge be taken out of the treatment plant?

The treated sludge is usually in liquid form and would be shipped out by truck. There are very strict controls and regulations on how this is done.

Q: What are we going to do with the sludge that remains?

We have costed the treatment of the sludge and included the cost of the disposal of the sludge in the ongoing maintenance cost. We looked at several municipalities of similar size to see their costs with ongoing upkeep and maintenance. The costs we have here are comparable.

Q: Isn't there a growing market for treated sludge?

We have proposed treating the sludge to the point where it can be disposed of on agricultural land. Whether the Town chooses to allow this on local farms is a decision that will need to be made, but there is certainly a growing market for treated sludge in many agricultural areas.

Q: Are there any technologies that would use green energy to dispose of the sludge and produce power?

Those technologies do exist and we looked at the possibility of an anaerobic digestion system that would create methane that could power the treatment plant. Unfortunately, the size of the proposed treatment plant would not produce enough biogas to create a notable amount of power.

Q: Five years ago we were told that we should definitely stay with sand filters. Has membrane technology really advanced far enough?

At the time when sand filters were proposed we were talking about treatment criteria that were not as stringent as what is currently proposed. Sand filters were appropriate for less stringent standards but the membranes will be needed to get to the proposed treatment level that is now required.

Discussion on Overall System Costs

The Project Team presented on the anticipated system costs, breaking it down into three primary components: system capital cost; property connection cost; system operating cost. The key factors for determining these costs were explained.

The estimated cost to current residents was discussed, underscoring the need for Provincial and/or Federal grants, as well as the need to allow for new development growth in order to help pay for the system. A larger serviced population will bring down the overall cost for the current community.

The Project Team highlighted the fact that this Environmental Assessment study was not intended to make any decisions about future growth for the Town. The study has identified a potential maximum population based on treatment technologies and the capacity of the West Credit River to accept the effluent. The decisions about how much to grow will come out of the County's Growth Plan and the Town's Official Plan processes.

Q: At the recent Council meeting there was some discussion about adjusting the amount of water use per individual in these calculations. Could you tell us more about this?

Following the Council meeting there was a question about whether we could change some of the numbers on per capita water use and how that would affect flows and whether this would result in costs savings. We prepared a letter to Council to address this question which is available on the project website.

Q: I'm looking at a capital cost of $43 million for Phase 1. Is that for the existing population?

Phase 1 includes the existing population and a proportion of new development, because you wouldn't build a treatment plant like this just for the existing population.

Discussion on Allocation of Costs and Funding Options

Gary Scandlan of Watson & Associates Economists Ltd. presented on the allocation of costs, common approaches that other towns have taken for cost sharing, the options for and general availability of Provincial and Federal grants, and how development growth can reduce the cost per household for existing residents. Various payment approaches were discussed including upfront payment, increased property taxes, and long-term loans.

Q: This is strictly for the sewer system and has nothing to do with water supply? Why not? You should make sure to explain this clearly at the PIC.

There is a separate Environment Assessment currently underway for the water supply.

Q: I have a question about staging. Could Council go ahead with Phase 2 (development) without doing Phase 1 first (existing)?

There are different arrangements that are possible and funding is going to be a component of that. This EA has been set up to allow for a variety of approaches. If you want to connect parts of town in a phased way that will be possible.

Q: Will those decisions on phasing be in the EA?

There are quite a lot of development and growth decisions that will need to be made in order make the decision on phasing and funding. The EA will be completed prior to those decisions. That is why we allowed for flexibility and options in terms of some of the phasing.

Comment: Mayor Als commented on helping to clarify the road map going forward. We are not going anywhere unless we get a grant. He had been talking to various levels of government to cover the bases. Number two, the next Council will be making the decision through the Official Plan about growth and new development. That will not be for this Council to decide.

Q: During the SSMP, it was always said that it was important for all urban residents to be connected for financial reasons. So wouldn't it be better to have all subdivision areas connected so they can share the costs too?

Those newer subdivisions have new systems and large lots and don't need to be hooked up immediately. Those areas can be phased in over time.

Q: The issue I have with excluding some of the subdivisions is that in 20 years who is to say that the Provincial government won't force them to join the system and not allow new septics? So I think they have to be in now.

What could happen is that the Provincial government might say that we don't have to hook them up now but we need to have the capacity to hook them up in the future. Also we should remember that we did complete the report on this and had comment from the public, so we do need to be mindful of not reopening this to servicing the entire Town. That's not to say that we shouldn't look forward into the future.

Comment: So those people in the new subdivisions would be bearing the entire cost of hooking up to the system.

Comment: **Let's not lose sight of density intensification and the impacts on costs for the large system. Large lot subdivisions would cost more to hook up due to the greater distances for pipes.**

Comment: **There is no representation on Council for people who are out of town.**

Public Information Centre Preparations

The Project Team described the setup for the Public Information Centre and discussed how the information would be presented and what opportunities there would be for comment. The PLC was asked to provide any suggestions or advice they might have on how best to share the information in an easily understood way and if there were any particular parts of the study that they would like to see highlighted in the display boards or presentation.

The following advice was suggested by PLC members:

- Try to make the presentation and materials less technical.
- Use images to show visuals of what the WWTP will look like.
- Get the cost estimates as close to the actual cost as possible.
- There will probably be a fairly good turnout, though maybe not given that it's a Friday. Also there might be a weather advisory for that day.
- We as a group have an obligation to help make all of this easily understandable to people.
- The agenda was too packed tonight and at the PIC we want to allow for as much time as possible for questions. Please ensure that there is at least 45 minutes for questions and comments.
- Based on all the information provided tonight, it seems like it will be tough to get the PIC presentation down to only 45 minutes.
- There needs to be more ads or coverage in the newspapers. The official notice ad was to bureaucratic sounding. Need to do more to bring people out.
- Mayor Als should go on the radio.
- Use Twitter, Facebook, and the new Town sign.

2.
PIC 2 – Media Advisory

Town of Erin Urban Centre Wastewater Servicing
Class Environmental Assessment
Public Information Centre

This letter is to inform you of the upcoming Public Information Centre (PIC) #2 for the Town of Erin Urban Centre Wastewater Servicing Class Environmental Assessment (UCWS EA). The PIC will be held on February 2, 2018 at the Erin Community Centre (Centre 2000). Please also refer to the attached Notice for Public Information Centre.

Public Information Centre Event Details:

Date: February 2nd, 2018
Time: 6:00 p.m. – 9:00 p.m. (Presentation at 7:00 p.m.)
Location: Erin Community Centre/Centre 2000 (Theatre)
14 Boland Drive
Erin, ON NOB 1T0

A Servicing and Settlement Master Plan (SSMP) for the Town of Erin, completed in 2014, identified that a new wastewater collection system and single wastewater treatment plant (WWTP) discharging treated effluent to the West Credit River was the preferred solution to support Erin's existing residents and future growth. A Municipal Class EA was initiated to refine the SSMP's recommended solution and to determine preferred design alternatives for components of the new system.

Phases 1 and 2 of the UCWS EA are complete and the results confirm that a wastewater collection system and single WWTP remains the recommended general alternative solution to service the village of Erin and Hillsburgh communities. The proposed WWTP would discharge to the West Credit River between 10th Line and Winston Churchill Boulevard. The results of Phase 1 and 2 were presented in PIC #1 and documented in a Phase 1 and 2 report.

PIC #2 will present the results of Phase 3 of the UCWS EA, which established and evaluated alternative design solutions for the recommended general solution identified in Phase 1 and 2. The table below summarizes the preliminary preferred design alternatives for the proposed new wastewater collection and treatment system.

Wastewater System Component	Preliminary Preferred Alternative
Collection System	Blended Gravity / Low Pressure Sewer System
Forcemain Route	Elora-Cataract Trail
WWTP Site Location	• Alternative 1: Solmar-North of Wellington Road (if land acquired prior to aggregate extraction) • Alternative 2B: UCS-Southwest corner of Wellington Road and 10th Line (if land acquired after aggregate extraction)
Treatment Technologies	
• Primary Treatment	Advanced Primary Treatment

Wastewater System Component	Preliminary Preferred Alternative
	(e.g. Rotary Belt Filter)
• Secondary and Tertiary Treatment	Membrane Bioreactor
• Disinfection	UV Radiation
• Effluent Re-Oxygenation	Fine Bubble Aeration (using up-sized secondary treatment blowers)
• Sludge Treatment / Management	Sludge Stabilization via Autothermal Thermophilic Aerobic Digestion (ATAD) and Land Application of Stabilized Biosolids
• Septage Management	Pre-Treatment with GeoTubes Followed by Co-Treatment at the Main Plant and Land Application of Stabilized, Dewatered Biosolids
WWTP Discharge (Outfall) Location	Winston Churchill Boulevard (West Side)

Phase 3 of the UCWS EA has been documented in a series of background reports and technical memoranda in support of the evaluation process as noted below:

1. *Cultural Heritage Resource Assessment: Built Heritage Resources and Cultural Heritage Landscapes;*
2. *Natural Environment Report;*
3. *Stage 1 Archeological Assessment Report;*
4. *Preliminary Geotechnical Investigation;*
5. *Wastewater Collection System Alternatives – Phase 1 and Phase 2 Technical Memorandum*
6. *Wastewater Treatment Plant Site Selection Technical Memorandum;*
7. *Effluent Outfall Site Selection Technical Memorandum;*
8. *Wastewater Collection Alternatives Technical Memorandum;*
9. *Pumping Stations and Forcemains Technical Memorandum;*
10. *Treatment Technologies Alternatives Technical Memorandum;*

All Phase 3 reports listed above, all Class EA documents completed to date including the Phase 1 and 2 report, and further information on this study can be accessed on the Town's project's website at http://www.erin.ca/town-hall/wastewater-ea and via Drop Box at the address below:

https://www.dropbox.com/sh/f0ixjpalb7jkhwi/AAB2SNLDssyeKZKAoxDhE_Twa?dl=0

The goals of the PIC will be to provide an introduction and overview for any residents who are not familiar with the project; to provide the results of Phase 3 design alternatives evaluation; and to give community members an opportunity to better understand the project and share their advice.

Town of Erin Urban Centre Wastewater Servicing

Class Environmental Assessment

Public Information Centre

Please join us for the PIC on February 2, 2018. If you have any questions for the Project Team about the studies completed to date or about the PIC, we can be contacted at erin.urban.classea@ainley.com .

The Corporation of the Town of Erin

Urban Centre Wastewater Servicing

Class Environmental Assessment (Phases 3 & 4)

Notice of Public Information Centre

Come learn more about the study for the proposed wastewater system in Erin Village and Hillsburgh!

Background:

The Town of Erin is undertaking a Municipal Class Environmental Assessment (Class EA) to determine the preferred design alternative for wastewater servicing of the existing urban areas of the Village of Erin and Hillsburgh, and to accommodate future growth.

Process:

This Class EA process follows the planning and design process for Schedule 'C' projects as described in the Municipal Class Environmental Assessment Document (October 2000 as amended in 2007, 2011 & 2015), published by the Municipal Engineer's Association.

Public Information Centre #2:

Public engagement is an important part of this study and will help ensure that community members have ample opportunity to learn about the Class EA and to provide input and feedback.

The purpose of the second Public Information Centre (PIC) will be for the community to learn about and give comment on a number of technical studies that have been completed. The focus of the studies include: treatment plant site selection; treatment technology alternatives; collection system alternatives; outfall alternatives; the natural environment report; cultural heritage and archaeological reports; and a preliminary cost analysis.

Come out to the PIC to learn more and to share your comments. Your input helps to improve decision making!

How to Learn More:

The project website, with related documents, can be found at

www.erin.ca/town-hall/wastewater-ea.

Comments:

If you are unable to attend the PIC and would like to provide comments or would like to be added to the project contact list, please forward your comments, questions, and contact information to the project email address at:

erin.urban.classea@ainleygroup.com

Joe Mullan, P. Eng.
Project Manager
Ainley & Associates Ltd.
280 Pretty River Parkway
Collingwood, Ontario
L9Y 4J5
Phone: (705) 445-3451
erin.urban.classea@ainleygroup.com

Dina Lundy
Town Clerk
Town of Erin
5684 Trafalgar Road
Hillsburgh, Ontario
N0B 1Z0
Tel: (519) 855-4407
dina.lundy@erin.ca

Date: **Friday, February 2, 2018**

Time: **6:00 p.m. – 9:00 p.m. (Presentation at 7:00 p.m.)**

Location: **Erin Community Centre / Centre 2000 (Theatre)**
14 Boland Drive Erin, ON N0B 1T0

This notice first issued January 2, 2018.

3.
PIC 2 – Presentation Boards

Public Information Centre - 2

Date: February 2, 2018

URBAN CENTRE WASTEWATER SERVICING

Phase 3 - Design Alternatives

TOWN OF ERIN

Class Environmental Assessment Phase 3 & 4

Ainley Group CONSULTING ENGINEERS PLANNERS

HARDY STEVENSON AND ASSOCIATES

Hutchinson Environmental Sciences Ltd

Public Information Centre (PIC) Schedule

6:00 pm	PIC Begins Information boards to explain project Project team available for questions
7:00 pm	Presentation
8:00 pm	Questions and Answers
9:00 pm	PIC concludes

The Purpose of Today's Public Information Centre

- To provide an overview of past work on the Urban Centre Wastewater Servicing EA (UCWS EA) to residents of Erin Village, Hillsburgh and interested parties;
- To summarise findings of Phase 1 & Phase 2 of the UCWS EA which defined the service area and system size and population that could be serviced by the system, and defined the quality of treated wastewater to be discharged to the West Credit River;
- To present the findings of Phase 3 activities that examined design alternatives for each component of the system and identified a recommended design alternative solution;
- To receive comments on completed Phase 3 work;
- To outline the project's next steps and proposed schedule.

Servicing and Settlement Master Plan (SSMP)

- The Urban Centre Wastewater Servicing (UCWS) Class EA follows from the completion of the Servicing and Settlement Master Plan (SSMP) in 2014 by B.M. Ross. The SSMP completed Phase 1 & part of Phase 2 of the Class Environmental Assessment process.
- The SSMP concluded that the Town should proceed with planning for a municipal wastewater system for both communities.
- The preferred alternative was identified as a single sewage treatment plant with an effluent discharge to the West Credit River between 10th Line and Winston Churchill Boulevard.
- The SSMP identified a potential buildout population of 6,000 constrained primarily by the West Credit River's assimilative capacity for phosphorus. This represented a increase in residential population of approx. 1,500.

UCWS EA Phase 1 and 2

Phase 1 and 2 work completed under the UCWS EA included:

- A review of the wastewater service area including both the existing communities and development areas and establishing a recommended service area for Erin Village and Hillsburgh;
- Determination of the system capacity needed to service the recommended service area including existing communities and development areas to full build out of the lands identified in the Town's Official Plan;
- An Assimilative Capacity Study defining the quality of treated wastewater effluent to be discharged to the West Credit River to meet the full build out capacity of the wastewater system;
- Confirmation that a wastewater treatment plant with a flow capacity of 7,100 m^3/d servicing a residential population of approximately 14,600 residents could meet the treatment requirements for the discharge to the River;
- The recommended general alternative identified during the SSMP was confirmed as the preferred alternative.

Class Environmental Assessment (EA) Process

The Class EA process for Municipal Water and Wastewater projects consists of 5 Phases as follows:

- **Phase 1** Problem Definition
- **Phase 2** Identification and Evaluation of General Alternative Solutions
- **Phase 3** Identification and Evaluation of Design Alternative Solutions and second PIC
- **Phase 4** Completion of Environmental Study Report (ESR) followed by a 30 day Public Review period
- **Phase 5** Implementation of the project

We are here

General Project Update

- The project is in Phase 3 of the Class EA process, looking at Design Alternatives for the general alternatives identified in Phase 1 & 2
- Since the June 22, 2017 Public Information Centre (PIC) we have:
  - Worked with property owners, including executing agreements to get access for completion of studies;
  - Carried out all necessary field work;
  - Prepared “Draft” Reports and Technical Memorandums;
  - All Phase 3 Reports/Technical Memorandums have been on the Town website from Jan 10th.
- We are now in the Public Consultation part of Phase 3 and the team would appreciate receiving public comments before the end of February after which we will review the comments and prepare the Environmental Study Report in consultation wit the Town and the Public Liaison Committee prior to submitting the Environmental Study Report (ESR) for the mandatory 30-Day Public Review Period;

Phase 3 Reports/Technical Memorandums

The following Phase 3 Reports will remain in Draft until all comments are received from the public:

1. **Natural Environment Report**
2. **Outfall Alternatives Technical Memorandum**
   - Selects preferred site for discharge to West Credit River
3. **Wastewater Treatment Plant (WWTP) Site Selection Technical Memorandum**
   - Selects preferred site for WWTP
4. **Collection System Alternatives Technical Memorandum**
   - Identifies preferred Collection System
5. **Pump Stations and Forcemains Routing Alternatives Technical Memorandum**
   - Identifies preferred Forcemain routing between Hillsburgh and Erin
6. **Wastewater Treatment Technology Evaluation Technical Memorandum**
   - Identifies preferred treatment system
7. **Other Reports include Cultural Heritage Assessment Report, Stage 1 Archeological Assessment Report & Geotechnical/ Hydrogeological Report**

Phase 3 Alternatives Evaluation Process

- Alternative design solutions were identified based on SSMP and Phase 2 work and potential impacts arising from each solution were defined;
- Natural Heritage/Social Environment potential impacts were identified;
- Technical solutions were sized and conceptual designs completed to identify advantages and disadvantages of each alternative;
- Natural Environment potential impacts including Geotechnical and Archaeological Resources were identified;
- Economic Impacts were defined through life cycle costs;
- With consideration of the potential impacts a weighted scoring system was developed consisting of primary and secondary criteria;
- Secondary criteria's were scored for each alternative using 1 – 5 scores and the preferred alternative identified as the highest score;
- Sensitivity analysis was conducted by varying primary weightings to confirm validity of preferred alternative;

Typical - Evaluation Criteria Weighting System

WWTP Site Selection

Primary Criteria	Weight	Secondary Criteria	Weight
Social/Culture	15%	Impacts During Construction	20%
		Aesthetics	30%
		Effect on Residential Properties	30%
		Effect on Businesses/ Commercial Properties	10%
		Effect on Industrial Properties	10%
Technical	10%	Suitability of Elevation and Topography	50%
		Suitability for Phasing	20%
		Construction Impacts	20%
		Operation and Maintenance Impacts	10%
Economic	25%	Capital Cost	30%
Environmental	50%	Effect on Habitat/ Wildlife	30%
		Effect on Vegetation/ Wetlands	30%
		Effect on Groundwater	20%
		Effect on Surface Water/ Fisheries	20%

WWTP Liquid Train Selection

Primary Criteria	Weight	Secondary Criteria	Weight
Social / Culture	15%	Aesthetic Impacts (plant appearance)	10%
		Traffic Impacts (during construction and operation)	10%
		Noise Impacts (during operation)	40%
		Odours Impacts (during operation)	40%
Technical	35%	Ability to Meet Regulatory Objectives	30%
		Technology / Process Robustness	30%
		Ease of Expansion and Phasing to Buildout	20%
		Energy Requirements	5%
		Operation & Maintenance Requirements	10%
		Site Requirements (plant footprint)	5%
Environmental	20%	Public Health and Safety	30%
		Sustainability	20%
		Climate Change Impacts / Greenhouse Gas Generation	20%
		Natural Environment Impacts	10%
		Waste Generation	20%
Economic	30%	Capital Cost	30%
		Operation and Maintenance Costs	40%
		Net Present Value	30%

Forcemain Route Selection

Primary Criteria	Weight	Secondary Criteria	Weight
Social/Culture	10%	Impacts During Construction	50%
		Traffic Disruption	20%
		Effect on Residential Properties	10%
		Effect on Commercial Properties	10%
		Effect on Industrial Properties	10%
Technical	30%	Operational Performance	20%
		Energy Requirements	30%
		Suitability for Phasing	10%
		Constructability	20%
		Operation and Maintenance Impacts	20%
Environmental	30%	Effect on Surface Water/ Fisheries	30%
		Effect on Vegetation/ Wetlands	30%
		Effect on Groundwater	10%
		Effect on Habitat/ Wildlife	30%
Economic	30%	Capital Cost	70%
		Operational Costs	30%

Outfall Site Selection

Primary Criteria	Weight	Secondary Criteria	Weight
Social/Culture	10%	Impacts During Construction	30%
		Aesthetics (Appearance of discharge)	40%
		Effect on Residential Properties	10%
		Effect on Businesses/ Commercial Properties	10%
		Effect on Industrial Properties	10%
Technical	10%	Functionality and Performance	30%
		Suitability for Phasing	10%
		Constructability	30%
		Operation and Maintenance Impacts	30%
Environmental	60%	Effect on Surface Water/ Fisheries	50%
		Effect on Vegetation/ Wetlands	20%
		Effect on Groundwater	20%
		Effect on Habitat/ Wildlife	10%
Economic	20%	Capital Cost	100%

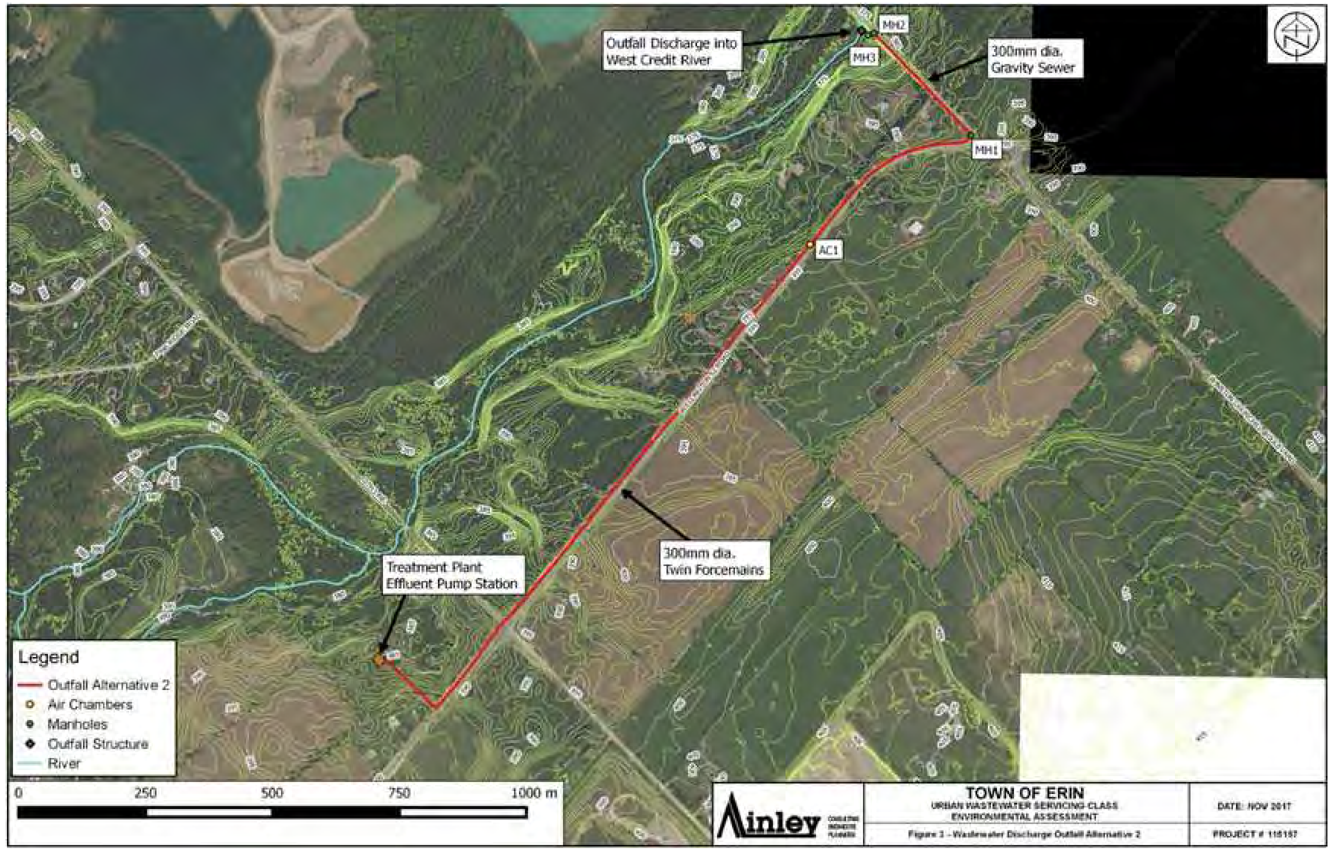
Treated Effluent Outfall Alternatives

Three locations, as noted below, were evaluated for the WWTP Treated Effluent Outfall to the West Credit River:

- Either side of Tenth Line / West Credit River (1A/1B)
- West side of Winston Churchill Boulevard / West Credit River (2)

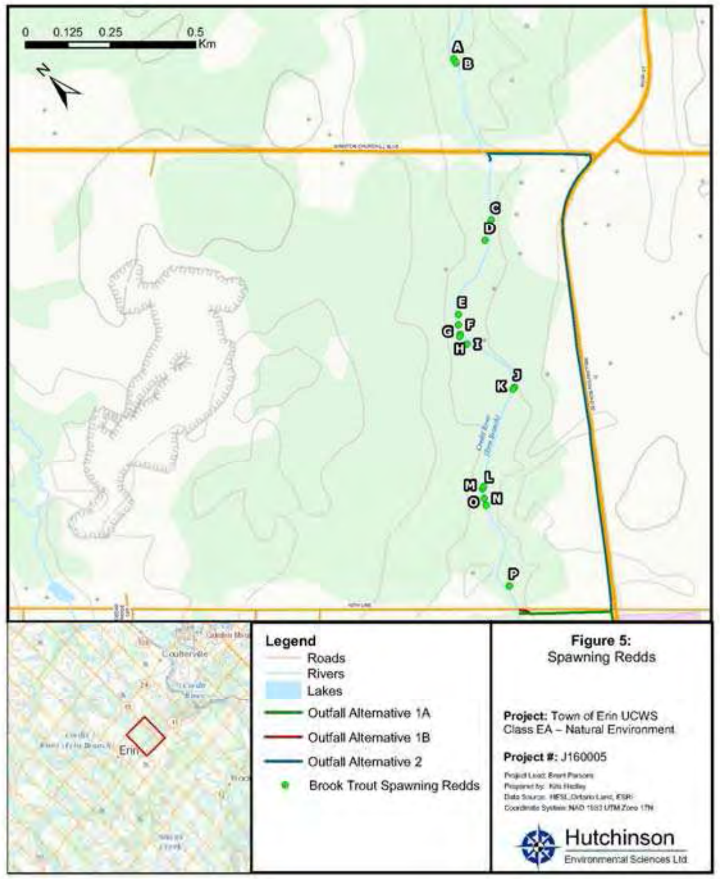
Alternative 2 West Side of Winston Churchill Boulevard is recommended as the preferred discharge location for the following reasons:

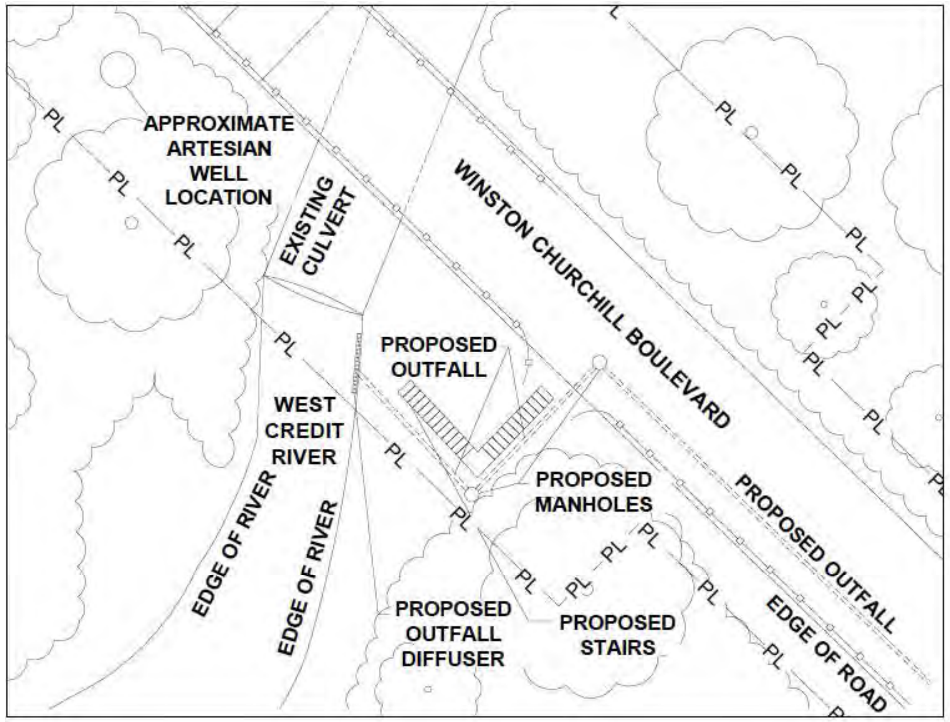
- It avoids a significant fish spawning area between 10th Line and Winston Churchill;
- Provides optimal mixing for effluent.



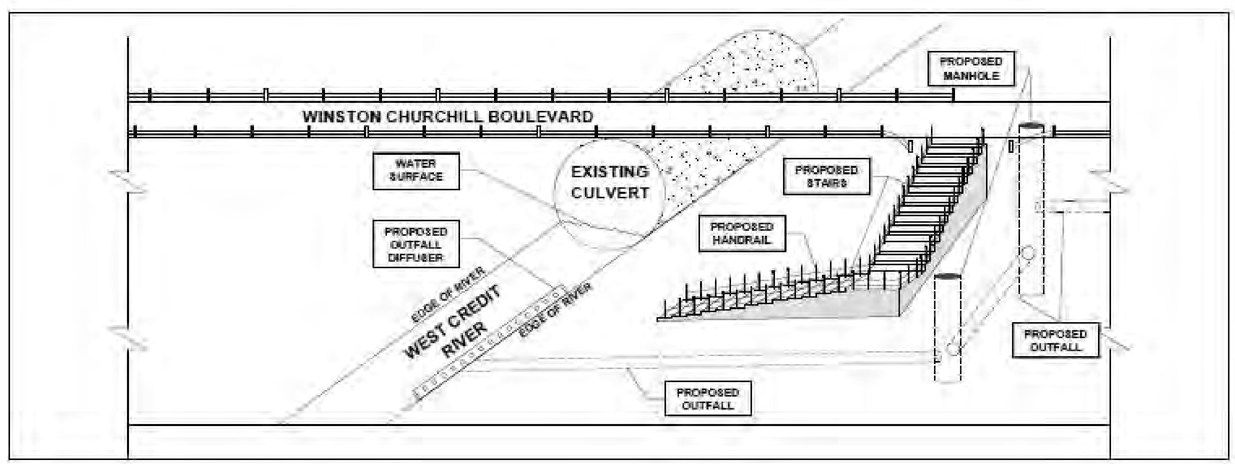
Natural Environment
Effluent Outfall Assessment

- Benthic invertebrates, fish habitat and fish were characterized at the potential effluent outfall locations and played a key role in the preferred effluent outfall location.
- The reach between the 10th Line and Winston Churchill Boulevard provides pristine coldwater habitat for Brook Trout.
  - The preferred effluent outfall location is therefore Winston Churchill Boulevard
- Mitigation measures were developed to minimize the impacts:
  - Follow construction timing windows to protect fish,
  - Implement a erosion and sediment control plan,
  - Treat effluent to a high quality to protect water quality, and
  - Develop a comprehensive long-term monitoring program.





- The effluent will be discharged into the river below the water surface.
- A diffuser with multiple ports will be used to promote good mixing of the effluent into the river.

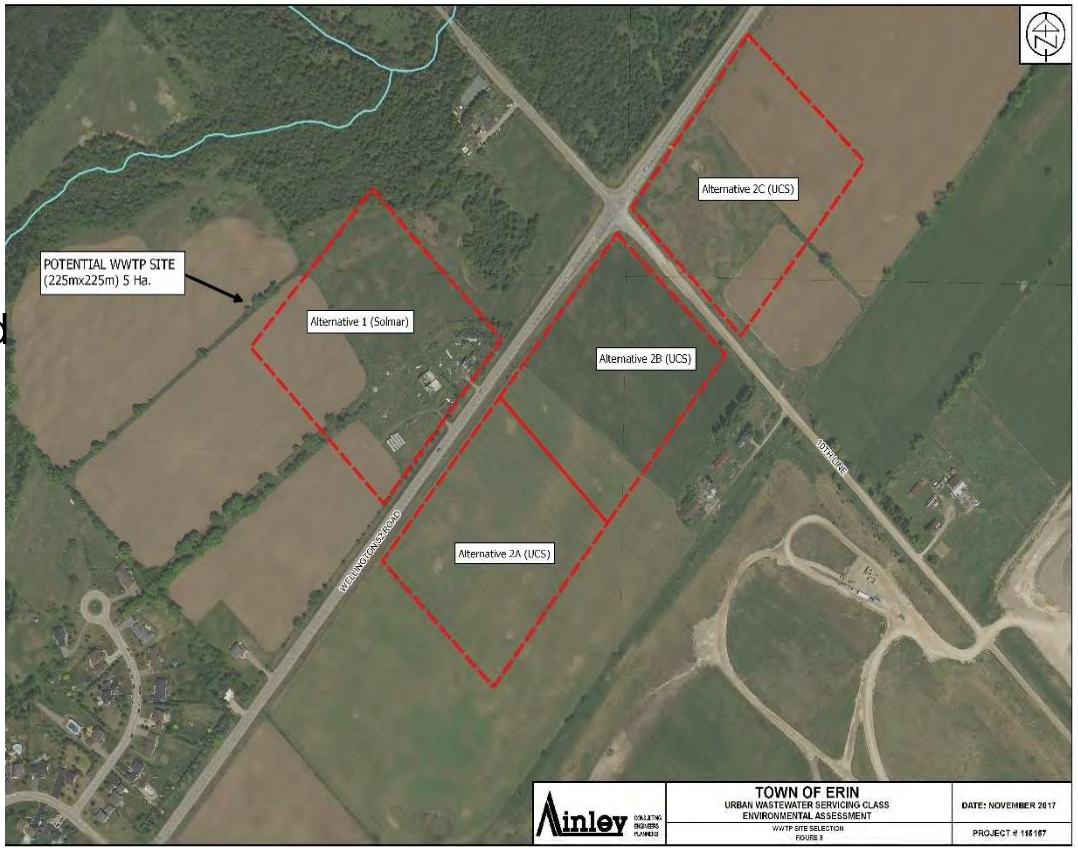


Wastewater Treatment Plant Site Selection Alternatives

Four locations have been evaluated for the WWTP site:

- Site 1 - Solmar Lands
- Site 2A, B & C - Halton Crushed Stone (HCS) Lands

- All four 5 Ha sites provide adequate buffer from residential developments;
- Sites 1 and 2B (after aggregate extraction) can be completely hidden from view of road and houses;
- All sites have Species at Risk (Bobolink and Eastern Meadowlark);
- Two evaluations were completed
  - One prior to aggregate extraction
  - One after aggregate extraction
- The Solmar property (Site 1) is the preferred alternative prior to extraction;
- Halton Crushed Stone (Site 2B) is the preferred after extraction.

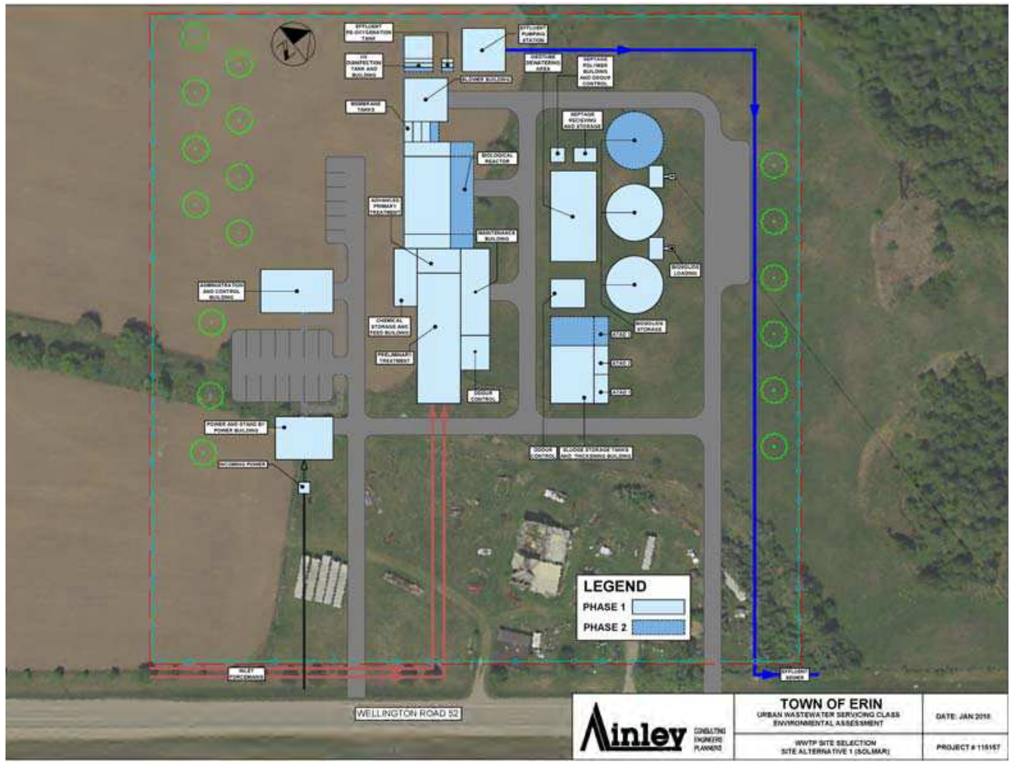


Natural Environment
Wastewater Treatment Plant Site Assessment

- Vegetation communities, Species at Risk, birds and amphibians were characterized at the potential WWTP locations and used to select the preferred WWTP location from an environmental perspective.
- The preferred WWTP location was the Solmar Site (Site #1)
  - but each of the potential sites contained similar environmental features.
- Mitigation measures were developed to minimize the impacts associated with constructing a WWTP. Mitigation measures included:
  - Minimize the development footprint and locate facilities away from the habitat edge to avoid habitat loss and fragmentation.
  - Avoid construction during sensitive breeding periods for amphibians, reptiles and birds.
  - Implement an erosion and sediment control plan to prevent runoff.

- Conceptual Plant Layout - Site Alternative 1 (Solmar)
- Closest resident over 200m (660 ft) away

- Conceptual Plant Layout - Site Alternative 2B (HCS)
- Closest resident over 250m (820 ft) away



Collection System Alternatives

Five collection system alternatives were evaluated, namely:

- A1: Gravity Collection System
- A2: Low Pressure Collection System
- A3: Vacuum Collection System
- A4: STEP/STEG Collection System
- A5: Blended Gravity/ Low Pressure Collection System

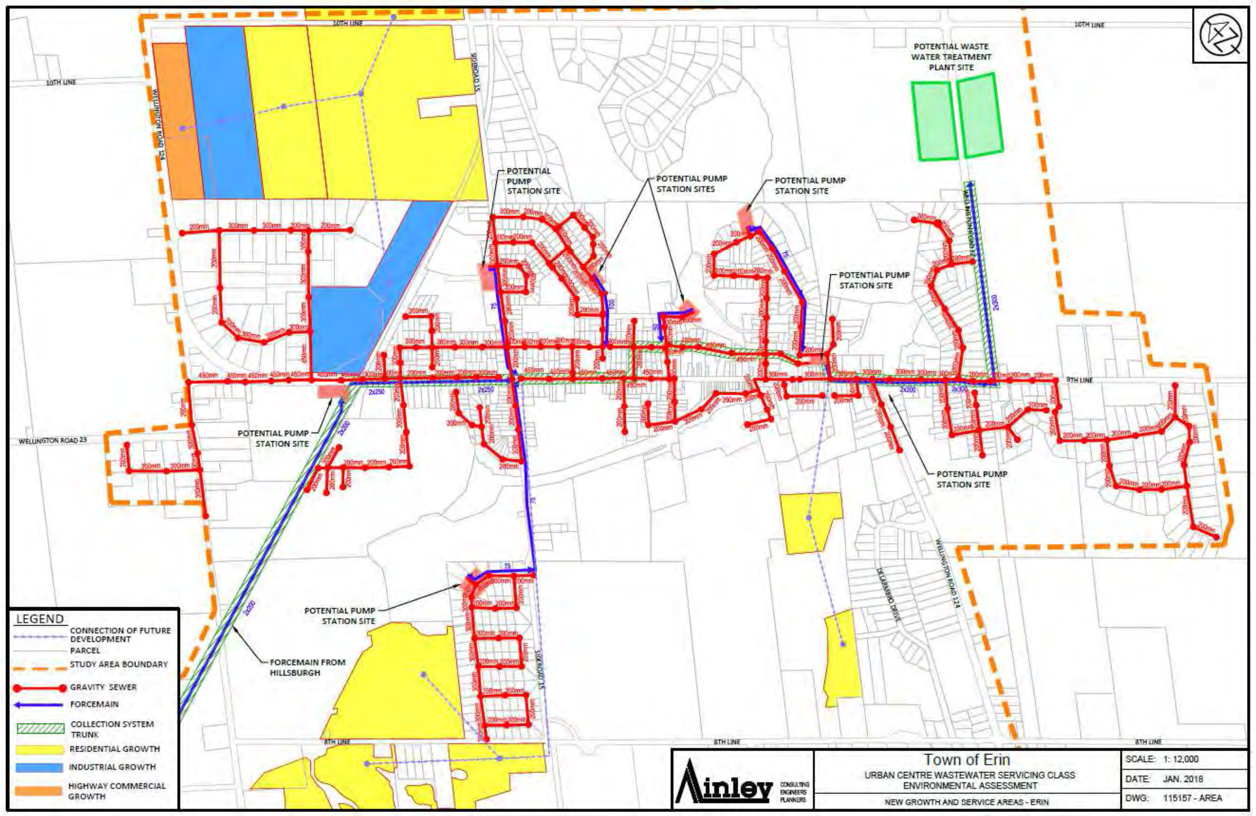
- A hydraulic model was developed for A1 to determine pipe sizing for both the existing and full build out flows.
- Vendors were identified and consulted for conceptual sizing for A2, A3, and A4.

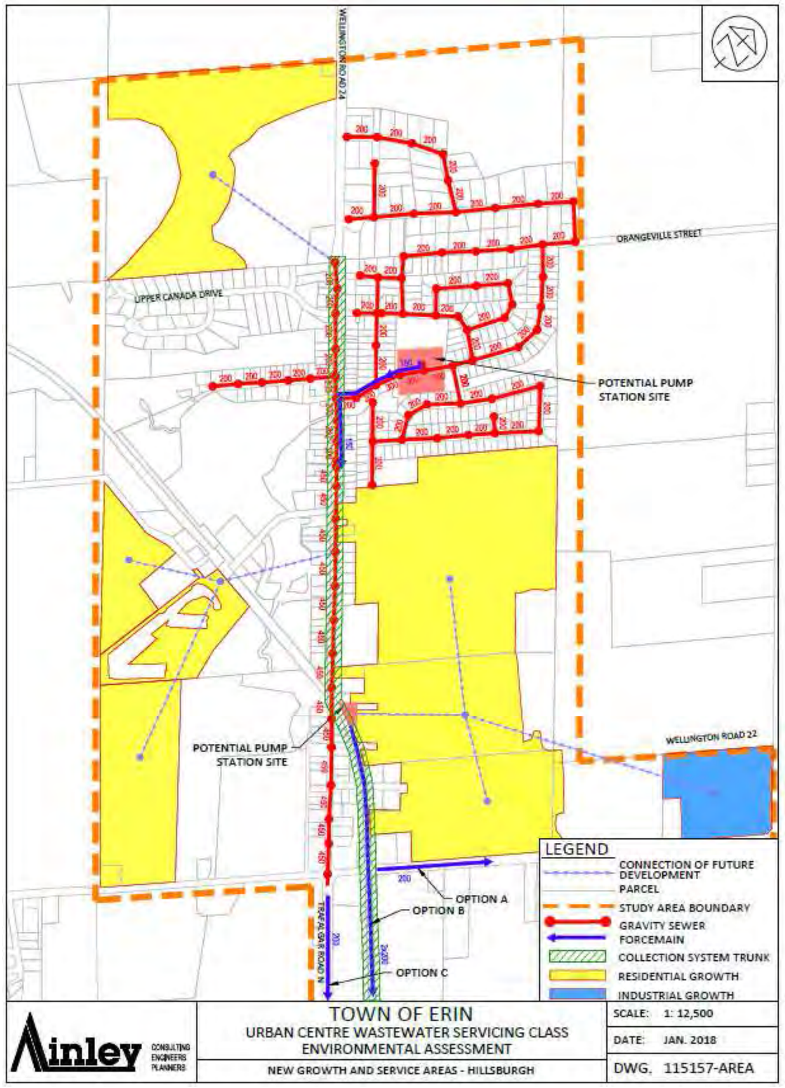
Alternative 5 Blended Gravity/Low Pressure Collection system recommended preferred Collection System alternative for the following reasons:

- Gravity system most commonly used system
- Gravity system best suited to Erin/Hillsburgh topography
- Provides the most secure, sustainable long term solution
- Provides the highest level of service to properties
- Lowest operating cost
- Not a proprietary system and does not depend on power supply at each property

- Two small localized areas are recommended for Low Pressure Sewers to avoid more costly Sewage Pumping Stations
- Suitable Sewage Pumping Station sites were identified based on the gravity alternative suitable to service full build out of both communities
- All necessary surveys were conducted to define and mitigate potential impacts
- A trunk system wherein costs are shared between developers and the Town is suggested but will be refined based location and servicing plan for each development

Erin and Hillsburgh Collection System Layouts





Collection System Alternatives – Example Pumping Stations

The architecture of a pumping station can be designed to suit the surrounding area.

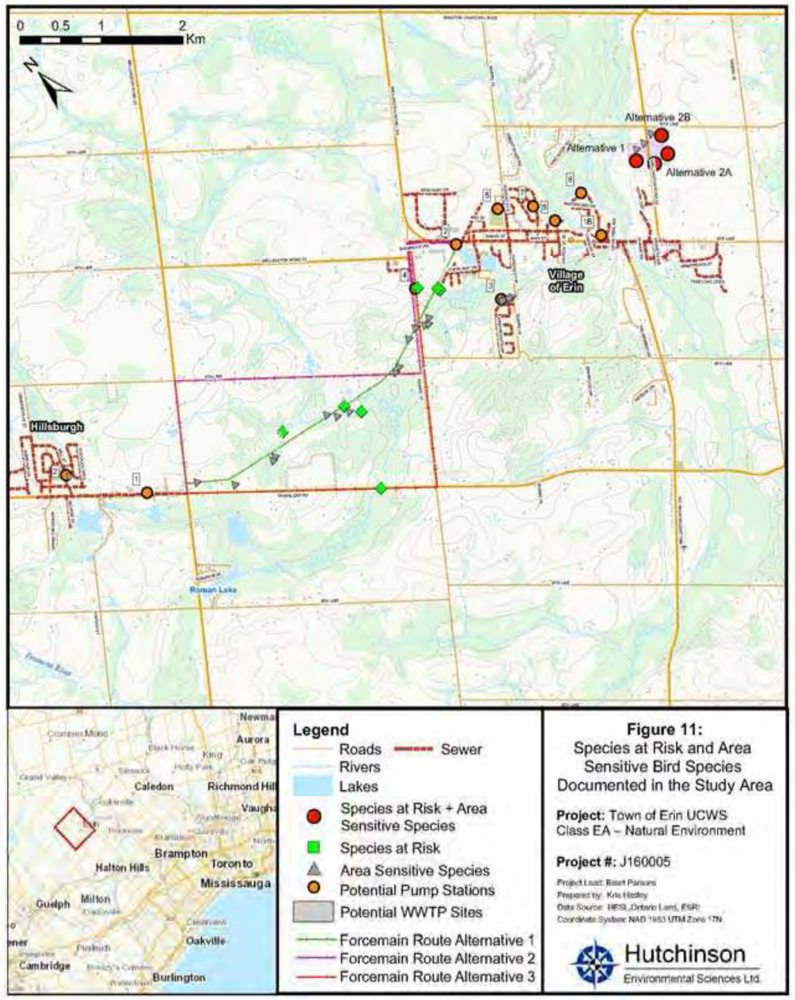
Erin to Hillsburgh Forcemain Alignment Routes

- Three forcemain routes have been evaluated for the connection of Hillsburgh to Erin, as follows:
  1. Elora Cataract Trail
  2. Wellington Road 22 / Eighth Line
  3. Trafalgar Road / Side Road 17

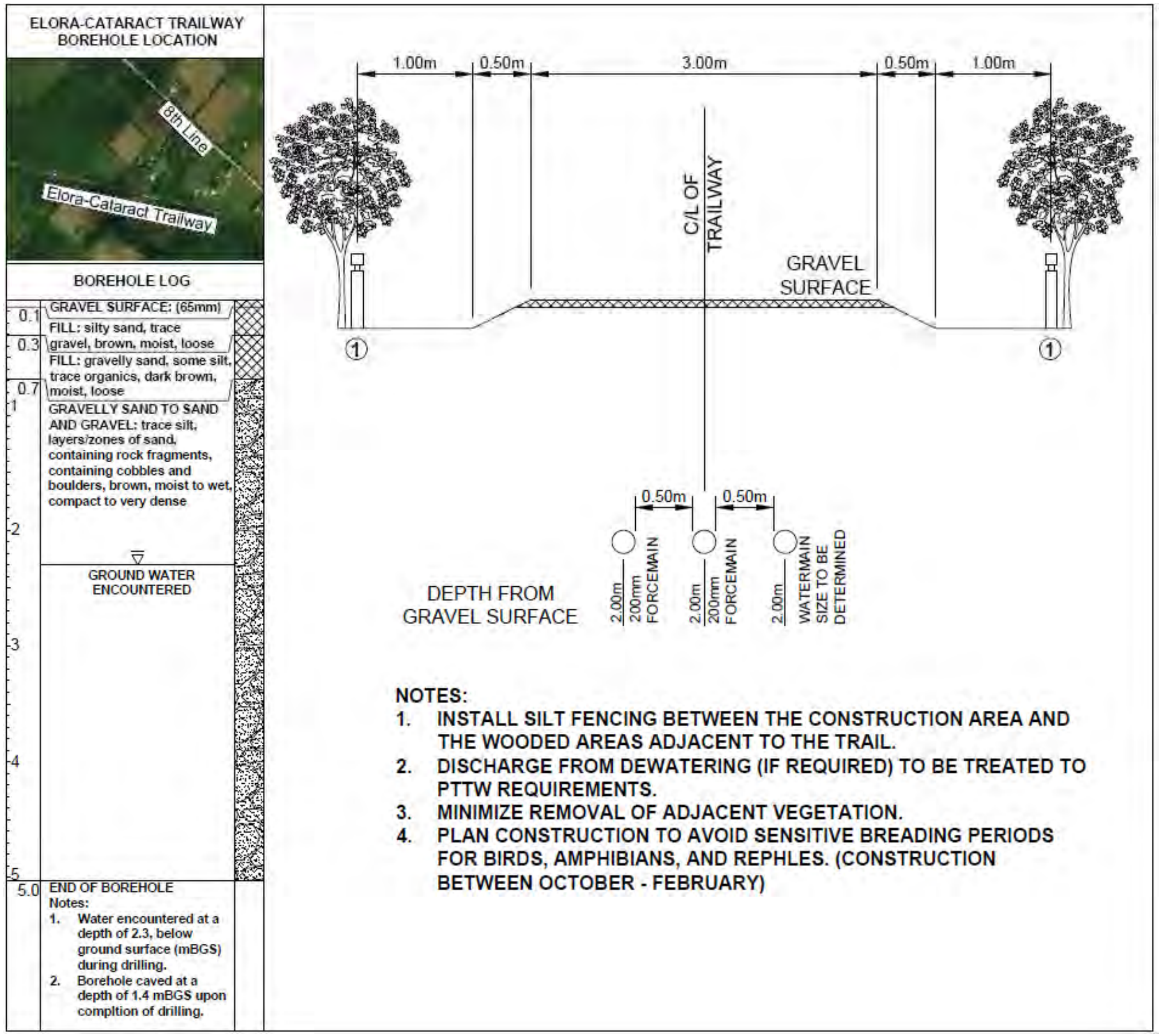
- Alternatives were conceptually designed and costed and Natural Environment and Geotechnical assessments were conducted along the routes
- Evaluation of the alternatives identified the Elora Cataract Trail as the preferred alternative for the following reasons:
  - Lowest capital and operating cost;
  - Concerns noted in Natural Environment Report can be mitigated and relate to short term construction impacts;
  - Least energy use;
  - Best technical solution.

Natural Environment
Hillsburgh to Erin Forcemain Assessment

- Vegetation communities, Species at Risk, birds and amphibians were characterized to determine the feasibility of installing a forcemain along the Elora Cataract Trail between Hillsburgh and Erin
- The following sensitive features were identified:
  - West Credit River Provincially Significant Wetland,
  - Species at Risk (Snapping Turtle, Western Chorus Frog and 3 bird species), and
  - Significant Wildlife Habitat (habitat for sensitive birds).
- Impacts can be minimized to acceptable levels:
  - Minimize development footprint, vegetation clearing and manage topsoil,
  - Avoid sensitive breeding periods, and
  - Implement a sediment/erosion plan



Erin to Hillsburgh Forcemain Alignment Routes



Wastewater Treatment Technology Alternatives

An overview of the processes within a modern Wastewater Treatment Plant (WWTP) are identified below:

Process	Brief Description and Treatment Focus
Preliminary / Primary Treatment	Removal of screenings and grit and Removal of settleable solids by gravity
Secondary Treatment	Processes to oxidize organics, oxidize ammonia, remove nitrogen and phosphorus
Tertiary Treatment	Further removal of total phosphorus and suspended solids to meet the effluent criteria
Disinfection	Inactivation of pathogenic organisms
Biosolids Management	Process to thicken, stabilize and dewater the liquid sludge for reuse

Important factors in identifying appropriate technologies:

- Very strict effluent criteria (Limits and Objectives) have been developed through the ACS process to protect the river water quality
- The enhanced tertiary treatment is required to achieve high removal rates for contaminants and nutrients

Treatment Technology Evaluation Process

For the treatment technology evaluation process we looked at separate components as shown in the adjacent table:

- First we assembled a "Long List" of candidate processes
- Then we "Short Listed" appropriate processes from the Long List
- Then we carried out a detailed evaluation of the Short Listed processes and assembled a recommended process for each treatment train process.

Description	
Liquid Train	Primary/Secondary
	Tertiary
	Disinfection
Solids Train	Sludge Stabilization
	Septage Treatment

In compiling the Long List of potential treatment technologies they had to:

- Have proven reliability treating municipal wastewater in similar size and climate
- Have a proven history being able to achieve regulatory compliance
- Have a proven history being able to achieve effluent compliance
- Be cost effective

- Short Listed treatment processes were then sized, costed, conceptually designed and compared against a set of detailed evaluation criteria
- Budgetary quotes were obtained from vendors but process selection is not vendor specific. For most selected processes, multiple vendors exist

Wastewater Treatment Technology Evaluation

To illustrate the range of processes considered the long lists are shown below:

Long Listed of Alternative
Short Listed Alternative
Recommended Alternative

- **Liquid Train:**
  - **Primary/Secondary**
    - CAS; Modified CAS; Extended Air; SBR; RBC; MBR; MBBR; IFAS; BAF
  - **Tertiary/Disinfection**
    - Two Stage Sand Filters; Disc Filters; High Rate Clarifier; Adsorptive Deep Bed Filters; Low Pressure Membranes; UV Disinfection; Chlorine Disinfection
- **Solids Train:**
  - Aerobic; Anaerobic; Alkaline Stabilization; ATAD, Thermal Drying
- **Septage Treatment**:
  - Co-Treatment; Pretreatment/Co-Treatment; Separate Treatment; Lagoon

Based on the evaluation process the recommended treatment processes are shown below:

Process	Recommended Treatment Technology
Preliminary/ Primary Treatment	Course screen and grit removal followed by a rotating belt filter
Secondary Treatment	Membrane Bioreactor
Tertiary Treatment	Membrane Bioreactor
Disinfection	Ultraviolet Light (UV)
Biosolids Management	Autothermal Thermophilic Aerobic Digestion (ATAD)

- In addition, the recommended solution for Septage Treatment is to pre-treat the septage and then co-treat the liquid component in the main plant.

Typical Modern Wastewater Treatment Plant

- Buildings enclosed
- Majority of tanks covered and ventilated to central odour control system

Odour Management

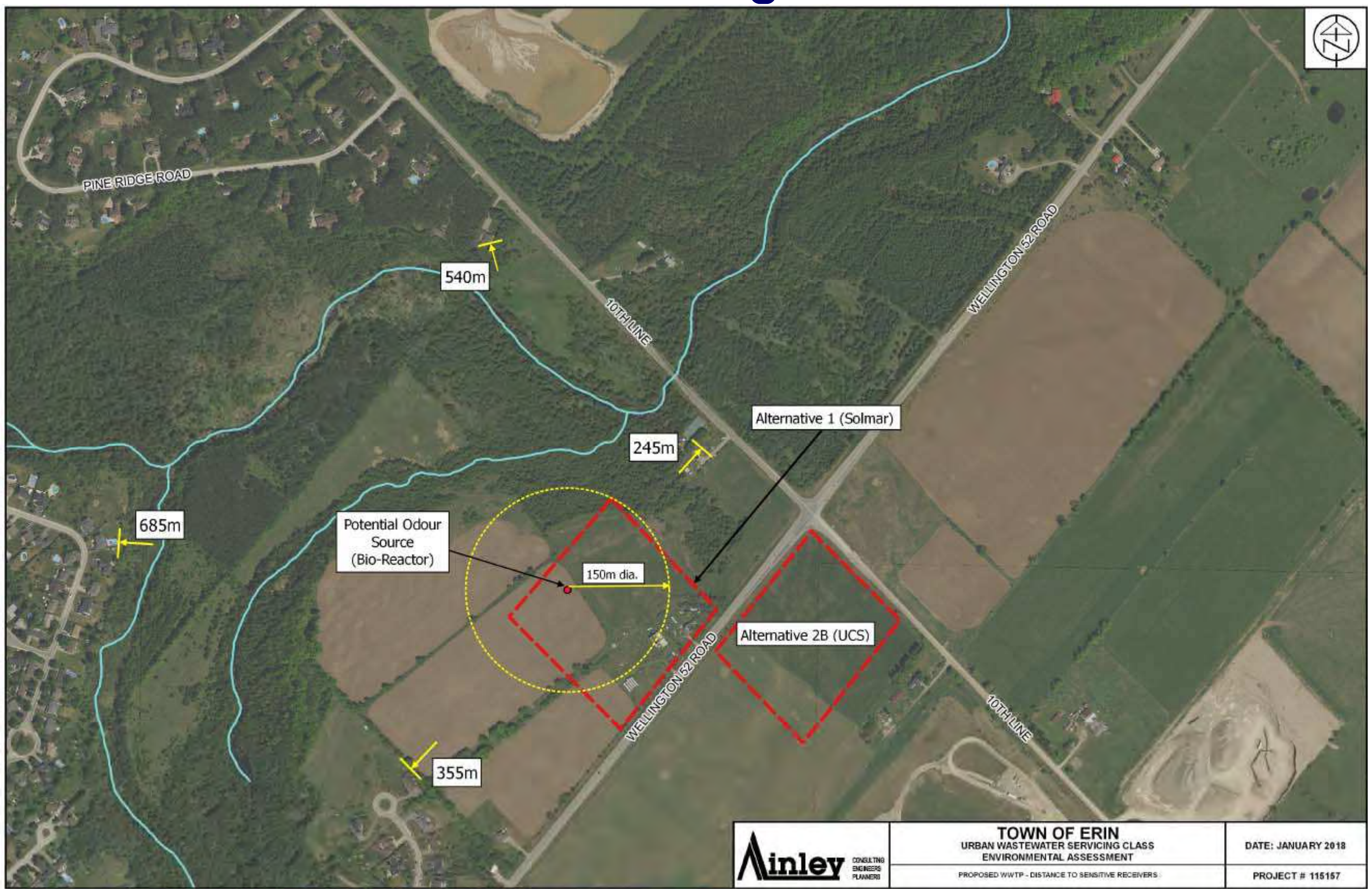
- Majority of treatment processes enclosed in buildings or in covered tanks and have odour management systems in place

TREATMENT PROCESS	LOCATION / MITIGATION
Preliminary & Primary Treatment	Enclosed in Headworks Building with odour control system
Aeration tank	Open to atmosphere - not odourous under normal conditions
Membrane Modules	Enclosed in Membrane Building with odour control
Sludge/Biosolids System	Enclosed in building equipped with odour control system
Septage Receiving/Storage	Underground tank with odour control system. No odour issues reported for Geotube septage treatment.

Example Odour Management System

- Wastewater Treatment Plant will have at least 200 meters (660 ft) separation from nearest resident.
- Odour control systems to be designed to comply with MOECC odour limits.

Odour Management



Sludge/Biosolids Disposal

- The recommended treatment process for Biosolids is a heated digestion process called ATAD that will produce a stabilized liquid suitable for use as a fertilizer product;
- The likely disposal method is land application on farm fields
  - Liquid biosolids can be injected into the soil
  - Land application not restricted to lands within Erin/Hillsburgh
  - A biosolids handling contractor would secure sites for land application
- The biosolids product is both stabilized and pasteurized
  - Other digestion technologies only stabilize – product use restricted to land application
  - ATAD product has no use restrictions
  - Can be dewatered and dried to create a commercially marketable fertilizer without additional treatment.

Cost Analysis – Cost Components

There 3 cost components for associated with the Wastewater System:

- **System Capital Cost**
  - Identifies the cost to construct the entire wastewater system up to the street line outside each property
  - Financed by the Town and paid for by connected properties typically over a number of years usually with payment options
- **Property Connection Cost**
  - Is the cost to connect the system from the street into each property
  - Paid for directly by the property owner at time of connection
- **System Operating Cost**
  - Paid for through monthly billing to serviced properties through user rates, similar to water rates

Total Number of Properties to Be Serviced

The wastewater system will serve the existing community including both infill and intensification, as well as potential development areas identified in the Town's Official Plan representing a residential population of approximately 14,600.

Existing Community

Current Residential, Commercial, and Industrial Units	1,800
Additional Potential units with infill and intensification in existing community	872
Total (equivalent units)	2,672

Full Build-Out
(including existing)

Development Potential Residential, Commercial, and Industrial Units	
Total (equivalent units)	6,740

Preliminary Capital Costs – Servicing Full Build Out (6,740 Equivalent Units)

- The following capital cost estimate was prepared to service the full buildout of the community. The cost of the system would be shared between the existing community and the development community.

Existing Community	Future Development
Total system cost	New growth
$50 – 60 million	**$58 – 68 million**

Existing Community

- Costs paid by residents
- Includes a share of treatment costs
- Includes a share of the collection system costs up to the property line
- Does not include costs for connection on private property

Future Development

- Costs paid by developers
- Includes a share of treatment costs
- Includes a share of collection system costs
- Does not include sewers within future subdivisions

Cost Share to Existing Community

- This table shows the existing community share of costs per household for the 3 main components (Capital Cost, Property Connection Cost & Annual Operating Cost) of the wastewater system.
- Also identifies the costs, if the Town were to obtain a Federal or Provincial 2/3 grant for the wastewater system.
- Existing community would not pay any monies towards wastewater system for future development.
- Assumes future residential population of 14,600.

Cost Components	Base Cost	Receive significant Grant (2/3) from Federal or Provincial Government
System Capital Costs • Wastewater Treatment Plant • Sewage collection system • Town funded	Preliminary Cost Estimate **$20,000 - $25,000** per household	Preliminary Cost Estimate **$6,700 - $8,300** per household
Property Connection Cost • Connecting from property edge to house • Paid separately by each owner • Costs will vary and are dependent on lot size and form • Includes pumping out and filling of septic tank with sand	Average approx. cost **$6,000 ±** per household	Average approx. cost **$6,000 ±** per household
System Annual Operating Cost • Ongoing operations and maintenance • Paid through user fees, similar to municipal water system	Yearly costs per household **$400 - $500**	Yearly costs per household **$400 - $500**

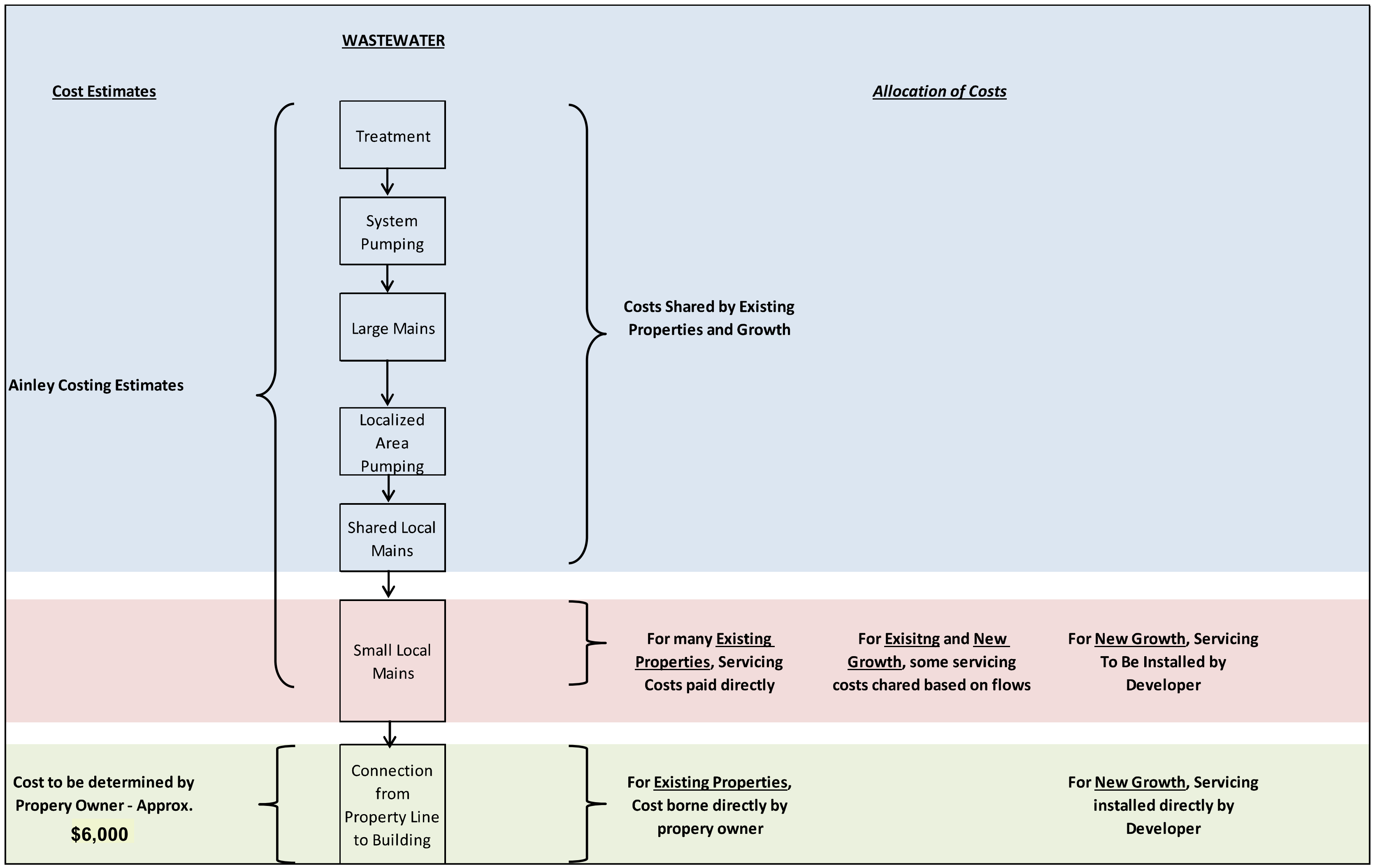
Private Property Connection Costs

- Municipal Wastewater Systems collect wastewater at the municipal property line and as noted are the responsibility of each property owner;
- A field survey of the community was conducted to estimate costs for connection to each existing property;
- The cost for residential homes will depend on landscaping and lot size;
- The cost for larger commercial properties will depend on connection size, lot size and complexity;
- The estimated average cost for a residential connection was determined to be $6,000±

Estimated Annual Operating Costs

- The SSMP identified an average cost per household of $422 per year to operate the system based on a 6,000 population. However, this did not include system capital cost recovery;
- Similar to Water Supply, Wastewater user rates reflect a balance between revenue and expenses to operate the system and make allowance for reserves for future system replacement;
- Wastewater rates typically include a fixed/basic charge and a usage rate linked to the household water use and are typically slightly higher than water rates;
- Wastewater rates will likely reduce as new customers are added;
- Based on other local municipalities with similar size, it is anticipated that the annual operating costs per customer range from $400 to $500 per year.

Preliminary Capital Costs – Allocation of Costs



Preliminary Capital Cost, Project Funding and Capital Financing Options

- Municipal Act – Part 12 (Fees and Charges)
- Municipal Act - Local Improvement Regulation
- Development Charges
- Developer Assistance
- Grants
- Debt (Infrastructure Ontario)
- Private-Public Partnership (3P)

Preliminary Capital Cost, Project Funding – Debt Capacity

- MMAH regulations allow municipalities to issue debt to the limit of where annual debt payments equal 25% of total own revenues
- Erin's debt capacity would allow between \$15 million (10 year debt) - \$24 million (20 year debt)
- The above does not take into account other capital needs of the municipality
- To undertake the servicing project, grant funding or other contributions will be needed

Financial Observations

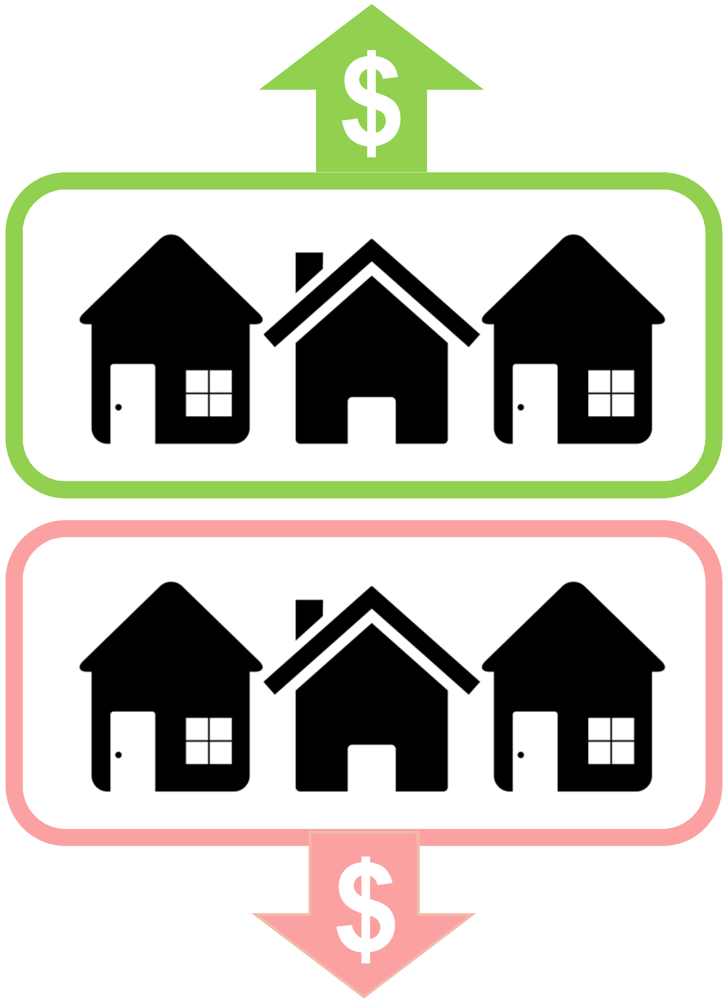
Based on the foregoing:

- Town needs to pursue Federal/Provincial grants to reduce the overall impact onto property owners;
- Grants are also needed to be able to remain within the Town's debt capacity limits;
- Municipal Act (Part 12) charges for existing properties would be the primary basis for recovery;
- For growth related costs, developing landowners would need to prepay their charges to offset the cost of borrowing;
- Staging of the works could be considered, as the Wastewater Treatment Plant and Collection System could be constructed in stages.

Property Values

There are a number of potential impacts on property values for homeowners.

- Property value likely to rise if new system replaces old or leaky septic system.
- Reduced maintenance costs and reliability of system may also raise property value.
- Connection costs include the price of connection and decommissioning of existing septic system to a reasonable standard of safety (waste removed and backfilled with sand and gravel)
  - Full removal of existing septic is discretionary and at the Owner's choice
- Municipal long term loans are used as a financing method, that could remain in place for new homeowners. (loans usually remain with the property but often subject to negotiation between seller and purchaser)



Project Funding and Capital Financing Options

There are a number of options that the Town has for funding sources and financing methods that may help reduce costs for residents:

1. **Provincial and Federal Grants**

   Provincial and Federal grants have been available for infrastructure development and wastewater treatment and the Town is currently pursuing funding from these levels of government.

2. **Development Charges**

   If the Town chooses growth, development charges may be placed on properties that are to be built on or intensified, bringing down the overall cost for current residents.

3. **Developer Assistance**

   In order to ensure that there is a potential for growth through new subdivisions, developers may opt to assist the Town with funding to support the wastewater system.

4. **Debt**

   The Town is considering various options to take on debt to fund the system, allowing residents to pay their share over time via a municipal loan, rather than a single lump sum.

Funding – How Will I Pay?

There are a number of potential approaches for residents to pay the cost of the new system. The Town is currently considering options and seeking input on how best to soften and reduce the impact on current home owners.

Some of the potential options include:

Homeowner Direct Payment	**Pay Through Property Taxes**
Homeowner Low Interest Loan	**Pay Though User Rates**

Schedule to Class EA Completion

- PIC February 2, 2018
- Receive Public and Agency Comments until February 28, 2018
- Prepare Draft ESR by early April 2018
- ESR Reviews and Council acceptance before end of April 2018
- 30 Day Public Review Process May 2018

Project Implementation Schedule

After successful completion of the Class EA process, including any Part II Orders:

Description	Estimated Time
Complete Preliminary & Detailed Design of the WWTP and Collection System	18 Months
Obtain MOECC ECA Approvals for WWTP and Collection System	12 months
Tendering and Construction of WWTP and Collection System	24 months

In addition, the following independent processes would also have to be completed:

- Official Plan Amendment confirming the projected growth for each community.
- Completion of Water Supply Class EA to locate sufficient water to meet the projected growth in each community;
- Securing project funding and agreements for cost sharing.

YOUR COMMENTS ARE IMPORTANT TO US

Please complete a Comment Sheet or take one home with you.

Comment Sheets may be placed in the comment box or returned to the study team by Email or regular Mail to:

Ms. Christine Furlong, P. Eng.
Project Coordinator, Town of Erin
Triton Engineering
Email: cfurlong@triton.on.ca
105 Queen St W – Unit 14
Fergus, ON
N1M 1S6

Mr. Joe Mullan, P. Eng.
President & CEO
Ainley Group
Email: erin.urban.classea@ainleygroup.com
195 County Court Boulevard, Suite 300
Brampton, ON
L6W 4P7

We would appreciate receiving your comments by February 28, 2018

4.
PIC 2 – Consultation Report

PROJECT:	Town of Erin: Urban Centre Wastewater Municipal Class Environmental Assessment (EA)
DATE:	February 2, 2018
LOCATION:	Erin Community Centre / Centre 2000 (Shamrock Room)
TIME:	6:00 p.m. – 9:00 p.m.

These notes summarize the Public Information Centre event held on February 2, 2018 at the Erin Community Centre / Centre 2000.

This consultation report includes: the agenda for the event; attendance numbers; a description of the format and content presented; a summary of questions and comments received from the public; and copies of both the display boards and the PowerPoint presentation used at the event.

Please note that this record of comments includes comments from direct conversations, questions asked and answers received from the Q&A session, and comments submitted to the Project email address following the event. The summary of comments is not meant to be exhaustive and is not verbatim. Names of visitors have not been associated with comments made in order to protect privacy.

PIC Agenda

6:00 p.m.	Doors open
	Display boards can be viewed by public
	Project Team available to public for informal discussion and questions
7:00 p.m.	Presentation by Project Team
8:00 p.m.	Q&A Period
9:00 p.m.	PIC Concludes

Attendance

In total, 205 people registered at the PIC event.

Visitors were invited to arrive at 6:00 p.m. for an opportunity to see the display boards and to have informal conversations with the Project Team. The majority of visitors arrived between 6:00 p.m. and 6:45 p.m., taking the time to review the boards and ask questions.

Event Goals

The primary purpose of this event was to share information with members of the public about the Erin Urban Centre Wastewater Servicing Class EA in order to give a better understanding of the project and the implications for the Town of Erin community.

The specific goals of this PIC were to:

- Introduce the project to residents who may not be familiar;
- Inform residents about the findings from the technical studies completed to date;
- Describe the process up to this point and explain why certain decisions have been made;
- Explain the next steps in this process, including completing the EA and the upcoming decisions that the Town and County will have to make regarding growth;
- Explain the anticipated costs and the potential funding sources and financing options that may be available;
- Answer any questions that residents may have regarding the Class EA.

The desired outcome of the event is that community members will have all of the information they need about the project. As well, residents should leave with a good understanding of what the findings of the Class EA will mean for the Town and what the next steps in the process will be.

Display Board Viewing

The PIC started at 6:00 p.m. and arriving visitors had an opportunity to see the display boards that were set up around the space and to have informal conversations with the Project Team. The boards provided an overview of the project up to this point as well as sharing the highlights of the technical studies that have been completed. Members of the Project Team were available to discuss the project and to answer questions on a one-on-one basis.

A copy of all display boards can be found in **Appendix A** of this report.

Presentation Introduction

At 7:00 p.m. the formal presentation began.

Dave Hardy welcomed visitors and thanked them for coming out to spend the evening learning a bit more about the Project, asking questions, and providing comments. The agenda for the presentation was reviewed. Town Councillors, the Mayor, and Town staff were introduced and thanked for attending. Members of the Project Team were introduced. Finally, Dave reviewed a set of meeting courtesies for both visitors and the Project Team to help keep the meeting focused, easy to understand, civil, and inclusive.

Main Presentation

Joe Mullan of Ainley Group provided the formal presentation and covered the following topics:

Purpose of PIC & Project Background.

A refresher was given on how this Environmental Assessment (EA) emerged from the previous work on the Servicing and Settlement Master Plan (SSMP).

It was highlighted that the purpose of this EA is to provide the engineering science behind the creation of a sanitary sewer system and a wastewater treatment plant to service the existing communities and allow for potential future growth. It was noted that there are a number of upcoming decisions about growth that the Town and County would be making through the Official Plan and Growth Plan processes;

Overview of the Class EA Process

A description of the Class Environmental Assessment Process was provided, along with some of the key requirements, where the current project is in that process, and briefly touching on what the next steps would be following the PIC.

General Project Update

It was explained that the Class EA is currently in Phase 3, in which the Project Team completed a number of technical studies looking more deeply at the general alternatives that were identified and shared with the public at the Phase 2 PIC. The technical studies that were the focus of the current PIC were highlighted.

Evaluation Approach and Criteria Description

A description of the specific approach to the study was provided, including:

- Alternative design solutions were identified based on SSMP and Phase 2 work and potential impacts arising from each solution were defined;
- Natural Heritage/Social Environment potential impacts were identified;
- Technical solutions were sized and conceptual designs completed to identify advantages and disadvantages of each alternative;
- Natural Environment potential impacts including Geotechnical and Archaeological Resources were identified;
- Economic Impacts were defined through life cycle costs;
- With consideration of the potential impacts a weighted scoring system was developed consisting of primary and secondary criteria;
- Secondary criteria were scored for each alternative using 1 – 5 scores and the preferred alternative identified as the highest score;

- Sensitivity analysis was conducted by varying primary weightings to confirm validity of preferred alternative

Treated Effluent Outfall Alternatives

This segment of the presentation focused on the evaluation of potential location for the treated effluent outfall into the West Credit River. Three locations were assessed: both sides of the road where the river crosses 10th Line (Alternatives 1A and 1B); and the west side of Winston Churchill Blvd where it crosses the river (Alternative 2).

Alternative 2 emerged as the preferred location because it avoids a significant fish spawning area between 10th Line and Winston Churchill Blvd. and because it provides optimal mixing for effluent.

Images of the location as it exists today were provided along with conceptual technical drawing of what the outfall would look like.

Potential impacts of the preferred location on the natural environment were discussed as well as mitigation measures that had been identified in order to minimize potential impact.

Waste Water Treatment Plant (WWTP) Site Selection Alternatives

The four WWTP site alternatives were described and shown. Key characteristics of each site were listed. It was noted that the overall environmental and social impacts of the sites were relatively similar, with only minor differences between sites. A major differentiating factor between the sites was the land acquisition cost as the sites currently owned by Halton Crushed Stone would be costlier if purchased prior to the extraction of aggregates. Depending on the timeline chosen by the Town after this EA is completed the land could be purchased prior to aggregate extraction, making Site 1 (Solmar Lands) the preferred solution. If the aggregates were extracted prior to the Town moving forward with the land purchase then Site 2B (Halton Crushed Stone) would emerge as the preferred alternative.

Forcemain Alternative Assessment

The three forcemain alternative routes to connect the Hillsburgh and Erin Village collection systems were presented. The three routes studied were: 1) The Elora Cataract Trail; 2) Wellington Road 22 / Eighth Line; and 3) Trafalgar Road / Side Road 17. A map of the routes was shown and the key considerations of each route was discussed. The preferred alternative was identified as being alternative 1, the Elora Cataract Trail.

It was noted that Credit Valley Conservation had been involved in this process and were on board if the Elora Cataract Trail was identified as the preferred alternative.

Wastewater Collection System Alternatives

The wastewater collection system was briefly described, with an overview given of the alternatives considered and which emerged as preferred. The identified alternatives were: a Gravity Collection System; a Low Pressure Collection System; a Vacuum Collection System; a STEP/STEG

Collection System; and a Blended Gravity / Low Pressure System.

The key considerations that were used to evaluation these different systems were discussed and explained why the Blended Gravity/Low Pressure System emerged as the preferred alternative.

Wastewater Treatment Alternatives

This section of the presentation focused on the treatment technology that would be implemented in the WWTP. The alternatives that were assessed were briefly described and the various considerations for assessment were highlighted (effluent limit criteria being a primary factor). It was stressed that the study had focused on identifying a system whose key components were reliable, in common use in Ontario, would be likely to get Agency approval compliances, and were cost effective for the Town.

A general conceptual layout of the proposed WWTP was shared. It was noted that this graphic was only to provide a general idea about what the site would look like and does not constitute a fully developed design schematic.

The topic of sludge treatment for re-use was also covered. The Project Team had looked at a variety of processes and identified a system that can be land applied. It was noted that the use of treated/stabilized sludge is highly regulated by the Ministry of Environment and Climate Change.

Costs

Joe Mullan presented the anticipated system costs, the property connection costs to those in attendance, and the ongoing operating costs for the system. The costs for existing residents and the costs to developers were discussed and how the overall system costs could be split were generally described. The impact of new developments and infill intensification on the cost to existing residents was described.

Gary Scandlan of Watson & Associates Economists Ltd. provided an overview of how municipal funding for wastewater projects like this tends to occur in Ontario. The importance of cost sharing between existing residents and new development was explained. It was noted that in addition to the dollars being shown regarding the split of costs, developers would also need to pay for the installation of sewer systems within their own development. Those expenses would not be a part of the costs to existing residents.

The general availability of Provincial and Federal grants to support the development of urban wastewater systems was described. The possibility of a P3 (Private Public Partnership) was discussed. It was pointed out that one of the key requirements in order to even start talking to the Province about grants is to have the Class EA completed and the project has to be as ready as possible for implementation.

Potential benefits to property value due to the installation of a wastewater system were discussed. It was noted that often the increase in property value could offset the cost to the homeowner of installing the system.

Next Steps

The next steps towards completing the Class EA were described, leading up to the submission of the Environmental Study Report (ESR). Next steps for the Town after the completion of the EA were also described in general.

Q&A and Comments

Following the completion of the presentation, a question and answer session was facilitated by Dave Hardy. Project Team members responded to questions based on their areas of expertise. For the purposes of these notes, questions and comments will not be attributed to specific individuals and potentially identifying information has been removed in order to protect the privacy of people asking questions.

Comment: I am concerned about the costs for the people of this town. In Erin the money comes from residential tax payers. I don't know where this extra money is going to come from on top of our very high taxes.

With respect to funding, the Town is going to be trying to get as much funding as possible from the Provincial and Federal governments through grants in order to bring the costs down for current residents. This grant funding is necessary to go ahead because implementing a wastewater system without this support would be too expensive for residents, and the Town does not have the debt capacity to complete the project without grant funding. How much funding might be available is yet to be seen, but this is something that Council and Town staff will be pursuing. A completed environmental assessment is a key component for advancing conversations about funding with higher levels of government.

Regardless of the availability of outside grant funding, there will be a net cost that will be covered by homeowners. However, it is important to keep in mind that anyone with a current septic system will eventually need to replace it and there would be costs associated with that replacement.

Comment: I think it must be ten or fifteen years ago that I went to a meeting in the Township office where a proposal was put forward for an environmentally sound plan for the handling of septic sludge to spread on the fields. It was supposed to be done with certain controls, but who is monitoring that? They were going to take the fluids and have a system of chemically enhanced lagoons. It would take two years for the water to go back into the aquifers. The solids would be baked with odour control and the end product sold. I think Milwaukee has done this for fifteen years. The proposal was rejected by previous Council and now you are saying that the sludge from this new facility will be spread over fields.

We can't speak to the process that you referenced from many years ago, but we can say that the use of septic sludge for agricultural purposes is highly regulated by the Ministry of Environment and Climate Change. As for the system being proposed today, there is a sludge management process that has been designed in order to treat the sludge in order to make it chemically stable. The resulting material is much better than what would be coming out of a lagoon treatment process. The process that we're proposing is very high tech and highly stabilized.

Question: You used the terms "users" and "households" interchangeably. Could you explain if there is a difference between the two?

Those terms are in essence the same and can be used interchangeably. People who are outside the urban area are not included in the population numbers in the presentation. Only people/homes connected to the system will pay costs to connect to it and pay on-going use fees. Rural residents will not pay any of the capital costs or operating costs.

Comment: It looks like if we do this the Town is going to be maxed out on infrastructure and may not be able to fund other things.

Question: Are the study costs for this project being paid by everybody?

Yes, that is the case. But once the system is set up the people paying will only be those who are connected to the system.

Question: Are you saying that we're not financing development and the developers aren't going to pay for the sewage plant but only for the sewer systems to connections to the houses that they build?

Developers will pay for the percentage of the sewage treatment plant capacity that they will utilize to service their development. To be clear, it roughly works out that for the treatment plant just over 30% of costs would be going to existing residents, while the remaining costs would be paid by developers. For sewers to homes the developers will pay 100% of the costs to install services within their lands.

Question: If we are able to get it, will grant money be going to reduce costs for existing residents or to the developers' new growth?

The Province can designate where that money goes, but we would be focusing on getting the grants for the existing community and developers would not have entitlement to the grant money.

Question: What happens if the project comes in over budget? Who picks up the shortfall?

This would depend on if the Province gives a total dollar amount or commits to a percentage of the project. As we get closer to the tendering process, we will have a much clearer idea of costs. When you apply for the grants, the numbers will be adjusted to current dollar figures for inflation. We are confident in our team's look at the construction cost numbers that we are presenting today.

Question: What would costs be like for the connection to the sewer system from the house to the property line?

The cost of $6000 identified here for individual homes to connect to the sewer system is an average cost, though this can vary depending on the specific conditions of the property. Size of the lot, elevation, soil type, and how it connects into the house will all be factors in that cost. Costs can be saved by homeowners hiring the same contractors. It is not uncommon for neighbours to band together to have a plumber come in and connect five homes at once in order save money. Some municipalities have even helped homeowners with contracts to hire contractors to complete work on private property.

Question: Do I have to hook up? Is there an option to opt out?

There are a number of towns that have given a period of time in which you can stay on your old system, but at some point people do need to be hooked up. Connection to the system will be mandatory but Council can consider methods for transition from septic systems as construction nears. If we gave everyone 10 years to hook up then the municipality would have to take on the debt with fewer people to pay for it.

Question: I have a perfectly good working septic system in my backyard. It would cost $12-15,000 to replace it and go for another 30 years. Why do we have to do this? Why not just leave it alone?

Often septic systems can be in the $20,000 range to replace and install new. There can be a transition period for houses that have recently replaced their septic system that will be determined by the Town. It is also important to note that we have heard from a number of residents who are keen to get the new system and to avoid needing to replace their older septic systems.

Question: I am a little confused by the capital costs. Based on my interpretation, the cost is listed at close to $150-160 million, how did you get to the $50-60 million range for residents?

What we had done previously is assume a certain amount allocated to the existing community with some growth. The estimated price for full buildout of the system with growth to a population of 14,500 is $118 million. We can discuss after the meeting if you would like to discuss these numbers in greater detail and we can explain how the estimates were derived.

Comment: This going to be a tremendous expense whether you connect to the system or not. I am concerned with what our tax bills are going to look like when this is done. The costs will be higher than the estimates.

Comment: I acknowledge that there are some septic systems in town that are having problems, but I don't think that it's an emergency issue.

Comment: I'm not clear on why we're doing this. Is it just to support developers that want to destroy our community with dense development?

Comment: People also need to remember that there is a water deficit in town and that

we are also going to need to spend money on the water supply system. Our water system is old and crumbling and residents are paying tremendously high rates.

Comment: **Sewage and water rates for users are similar in other communities so our annual charges could double.**

Comment: **People in rural areas are going to end up paying for this because the Town won't be able to afford to do other things.**

Comment: **We do not want the sewage system.**

Comment: **The location of the treatment plant is too close to houses. 350m is not far enough away. Property values near the plant will drop.**

Question: **I am a resident of the rural community. I understand that there needs to be growth, but how can I be sure that I'm not going to be paying for the systems in Erin and Hillsburgh but getting nothing out of it?**

The system will be built and paid for by users of the system. That is what we're proposing and that's what Council has said to you. It will be paid for by people who are actually hooked up to the system.

Comment: **Mayor Alls has on various occasions in the media maintained that the rural community would be called upon to help pay for the treatment facility. I don't think this is fair to rural residents. We are responsible for our own septic systems and the disposal of the sewage.**

Question: **There has previously been the suggestion that if the treatment plant is built, rural residents would be able to dump their septic wastes in Erin rather than having to send it to Collingwood. Is this the case?**

Yes, the proposed system has been designed to accommodate septage from the rural community. Septage treatment has been a part of the study from the beginning.

Comment: **You have explained the treatment plant and process and how there will be pipes dispersing the water into the river. You call this a river, but I call it a creek at best. I don't know how the river can disperse all this.**

Our Natural Environment team went and collected water samples and information on flow rates in the river. We used the 7Q20 flow rate which is the lowest flow rate over a 7 day period that has been recorded over the last 20 years. We then also corrected 10% for climate change. We worked with Credit Valley Conservation (CVC) to use the data from their flow gauge near 10th Line. We then used that information, combined with the water quality data, to predict what the effect would be on downstream concentration. This then predicts the size of the mixing zone (which is the area above Provincial water quality objectives) and ensures that it will meet Provincial water quality standards. The mixing zone is 150m long and does not cover the full width of the stream.

Question: It is also important to think about flooding in these communities. Thanks to climate change, “100-year storms” are going to be happening often. Is the proposed treatment plant designed to deal with climate change?

All across Canada there are studies happening and standards being developed as we learn more about the impacts of climate change on extreme weather events. The treatment plant will conform to all regulations and is being designed with climate change in mind.

Question: Have you figured out ways to ensure that big storms won’t cause a sewage bypass and dump directly into the river?

At the treatment facility there are technologies and system designs that can deal with storm surges. The challenge for some towns can come from the sewer collection system, which are sometimes combined with the stormwater system. We have studied those systems and they can have an environmental impact on wastewater flows. In the system we are proposing for Erin and Hillsburgh the sewage and stormwater system would be isolated from each other. Homes and businesses would not be permitted to direct runoff into the sanitary sewer system. The building department will play a role in preventing cross connections. We are confident that the design of system will be able to address climate change impacts. Flow calculations include allowances for flow from rain events.

Question: A mixed effluent and stormwater system is what we have in the Town now. Can you assure us that there will be no crossover?

The Town only has a storm sewer system now. We would be proposing a brand new sanitary system that would not have any interconnection to the existing storm infrastructure. The Town will make sure the home owners would not be connecting roofs or sump pumps to the sanitary system.

Question: If this will be a users pay system, is the debt capacity that you’re talking about the capacity of the Town or the residents?

The debt capacity is for the Town and calculated based on the Town’s overall finances.

Question: Is the plan for the treatment facility built for maximum growth? Is there any possibility of scalability?

Question: Maybe there should be a referendum on this issue.

The scenario that has been described in the presentation and display boards is for full buildout. Should the Town receive some but not all of the grant money needed for this, there are many variations and phases that would allow you to make decisions in a modular fashion. We can’t estimate what those modular decisions would be so we design the full buildout system while allowing for future flexibility.

Question: **In 1997 the Town studied the possibility of a wastewater system and it would have been $4800 per house. Now it is much more. Now to turn on the system it will be $93 million. Without developers or grants that's $60,000 per house. Can Ainley confirm that they have successfully completed projects of this scale?**

We have identified the cost to service the existing community and a separate cost that is for new development. The $50-60 million is the cost for the existing community. The $90+ million number that you are referencing included new development, so that number would not be paid for by existing users alone.

Ainley has built many wastewater systems. Our most recent comparable project was a $100 million expansion in Innisfil. We have not done one in the last 3-5 years of over $100 million as there are few being built these days, but we have successfully completed many comparable projects.

Question: **Can you give examples of towns that have gotten 2/3 funding from the Province or Federal governments?**

There have been many towns over the last 5-10 years that have received 2/3 funding or more. Examples were cited. Part of this process identifies the environmental and economic benefits that will allow the Province to decide on grants. The Province is looking at the GTA and the outer-rim including Wellington County for growth.

Comment: **This is a big gamble. I hope that we can have an election in which this is a topic. Hopefully after 22 years and millions on consultants, we will make a decision where either we will have a system or we stop.**

Comment: **I lived in the old village of Meadowvale and we ran on septic systems until 1982. When they came in we couldn't wait to get the new sewer system. Your taxes are high in Erin because you don't have a tax base. You need growth, both residential and commercial. Erin is a beautiful town. As I said, I lived in a heritage village and when the developers came in and built, we had a lot to say about it in terms of design requirements. They did follow those requirements. The developers are putting in the tax base that is needed in the town. I think that there is a need for this wastewater system.**

At this point Mayor Alls provided the below comment and then read a letter from the local school board trustee.

Comment: **In response to the comment earlier, there is an election coming up this year and you will get a chance to hear more about this project, to ask questions**

about it, and to vote for who you think will best represent you. This isn't an easy position for any one of us in Council. The current Council was all pro-growth when you elected us.

My concern is that you're not going to be able to afford to live here if we don't do something now. We need the growth and this wastewater system is needed to make that happen.

At this point the meeting concluded and visitors were thanked for attending the Public Information Centre. People were reminded that if they have any additional questions or comments they can send them to the project email address.

5.
PIC 2 – Public Responses

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on January 16, 2018. For convenience we have provided your comments, in blue, followed by our responses.

Regarding your proposed Pump Station site on Erin Heights Sub-division directly in-front or adjacent-to lots 76 and 77. Can you clarify:

- *Pump station land imprint - above ground or vault type facility*
- *Noise impact - pumps working presumably 24/7 and subsequent effect on nearby residents*
- *Power failure event - integrated built-in stand-by generator?*

Erin Heights Sub-division features several right-of-ways, one of which should be considered as a pump station site. In your presentation you casually mentioned possible future development of adjacent lands which would further complicate your proposed pump station site and its ability to service developable lands. Therefore, I would appreciate a more detailed examination of alternative sites.

In your report you state that wastewater hook-up costs from the road to each residential unit will be the responsibility of individual homeowners. Your estimate of $5,000. plus/minus appears to be low, considering most septic systems in Erin are located at the rear of properties. A more realistic estimate should take into consideration the restoration of properties to their original, pristine and aesthetically pleasing appearance.

At the Special Council meeting, limited discussion took place on the possibility of a Wastewater Service Staging requirement. More details with regard to possible staging of such a system needs to be addressed. Will it be downtown Erin first, then further add-ons as the system becomes fully functional? While this may not have been determined, you must have a professional opinion which I feel should form part of your proposal. This would be beneficial for our present Council, as a whole, and future politicians in their decision making process.

It was stated at the Special Council meeting that the project could not go ahead without Provincial/Federal funding due to the Town's limited borrowing capability. Can C.N.Watson be asked to verify the amount of funding required. It should be noted that residents pay high-taxes and water-rates now, so any additional costs will not be accepted lightly by the population at-large. The Town's infrastructure is crumbling and will necessitate debt financing for present roads, bridges and buildings over the next 10-years, further exacerbating our efforts to move forward with *wastewater. Please include my name in any future correspondence with regard to the proposed Urban Centre Wastewater Servicing Proposal.*

I look forward to receiving your response to my comments and concerns.

In our January 23, 2018 email we responded to your email as follows:

We understand the concerns you express regarding the proposed location of the Erin Heights Wastewater Pumping Station. The proposed location is at the natural low point in the subdivision to which all wastewater can drain by gravity. At this time, we are proposing that it would be located in the right of way between two homes, however we are most certainly open to other suggestions through the upcoming consultation process. This station would only service Erin Heights. We did examine locating the station behind the homes (next to a trail) however this is privately owned land and there may be environmental concerns. Additional information is welcome.

The station would be underground with a circular concrete structure about 18 inches above ground and also a control panel (similar to a ground mounted transformer or a Bell panel). It would be landscaped to minimise impact. Siting in the right of way will depend on constructability issues, creating access for maintenance, maintaining access through the right of way (though we are not sure if the footpath is a public footpath), and preserving mature trees. For this size of station we are not proposing fixed standby power. We are proposing that on loss of power the Town would bring a portable generator, however we are also open to suggestions on that.

The pumps would be submersible type and unless you were standing over the station with the hatches open, it is unlikely you would hear them in operation.

If you have other sites to suggest we would be glad to meet you and see if they are feasible and to look at siting options in the right of way.

The $5,000 hookup cost we mentioned is the average cost. Yes, there will be properties where it will cost more depending on elevations, however, typically gravity sewers are constructed deep enough to pick up the outlets from all properties by gravity. We did complete a more comprehensive survey and do have a range of costs for most areas. There are alternatives that could be considered during the detailed design stage and obviously there are advantages and disadvantages to each alternative.

We are now following up to check/confirm that you received our January 23, 2018 email regarding the above noted study. Please let us know if there are any remaining issues you would like us to address.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on January 22, 2018. For convenience we have provided your comments, in blue, followed by our responses.

I can attend the Liaison committee meeting Jan 24 and the Public meeting Feb 2

I reviewed some of the information you included in your email

I have some alternative for the wastewater, septage and the sludge treatment

The Organica wastewater treatment system which I introduced to you and Ainley last year will reduce the sludge production by +/- 30% and reduce the energy consumption about 40-50% septage can be directly be included with the sludge which reduces the size of the wastewater treatment plant

Sludge treatment will also be improved by the SUSTEC system which reduces the size by 30 to 40% and increases the Biogas production by +/- 40% and reduces the sludge volume after digestion by 30% and increases the sludge de-watering to 35% dry solids

Oganica

As described in the Technology Evaluation technical memorandum, in order for a technology to be carried forward into the evaluation, the technology needed to have a demonstrated history of being reliable and able to meet the performance requirements set out for Erin. The MOECC typically prefers a minimum of three successfully operating plants of similar size and capacity, located in a similar climate and with comparable effluent criteria in order to be considered for implementation in Erin. The Organica technology does not meet these requirements, as there are insufficient reference installations that were both of similar capacity and in a similar climate. The added operational complexity associated with horticulture was considered undesirable.

Sustec

The Sustec technology is a thermal hydrolysis technology that’s used to optimize the solids treatment process. This system is installed upstream of a digester and enhances volatile solids reduction, increases biogas production, and improves post digestion dewaterability. Anaerobic digestion was eliminated from the long list of sludge stabilization technologies because this technology is not viable for smaller plants, such as Erin, due to its complexity and capital costs. As such we do not believe that Sustec is applicable to our preferred solids train solution, however it may be possible that is becomes an add on process at a later stage in the plant's development.

This technology also does not meet the criteria for having three similar installations in a similar climate.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]:

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on January 24, 2018. For convenience we have provided your comments, in blue, followed by our responses.

> ***Overview:*** *The Clearford system allows greater efficiency in designing treatment options. The ClearDigest tank and SBS collection network deliver a consistent flow of pre-treated wastewater to the treatment plant, with a significant reduction in peak flow relative to conventional gravity systems. Wet weather flows are effectively eliminated, resulting in savings to the design and long term operation of facilities. These features allow for efficiencies in the treatment process requirements and reductions to the size and footprint of treatment facilities and equipment, translating to upfront capital cost savings. Ongoing operating and maintenance costs of both the collection system and the treatment facilities are also reduced relative to conventional solutions.'*

We recognize that these comments primarily relate to selection of a specific vendor as the preferred alternative for the wastewater collection system. Ainley's Phase 3 work established a range of alternative solutions for the collection system and developed conceptual design solutions for each alternative and then costed and evaluated these alternatives based on a consistent set of evaluation criteria. The Clearford SBS solution falls under the STEP/STEG alternative category which was not selected as the preferred alternative for the reasons outlined in the Collection System Technical Memorandum.

> *Ainley's Phase 3 reports did not consider that the collection system and treatment plant are inextricably linked, that choosing a different collection system will have a significant economic effect on the cost of a proposed Sewage Treatment Plant (STP). The economic advantageous were confirmed recently in a Performance EA for Everett, ON with SBS being the selected and preferred technology by the Town's engineers. There are more suppliers of STEG systems (i,e. Orenco)*

We fully understand the linkages between the collection system and treatment system. While the alternative potentially reduces the liquid train capacity, it increases the solids train capacity. STEP/STEG also changes the quality of the wastewater arriving at the WWTP and potentially increases nitrogenous compounds that require additional air capacity to treat to the levels required for Erin. Our evaluation of the STEP/STEG system for Erin and Hillsburgh did not identify this system as having overall clear advantages over the other alternatives.

Request #1:

Re Table 11 Weighted Scoring of Short Listed Sewage Collection Alternatives (Collection Memorandum)

- We request the scoring be repeated in Table 11, in light of the added comments outlined in the attached in response to Ainley's "Advantageous and Disadvantageous" outlined in section 3.2, Table 4 in the Technical Memorandum –Wastewater Collection System Alternatives.

Request #2:

Re Table 45 Estimated Capital Construction of Erin WWTP

The economic benefits of a SBS collection system was not reflected in the costing model of $43M (to $61M – full build out) for the treatment plant. This costing outlined in the Technical Memorandum -Treatment Technology Alternatives is based on a Traditional Gravity Fed collection system.

- We request the calculation of the economic impact on the sewage treatment plant if SBS is employed as the preferred collection system, by considering the reduced inflow, the altered composition of the inflow and the subsequent cost reductions in capital, operational and maintenance (including lifecycle analysis) when compared to the use of a Traditional Gravity Fed collection system. The following are "The Advantageous/Disadvantageous of the STEG/STEP as outlined in Table 4 (page 15) of Ainley's Technical Memorandum - Wastewater Collection System Alternatives with Transition Erin's corresponding responses added in blue (and indented) with respect to a SBS collection system.

Table 4 - Advantages and Disadvantages of STEP (pressure) / STEG (gravity) System

Advantages:

- ***Potentially less excavation required for sewer pipes***
  - *Little surface destruction since trenchless technology is an economical option if required (i.e. Horizontal Directional Drilling). The smaller pipe size allows for a much narrower trench (~12-24") to be excavated; eco-significant for installing pipes along the Elora Cataract Trail.*

Directional drilling is not necessarily less costly than open trench construction. Generally, trenchless technology is more expensive than open trench construction. Directional drilling still requires excavation for tunneling shafts and for every property connection including trenches to each property line. The location of other services makes it likely that the sewers will have to be in the street so there is little saving in terms of restoration as all of the tunnel shafts and service connection trenches will still necessitate the entire road to be paved.

- ***Where STEP or STEG used, pipes can be installed to follow the surface topography, remaining at a relatively constant depth below the surface***
- ***Minimal inflow and infiltration into the system so smaller pipes and lower flow to STP***
- ***Solids not pumped to STP so smaller pipes and less capital costs for pipes***

- ***Lower initial capital costs due to shallower placement and small size of pipes***
- ***Low pump maintenance compared to grinder pumps (low pressure system).***
  - *SBS is not a STEP. SBS is an enhanced modernized STEG.*

Based on the topography, our conceptual design for this alternative is a STEP/STEG system with a significant component being STEP. While we received a conceptual design solution from a vendor, we amended the design to ensure that it reflected a practical and constructible solution for the communities based on the actual topography. We also costed the solution using our own costing database. It is unclear how the claim can be made for the pipes following surface topography when they are proposed as gravity sewers.

Additional Advantages not identified in Ainley's Memorandum

1. *Sealed and flexible pipes are impervious to extraneous water Infiltration that dramatically reduces plant flows allowing for a reduction in the size of the treatment plant.*

We do not agree that, in a practical design solution for communities the size of Erin Village and Hillsburgh, infiltration can be completely eliminated.

2. *Wastewater is pretreated with 30% biological treatment reduction, reducing the treatment plant biological treatment tanks and blowers by 1/3rd.*

We agree that there is a potential to reduce the liquid train flows to the treatment plant in the STEP/STEG alternative, however, this does not take into account the need to deal with the solids from the septic tanks and overall this does not result in selection of STEP/STEG as the preferred alternative.

3. *Sludge also processed/digested in the home mixer/attenuator tank(digester) which reduces operating costs at plant related to sludge handling at the end of treatment at the ST*

The sludge product in the tanks is a septic sludge. It requires further treatment and must be hauled to a Municipal Wastewater treatment facility.

4. *80% reduction in solids to treatment plant that are now treated for free (a treatment plants largest expense).*

As noted, the sludge must still be pumped and hauled from each tank and treated at a Municipal wastewater treatment plant prior to disposal.

5. *Headworks system is no longer needed at treatment plant.*

The reduction of solids piped to the plant can reduce the preliminary treatment phase costs, however, the cost of pumping and hauling the solids to the plant must also be taken into consideration.

6. *Peaking factor reduced in half (from 4 to 2) compared to gravity resulting in less flow equalization at the plant and in the case of flow through plants reduces the membranes and blowers required in half.*

Flow equalization is not required at the treatment plant. Daily peaking factors will remain similar but with reduced flows. Peaking associated with inflow and infiltration will also be reduced but not eliminated.

In addition, peaking factors are a function of population, under the full build-out scenario described in the UCWS EA reports, a peak factor of 4 is not anticipated for a gravity based system.

7. *No manholes present in the system requiring annual servicing and cleaning.*

We do not agree. For a system the size of Erin and Hillsburgh, we believe the system still requires manholes for cleaning/flushing/system maintenance.

8. *Less pump stations required reducing annual servicing and cleaning costs.*

We do not agree. We believe the system still requires all of the main pumping stations though the flow could be reduced. Several small "local pumping stations" can be removed, however this requirement is replaced by the use of multiple small pumping systems (STEP) installed on private property.

9. *Fats, Greases and floatables captured at the tank eliminating plugging of pipelines, cleaning of manholes and separation requirements at the plant.*

We do not agree that the Clearford system eliminates all solids from the collection system. It is still possible that solids will enter the sewer. Gravity sewers represent the most cost effective solution from a maintenance point of view. They rarely plug and rarely require cleaning.

10. *Rags and fiberous materials trapped at the tank eliminating frequent pump station pump deragging.*

Pumps in Sewage Pumps Stations servicing gravity sewers rarely require "deragging".

11. *Inorganic solids settled out in the tank and collection network comprised of HDPE eliminating the need for grit removal systems at the treatment plant.*

We do not believe that infiltration water can be eliminated in a STEG system and would continue to recommend use of a grit removal stage.

12. *No mention of water table issues in areas of Erin that will cause large amounts of infiltration into a gravity system along with extensive dewatering costs during construction.*

The Geotechnical report indicates most areas with low groundwater levels except for areas close to river. Excessive infiltration is not anticipated.

13. *Fewer pumping stations required*

All main line pumping stations are still required. Elimination of smaller areas stations requires more STEP tanks to be used.

14. *An SBS system connecting the two villages will reduce the risk of effluent arriving 'septic' at the STP. Insufficient amount of whole sewage travelling in a TFG over too long a distance results in significant odour at manholes and upon arrival.*

The wastewater in a STEP/STEG system can still turn septic and in fact is septic as it is processed through the anaerobic septic tanks. The connection between the two communities is planned to be pumped. Main line SPSs can be equipped with odour control if required (applies to both gravity and STEP/STEG alternatives).

15. *Water lines and wastewater lines can be laid in the same narrow trench (1 -2') side by side while traditional Gravity Fed pipes need to be separated by several metres from water mains.*

We do not view this as an added advantage of STEP/STEG in these communities.

16. *Cost to hook up to the Homeowner; Negligible for SBS. (maintains cost of current pump if required. If a pump is required by the resident, the cost for a ½ hp is $200-$300 and less than $30/year in hydro. The pumps last 7-10 years at a total cost of under $73 per year. The Municipality would pay for the tanks and piping from the structure of the house. In Traditional Gravity Fed, the Municipality covers the cost to the home owner's property line*

In our STEP/STEG alternative we included the cost of the STEP pumps as Town costs in order to provide a similar level of service to all properties. The costs noted above are low, and neglect the costs associated with installing the proprietary STEP/STEG tanks required. A significant number of pumps would be required for Erin Village and Hillsburgh.

17. *Record of government funding in the past for SBS installations (i.e. Wardsville, ON 85% funding)*

Funding is not specific to the recommended design solution. Wardsville is a small, relatively flat community and the Wardsville wastewater system services around 150 properties. It is not comparable to Erin/Hillsburgh**.**

18. *No need for grinder pumps (as in low pressure system STEP currently in use in Wellington County with ongoing challenges as per Mayor Alls comments in Council re Maple/Drayton)*

STEP pumps suspended in the septic tanks may allow solids to be pumped into the sewer system. The Maple/Drayton system uses grinder pumps.

Disadvantages

- ***All private properties require a Digester Tank similar to a Septic Tank***
  - *replace Septic Tank at the residences with a new water tight tank equipped with flow mixer and flow attenuator (Digester) wherever possible.*

The replacement tank is essentially a septic tank.

- ***Small diameter pipes subject to blockage if Digester tanks do not function properly***
  - *No filter is required for SBS. The filter is used in traditional septic tanks because the assumption is that the effluent leaving the tank will end up in a tile bed on the property. The filter is recommended for that application to preserve the life of the tile bed. This is not the case with the SBS. There is a treatment plant at the end of the sealed pipe which can deal with the limited solids that leave the Digester tank. Sewer blockages more likely to occur with traditional gravity sewers. –because of insufficient flushing velocities due to low flow appliances and fixtures, fats, oil, grease grit, debris, diapers diaper wipes, rags, tree roots all of which create well documented blockages.in the pipes, pump stations and at the STP.*

We continue to view this alternative as presenting operational issues. There is no real provision to stop solids getting into the pipe or blocking the pump. While we understand that there are several vendors in this market, the Clearford tank appears to have a single chamber with a dip pipe at the outlet and this cannot prevent all solids from entering the sewer.

The scale of problems with gravity sewers mentioned in your comments is grossly exaggerated.

- ***On lot components require maintenance (Solids Removal, Pump Maintenance).***

- *Handling solids once every 8-10 years with the SBS from the Digester tank is far more economical vs handling them every day at the STP that is fed by a traditional gravity sewer. Sludge handling at source is a huge advantage of the system*

We do not agree. The STEP/STEG system will produce septic sludge that needs to be treated in exactly the same way as present septic systems. Wastewater solids can be more effectively handled within the liquid train at the wastewater treatment plant.

- ***If Digester tanks municipally owned, legal access agreement is needed for maintenance***
  - *Access to Tanks for cleaning is no different than obtaining access to any other utility – gas, hydro, water meter etc. Access is covered under Municipal Act. No municipality with a Clearford system has experienced any access issues.*
  - *An opportunity to confirm there is no illegal water diversion from downspouts/weeping tiles into the sewer system. (common place with Traditional Gravity fed .*

We view access to the back yards of private properties for pump maintenance, repair, replacement and for septic tank clean out likely every 3 – 8 years depending on property size, as presenting an issue with this alternative. In addition, any future issues with the pipe or tank could require the Municipality to excavate on private property. The location of a significant component of publically owned infrastructure on private property is not a desirable situation.

- ***Municipality may also be responsible for solids pump out if they own the tanks.***
  - *Municipality should own the digester tanks and be responsible for tank pump out to ensure cleanouts occur every 8 years (estimated at $100/tank/ 8 years); no different than servicing manholes in the traditional gravity system but performed each year.*

Tank pump out would be more frequent than 8 years and for some commercial establishments could be much more frequent. Likely the Municipality would have to contract out this service which would be a continuous operation for several tankers after the community achieves full build out. The cost would be much higher than $100 even assuming that sludge treatment and storage is provided at the Town owned WWTP.

- ***Property owners still have the restriction of having a septic tank system***
  - *Minimal restriction. The digester tank is 5x5x8 not much larger than the homeowner's original septic tank. There is no need for tile bed on the property (with new homes).*

As stated in our report, homeowners will still have the restriction of having a septic tank in their back yard.

- ***Power needs to be available all the time for STEP. Power failure results in properties having no wastewater outlet***
  - *STEG (SBS) requires no power. Digester Tanks operate on a 1/3 empty basis leaving 24 hours of storage in the event of power is off. Gravity systems rely on pump stations and their back-up generator fuel (diesel) tanks are sized for one day's storage.*

The drawing of the STEG Tank from Clearford shows a simple dip pipe at the outlet extending into the liquid. To operate, the liquid level in the tank must be at the outlet pipe level. An increase in liquid level would overtop the outlet pipe allowing solids to enter the sewer. As illustrated, the tank cannot operate 1/3 empty.

  - *The SBS Digester tank has a hydraulic mixer propelled by water running through it to stir the tank gently. The attenuator is really just a stationary device that requires no power.*

Incoming wastewater flows from most houses are unlikely to promote much mixing and it is unclear what process effect this will have. It would appear that it could negatively affect the anaerobic digestion process.

- *A STEP system requires power as does the low pressure grinder pump system; both have pumps.*

A combination of a SBS AND a STEP could address where gravity can't be utilized. A cost decision then be made to either installing a full pumping station or merely individual pumps at each home

To adequately service Erin and Hillsburgh a substantial number of tanks must be STEP.

- ***Property owners will be required to supply and pay for power to the onsite pump at their property.***
  - *STEG (SBS) requires no power. If a pump is required by the resident, the cost for a ½ hp is $200-$300 and less than $30/year in hydro. The pumps last 7-10 years at a total cost of under $73 per year.*

In our opinion these costs are low. They would also result in a higher cost to some properties and so we have costed the STEP/STEG alternative on the basis of the Town owning the pumps.

- ***STEP/STEG is a proprietary technology which means maintenance and procurements of parts will be through the same supplier which could increase capital and maintenance costs***
  - *HDPE Pipe is an off-the-shelf product. HDPE pipe is the same pipe used to install natural gas lines and is very common. Tanks can be purchased at ~ $1500 through numerous suppliers. The proprietary features of the SBS are within the tank and are comprised of two items. A flow mixer – and a Flow attenuator. Total cost for both would be ~ $1,000. They add significant value to the efficiency of solids digestion in the tank and flow suppression. Total cost to the municipality ~$2500 - $3000.*

Our professional opinion is that the Clearford tank appears to operate as a septic tank. It is also our opinion that the cost of the tanks noted above is low, and appears to neglect the costs associated with installation.

- ***Existing Septic tanks will need to be decommissioned***
  - *The original septic tank would need to be decommissioned (emptied and collapsed in place) required even for a traditional gravity. In SBS, it is replaced with the Digester tank. Decommissioning means, drain it, break it up and fill it with sand then cover it up.*

Similar to gravity alternative.

- ***Tile bed decommissioned by the property owner.***
  - *This is actually an advantage since the property owner can actually use that part of their property. The Tile bed decommissioning is undertaken at the discretion of the home owner.*

Similar to gravity alternative.

- ***Not widely used in Canada and not on this*** *Scale*
  - *There are innumerable STEG Systems in use in Canada and around the world. There are numerous STEG systems in Ontario. Clearford's SBS is an advanced STEG system.*

However the basic design principles are the same. Solids removal and digestion at source and convey liquid fraction of waste to treatment via gravity…. savings in long term operations and capital costs. Clearford has over a dozen installations in Canada and South America dating back to 1990.

We are not aware of Clearford systems on a similar scale to the proposed Erin/Hillsburgh wastewater system.

- ***Developers for growth areas would be required to use the same system and this may affect house prices as the system does not provide a secure sewer outlet***
  - *Any developer would be interested in using the SBS since it would permit MORE development than servicing using the Traditional Gravity Sewer due to the ZERO INFILTRATION and 2X Peaking factor design advantages of the system. SBS does provide for a trunk connection to developers and are being chosen throughout Ontario*

We understand Clearford is being selected for individual subdivisions in rural areas, however we do not believe this is applicable to Erin and Hillsburgh.

- ***Production of odour is common from improper house ventilation, manholes and system vents.***
  - *A properly installed and vented SBS does not produce odours in the home, manhole or system vents. ANY Sewage conveyance system that is not properly constructed and installed produces odour.*

The retention of a septic tank on each property increases the risk for odours.

- ***Effluent tends to be corrosive due to the presence of hydrogen sulphide gas from septic sewage.***
  - *Treatment plant influent from a Clearford's collection system ranges from pH 7 to 8.5 which is within MOECC guidelines for discharge to rivers and lakes and is not corrosive.*

It is unclear how Transition Erin can make this claim.

- ***Odour control needed at all SPS's (Sewage Pump Stations).***
  - *Odour control is not necessarily an issue with SBS nor particularly expensive to mitigate; it could be as simple and inexpensive as a carbon filter over a vent stack.*

A carbon filter over a vent stack is also a typical solution for gravity based sewage pump station.

- *There are significant advantages of a pump station in an SBS system over a pump station in a traditional gravity system; in operation/maintenance, costing and environmental protection since SBS is free of any solids, fats oil grease etc. all of which is retained in the Digester tanks. Pump stations in a traditional gravity system require much higher maintenance since all solids, grit, fats oils grease travel thru the collection system, the pump stations and eventually to the STP*

We recognise that the Clearford system is proposing reduced flows at SPS's through elimination of infiltration flows. We also recognise that the Clearford system proposed a solids free system. We do not agree that it will be possible to eliminate all solids from the collection system and we believe the impact of solids on SPSs is exaggerated.

- *Re Bypass (where raw sewage is diverted into the river) Pump stations in Traditional Gravity Systems are subject to bypasses due to extraneous flows; rain events and* *seasonal snow melts etc often lead to bypasses, high level alarms at the plants that require emergency attention, MOECC reporting, etc. These bypassing events do not occur with SBS.*

By-passing of Sewage Pump Stations is not permissible under any design scenario.

The conceptual design of a STEP/STEG system, as defined in the Collection System Technical Memorandum, takes account of the topography within Erin Village and Hillsburgh. A substantial proportion of the properties cannot be serviced by gravity using the smaller sewers at shallower depths. For these properties we assumed a STEP system. In developing the STEP/STEG solution we have been careful to identify a practical design solution and cost that design on the same basis as all other alternatives.

Within our terms of reference and as requested by the core management team, the Town required the Class EA to develop a reliable cost estimate to ensure that residents were presented with costs that would not escalate at subsequent stages. The preferred alternative has been identified on this basis. In addition:

The project is now fundamentally different from the SSMP which looked at the existing communities and a small amount of growth. The system as now presented could have greater than 5,000 properties including industrial, commercial, institutional (schools etc) and residential properties. Provision of a communal sewage system for the communities presents a significant opportunity for larger properties including condominium developments, seniors homes, combined commercial/residential developments and larger retail units. The collection of septic sludge from all of these properties would require a considerable ongoing operation and a significant solids processing facility at the WWTP.

We are confident that the collection system evaluation process was fair and balanced and that it identifies the best way forward for the Town.

The additional following comments provided prior to the January 24, 2018 PLC are provided below (in blue) along with our response comments:

TGF = Traditional Gravity Fed Collection System
SBS = Clearford's Small Bore System (a STEG derivative in use for 20+ years)
Clearford's Small Bore System referred to as "SBS" is a collection system where solids are removed and digested at source without the need for electricity (at the residence) and where the liquid fraction of waste is directed to a treatment facility via gravity.

The Clearford System cannot service all properties in Erin village and Hillsburgh by gravity. A substantial proportion of the properties require pumps powered from the property.

For existing community:

***SBS**: 225l/person/day (no infiltration) x 2.8 people/unit x 2672 EU =**1645 m3/day** (42% reduction) (based on average 0.63m3 of water usage in Erin/day/household and 0.56 m3/day (200l/day) for Hillsburgh per Water Superintendent - circa 2013)*

Excluding infiltration we have used a flow of 290 l/person/day. This provides a factor of safety over and above the present drinking water demand levels which is prudent due to the expected life of the pipes (more than 80 years). We do not agree that infiltration into a SBS pipe system will be zero. There will be thousands of connections onto private property and these have the potential to leak in future.

TGF:** 380l/person/day (includes 90L for infiltration) x 2.8 people/unit x 2672 EU = **2843 m3/day

1 *re Peaking (Hour) Factor - i.e. what time of day people use most of their water i.e. morning showers where more volumes is sent to the treatment plant.*

- *Does the 380 l/person/day include a peak factor? Ainley's reports a peak factor of 3.3. Is this number then multiplied by the 2843 m3/day?*

380 L/person/day is an "Average Daily Flow" (ADF) assumption – we use average daily flows for the design of secondary treatment processes. The ADF is multiplied by a peaking factor to determine "peak flow". Peak Flow is used for the design of pipes, pumping stations, preliminary wastewater treatment and for some tertiary wastewater treatment processes.

The MOECC design guidelines standardize the peaking factors assumed for wastewater design. The Harmon Peaking Factor equation is an industry standard that generates an assumed peak factor based on the population within a given catchment area.

$PF = 1 + \frac{14}{(4+(\frac{P}{1000})^{0.5})}$, where P = Population

The assumed peak factors in the Flows and Discharge Technical Memorandum are based on the existing populations within each Drainage Area as defined in the same report.

2 *Why was the already rehabilitated land of Halton Crushed Stone not considered as an viable alternative to Option 1 (Solmar land)?*

- *HCS would consider building a 10th Line by-pass during the time when 10th Line would be harvested in Phase 5 (in some 30+ years) (addressed already with HCS)*
- *If a STP located 2 m above the water table is not acceptable, why then did the study evaluate at length options 2a, or 2b or 2c if not viable options?*
- *If a STP is acceptable 2 m above the water table would the cost to dewater during construction not be extremely costly?*

The Study Area identified for a WWTP during the SSMP and in the UCWS Class EA was along County Road 52 and the site selection technical memorandum provides an overview of that area and establishes the alternative sites based on potential impacts to residences and environmentally sensitive lands. During the meeting that our team had with Halton Crushed Stone, we did not discuss the use of lands that had already been mined due to their location closer to an existing subdivision, their designation as compensatory bird habitat and issues surrounding access while the area was still being mined.

We have not stated that construction of the WWTP, 2 m above the water table is unacceptable. It is a factor that would need to be taken into consideration during design. There are design solutions that would minimise the requirements for groundwater dewatering during construction.

3 *Can Ainley confirm what municipalities have received 2/3 funding for a wastewater start-up venture in the last 5 years? (not for expansions/upgrades to existing facilities).*

Government funding agencies change their funding priorities and develop programs to achieve specific objectives. Within the Water and Wastewater sector recent programs have involved upgrading of water systems following Walkerton, upgrading wastewater systems to add at least secondary treatment to all facilities in Ontario and various other programs based on rehabilitation of existing systems. Notwithstanding recent past and current funding programs, a substantial percentage of

communities of similar size to Erin Village and Hillsburgh have received significant (greater than 60%) funding for their water and wastewater systems over the past several decades.
The Infrastructure Canada website lists the federal component of all grants provided since 2002.

4 *Just prior the completion of the SSMP in 2014, a water-deficit was identified and costed at $5-8 M (to reinstate BelErin wells and expanding Well H3) to accommodate the 1500 population growth. Ainley is independent of the water EA however going forward will Ainley be substantially more involved in the remainder of this EA?*

The Water System Class EA is being undertaken by Triton and Ainley is not involved.

5 *Reported that the effluent outflow at Winston Churchill would result in a "15% more assimilation flow". What is the impact of this re serviceable population?*

The Assimilative Capacity was completed based on CVC 7Q20 analysis at 10th Line. Effluent criteria and system capacity has been established on that basis. Increase in base flow between 10th Line and Winston Churchill improves flow assimilation but will not change capacity or effluent limits agreed to with MOECC/CVC.

6 *Re Costings:*

***From the Collection Memorandum**: (Appendix G)*
$50-56M Table 15 – Cost Comparison of Alternative Collection Technologies (existing) Page 10
$13.5M Table 16 – Collection System Trunk Components Affected by Growth Page 10
$25.5M Table 17 – Collection System Trunk Upgrades for Full Build-Out Page 11
From Treatment Memorandum
$43 M Table 45 – Estimated Capital Construction of Erin WWTP (Phase 1) page 63
$18M Table 45- (phase 2)
$61M Table 45- Total Build out)

	Treatment $	Collection $	Total $	Equivalent Units	inflow (m3/day, 380 L/P/D)	Population (in Erin + Hillsburgh)	# of homes (in Erin + Hillsburgh)	Cost/home
Phase 1	43M	(50 to 56M)	93M-99M	2672 EU	2843	4615	1775	$53,520
+ Growth	18M	(13.5 +25.5M)	57M	4068 EU	4328	9985	3439	$16,574
Build out	61M	(63.5 – 81.5M)	~150M	6740 EU	7172	14,600	5214	$28,768

*(380L/unit/day) x 2.8 people/unit = 1064L/unit /day x 4068 EU = 4,328,352 litres or **4328 m3/day** influent = new growth*

Appendix G: 1550 connections is used for all collection calculations for the existing community:

The above interpretation of the costs identified in the various reports is incorrect. It appears that the Phasing costs in the Treatment Plant evaluation memorandum have been confused with the existing versus development totals. The project team will issue a capital cost report and incorporate this into the Environmental Study Report.

7 *Unclear how to incorporate Table 16 ($13.5M) and Table 17 ($25.5M) above- are the costs additive or is the former incorporated in the latter?*

The $25.5 million represents a total cost (i.e. not "in addition") for the system aspects described in Table 17. As such, the cost calculations in the table above are incorrect.

8 *How many homes in Hillsburgh and in Erin today? How many homes in each will end up being serviced? (1800 or 1550 as per costing models.. does this include commercial, industry, infilling/intensification)*

5200 homes(~14,600/2.8)   1800 homes (~5040/2.8)

This information can be found in Appendix D and Appendix E of the Flows and Discharge Technical Memorandum for Erin and Hillsburgh respectively.

While the existing number of homes and published population are useful as a guide for the development of wastewater system capacity, they are not directly used to determine the capacity. The wastewater system should be sized to service all properties within the service area with due allowance for infill and intensification. Without an updated official plan review process that takes into account the communal wastewater system, it is not possible to define exactly how the existing communities will develop. A wastewater system will provide many opportunities for the existing communities to grow. Existing vacant lots and/or parcels can develop into town house developments, low rise apartments, seniors complexes, commercial/residential developments and existing homes and businesses can expand or change use. Prior to completion of the updated official plan it is advisable to retain as much flexibility in the system capacity to ensure that wastewater is no longer the limiting planning control.

9 *If Town elected not to grow, is it correct that wastewater treatment will cost the existing urban us 43M and 55M (~100M)?*

This scenario was identified as part of the Phase 3 work. If the wastewater system is designed for a population of 6,000 as identified in the SSMP, then the anticipated cost for the existing residents would be $72 million in 2017 dollars. This compares with the cost estimate of $58.5 million in 2014 dollars in the SSMP**.**

10 *If the Town elected not to service the existing community, allowing only growth to fund servicing, would the cost remain $100M if the developer were to accept Ainley's Preferred Solutions?*

This scenario of servicing only future growth excluding existing has not been analyzed in the Class EA; therefore, we have not developed a cost for this scenario. Subsequent to completion of Phase 4, there are many implementation scenarios that could arise out of the Official Plan Review process and depending on project funding both from the Town and/or from the Development community. We are not in a position to address implementation scenarios other than is necessary to compare alternative solutions and to identify the recommended alternative.

Our opinion is that a wastewater treatment and collection system servicing both the existing communities and future development areas will yield the most cost effective solution.

11 *Would it be any less expensive for the existing population if the existing community would delay servicing until after the developers have completed i.e. that Existing be the Phase 2 group?*

Rearranging the phasing, such that the developers go first will not significantly reduce the costs to the existing residents, in fact the opposite could be realized as the developers would include any financing costs associated with infrastructure required for the existing community and their financing fees/rates may not be as favourable as the Town's. Regardless, of the phasing it will still be necessary for the Town to secure a government funding to make the project viable.

12 *Pump stations:*   *Generators run on Diesel or Natural gas?*
Generators enclosed, above ground?

What is the approximate cost (capital cost operational costs) for a typical pump station in Phase 3?
Have the operational costing included the labour component to fill generator tanks every 24 hrs?

All Pump Stations would operate on hydro and have back up generators (either Gas or Diesel) in the event of a power failure. For the purpose of this Class EA it is assumed that the generators would be enclosed in buildings. It is premature to determine whether the standby generators would be diesel or natural gas. This would be determined on a case by case basis during detailed design. It is not meaningful to identify the operational cost for each station as operation and maintenance costs for systems are completely integrated into one cost control structure. Small Pumping Stations would not have permanent standby power as portable units would be trailered to the sites on an as-needed basis.

Re Capital Costs, Operational Costs and Maintenance Costs.
Over a 50 year period, the capital costs for infrastructure account for only 20% of all the money spent, 80% is equally divided amongst the Operational Costs and the Maintenance Costs. The capital cost for TGF and SBS is not significantly different however the Operational & Maintenance costs will be.

We have used an 80 year life cycle analysis for the cost evaluation and we have identified that the capital cost for the Gravity system is 88% of the life cycle cost and for the STEP/STEG system, the capital cost is 85% of the life cycle cost.

13 *Is the 80 year life cycle of gravity-fed sewers truly the same period of time as plastic piping in a SBS? Why would the O&M be virtually the same for both at ~$65K/year?*

We have costed on the basis of PVC pipe for the gravity system and Polyethylene (PE) pipe for the STEP STEG System. We believe the 80 years expected life of both these pipes is reasonable.

Based on our analysis the O&M costs for a STEP/STEG system are greater than that of a gravity system over the 80 year life cycle.

For a gravity system, we consider the replacement of pipes at 80 years and refurbishment/replacement of manholes at 50 years. We account for the operation and maintenance of all pumping stations including equipment refurbishment/ replacement. We also accounted for cleaning, CCTV inspection, and inflow and infiltration monitoring within this assessment.

Similarly, with the STEP/STEG system we consider the replacement of pipes and the operation and maintenance of the centralised pumping stations. For the gravity portions of the STEP/STEG system we accounted for cleaning, CCTV inspection, and inflow and infiltration monitoring. What largely differentiates the two systems is the refurbishment of the STEP/STEG tanks on private property; this is included since we have accounted for ownership of these tanks by the Town.

14 *Capital cost for STEG: 1550 hook ups, but 710 will require pumps… ~50% needs pumps? If it's because of topography, why not install community pumping stations? Why would it be any different than TFG/LPS that will require electrical grinder pumps at 53 connections (paid by the Municipality)?*

We have based the conceptual design of the STEP/STEG system on topography and recommendations from consultation with a STEP/STEG equipment supplier. We have used STEP on lots where it is not possible to go by gravity for the shallower STEP/STEG pipes. We could have substituted STEP with a gravity system, however this would make the STEP/STEG pipes deeper. For all the alternatives we have conceptually designed pumping stations where necessary.

15 Please confirm the 80 year Summary Lifecycle analysis for the STP - no summary Lifecycle found. (Assume this is based on TGF/Low pressure grinder pumps).

The WWTP alternatives were analysed as different components including liquid train, solids train and septage. The WWTP Technology Selection Technical Memorandum includes life cycle cost spreadsheets and summary table for all of these components.

16 (minor) Effluent Pumping is $ 1,800,000 in Table 45 (but $1.6M estimated in the Outflow report) why the cost difference? Why would it cost another $900,000 in phase 2 for a total of $2,700,000?

The total full build out cost for the Effluent Pumping Station and Outfall is $2.7 million made up of $1.6 million for the outfall and $1.1 million for the pumping station. For the Phasing we included the effluent pumping station and one of the twin forcemains at Phase 1 and then additional pumps and second pipe at Phase 2.

17 (minor) Land Acquisition $500,000 but WWTP site report stated 785K and that the "Town may have to purchase more than 5 Ha as remaining lands may not be useful to the present Owner (Solmar)" Solmar paid some ~1.3M for the land. Should market value for all the land not be included?

The $500,000 is incorrect. The estimate is $785,000. We will correct in final reports. We do not believe that the Town would need to purchase all of the Solmar lands.

18 Hillsburgh new Library not hooked. What is the incremental cost increase to service this new building located on the other side of the Hillsburgh pond (west side)? (Appendix A Collection)

- Is the cost to connect the Library, located past the Station Street Dam/Bridge, included in all the collection costing scenarios?

The cost to connect the new library is not included, however we have made an allowance for infill and intensification in sizing the wastewater system. The area is also planned for development and it is likely that, depending on what lands are approved for development, there would be cost sharing available to connect the developments and library to the trunk sewer on Trafalgar. The actual connection cost to the sewer in the street would be a Library (Town) cost. It is premature to show actual sewer routes for these connections pending planning approvals.

19 Since electricity costs could well be significant, has Ainley determined the supply of electricity to the preferred location is sufficient to service the requirements of the STP?

The cost to supply all utilities to the WWTP site is included in the site development cost estimate.

20 RE the STP: Is the STP designed to be completely underground?

Typically, WWTP sites are partially buried to balance soil materials cut and fill on the site. Exact elevations would be determined during detailed design, however, the plant will be a combination of aboveground buildings and partially buried tanks with some open water surfaces.

If not, what is open to the air?

Based on the preferred technology alternative, only the aeration tanks would have open water surfaces. These tanks always have aerobic conditions and do not produce offensive odours.

Is rural septage received indoors?

Tankers delivering septage would discharge through a piped coupling into an underground tank below a building connected to the odour control system. No septage would be exposed to open air.

Will the STP design ensure 100% odour-free operations as some contractors do.

We are not aware of any wastewater treatment operations companies who would guarantee odour free operations. MOECC set odour limits and the Class EA will recommend that the plant meets these limits. It is anticipated that MOECC will require extensive odour mitigation measures and these have been provided for.

21 *In the capital cost calculation for STEG/STEP $9.25 M is included for the digester tanks but additional charges added: O/H & profits of 15% + Contingency of 15% + 10% Administration totalling $4 million more than TGF costing where the homeowners pay the $10.2M for connections to the curb. Is the STEP/STEG calculation inflated by $4M in making the paper comparison with TGF?*

The $10.2 M for private connection costs was developed through a separate analysis process and was therefore not subjected to the additional contingency and engineering fees. See the cost analysis for the connections in Appendix G of the Collection System Alternative Assessment Technical Memorandum. We believe our assessment of costs for each system was completed on equal terms.

Additional questions (post PLC Meeting of January 24,2018

22 *1550 connections is used to develop costing for all collection alternatives from $50M to 56M in Section 9.0 Table 15 of the Collection Memo:*

Please breakdown the1550 connections:

- *Confirm the number of existing homes in Hillsburgh and how many in Erin?*
  (from Septic Survey Study report: Erin: 1204 Hillsburgh: 512)

The project team will issue a capital cost report to clarify costs and this will be incorporated into the Environmental Study Report.

Confirm the number of existing homes in Hillsburgh and how many in Erin to be serviced?
(from Septic Survey Study report: Erin: 1141 Hillsburgh: 466 Total: 1607)

The project team will issue a capital cost report to clarify costs and this will be incorporated into the Environmental Study Report.

- *What is the relationship between 1607 homes in need of servicing and the ‘1550 connections’, - and infilling, intensification, existing industry, etc.*
- *Of the1550 connections, how many connections are not residential (schools, commercial, industry)?*

The project team will issue a capital cost report to clarify costs and this will be incorporated into the Environmental Study Report.

23 Is the cost of $3.4M for the inter-village pipe included in Collection Memo; Table 15?

Yes.

Treatment costs for Phase 1 is $43M in Table 45. Does this represent the 1550 connections used in the calculations of the collection costs of $50- 56M in Table 15? If not, explain exactly who is included in this Phase 1?

The phasing plan identified in our Technology Selection Technical Memorandum was developed as a scenario simply to allow us to develop a life cycle cost scenario. Phase 1 provides for all of the existing communities and a proportion of development flows. Refer to tables 1 and 2 in the Technology Selection technical memorandum for definition of Phases (see below). This represents one of many scenarios for Phasing depending on Planning and Financing.

Table 1 – Wastewater Treatment Plant Construction Phasing

Phase	Capacity (m^3/d)	Allocation to Existing Population	Allocation to Growth Population	Forecasted Year of Construction
Phase 1	4,780	60%	40%	2020 – 2022
Phase 2	2,390	0%	100%	2028 – 2030

Table 2 – WWTP Phases of Construction and Population Served

	Phase 1	Phase 2 / Full Buildout
Total WWTP Capacity (Average Day Flow)	4,780 m^3/d	7, 172 m^3/d
Residential Population Served	8,864	14,559
Equivalent Population* Served	12,893	18,873

*Equivalent population captures contributions from commercial, institutional, and industrial sources.

24 Re "Two Treatment Plants Alternative report" stated $30.9M capital cost for one plant. Is it then correct to add $52.2M for the Collection for a total for $83.1M? Similarly, the Full Build Out scenario one plant was costed at $60.6M (plus the $52.2M collection) for a total of $112.8M. Is this accurate?

The two treatment plants scenario represented a comparison between one plant and two plants and was completed prior to the more detailed assessment in the Class EA Phase 3 Technical Memorandums. The costs in the Phase 2 memorandum concerning the two plant scenario, should not be used in the Phase 3 analysis.

25 What is the approximate cost per existing property owner today to receive servicing, over and above the hook-up costs, and how much can each property owner expect to pay monthly thereafter for servicing?

We have identified a range of potential capital cost contributions from the existing community and the development community in the Phase 3 analysis. We have also identified an average connection cost and ongoing operation and maintenance costs. These are outlined in the PIC boards and PIC presentation.

As noted during the PIC, Council has stated that the project to service the existing community will not proceed unless a substantial grant is secured. In addition, the Town can only fund debt up to a debt capacity that still allows it to fund other necessary works. The project team will issue a capital cost report to clarify costs and this will be incorporated into the Environmental Study Report.

*26 Cost per existing home owner as presented in council's presentation is $20-25K **for full build out** (14,400 people sometime in the distant future, without gov't funding). This is misleading.*

The cost to service the existing community is stated to be $50 - $60M. Does this mean for;

1550 connections would pay	*~$39,000/connection, or*
1800 units would pay	*~$33,000/unit, or*
2672 equivalent population	*~$22,500/equivalent*

The project team will issue a capital cost report to clarify costs and this will be incorporated into the Environmental Study Report.

27. Please outline the calculation for $20-25,000 per property in a full build out scenario of a 14,400 population?

While we refer to a residential population of 14,600± under the full build-out scenario, the cost will be further shared among industrial, commercial, and institutional properties. We have identified the equivalent population at full build-out would be approximately 18,880 which we equate to approximately 6,743 residential units (understanding that some units represent I/C/I properties)

The costs of the local collection system cannot be shared with new development, and can only be divided among existing/ infill lots (2672 units).

The costs are presented as a range due to a range of potential cost sharing opportunities between the existing community and developers. The extent of the "Collection System Trunk" may be negotiated with developers where opportunity to share infrastructure costs exists. i.e. cost sharing in system aspects with mutual benefit to the existing community and new development.

28. Joe Mullen's presentation to Council on January 26th stated the three main sources of incoming product to the STP is from Residential, Industrial and Infiltration.

- *Residential: Well covered in Ainley's reports*
- *Infiltration: Necessary in a TGF to ensure adequate mobility in the gravity pipes.*
- *Industrial: Not addressed in any of the reports. Impact on STP, MBR membranes, Should Industrial Wastewater be reviewed?*

Although the presentation did reference commercial/industrial flows, the technical memorandum does take these flows into account, though the estimate was based on industries that use nominal amounts of water or "dry industries." It is normal for municipal wastewater treatment plants to accept commercial/industrial flows. It should be noted that most municipalities pass sewer use bylaws that set guidelines on the quality of wastewater being discharged to the Municipal sewer system. Where industrial/commercial properties cannot meet the quality limits they must pre-treat their waste before discharge to the sewer.

30. No discussion in any of the reports on wastewater from Industry and the impact on the STP. How is the potential Full Build Out of 14,400 people affected by existing and future industry? Does it decrease the potential of the 14,400 population potential?

The 14,500± population identified in our technical memorandums is just the residential population. Flows from Industrial, Commercial and Institutional connections are provided for over and above the residential flows. Industrial flows have been provided for based on the lands zoned for industrial development in the present Town Official Plan as well as existing industrial areas.

Background notes

Re Population and Dwellings Census 2017

Based on 2016 Census, with an added 3% increase to accommodate any growth between 2016 and 2018, it appears Ainley reports 731 more in population (18%) and 261 more homes than what is reported in the Census. The # of people per dwelling is the same.

Incidentally the Final SSMP (table 2-1) in 2014 reports 1430 dwellings (in line with the census)

Assuming the Census report is correct: then Equivalent population units should be decreased by 731 (2672 -731 = 1941)?? therefore;

380L/dwelling/day x 2.60 people/dwelling x 1941 EU = 1917 m3/day as daily flow to STP (not 2842, a reduction of 32%)

Population and Dwellings 2016 Census

	Erin* +	Hillsburgh*=	Total	plus 3% growth	Ainley	Total
	Total	Villages	growth 2016-2018	Report	Town*	Rural
Population, 2016* 7668	2647	1124	3771	**3884**	**4615**	11,439
Population, 2011* 7182	2523	1065	3588	-	-	10,770
% Change 2011/2016*	4.9%	5.5%	5.1%		-	6.2%
(Population Growth) 516	124	59	183	113		699
Total Private Dwellings* 2808	1020	430	1450	**1493**	**1754**	4258
Population/Dwelling* 2.73	2.60	2.61	2.60	2.60	2.63	2.69
Population Density/Sq. Km* 26.4	656	384	544	-	-	38.4
Land area, Sq. km* 290.83	4.03	2.9	6.93		-	297.76

** as per 2016 Census reports:*

***Ainley's Septic System Survey Report** concluded that two districts; "South Erin" (partly outside of the urban core) and "Upper Canada Drive" (within the urban core), would not be serviced. These two districts represent ~143 homes*

Total homes in Urban as per this septic Survey:
Hillsburgh: 512 homes all in the Urban Core: 512 all Urban
Erin: 1339 (less 95 for NE Erin and ~100 in South E outside of Urban): 1204 in Urban
1716 in Urban

To be serviced as per this Septic Survey:
512 in Hillsburgh less 46 in Upper Canada = 466
1339 in Erin less 163 in South Erin less 95 in NE Erin = 1141
1607 ~ 109 won't be serviced

While we use the existing population as a guide, it is not the basis for determining potential wastewater flows from a community for infrastructure that will support the communities for many decades. We used mapping to identify properties that could generate wastewater flows.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]:

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on January 30, 2018. For convenience we have provided your comments, in blue, followed by our responses.

> *One question to be ready to answer on Friday may come from a few of my neighbours.*
>
> *Does the estimated cost to homeowners to simply hook into the system once built include the needed costs associated with decommissioning their existing septic systems? An estimate of $6,000 to hook up is a bitter enough pill to swallow if any added costs are piled on top to cover removing of existing tanks and/or pipes.*
>
> *What will the Town requirements be for the septic systems?*

The average cost quoted includes a cost to make the existing septic tank safe by filling it with sand. If the property owner wanted to remove the tank or existing pipes to reuse the area that would be at their additional cost. Ensuring that existing systems are made safe would be the only requirement of the Town.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]:

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on January 18, 2018. For convenience we have provided your comments, in blue, followed by our responses.

> *We have just learned that a proposed sewage pumping station is planned next door to our home on Waterford Dr. This location is a house-sized lot, immediately surrounded by about 7 homes on the street. While we realize this is a low elevation point in the neighborhood and a candidate from that perspective, we were stunned by the choice given the proximity.*
>
> *My recent research on the subject shows that even modern and small-sized sewage pumping stations contribute to noise and odor from distances far further than this lot can accommodate.*
>
> *Putting the potential noise and odor aside, there is a also a known, negative effect on property values in proximity to such stations. Even if it is working "perfectly", prospective buyers will avoid such homes. The loss in value is significant, based on the informal queries I have to agents in town thus far.*
>
> *Question 1: Given the known impact on property values of nearby sewage pumping stations, has the town set aside funds to compensate current homeowners for the decline in value?*
>
> *Question 2: It may be too early, but what expectations have Ainley given around sewage pumping station impact? Can we continue to have quiet enjoyment of our properties, or must we suffer through "occasional and moderate" odors deemed acceptable?*
>
> *We LOVE living in Erin, and have chosen it as an ideal location to raise our children. We respectfully beg the council to reconsider the sewage pumping station location and/or consider an alternate method entirely, especially for homes with new septic systems.*

On Jan 19, 2018 we provided the following response:

We will respond fully in writing as soon as we can and perhaps we can also meet either before or after the PIC or on site. There is some flexibility in the location but we would have to discuss this further with the Town so as to minimise interference with the stormwater pond.

Below is the conceptual drawing in our pumping stations report.

Further to this you provided additional comments as follows:

Thanks for the quick follow up Gary, it is much appreciated.

As per my initial mail to our council, the chief concern for nearby residents are odor and noise. I'm not clear on the noise piece, but I have seen several references to odor issues for such installations. I would welcome the opportunity to learn more about the station, how it operates, and what residents can expect.

On a related note, are there any published recommendations re the proximity of such stations to homes? I cannot find anything, and to be honest this placement seems very close.

Lastly, I think you can appreciate that this station won't exactly add value to the surrounding properties. That's outside the scope of the project as far as you're concerned, but I hope you can sympathize with our concern here.

Would it make sense to set up a time for a call? I'm around next week if that suits.

We understand the concerns you express regarding the proposed location of the Waterford Drive Wastewater Pumping Station. The proposed location is at the natural low point in the subdivision to which all wastewater can drain by gravity. At this time, we are proposing that it would be located in the road allowance next to the edge of the storm water management pond and approximately mid way between the two adjacent homes. This station would only service a limited number of houses and will be quite small.

The station would be underground with a circular concrete structure about 18 inches above ground and also a control panel (similar to a ground mounted transformer or a Bell panel). The appearance of the control panel can also be mitigated with architectural controls so that it blends in with the local environment. It would be landscaped to minimise impact. Exact siting will depend on constructability issues, creating access for maintenance, and preserving mature trees and streetscape, however we would envisage only a very small visual impact on adjacent homes. For this size of pumping station there would not be a standby generator, as the Town would plug a portable unit when needed.

Locating sewage pumping stations in subdivisions is very common. Many would be located far closer to houses than the one proposed for Waterford Drive. Odours are not common from sewage pumping stations and there are mitigation measures available to deal with potential odours such as carbon filters. The pumps would be submersible type and unless you were standing over the station with the hatches open, it is unlikely you would hear them in operation.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]
Trustee for Town of Erin, Guelph Eramosa and East Garafraxa

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]:

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received. For convenience we have provided your comments, in blue, followed by our responses.

I am unable to attend the Town of Erin Waste Water Plan Meeting on Feb. 2nd. However, I would like to get out the following message. Please let me know where I might be able to publish it.

"As the School Board Trustee for the Town of Erin; and someone who wants to see our schools and community thrive, I firmly believe that we need sewage capacity that will enable growth – and from my perspective, the quicker, the better.

Without waste water treatment and vibrant growth, we leave 409 student places empty which very likely will result in the closure of a school. According to the Board's recent Long Term Accommodation Plan Review, the school aged population dropped by 500 students in the last 10 years and this decline is expected to continue.

Today the capacity of our three elementary schools is nearly 1200 student places; yet we only have 840 students. Without growth we can only expect further decline.

With waste water treatment and early growth, our schools can be saved. Population and student projections suggest that in 10 years all three schools could have healthy populations with 1,065 of the 1,180 pupil places full. And by the year 2036 additional school capacity might be required.

Right now, as we discuss if we want growth in our municipality, the Upper Grand District School Board is developing a Long Term Accommodation Plan (LTAP). It involves a strategic review of our schools, population projections and enrolment forecasts. It is an essential process in a commitment to fiscal responsibility to taxpayers and academic achievement and wellness for our students. I hope you attend the consultation meeting on Feb. 28th at Erin Public School at 7 pm to have your say on the future of schools in the Town of Erin.

In your discussion tonight, I hope my fellow citizens will chose to build a vibrant and growing community with the same small town, rural character we all want, rather than the status quo which can only lead to further decline. Families choose communities with vibrant flourishing schools. Choosing growth and thriving local schools can only lead to the kind of community we all want."

Thank you for your letter regarding the School Board situation in Erin. Your letter was read out by the Mayor at the Public Information Centre (PIC) on February 2, 2018 and will be included in the public contact materials within the Environmental Study Report. Our project team has consulted with the School Board and being part of the Agency distribution list, we have also sent all of our project materials to the School Board for comment.

Following completion of the Class EA, the Town intends to conduct an Official Plan Review process to address the issue of growth more specifically.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

CONSULTING
ENGINEERS
PLANNERS

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]:

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 2, 2018. For convenience we have provided your comments, in blue, followed by our responses.

> *As residents of the Erin Village, my wife and I are baffled as to the reason why this process is continuing to move forward.*
>
> *Why spend such atrocious amounts of money, to be literately flushed down the drain, to replace a simple, working system with a huge, complex, expensive system.*
>
> *Not to mention the environmental issues. A treatment plant will create tons of pollution, vs the absolute ZERO impact from individual septic disposal.*
>
> *Other than future growth, I'll get to that in a sec, what is the actual reason to go off of individual septic?*
>
> *For growth opportunity, no one wants the cookie cutter subdivisions in our community. Look at all the other areas around us, like Brampton and Orangeville. Its terrible.*
>
> *To help grow the community, we should concentrate on the built up areas just south of town off of Armstrong. Medium lot homes, with septic. These not only have a smaller impact on the community, keeping the "CHARM" intact, but also, statistically, bring in a higher income group of home owners.*
>
> *Are there any residents actually pushing for central disposal and treatment?*
>
> *I heard there is pressure from the Province to make this change.*

The need for Municipal wastewater servicing solution for Erin and Hillsburgh has been an issue for many years and has been the subject of past reports, many public meetings, and is driven by a number of things including, the limitations on the Town being able to prosper, without continued growth. In addition, existing septic systems can have a determinantal impact on the local environmental if not properly maintained and/or depending upon the local ground conditions. The Settlement and Servicing Master Plan (SSMP) completed in 2014 recommended a communal wastewater system for both Erin Village and Hillsburgh with a treatment plant and discharge of treated effluent to the West Credit River south of Erin Village. This Class EA study follows on from that recommendation and involved a more detailed evaluation of the existing septic systems and the proposed service area. This work essentially confirmed the SSMP recommendation for a communal system servicing both communities. The evaluation of existing septic systems and recommendations for the service area are included in reports on the project website. The results of these studies were presented to the public at a Public Information Centre (PIC) in June 2017. Following on from this PIC, the study moved on to define the best technical solution for the communal system and this is what was presented at the February 2018 PIC. As a result of these studies and consultation with the Ministry of the Environment and Climate Change (MOECC) as well as the Credit Valley Conservation (CVC), a very high quality of treated effluent is proposed for discharge to the river to minimise any negative impacts. We are confident that the recommended solution provides the best environmental solution for wastewater for the communities.

The Class EA study has also identified a wastewater treatment solution that provides the opportunity to service a residential population to just over 14,500 persons, which would allow servicing of all growth areas designated in the Town's present Official Plan while maintaining river water quality. If the Wastewater Class EA is successfully completed, it will remove wastewater as a restriction on community growth servicing lands delineated in the Town's Official Plan. At the present time the County of Wellington has not allocated this level of growth to Erin. In addition, a parallel Class EA is ongoing to identify potential water supply sources to support future community growth. When the servicing limits for water and wastewater are established, the Town intends to complete an Official Plan Review process in consultation with the County of Wellington, that will define community growth. The MOECC and CVC have both been consulted throughout the Class EA process and have indicated their support for the recommended solution. In addition, CVC have indicated that they are not in favour of further subdivision development using septic systems.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]:

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 3, 2018. For convenience we have provided your comments, in blue, followed by our responses.

If the town is concerned pump out the tank and fill it in with sand and gravel. That to me is enough extra cost.

Sent from my iPhone

Greetings All,

One question to be ready to answer on Friday may come from a few of my neighbours.

Does the estimated cost to homeowners to simply hook into the system once built include the needed costs associated with decommissioning their existing septic systems? An estimate of $6,000 to hook up is a bitter enough pill to swallow if any added costs are piled on top to cover removing of existing tanks and/or pipes.

What will the Town requirements be for the septic systems?

As a result of discussions with the Public Liaison Committee, the team increased the average cost of connecting the future wastewater system to $6,000 to provide for filling the existing septic tanks with sand to make then safe.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 2, 2018. For convenience we have provided your comments, in blue, followed by our responses.

> *1. Why is the Credit Valley Conservation Authority (CVCA) findings being ignored?*
> *In a previous EA the CVCA produced accurate findings that specifically stated limits for the number of homes allowed for growth. I recognize that it was based upon "septic system" residential units. However, one overflow or malfunction of the proposed sewage treatment facility would more than exceed any limit of contamination deemed acceptable by the CVCA.*

We are not familiar with growth limitations set by CVC. The Class EA team has been in constant contact with CVC throughout the study. Through communications with CVC, we do understand that they are not supportive of future subdivisions using septic systems within the study area due to the cumulative impact of the systems on the natural environment and are supportive of the communal solution recommended in the Servicing and Settlement Master Plan completed in 2014 and the work completed through this Class EA to date.

We recognize the concern over spills to the river and will address this issue in our Environmental Study Report.

> *2. Orangeville has experienced a number of "overflow" and "malfunctions" that resulted in raw sewage being dumped directly into the Credit River. This has all but destroyed that section of the Credit River. In the event of a dumping of raw sewage into the Credit River, who would be held liable for the action and all costs related to the conditions created? Who could be charged and fined? Are those probable costs being considered?*

Spills or by-passes from Wastewater treatment plants involving raw sewage and can occur for a variety of reasons including equipment or pipe failure, loss of power or during storm events, but are generally related to older collection systems and/or wastewater treatment facilities. In designing new wastewater systems today, we are more aware of the risks and impacts of spills and design to minimize these risks using a variety of design solutions. All systems are designed with back up equipment and power to prevent spills.

The wastewater system would operate under an Environmental Compliance Approval (ECA) issued to the Town by the Ministry of Environment and Climate Change under the Ontario Water Resources

Act. This act provides for fines and charges for failure to meet the terms of the ECA. The Town will be responsible for the safe operation of the system in the same way as it is responsible for the supply of clean drinking water under their Water System Permit.

> *3. What measures will be taken to ensure the proposed treatment facility will be able to contain any malfunction or potential overflow situations? This is real possibility with the flooding that has been occurring in this area in the recent past.*

The wastewater system will be completely separate from the storm water system. However, it is anticipated that there will be some inflow and infiltration into the wastewater system during rainfall and storm events and this is taken into consideration in the design of the system. Typically, wastewater systems are designed to handle peak flows. Pumps are designed with sufficient standby capacity at peak flows and provisions are made for operation under loss of the prime power supply using standby power.

> *4. All of this has come about due to Developers wishing to come in to the community, make a profit and leave the current and future residents contending with the residual operating costs, maintenance costs and problems that will arise. Their Building Permit fees will never come close to offsetting the costs incurred. Where is this being addressed in the costing for this undertaking?*

The need for wastewater servicing for Erin and Hillsburgh has been an issue for many years and has been the subject of past reports and a number of public meetings. The Settlement and Servicing Master Plan (SSMP) completed in 2014 recommended a communal wastewater system for both Erin Village and Hillsburgh with a treatment plant and discharge of treated effluent to the West Credit River south of Erin Village servicing a population of 6,000. The intent of the project as outlined in the SSMP was primarily to solve the wastewater servicing issues in the existing communities. The present Class EA has identified an opportunity to service a residential population to over 14,500 while maintaining river water quality. As such, the study essentially removes the restriction on growth imposed by a lack of a wastewater solution. Subsequent to the Wastewater Class EA, the Town intends to conduct an Official Plan Review process to confirm the level of growth for each community. Based on the outcome of this process, a cost sharing plan would be developed between the Town and developers. Developers will be responsible for paying their full share for wastewater servicing. It is anticipated that this cost sharing plan would reduce the cost to existing residents. The Town will also collect development charges under the development charges act to ensure that developers pay for all growth-related costs of the overall project.

> *5. There does not seem to be a full disclosure of what the current property owners will be required to do with their existing septic systems and potential alterations as to be able to connect their property to the proposed system.*
>
> *How do the elected politicians and those performing the EA expect a property owner to fund anything related to this proposed undertaking without those costs being investigated and reported?*
>
> *Subsequently, how do they feel about spending such a large sum of other people's money without a mandate to do so?*

The team has presented an average cost of $6,000 to connect to the proposed wastewater collection system on private property. This cost allows for filling the septic system with sand to make it safe. Should property owners wish to remove the tanks and/or tile bed pipes as part of future development of the property, this would be an additional cost to the property owners. It was also stressed that this is an average cost and that connection costs would vary depending on the size of the lot and site elevations. As a result of comments received during the public consultation process, additional costing information will be included in the project financing report.

The Town has indicated that the project to service the existing community will not proceed without a substantial government grant and that the residual cost to the Town must be within the debt carrying capacity of the Town while considering all other debt requirements.

> *6. It was my understanding that this existing Mayor and Council had been mandated to move in a direction to operate with a balanced budget. This proposal will put the Town into a massive debt with no indication of what the "actual" costs will be and what the property owners can attempt to budget their money for. It has been stated that the Town will need to seek funding to proceed with the proposed project.*
>
> *Who will fund the property owners and at what cost? Keep in mind that no one can be forced to go into debt. This potentially involves the Charter of Human Rights.*

As noted above, the Town has indicated that the project to fully service the existing community will not proceed without a substantial government grant and that the residual cost to the Town must be within the debt carrying capacity of the Town while considering all other debt requirements. Based on comments received during the latest public consultation process, the project team will address the issue of potential costs in more detail through issuance of a project financing report.

> *7. Lastly, (for now as I need to get back to work to start making a lot more money to stay living in Erin) why has this whole issue not been put into a referendum vote?*
>
> *The Town of Erin may wish to start planning for an uprising and loud protesting that will also be heard through the walls of the Ontario Municipal Board and Queen's Park. I would like to believe that the current council can have the strength to stand up for the people that voted them into office and not be "bullied" by any outside sources such as the Developers and those mentioned above.*

Implementing Municipal Water and Wastewater Projects in Ontario is subject to compliance with the Environmental Assessment Act. Provided Municipalities comply with the Class Environmental Assessment process for Water and Wastewater, the project is considered approved and may move to the implementation phase. Compliance with this Act is necessary in order to apply for and secure government grants. As noted above, the Town has indicated that the project to fully service the existing community will not proceed without a substantial government grant and that the residual cost to the Town must be within the debt carrying capacity of the Town while considering all other debt requirements.

Further, we received the following additional comments on February 26, 2018

> *To the Elected Council of Erin, Ainley and Associates Ltd., and the Residents of Erin*
> *Re: Urban Center Wastewater EA - Class Environmental Assessment (Phases 3 & 4)*
> *This letter is being submitted to bring forth a number of concerns regarding the recent February 2nd, 2018 Public Information Centre #2.*
>
> *It is quite apparent that the firm Ainley and Associates Ltd. have taken great care in preparing a presentation for the residents and property owners within in this community.*
>
> *However, upon closer review of the presentation panels a number of concerns have been raised.*

1/ The manner and time in which the presentation was given for public review was not conducive to allowing the public adequate time to fully review and understand the content of each of the panels.

The content required close study and examination of the supposed facts being presented.

Information presented at the February 2, 2018 Public Information Centre (PIC) was based on background reports presented to Council on January 10, 2018 and made available on the project website from January 11, 2018. All of the materials from the PIC including the display boards and presentation, were made available on the Town's project website within two business days of the PIC and the public had until February 28, 2018 to provide comments.

a/ First, the "average cost" for a property owner to connect to the proposed wastewater system being averaged at approximately $6,000.00 is very misleading. There was no offering as to qualifying how this amount was determined.

Upon questioning the employee of the Ainley Group, Mr. Gary Scott, responsible for this aspect of the project and the presentation panel it was learned that a "drive about the town" was the approach used to develop estimations for existing septic system locations. A "database", of unknown origin, was then used to develop the figure presented. This does not provide and accurate assessment.

This aspect of the study needs to be completed in a manner that would require a minimum of 4 septic systems per 100 meters per side per street located to determine what would be required to connect to the that part of the proposed system. In addition, proper quotations from a qualified licensed sewer contractor would be required. This would then provide the Ainley Group with more accurate information that would ultimately be presented to all concerned. This is part of the project that should be completed and covered in the cost to produce a complete and thorough report.

As explained during the PIC, a detailed survey of the community was undertaken and connection costs established for a range of different lot sizes and landscaping scenarios. It would be unrealistic to obtain quotations from qualified contractors given the significant number of properties and the fact that each property is unique and different. However, it is recognized that the number reported is an average cost and that the costs to connect all the lots will vary. Information on the costing of connections was included in the Septic System Survey Technical Memorandum and will also be part of the project financing report. It should also be noted that the costs for the installation of each individual service lateral up to the municipal property line have been included in the overall Town construction costs.

b/ Second, the "full cost" of the proposed wastewater system was not presented in a format that showed the "actual initial/total cost". It has not been made clear as to how the proposed system is to be built and funded. Is there an intention to build a system that is capable of handling the existing as well as the "proposed" future development or is the intention to build a system that will accommodate only the current requirement and expand at as required in the future?

This leads to questions as to how can any projected costs be presented without adequate "proposal costs" and how can funding be even counted upon at this present time?
Have there been meetings with businesses that are interested in developing land with "our" decision makers outside of the proper protocols? If so, where can the details of these meetings be found and made transparent? If not, how did the Town Council determine that "developer participation" was something to be relied upon?

All of these questions need to be answered and disclosed in the proper manner.

To date the project has focused on identification of the recommended preferred technical solution. This was presented at the February 2, 2018 PIC. The Class EA is focused on presenting a technical solution based on full build out of the Town's Official Plan limits servicing a residential population of 14,600± persons. The $118 million total cost to achieve this was clearly presented by the project team. The scope of this servicing cost was also clearly presented and includes all costs to service the existing community and to service all developments excluding the cost of sewers on each developer's lands. Considering that the planning approvals for the potential developments are not yet in place and considering that potential government grants cannot be secured until the Class EA process is completed, it is not possible to identify an exact share of the total cost for the existing community. Given all of the many implementation scenarios, the project team identified a range of cost sharing between the Town and developers wherein the Town's cost share was estimated to be between $50 and $60 million and the developer's cost share was estimated to be between $58 and $68 million. In addition to this, the Town has indicated that they are not in a position to finance a project between $50 to $60 million and that a grant would be required to reduce the Town cost (and the cost to residents in the proposed service area) within the Town's debt carrying capacity.

Depending on financing, the first phase of the implementation may include all of the existing community or only a portion of the existing community. It may include a growth component based on the existing County growth limit or it may include an increased growth component if this has been approved through all of the required planning stages.

Based on comments received during the public process, the team intends to clarify costing in a project financing report.

There have been no meetings between developers and the project team during this Class EA except related to use of sites for potential facilities.

c/ Potential optional funding to property owners was not placed in an manner that would have been easily reviewed. The panel that did indicate that the "Town" could be able to offer a "loan" to property owners to assist with sewer connection costs was very difficult to find and understand. It did suggest that the Town could loan each property owner the funds needed to connect however, without adequate existing internal funding and without a more realistic assessment of actual connection costs and the number of property owners that would be obtaining the funding, the Town cannot have qualified information to determine just how much funding this Town would require. In addition, terms of such loans being available were not disclosed in any manner whatsoever.
Why Not?

Display materials and the presentation indicated what the cost elements would be and who would pay for each component. It was indicated that the Town would finance the construction of the system to the municipal property line of each property and that this could be paid by property owners to the Town either in a lump sum or through a loan paid over a number of years. It was also indicated that the connection cost from the municipal property to the buildings, on private property, would be paid directly by the Owner to the company they choose to make the connection.

Based on comments received during the public consultation process, the project team recognizes that a clearer picture of the potential costs to residents needs to be presented and this will be included in the project Financing Report.

2/ The lack of full disclosure of other options concerning a wastewater management system was not presented at all.

*In a brief discussion with the Town's Project Manager, it was disclosed that a presentation had been made by Simpson Environmental Corporation, http://www.senvc.com/. This business was **not** approached by Ainley to introduce their option for a "normal" wastewater treatment facility. Simpson Environmental approached our Town! The successful technology now exists for converting wastewater into energy and limiting - if not eliminating - effluent being dumped it our water resources - in this case the Credit River.*
Why was this state of the art technology dismissed? How much investigation into the true potential and limitations - if any - were made prior to just saying "no". Where is the documentation as to why this would not be feasible for Erin?

A comprehensive range of potential wastewater treatment solutions were identified and evaluated.

During Phase 2 of the study, members of the project team met with Transition Erin to discuss alternative solutions. Transition Erin brought Simpson Environmental to the meeting. Simpson Environmental discussed the use of several specific technologies during the meeting all of which were known to the project team. At the time of the meeting, Simpson Environmental were not aware of the effluent limits to be met by the proposed treatment system and did not appear to be aware of Ontario Ministry of the Environment and Climate Change regulations. Subsequent to this meeting, there was no discussion with Simpson Environmental. While a number of equipment supply vendors were consulted during the evaluation process, it is important to note that the recommended solution is not vendor specific and all of the components of the recommended solution can be supplied by a number of vendors in order to obtain competitive bids. The project team is confident that a comprehensive treatment technology evaluation has identified the best solution for Erin. The recommended solution utilizes the latest proven technology that will safeguard river water quality.

3/ Lack of funding available to the Town of Erin.
It is being made perfectly clear that nothing can move forward with the community having to convert to a sewage treatment system without major funding be secured from all levels of government and putting the community into using up most if not all of its debt carrying capacity. That is just for the sewage treatment aspect of this consideration. Where will the Town's funding come from to cover the costs for the property owner to connect? Refer to Item 1c. This will be over and above what outside funding would be available?
How can this entire project in every aspect of cost to the Town and to each property owner even be considered without knowing how it is to be financed ahead of spending any more of all of the tax payers of the Town of Erin? This includes both rural and potential "serviced" tax payers.

The Town will require a substantial level of funding before the project to service the existing community proceeds. In order to secure funding, it is necessary to complete the Environmental Assessment Process. Any government grant would help to pay for the cost of the treatment system and collection system up to the street line of each property.

As discussed during the PIC and as outlined above, the cost to connect to the communal system from the municipal property to the buildings, on private property, would be paid directly by the Owner, with no financing assistance from the Town.

4/ Lack of adequate time to allow the public to express their concerns at the February 2nd PIC. The purpose of the PIC, as stated in the procedure outline, is to gather public comment and input to be used to make educated decisions. This meeting did not allow a "full public" forum for all voices to be heard. This is not acceptable. As many Council meetings run overtime, this important public meeting should have been allowed to continue on so as to provide the *opportunity to address the concerns of each of those persons that wished to do so and accomplish the goal of the actual and required intention of the public forum.*

The moderator failed to provide the time necessary for all to be heard and did not offer a reasonable alternative to give everyone their right to speak in the venue at that time. This is a breach of protocol.

What is being done with the information and concerns that was stated and when can the public expect to have a reply to those that were allowed to speak and/or question the information being presented?

The meeting ran to schedule based on the published times, and in fact the project team continued to answer questions from members of the Public during the teardown of the room (proxy another 30 to 45 minutes). Time was provided before the presentation for one on one conversations with the project team and the presentation was kept as short as possible in order to maximize the time available for questions. Every effort was made by the moderator to give everyone a chance to ask their questions.

All of the written comments received will be responded to.

5/ Forced connection?
No one can be forced by any level of government into unwanted debt of any sort.
No level of Government (or Municipal Board) has the power to "force" any resident or home/business/property owner to go into debt or place a lien on a property for the adding of an unwanted or unwarranted service. Therefore, the Town would have to be prepared to bare the entire cost of a sewage treatment installation, property to service connection and the ongoing operating and maintenance costs without adding any costs to the property owner(s). This includes not increasing property taxes as a result of the unwanted service(s).

After the the Class EA is successfully completed and if the Town is able to get Provincial and/or Federal funding such that the remaining portions can be financed within the Town's debt capacity, then the Town would be in a position to proceed with the project and to pass a mandatory connection by-law for the intended service area. The Town does would have the authority, under the Municipal Act, to require properties to connect to a Municipal water/wastewater system within a specified period of time; however, the Town would host public meetings at that time in relation to the connection time frame and payment options available to and property owners.

Infrastructure projects of this nature can only be funded, completed and sustained over time if all benefiting properties pay their share of the project cost.

Furthermore, no developer should be able to come into a community, set up a sewage treatment plant - for their own profitable purposes - and walk away leaving behind a situation for the community to contend with. There needs to be safeguards put into place to ensure this scenario cannot happen - here or anywhere.

Unfortunately, this would become a class action legal battle that would devastate the entire community.

One of the important considerations for this Wastewater Class EA is that the Town is retaining control of the process. Subsequent to the Class EA, the Town intends to complete an Official Plan Review process that will define the limits and amount of growth. The wastewater system will likely be jointly funded by the Town and developers and it will be important to the Town that the developers pay their fair share. It should be noted that the average capital cost to each serviced property goes down as the number of properties increases. In addition, the operational cost of the system for each serviced property goes down as the number of properties increases. Clearly the Town needs to take maximum benefit from sharing costs with developers.

6/ It would seem that the thought process for future development of the Town of Erin is flawed. Somehow the concept of having a sewage treatment facility would have businesses “consider” moving into the area and that would then entice more people to “consider” relocating to Erin is leaving too much to chance. We can examine a few current examples that show this thinking to be invalid.

a/ Georgetown RV recently relocated into Erin. This long existing business found their new location and based that decision upon many factors. However, upon arrival they were being denied an “occupancy permit” if they did not send over $30,000 to connect to the “town water”. This was required even though the property has a fully functional and clean well. This business began facing challenges that were not expected and certainly seemed to be unnecessary.

b/ Within the recent past the Simms Corporation purchased and renovated and moved its entire manufacturing operation from Malton to Erin. This was done in spite of having a septic system and related costs.

c/ The Canada Wire building was on the market for less than a year and has now been sold and will be the home to another manufacturing business.

d/ A lot on Thompson Cres., is being prepared for a new business facility. This indicated yet another business is willing to come into this Town even with having to operate with a septic system.

All of the above is “fact” - not supposition.

It would be worth considering developing a “limited” housing development program that would provide for “affordable family housing” to bring folks into the community first, fill the job openings that are continuously being advertised within the area and potentially address the declining school enrolment issues.

As an alternative, it may be worth considering being “business friendly” and developing programs and tax reduction incentives to bring business into the Town that will cost far less than a sewage treatment plant and not have ongoing long term operating expenses.

These important considerations should be addressed during the Official Plan Review which will take place following completion of the Wastewater Class EA.

7/ The EA does not take into consideration or mention that 1 day of having the proposed sewage treatment plan malfunction, for whatever reason, that there would be more “raw sewage dumped” into the Credit River than the would be over the next 100 years by having the existing and plus another 300 septic systems maintained properly or upgraded as needed. The chance of a malfunction occurring is something that needs to be addressed. Orangeville has had numerous sewage overflows occur and huge costs related to those overflows. The damage to the river and its’ inhabitants is done.
No where is the presentation was there any indication of how the inevitable overflow can be prevented. This needs to be addressed.
This leads to question as to why proceed with something that has more chance of issues and failure and costs than the current conditions have?

The wastewater system proposed for Erin will be a new system completely separate from any storm water system including roof drains or sump pumps. However, it is anticipated that there will be some inflow and infiltration into the wastewater system during rainfall and storm events and this will be fully taken into consideration in the design of the system. Overflows from wastewater systems that are separate from storm water systems are extremely rare. Overflows from older systems with interconnections to surface or storm water systems are more common. All wastewater systems are designed to convey peak flows and have reliability built in through spare pumping capacity and standby power. Storage capacity in the system can further enhance security. In designing new wastewater systems today, we are more aware of the risks and impacts of spills and design to minimize these risks using a variety of design solutions. The requirements for system security to prevent potential spills will be fully addressed in the Environmental Study Report.

8/ The presentation does not take into account the value of what this community has been built upon and what will happen to the way of life the residents and property owners have. There will be a substantial disruption to the community's day to day living throughout the entire process and ongoing operation of the wastewater system. There will be more trucks, more noise, more pollution, more taxes, higher housing costs and more problems related to finding funds to operate the Town. All of the estimates in the report are based upon supposition. No persons have been asked for their value of having to hear an exhaust system running 24/7 beside their home. No one has been asked if they believe the value of their decision to locate in Erin will be compromised by the development being proposed. Why not?

In terms of growth, as noted, following the wastewater Class EA, the Town will undertake an Official Plan Review process and this public process will define how the communities will grow in the future. While the Wastewater Class EA will remove the restriction on growth up to the level in the present Official Plan, it is not about defining growth. It is an approach to community planning to define infrastructure servicing limitations before setting growth targets.

In terms of disruption during construction, it is recognized that there will be short term disruption on each serviced street and this will obviously need to be kept to a minimum in terms of residential and commercial activities. This disruption will be short lived and for any given street will involve work for only a few weeks. It is not anticipated that there would be any lasting impact on residents beyond the construction work.

9/ It appears that there has not been any true and qualified justification for this development of a sewage treatment system other than if the Town does not do it a "developer" will somehow force it upon the community.
What is fact is that a number of developer businesses, that are interested in creating profits for themselves, started to buy up land in this area over 20 years ago and are now poised to reap the benefits of developing land for profit and leaving the community to live with the aftereffects and related costs in the following years.

The project was initiated by the Town to address the issues within the existing community. The Settlement and Servicing Master Plan (SSMP) completed in 2014 addressed the servicing needs within the existing communities and based on an evaluation of existing septic systems, it recommended a communal wastewater system. Following the SSMP, this Class EA process commenced in 2016 and based on a more detailed assessment of existing septic systems, it confirmed the recommendation in the SSMP. The primary driver of this project has always been resolution of the wastewater servicing restrictions for the existing community while also facilitating needed growth. This Class EA process has also shown that it is possible to service all of the lands designated for development in the present Town Official Plan. This provides the opportunity to partner with developers to reduce the cost of the system to the existing community.

In closing, as part of your information gathering requirement and collection of public opinion I strongly suggest that the Ainley submission be considered incomplete at best, but more likely flawed in a number of ways as above and therefore ask for the Town to go back to the beginning and let the property owners decide how to proceed from this point on.

Based on the comments received during the Phase 3 public consultation process, the Class EA will proceed to document the entire process in an Environmental Study Report (ESR). Following approval of Council, the ESR will be subject to a formal 30-day Public Review Process.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]:

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your February 5, 2018 comments which were received by Council. For convenience we have provided your comments, in blue, followed by the responses that were already provided by Councillor Brennan.

As a result of last Friday's Public meeting on sewage, could each of the Councillors respond to the below questions:

1. *The town will spend close to $2 million of taxpayer monies for the water and wastewater studies. For a small town, this is significant and could have gone to roads, recreational facilities etc. Why did we not have the developers cover the cost as I do recall that this was an option with Solmar back in 2014. Their participation would create risk for them but the reality is they will have the potential to walk away from our town making over $100 million (make about $50k per home). We are already a highly taxed jurisdiction, why add such high unnecessary costs?*

To date the actual spend is much closer to $1.35M. The EA will help Council to ultimately decide whether or not to proceed with the creation of a wastewater treatment system. It is impractical to expect a developer to be impartial in the process. A decision to not process with a waste treatment facility would mean that developers will not realize the full value of their developable land. It is important that the Town operates in the best interest of the community – and this is best achieved by retaining full control of the studies. Moreover, these studies are absolutely necessary to obtain any kind of funding to help pay for the facility. To stop now would be to throw away the investment already made.

2. *The SSMP stated that over 100 homes could be hooked up to water immediately and 100's more could in the future. Why has Council not made this happen as the cost of water in this Town is ridiculous*

It was the decision of a previous Council not to incur the significant costs related to ripping up our roadways twice; not to mention the inconvenience and disruption that residents would experience.

3. *Taxes are a burden on our Town. Water rates are extremely high. Now you are thinking of piling on with wastewater costs to users. The Mayor stated that one of his primary goals was to increase the industrial and commercial tax base to help out residences. Has this happened?*

Town of Erin tax rates are actually lower than every municipality in Wellington except Guelph-Eramosa where they are almost the same. In fact, the 2018 Town budget was the lowest throughout the County. Comparatively speaking, Erin ratepayers pay less tax either of the towns of Caledon and Orangeville. Obviously, the blended rate increases the final number beyond what is set by the Town, Where we have a higher total is when the blended rate is applied. Unfortunately, the Town does not benefit from a massive industrial/commercial base driving the budget of the upper-tier (like Caledon) which benefits the lower-tier. Additionally, the Dufferin load is much higher and Orangeville taxes are much higher than Erin. The goal of this Council is to increase the industrial/commercial ratio in Erin is largely dependent upon the ability to service new growth and development.

4. *I think it is important for residences to understand that a 0.50% town of Erin tax increase for 2018 is not real. It excludes property value increases by MPAC. So, to be clear, if my property value goes up 4%, the town of Erin will get increased taxes of the 4% and 0.59% totally 4.50%. Can you confirm this? I ask this as it will be incumbent on this Council and the next to ensure cost controls are in place and not just keep adding costs to residents like wastewater.*

I understand you point, however the MPAC value increases and decreases vary from property to property. Your value may go up 4%, someone else's may go up 2% or may even stay the same or decrease. The only constant we can refer to is the tax rate itself and over the past few years we have done a pretty good job of keeping that to reasonable increases. It is important to note that MPAC values are outside of the control of the municipality.

5. *The Mayor has been quoted as saying that wastewater is necessary for industrial growth. A couple of points here. Current industrial companies in our town have told me they do not care if they have wastewater or not. Why do you think that wastewater hookup will open us up to more industry , Erin is off the beaten path and there is huge capacity in the GTA?*

Economic development research indicates that the two main barriers we face are lack of servicing and unreliable highspeed internet. The wastewater EA addresses the servicing and we are working with Wellington County and the SWIFT network to address the reliable highspeed internet need. Diversifying our commercial industrial growth is not about business retention as much as it is about attracting new ones. We have data that suggests we are not competitive in attracting new businesses due to a lack of services. Our geographical location actually makes us more competitive as we are close to the GTA and transportation infrastructure, yet without the high real estate costs of major urban centres.

6. *Currently, our water bills are some of the highest in the province at 3.99 per cubic meter. Based on 225 litres per person per day, for a family of 4, that would mean a cost to that household would be about $1500 per year. By the way, the costs will keep going up to fix old infrastructure. Other municipalities generally show costs of wastewater to be higher than water but let's say it is equal. So you are saying a family home of 4 will pay about $3,000 per year?*

Much of the water infrastructure costs are fixed in the sense that adding users does not cause the same added cost therefore, as you pointed out in Question 2, more users will result in lower costs per user. With growth the per user water rate will decline. The wastewater operating costs researched by Ainley are quite solid and reliable.

7. *I understand why the Mayor has said that rural has to pay for the capital costs of about $55 million as well, as, without their financial help, it will be a huge burden on water ratepayers. Saying that it seems extremely unfair and unethical to have rural residents pay for something that they will not get a direct benefit from.*

Rural taxpayers have contributed to the EA costs as servicing will serve to benefit the town as a whole. Greater growth particularly improving the industrial/commercial will result in lower per capita tax costs. However, it is a well-established procedure that water and wastewater operating costs are charged to users only. That is why the financing of the water department is kept separate from the overall taxation. Where a rural contribution to operating costs would happen is in the ability to treat septage at the plant, charging a tipping fee. This tipping fee could be set higher that the tipping fees in Collingwood because local septic cleaning companies would no longer face the large cost of driving a full truck to Collingwood and coming back. At 3-4 loads a day capacity we could see close to a thousand loads a year, generating significant revenue for the municipality. Rural residents would see no difference in the amount they pay to have their septics cleaned out.

8. *Since they do not show total costs per household, then let's assume the cost to hook up is $10,000 for an estate home; annual cost is $1,000 as I think your estimates are low; and a resident has to pay $15,000 via a loan for capital cost. A 20-year loan at 3.5% would mean added annual cost of $1000. So that would mean that a resident could add to their water bill about $2,000 per year and come up with $10,000 up front. If someone borrowed that 10,000 hook up cost, a 20 year, 3.5% loan would add another $700 per year, leading to total additional costs of about $2700 per year. Our water is already expensive, how can you justify such costs to residents?*

Costs and the funding of those costs are a question for the next phase of the study. Without adequate funding partnerships from the provincial and federal governments the project is likely too costly to be undertaken.

We assume that the aforementioned information from Councillor Brennan provided the necessary answers to your questions.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

Ainley Group
CONSULTING
ENGINEERS
PLANNERS

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 3, 2018. For convenience we have provided your comments, in blue, followed by our responses.

Given the intensity of the passionate opposition on display at Friday's PIC wastewater servicing meeting, I wonder whatever happened to the notion that the downtown core of Erin Village might best be served with a small-scale localized system that would address the acute needs (of the downtown) and leave the less urgent situation of the suburbs out of the equation.

I do understand that the small-scale alternative seems to have been disregarded by the recommendations of the SSMP study, but I also recognize the emergence of a significant political base that (apparently) wants no part of the recommendations of the SSMP study.

I wonder, for example, what sort of localized sewage treatment system has been approved for the Kensington Square Development on the grounds of the old Public School. I wonder, as well, why a localized system can be deemed workable for Kensington Square, but not for the downtown core.

I am reminded of a conversation I had with a "consultant" of some sort who happened to be caught in the act of surveying in my backyard, perhaps three (?) years ago, who assured me that a large-diameter gravity-fed sanitary pipe could never be installed on Main Street because the disruption to retail businesses in Erin had been severe at the time the road was last repaved, and that such a disruption could never be allowed a second time.

The "consultant" (as above) assured me that the preferred wastewater option (at that time) was a small-bore pipe that would remove fluids only. This seemed to make eminent sense, given that the effluent from the buildings on the Main Street drains to the back, away from the Main Street. In my particular case (68 Main Street) there is a good ten feet of grade separation between the top of my septic tank and the sidewalk beside Main Street; this leads me to wonder if the proposed large-diameter pipe will be sunk deep enough under Main Street to allow a gravity-fed hook-up, or am I facing (quite literally) an "uphill" battle.

I share the scepticism expressed at the PIC meeting with what appear to be optimistically low cost estimates of individual household hookups, particularly as I am facing the ten foot grade separation (above) as well as removing and replacing an asphalt driveway which cost $6,000 to install in 2008.

As it stands I am disappointed with the Ainley report, which seems to be recommending a 19th-century century solution to a 21st-century challenge, and I am particularly disappointed in what appears to be a significant oversight in that the report does not include an economic impact assessment of the retail losses (irrespective of capital or hook-up costs) which are to be borne by the merchants of Main Street.

We fully recognise your concern and we do fully understand that a wastewater solution that allows Main Street to prosper is an important and significant objective of this Class EA.

The SSMP study did identify issues with the septic systems over the entire communities of Erin village and Hillsburgh and this has been confirmed during this Class EA. As a result, the Town is looking for a comprehensive solution covering both communities. In addition, this Class EA has identified an opportunity to service additional growth up to a residential population of over 14,600± subject to completion of an Official Plan Review.

During Phase 2 of this Class EA we were asked to look at a solution based on multiple treatment plants servicing different areas of the communities. Unfortunately, the extent of wetland areas throughout the communities combined with the lack of suitable subsurface disposal lands made this solution non-viable. The Ministry of Environment and Climate Change and Credit Valley Conservation continue to support a single treatment plant servicing both communities with a discharge of treated effluent to the West Credit River south of Erin Village as the best environmental solution.

The Wastewater collection system alternatives review looked at a wide range of potential solutions and selected a gravity based solution as the best long-term solution for the communities. The solution recognises the potential need for a low-pressure sewer solution for some properties. We are confident that the gravity/Low pressure sewer solution is in the best long-term interest of the Town.

In recognising the sensitivity of constructing a collection system within the main commercial area of Main Street and also the difficulty of connecting to this sewer on Main Street for all of the low-lying properties on either side of the street, Ainley has proposed a solution that constructs sewers to the east and west of Main Street. One sewer would connect Church Boulevard with Charles Street along the river side to the rear of all the properties and another sewer would connect Daniel Street through to Water Street on the east side of Main Street. While easements will be required from several property owners, this solution is significantly better for property owners in terms of connection costs and elimination of disruption/retail loss to businesses by digging up Main Street. Although this was displayed at the Public Information Centre, we would be pleased to provide additional detail.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]:

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 3, 2018. For convenience we have provided your comments, in blue, followed by our responses.

> *1) At your Friday February 2, 2018 public meeting at Centre 2000, there were no display boards presenting capital costs, operating costs and carrying charges for the selected scenarios. This would have provided taxpayers with an indication of the estimated costs they will have to pay for their new sewage collection and treatment system. The Mayor and Council were told on January 9 that the capital cost for Phase 1, collection and treatment, will be in the range of $50,000,000 to $60,000,000. Yet, according to our reading of your numbers in the detailed collection system and treatment plant reports, the Phase 1 preferred option for the collection system is $52,206,000 (not including the operation and NPV) and the Phase 1 treatment plant cost is $43,052,500. Hence, is it not correct that the Phase 1 capital costs for the collection and treatment system could in fact be $95,258,500? Could you please identify how you arrived at the figure of $50-$60 million as presented January 9 at the Council meeting, and verbally reported on Friday evening? What does this $50-60 million include? Does it cover the operation and NVP of the collection system, life cycle costs and extras such as applicable taxes?*
>
> *The Phase 2 collection system expansion has an estimated cost of $39,039,000 and the treatment plant expansion is estimated to be an additional $18,044,000 for a Phase 2 cost of $57,083,000 and a total project cost of $152,341,500. If correct, why were these costs not presented at the meeting as a summary of your study conclusions?*

Display boards did address the capital cost of the system as well as the connection costs and operations costs. The capital cost of full build out was shown as $118 million. The cost share between the Town and Developers was identified as between $50 to $60 million for the Town and $58 to $68 million for the developers. We do understand that there was confusion at the PIC as some attendees were informed the Town cost would be $95 million and the total cost would be over $150 million. These costs are incorrect and arise out of a misinterpretation of the costs as presented in the Phase 3 background reports.

The project team is preparing a capital cost summary report and this will be included in the Environmental Study Report.

Connection costs were also shown as an average cost. Additional detail was included in the Septic Survey Technical Memorandum; however, this detail will also be included in the capital cost summary report.

It was further illustrated on the display boards and in the presentation that the Town could not finance a project between $50 to $60 million and that a government grant was needed to bring to Town cost share within their debt carrying capacity. Again, this will be explained in more detail in the cost report.

During the presentation it was explained that the cost sharing with developers would depend on the actual location of the developments and the extent of integration of the collection system as well as the implementation plan. This is the reason that the Town cost share was reported as a range. Notwithstanding, the Town cannot finance the Town share and will need to secure a grant.

> *2) We are still very concerned with the per person wastewater generation rates used in the project. In investigating this issue, we learned that in Victoria, Stantec is using a per capita design figure of 195 lpcd. There is an extensive database available in Victoria showing that, on average, each resident generates 145 lpcd; this includes the I&I contribution which in certain areas of Victoria is considerable. The additional 50 lpcd addresses the contribution of commercial, institutional and industrial contributors. There is also a City of Calgary report which addresses individual water consumption for water fixtures and appliances and its database shows that 100 lpcd is readily achievable if state-of-the-art water conservation devices are installed. This consumption rates drops to 75 lpcd if greywater recovery, treatment and reuse is applied. These are examples of designs accepted by consulting engineering firms. Why would an aggressive water conservation program not be considered as a top priority for a community like the Town of Erin, and especially for new developments in the Town?*
>
> *Since new development will represent 60% of the contributing flow to the treatment plant, an aggressive water conservation strategy could be implemented that would easily reduce water consumption and thus wastewater generation to less than 150 lpcd. For all existing residential homes and the commercial and institutional facilities, a water conservation program could be introduced whereby each homeowner who installs water conserving devices receives a rebate of up to 50% of the cost of fixtures. In addition to reducing wastewater flows to be treated, the program would have a significant impact on the cost of water supply for the communities. Your comments please.*

This issue has already been addressed by Council who requested Ainley to further investigate the recommended per capita flow rates contained in our Capacity Technical Memorandum. A letter report was considered and approved by Council and it was decided to retain the recommended per capita flow rate of 290 lpcd with an allowance for inflow and infiltration of 90 lpcd for a total of 380 lpcd. The contents of the letter report will form a part of the ESR. This per capita flow rate also allows for additional resiliency within the overall system for future adjustments such as climate change,

We fully understand the wide range of water consumption experienced across Canada and the trend to lower consumption as a result of conservation efforts and plumbing code revisions. We would sincerely hope that water consumption and wastewater flows are less than our recommended design flows, however these actual flows are distinctly different from design flows which are used to size pipes that will be in the ground for many decades. In most cases, the design number does not change the size of the sewer which is the minimum size allowed by MOECC. It should also be noted that Municipalities in Ontario must report the flows to their wastewater plants to MOECC on an annual basis. These flows are used to calculate plant reserve capacity and Municipalities can only allocate growth up to the limit of this reserve capacity. In this way, the actual flow to the plant is taken into consideration in terms of the service population and in any future expansion.

> *3) The scheduling of activities on this project will be extremely complex. If the sewers are installed before the treatment plant is built, there will be sewage and no treatment, which will not be allowed. So, the treatment plant will have to be constructed before the collection system is operational. Because of the extremely restrictive receiving stream requirements, how will this be achieved? What is the penalty if the effluent limits presented in Table 5 of the Treatment Technology Alternatives report are exceeded? Are these never to exceed numbers or are they monthly averages for flow proportioned composite samples collected every day?*

This would be a typical project to service and existing community with sewers and a sewage treatment plant. It is actually easier to commission a new treatment plant connected to an existing community rather than a new community where it takes longer to generate flows. Typically, the wastewater treatment plant and collection system are built in parallel and when the treatment plant is functional and commissioned and ready to receive wastewater, property connections can start to be made to the sewers. The wastewater treatment plant would be tested using clean water after which, when ready the plant would be seeded with biological sludge from another plant. Most typically the lower initial flows will be easy to treat.

The extent of the monitoring program that will be issued by MOECC in the Environmental Compliance Certificate is not yet known. However, the plant must be operated in a manner that prevents any of the effluent limits from ever being exceeded.

> *4) There was reference made at the meeting to the Town's existing stormwater collection system. Where is the stormwater discharged? Is there any stormwater treatment prior to discharge? What are the water quality limits on the stormwater discharges?*

The reference to stormwater management at the recent PIC was in direct response to a question relating to existing sewer pipes within the municipal road allowance and in particular we advised that any of existing sewer pipes within the road allowance would be related to the existing stormwater collection system. Further to this, all of the existing roads throughout the Town would have stormwater collection and disposal systems in accordance with the measures that were constructed when the roads were originally built. The design and construction of a new wastewater collection system throughout the existing communities will not alter or impede any of the original stormwater collection and/or disposal systems.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 11, 2018. For convenience we have provided your comments, in blue, followed by our responses.

I am a resident of Hillsburgh. While I appreciate the work that has been done by your experienced company and I know that I do not have the knowledge to assess the why's and wherefores of the plan, I do know that it has major implications for the citizens of Hillsburgh and Erin.

It is my understanding that a plan to build a waste water facility and to connect the villages to it has been studied for years. At one level I can appreciate that with it in place businesses and new housing developments will be more interested in coming to our town, however to now expect residents to welcome and be required to foot the bill is unacceptable.

For instance, the cost and rationale of decommissioning perfectly functioning septic beds seems ludicrous. Can you imagine being a homeowner who has, in the past year or so, replaced theirs?

Will grants actually be forthcoming? Will they be just to offset the costs to the town and our taxes or will they be for residents? What would the likeliest timeframe be for finding this out?

We are being told that the plan is basically ready to begin despite the feelings and concerns of residents. We are being told that we will have to pay to hookup and to excavate our properties to make this happen. And then of course there will also be an increase to our water bill. What are the amounts likely to be?

Having an effective system in place to deal with our wastewater is essential in the long term and the most recent plan has been presented in detail. However there does not seem to have been a clear plan laid out for residents to know as accurately as possible what the actual costs will be for them and the various ways the town can support this. This may not be your responsibility but your costing of the plan and service is. The likelihood of having to pay thousands and thousands of dollars to hook up to the system is extremely concerning. No timeframe has yet been presented. Residents are left contemplating whether or not they will have to take out a second mortgage or borrow on their credit line.

I would appreciate a considered response that recognizes these concerns not just a pat answer.

Yes, this project has been on the go for many years culminating in the recommendation for a communal sewage system in the Settlement and Servicing Master Plan (SSMP) in 2014 and now continuing through this Wastewater Class EA which started in 2016. Whereas the SSMP indicated that the servicing population limit for wastewater was 6,000 persons, this Class EA has identified the opportunity to service 14,600± persons sufficient to service all the growth areas indicated in the Town's Official Plan. This provides the opportunity to share costs of the system with developers and potentially reduce the cost to the existing community. Developers would have to pay their full share of the cost and it is obviously desirable that any cost sharing arrangement would be to the benefit of the Town.

The septic system survey conducted as part of this project, has confirmed the age profile of the septic tanks and the small size of many of the lots and has recommended inclusion of most of the existing communities in the proposed communal system. We do understand that some septic systems were recently installed and it is likely that the Town will exercise some flexibility relating to when people with new septic systems would have to connect.

Until the Wastewater Class EA is completed, the Town cannot apply for a grant. There is also no way to know how long it will take to secure the grant and Council has stated that they cannot proceed without a grant. All of the grant money would be applied against the construction cost of the project which would be of direct benefit to the serviced properties in reducing their share of the project cost. This Class EA is not complete. The present objective is that an Environmental Study Report will be completed and approved by Council within April 2018. The report will then be placed on public record for public comment for 30 days after which the Town will need to address outstanding concerns. All being well, the Class EA could be completed this summer. It should also be noted that following the Class EA, the Town intends to commence an Official Plan Review to deal with the issue of growth and community planning. After completing all of the relevant studies and assuming Provincial and/or Federal funding is obtained, it would still take a number of years to complete the engineering design, have the construction completed and be ready for homeowner hook ups.

Through the public consultation process it has been recognised that additional detail needs to be conveyed to residents on the cost of this system and the project team is preparing this for release in the near future.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 10, 2018. For convenience we have provided your comments, in blue, followed by our responses.

> *First let me say as a resident of Hillsburgh I am totally opposed to the proposed new sewage treatment plans.*
> *We all as residents of Erin/Hillsburgh currently have working sewage treatment on our properties. This arrangement is totally legal and has been in operation successfully for over 100 years.*
> *The comment that we have a high tax base because of lack of growth is misleading. If the town spends 100 million dollars on the proposed system our taxes will skyrocket we will see an out of this world tax base increase.*
> *Why do we need growth if it only leads to higher taxes....we don't!!!!*
> *The community is a vibrant structure as it stands now we don't need huge growth which would be required to make the sewage system changes feasible.*
> *A comment was made at the recent meeting that if we don't get growth schools will have to close. If there aren't enough students to justify a school let it close, this should not be a consideration on whether council spends millions of dollars they don't have.*
> *Not only would this ill thought out plan hugely increase our annual taxes but it is set to burden each homeowner with tens of thousands of dollars in personal expenses to connect to this boondoggle.*
> *Where as homeowners are we expected to find the extra tax dollars this plan will inflict on us?*
> *Where are we to find the thousands of dollars to get connected?*
> *We are not like governments where we can just stick our hands into the public's pockets, we as families live on limited budgets, many of us live on fixed incomes where are we supposed to find these huge dollars.*
> *We don't kid ourselves once our tax base skyrockets to encourage growth that tax base will never decrease regardless of how much growth is achieved. Once governments put their hands in your pockets they never take them out again.*
> *As proof I refer you to our national tax system that was brought in as a temporary measure more years ago than I can remember.*
> *We do not need growth at the cost of this project it is ill-conceived and unnecessary.*
> *As far as I know the residents of Erin/Hillsburgh are happy to live in our town now as it stands or they would be moving out in droves.*
> *If you bring this outrageous project on board you will be forcing residents to look at alternative places to live where the taxes are reasonable.*

We do not need this plan, we don't want this plan, council has an obligation to follow the desires of the community and in my opinion those desires are opposed to this plan.
If developers want to cash in on building in our community let them pay for the infrastructure they need to do so.
Let us live our lives in peace at a cost we all have borne over the years.
Stop this nonsense!

This project has been on the go for many years culminating in the recommendation for a communal sewage system in the Settlement and Servicing Master Plan (SSMP) in 2014 and now continuing through this Wastewater Class EA which started in 2016. Whereas the SSMP indicated that the servicing population limit for wastewater was 6,000 persons, this Class EA has identified the opportunity to service over 14,500 persons sufficient to service all the growth areas indicated in the Town's Official Plan. This provides the opportunity to share costs of the system with developers and potentially reduce the cost to the existing community. Developers would have to pay their share of the cost and it is obviously desirable that any cost sharing arrangement would be to the benefit of the Town.

The septic system survey conducted within the SSMP and as part of this project, have both confirmed the age profile of the septic tanks and the small size of many of the lots and both studies have recommended inclusion of most of the existing communities in the proposed communal wastewater system. We do understand that some septic systems were recently installed and it is likely that the Town will exercise some flexibility in when people with new tanks have to connect. Both the Ministry of Environment and Climate Change and Credit Valley Conservation have been involved in the project and support the recommendations.

The project team have not indicated that the cost of the Town's share will be $100 million. We have identified a Town share of between $50 and $60 million depending on a cost sharing agreement with developers. The Town cannot finance this scale of project and Council has stated that they would require a government grant for the project to proceed. The grant would need to bring the cost down below the debt carrying capacity of the Town. The project team will be issuing a more detailed explanation of costs in the near future.

This Wastewater Class EA removes the restriction on community growth based on wastewater servicing. After it is completed, the Town intends to conduct an Official Plan Review to set the limits of growth. Your concerns in this regard may best be directed to that planning process.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

CONSULTING
ENGINEERS
PLANNERS

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 23, 2018. For convenience we have provided your comments, in blue, followed by our responses.

> *I am owner of 74 Main Street Erin. The store is rented but it's not financially sound to rent the 2 apartments and pay the sewage bill for trucking it to Collingwood.*
> *The septic system should of gone in when the water was put in but they had negative thinking with no foresight even at that time. If it wasn't for the water government would of demanded it long ago. Now we are behind the 8 ball.*
>
> *Hopefully some government funding can be found but it must be built in order for Erin to prosper. Nothing stays the same in today's world.*
>
> *I would be nice if the river wasn't used as a dumping ground for sewage too.*

In recognising the sensitivity of constructing a collection system within the main commercial area of Main Street and also the difficulty of connecting to this sewer on Main Street for all of the low-lying properties on either side of the street, we are proposing a solution that constructs sewers to the east and west of Main Street. One sewer would connect Church Boulevard with Charles Street along the river side to the rear of all the properties, including your property, and another sewer would connect Daniel Street through to Water Street on the east side of Main Street. While easements will be required from the property owners, this solution is significantly better for property owners in terms of connection costs and elimination of disruption/retail loss to businesses by digging up Main Street. Although this was displayed at the Public Information Centre, we would be pleased to provide additional detail to you.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 21, 2018. For convenience we have provided your comments, in blue, followed by our responses.

1. *As a tax payer what financial reward will we be provided for investing $30,000 of my money to put in a water treatment plant (taxes will be lowered by X $'s per year over a Z year period)?*

The Town has indicated that the project cannot proceed without a substantial Provincial and/or Federal government grant which would significantly reduce the Town share to an amount that is within their debt servicing capacity. Homeowners could therefore expect that their capital cost contribution would be significantly less than $30,000. However, the costs for the homeowners share of the infrastructure within the municipal road allowance will be dependent upon the actual amount of grants received.

2. *What is the cost (to me) of doing nothing (not putting in the treatment plant)? if we don't put in a water treatment plant what will the financial burden in terms of increased taxes be for the taxpayers (taxes will be increased by X $'s every year for Z years or something like that)?*

We are not aware of your property size or the age of your existing septic system or what costs you could expect to pay for your septic system in future.

Wastewater utility service charges are not part of municipal taxes. Water and wastewater are funded separately from taxes and are user pay services based on the actual operating costs for the system. Independent of a water/wastewater system, new development creates an increased tax base, which generally has the effect of reducing the taxes for individual properties.

3. *What will the impact on our businesses be when we rip up main street for the 2nd time in 20 years to put in sanitary sewers? How much support is council willing to give to these businesses?*

The recommended preferred alternative for the collection system avoids construction on Main Street through the main commercial area.

4. *What are the pros/cons of putting in a sewage treatment plant versus simply making large lot homes with septic systems?*

    a. *How much will my taxes be increased/decreased based on this approach? For example, if you put in 500 new large homes instead of 1500 new small homes how much will my taxes change and how does this compare to the sewage plant option?*

Credit Valley Conservation have indicated that they do not support continued subdivision development within Erin Village and Hillsburgh based on septic systems and their cumulative impact on the natural environment. The area already has a high concentration of septic systems.

Following completion of the Wastewater Class EA, the Town intends to conduct an Official Plan Review to confirm the way forward for both communities regarding growth. While generally, larger communities have a larger tax base, there are community planning issues that also need to be considered to attain the desired community mix.

5. *What are the pros/cons of having the developers put in localized treatment facilities?*

The alternative of multiple localized treatment facilities was explored during Phase 2 of the Class EA and the solution was confirmed as not viable. Refer to the Subsurface Disposal Technical Memorandum on the project website.

6. *Has the consultant evaluated the option of simply pumping Erin's sewage to an adjacent city with treatment capacity (like Guelph, Georgetown, Halton, Brampton)? Newmarket, Aurora, Markham pump to Durham. Halton and Mississauga share certain areas. Brampton pumps to Toronto in certain areas and some surrounding areas of Hamilton pump to Hamilton.*

We fully understand that GTA wastewater systems cover extensive areas. The issue of connecting to an adjacent system was considered during the Settlement and Servicing Master Plan (SSMP) and confirmed to be not viable. This general alternative would still include the cost of the local Erin/Hillsburgh sewage collection system as outlined in the collection system evaluation technical memorandum as well as the cost to pump the wastewater to the adjacent City. It would then require the Town to pay for a share of using the adjacent City's collection system all the way to their treatment plant and a share of their Wastewater Treatment Plant capacity. In addition, growth in the Town of Erin Urban Centres would be controlled and could be limited by the amount of treatment capacity provided by the adjacent municipality.

7. *What are the risks associated with operating a sewage treatment facility?*

The wastewater industry is very heavily regulated. Operation of communal wastewater systems is a normally accepted risk by most Towns and Cities across Canada. Wastewater utilities are well developed and generally operated in a safe and efficient manner. Through many ongoing initiatives management in the wastewater sector is continually improving efficiency and reducing risk.

a) *At the presentation I heard some talk about septic systems failing after 30 years but no mention of life cycle costs on the treatment plant. What is the life span of sewage grinders, pumps, chemical feeders, PLC controllers, sensors, HVAC equipment etc?*

The life span of the infrastructure associated with the Wastewater collection system and treatment plant varies significantly depending upon which components are being considered, such as pumps which have a relatively short lifespan versus tanks and concrete infrastructure which have a very long lifespan. The expected life span of all the main components of the Wastewater collection system and treatment Plant were accounted for within the Phase 3 technical memorandums and used in calculating the life cycle cost of the system.

b) *What will the replacement costs of these items be and when will those cost be incurred?*

Please refer to the lifecycle cost calculations outlined in the technical memorandums. We have indicated replacement years for all major equipment.

It should be noted that, in Ontario, wastewater utilities are required to provide for the full cost recovery of the system when determining user rates.

c) *How well will the sewage plant work at partial capacity? For example, will what happened at the high school/community centre happen to this facility if the housing growth doesn't match expectations? What provisions are required to allow this plant to be brought online with varying capacities?*

The issues experienced by the School/Community centre system cannot be compared to the proposed system for Erin/Hillsburgh. The proposed Wastewater Treatment Plant would be required to operate in accordance with strict Provincial regulations. To ensure that the Wastewater Treatment Plant would achieve these regulations a phasing plan would be developed and updated on a regular basis to ensure the timing and capacity of the Wastewater Treatment Plant is in relation to the wastewater needs of the community.

d) *Who will run the plant and how much will it cost to run?*

The Town has options to decide who will operate the system. The Town can develop its own wastewater staff or could retain a private sector Provincially approved company to operate the system on their behalf.

e) *What is the additional burden on my taxes to: 1) Run the facility, 2) Treat my sewage?*

Wastewater is funded as a user pay utility in the same way as municipal water supply. There is no impact on general municipal taxes.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

Ainley GROUP CONSULTING ENGINEERS PLANNERS

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]:

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 26, 2018. For convenience we have provided your comments, in blue, followed by our responses.

> *Let me tell you about the people who attended the presentation on Friday, February 2nd. Most importantly we are not people who came out to heckle, or cajole or negate the presentation. We were there fully well knowing that there would be a cost involved but what we were hoping to hear was that we could afford it. And if we couldn't right at this moment what thoughts you had given to assisting us to be more confident that we wouldn't have to sell our homes because we could no longer afford to live here. You see, we are family people – we have an emotional connection to this town and our lives in this community and what we were desperate to affirm was that we could trust you, that you felt the same as we do and that was included in your decision making. If anything, you demonstrated that you didn't. You talked about locations, and specs, and costs and construction, etc but not once did you address what your audience was thinking and more importantly feeling. Yes, you said we need sustainable growth, but you didn't take the time to show us how we can do that and still be the town we want. and that we are. And when we tried to let you know; you bullied us, called us hecklers, naysayers and non-visionaries. When Mayor Als announced that he wasn't even sure if he would be around and that he was thinking of moving down south to do some golfing, he left us feeling that we were right, this council, isn't committed to this town. He left us feeling that the very people who ran on platforms of being part of this community and caring about it, lied to us. We don't want to go anywhere; we love our homes; we love our life here in Erin; and for as long as we can handle it we want to stay here. Obviously this is not part of your thinking.*
>
> *You need to know that many of us moved her for a certain quality of life and yes we are willing to pay for it. But we are hard working, tax paying, in many cases middle class well educated family people but people nonetheless who still need to live within their means; and that our greatest fear is having to leave our homes not because we want to but because we are being forced out. Many of us are children of immigrants who came from countries who fled for their lives, who were seeking a better quality of life for their families and who sacrificed everything to do that. Like them, our homes are where we brought our children home from the hospital, where we celebrate our family milestones, where we go to find peace, and strength and fortitude to face a sometimes cruel world. It's where our children play street hockey, where we gather with our neighbours for summer street parties and where at the end of the day we sit around our dinner tables debriefing our days with one another. It's about sitting on our porch swings and greeting our neighbours; it's about sitting in our back yards and enjoying our hard*

work to make them our sanctuaries. It's where we help out our neighbours who find themselves in need of our charity; our good deeds whether it's shoveling their driveways; walking their dogs when they can't; bringing over a casserole when they receive crippling news or just lending our ears, when perhaps our wisdom or experience would be beneficial. There is nothing as precious to us as our homes because they shelter our families when we're home; allow us to regroup when we need to; to live, love and laugh and if need be cry, because it's ours and there we are safe.

Instead you treated us as the enemy. It was you the council up there (even though you stood at the sides and back) with the engineers, the specialists, the environmentalists against the stupid people of Erin. You forgot that we too are engineers, architects, farmers, business owners, project managers, home makers, teachers, nurses, doctors, skilled trades people to name a few. But most importantly you forgot that we are good people who pay our taxes and honour our commitments. And we don't take risks we don't believe we can handle. We elected you to make informed decisions because you have the expertise we may lack in terms of public service; that calling to do work for the common good, but most importantly because you convinced us that you share the same values and morals as we do. We left that meeting, very dejected, feeling that maybe our only hope is to leave and maybe be lucky enough to find another place where we will feel at home.

Next time, come to the table keeping in mind your audience – number one rule of presenters – know who you are presenting to and make sure that your presentation addresses their concerns.

Re: newspaper article that was in Erin Banner, Feb 22nd

This is a response to the article in which the Mayor was quoted regarding the town meeting on February 2nd. I read it expecting to read something very different from what I did read. I was reading about a town that is not in existence yet. It addressed issues of no senior living; that we felt that our children could not afford to live in this town; that schools would close because we are refusing to go ahead with the town council's supported presentation for the sewage treatment plan. The headline "Mayor issues wastewater warning" and his prediction of "dire consequences if the Erin community fails to deal with the need for sewage treatment" are once again, bullying tactics and fear mongering. As a resident of Erin, I am not thinking of the future of Erin and those residents, I speak for and care about those of us who live here right now. First issue – the schools. I came from a small town, and in my experience a small town that has five schools is ludicrous. There are all kinds of ways of accommodating Roman Catholic, secular, and French Immersion choices without each one being given a school. Secondly the children I raised are now in their 30's and they don't want to live in Erin because that's not where the jobs are that they are searching for and if anyone will be relocating it will be us to be nearer our children and grandchildren not the other way around. Besides if we can't afford our homes especially with the additional charges to be assumed with the sewage system, our children won't even have a chance. Thirdly I am in my 60's and when I can no longer live in my home, there are plenty of choices for me in the surrounding areas; thanks, but you don't need to build me a seniors' home or a nursing home. Fourthly, at a meeting a while back last year we voiced our concerns very clearly that our desire was not to become a bedroom community of Mississauga, Brampton, or Toronto but a destination on its own; the quaint historic and touristy village of Erin. So where did all this talk of growth, and a sewage system come from. I think Ed Delaporte was right you are more concerned with the developers who already bought the land than us.

> *Let's go in the direction that you supposedly supported last year. A tourist destination, let's get the trucks off our main road and celebrate the idyllic, small town life of a town that right now is being misrepresented by a council which has lost our confidence.*

We do fully understand your comments and regret that our team were not able to clearly convey what you were hoping to see and hear at the Public Information Centre (PIC). As we are sure you appreciate, a lot of work was required to complete all of the technical studies leading up to the PIC. All of the technical work had to be communicated to the public and we did our best to minimise this technical work and focus on what we believed most residents would want to hear. Most certainly, the project team respects and supports existing community values and is focused on reinforcing these values through this project. This wastewater Class EA project has identified the opportunity to grow the community beyond the 6,000-population level identified in the Settlement and Servicing Master Plan (SSMP) completed in 2014, up to a level of 14,600± population.

Subsequent to the completion of this Class EA, the Town intends to conduct an Official Plan Review to establish the level of growth in the community. Achieving consensus through the Official Plan process will be an important and necessary prerequisite to the implementation of the wastewater servicing project.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on March 6, 2018. For convenience we have provided your comments, in blue, followed by our responses.

> *I just have a few questions I hope you can answer regarding the sewer issue:*
>
> *The vote is in April to decide whether or not we are getting sewers, correct?*
>
> *If it's a yes, what is the timeline?*
>
> *When is the cost to the homeowner decided and then it has to be put into any real estate deal, is that correct? How soon after the vote does this happen?*
>
> *Is it just the town people only that are paying for the sewers?*

Based on the present project schedule, we anticipate that Council will be discussing the Environmental Study Report (ESR) towards the end of April 2018. Subsequent to this Council meeting and assuming we receive Council's blessing to finalize the Class EA, the ESR would be finalized and published for the formal 30-day Public Review period

Following the completion of the Class EA process, including the resolution of any Part II Orders received, the Town would be in a position to proceed with the implementation of the proposed wastewater treatment plant and collection system. However, as has been noted a number of times, the Town will not be financially able to proceed with the proposed works without receiving significant Provincial and/or Federal grants. Further until the amount of these grants are known the Town can only advise the residents of the "estimated" costs for the proposed works.

The project team will shortly be issuing a financing report to better define the potential cost to property owners.

We do not believe there is any Realty implications until Council pass the necessary by laws initiating construction of the project in the future.

Finally, only properties within the planned wastewater service areas (generally the Communities of Erin & Hillsburgh) will be required to connect to the wastewater system and to pay their share.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on March 6, 2018. For convenience we have provided your comments, in blue, followed by our responses.

> *I'm writing to ask if a further meeting will be held for Erin residents on the topic of the planned wastewater treatment plant. There was a meeting held earlier in February I understand, but it would be great to have another opportunity for us to ask questions and fully understand this plan, our options, and what it means for everyone. In particular, understanding how this plant will be paid for is a concern for many.*

There are no further meetings planned within this Class EA process.

Based on the present project schedule, we anticipate that Council will be discussing the Environmental Study Report (ESR) later in April 2018. Subsequent to this Council meeting and assuming we receive Council's blessing to finalize the Class EA, the ESR would be finalized and published for the formal 30-day Public Review period

Following the completion of the Class EA process, including the resolution of any Part II Orders received, the Town would be in a position to proceed with the implementation of the proposed wastewater treatment plant and collection system. However, as has been noted a number of times Town will not be financially able to proceed with the proposed works without receiving significant Provincial and/or Federal grants. Further until the amount of these grants are known the Town only advise of the residents of the "estimated" costs for the proposed works.

The project team will shortly be issuing a financing report to better define the potential cost to property owners.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

J. A. Mullan, P.Eng.
Project Manager

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 3, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 27, 2018. For convenience we have provided your comments, in blue, followed by our responses.

The waste water meeting on Friday night (Feb.2nd) was very well attended. Most of the people that spoke in my opinion were not in favour of giving the town a blank cheque so they can move forward with this project, and how can you blame them because lately it has become the norm for any projects that any government does never comes in on time and is always well over budget and there is never any accountability. The amounts of taxpayer's money that they are talking about is a huge number for people to commit to, and the people in Erin are already paying higher than average taxes. This mistrust is not our fault but theirs, but we are the one that gets stuck with the final bill.

I admit that I don't know what the percentage is of rural owners to people that live in the town but there are lots of people that are stretched out for miles between the south boundary of Erin and Hillsburgh and we will never have any use for this system. Don't get me wrong I think that it's a good idea to develop parts of the town because without going forward you will go backwards. We defiantly need some help to pay for some of the other improvements the town will require in the future. The mayor read a message from the school trustee that we have to have more kids to attend the schools or some may have to be closed. I don't blame families for wanting to come here, I encourage it every chance I get, but I don't want high density houses in town. Single family homes are much closer together when there is sewers available which is ok as long as they are good quality. I know that they cost more than town homes but to me it's a privilege to live in Erin make people pay for it.

The developers should be paying a bigger piece of the cost for the waste water facility. They can recoup their cost when they sell the houses, the taxpayers of Erin can't do this the developers should be paying at least 75% of these costs.
Time is money but this project is a big one for a small town like Erin and if we make a mistake here we could be paying for it for many years to come.

I like living in Erin with the small-town atmosphere, great place to raise kids. You can walk down town and most of the people that you meet are friendly and say hello, the barber knows everybody that comes in, it's a feeling that you don't see in bigger towns around us. I always tell people that I live 20 mins. from everywhere which is the way I like it. Please move forward with a great deal of caution.

By way of clarifications:

- Only those properties who are in the planned wastewater service area (generally within Erin Village & Hillsburgh) will be required to connect to the sewer system and to pay for the project. Rural residents will not have to pay for the construction or operation of the system which will be a user pay system similar to the water system.

- The Town will only proceed with their component of the project when they have secured Provincial and/or Federal grants and can finance the balance of the project within their debt carrying capacity.

- After the Class EA is completed, the Town intends to move forward with an Official Plan Review that will examine and address the issue of growth.

- The intention of the Town is to make sure that developers pay their fair share and that developments reduce the cost of the wastewater system for existing residents.

- The project team will shortly be issuing a financing report to better define the potential cost to property owners.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

TOWN OF ERIN

Town of Erin – Urban Centre

Wastewater Municipal Class Environmental Assessment

Public Information Centre

Friday, February 2, 2018

Comment Form

Name: _____

Email: _____

Given what you have heard tonight, do you have any thoughts or comments that you would like to share with the Project Team about the Study?

50-60 millon People 58-68 million

128.000,000 ÷ 20,000 per septic to replace

- MANY HOUSEHOLDS CAN HAVE THEIR SEPTICS REPLACED FOR MUCH LOWER

For more information on the *Town of Erin Urban Centre Wastewater Municipal Class Environmental Assessment*, please visit: www.erin.ca/town-hall/wastewater-ea

Comments and questions can also be submitted directly to the Project email at:
erin.urban.classea@ainleygroup.com

COST THAN PAYING / FOR SEWAGE!

TOWN OF
ERIN

Town of Erin – Urban Centre
Wastewater Municipal Class Environmental Assessment

Public Information Centre

Friday, February 2, 2018

Comment Form

Name: __

Email: __

Given what you have heard tonight, do you have any thoughts or comments that you would like to share with the Project Team about the Study?

I live on a relatively new home on Waterford drive. I see in the planning you have excluded the new homes of Main St and home on pine ridge & delanbro. If your going to push this on the residents you need to do it for all, because we need to share this cost. Not selectively pick areas to apply it ~~too~~ to. I cannot support a segregation of resident all within poximity of the plant.

For more information on the *Town of Erin Urban Centre Wastewater Municipal Class Environmental Assessment*, please visit: www.erin.ca/town-hall/wastewater-ea

Comments and questions can also be submitted directly to the Project email at: erin.urban.classea@ainleygroup.com

TOWN OF
ERIN

Town of Erin – Urban Centre
Wastewater Municipal Class Environmental Assessment

Public Information Centre

Friday, February 2, 2018

Comment Form

Name: ___

Email: ___

Given what you have heard tonight, do you have any thoughts or comments that you would like to share with the Project Team about the Study?

Opposed to plan for Pumping Station on Waterford Drive
When I bought my property at 40
Waterford Dr. we were told nothing could EVER
be built in the overflow lot across
from my house. So we went ahead + purchased
the lot with the TOWN'S confirmation
that the lot would remain empty.

Also residents at 49 Waterford confirmed
through their realtor that nothing →

For more information on the *Town of Erin Urban Centre Wastewater Municipal Class Environmental Assessment*, please visit: www.erin.ca/town-hall/wastewater-ea

Comments and questions can also be submitted directly to the Project email at: erin.urban.classea@ainleygroup.com

would or could EVER be put in that location.

Thus, how can the TOWN revoke their previous stance.

Ainley Group CONSULTING ENGINEERS PLANNERS

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 4, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 2, 2018. For convenience we have provided your comments, in blue, followed by our responses.

50-60 million people, 58-68 million [dollars]
128,000,000 ÷ 20,000 per septic to replace
Many households can have their septic's replaced for much lower cost than paying for [centralised] sewage [management].

We understand your concern over costs for the proposed system as compared to the cost of replacing a septic system. Previous studies on the septic systems in Erin Village and Hillsburgh, as well as this Class EA study, have all indicated that many of the lots in the communities are too small to accommodate septic system replacement. Additional details on our seeptic system survey can be found in our survey report which is on the project website.

During the PIC, our team indicated that the Town share of the project would be between $50 and $60 million. We also pointed out that the Town cannot finance this level of debt and that a government grant would be required for the project to proceed. This grant would have to bring the cost to the Town down under their debt carrying capacity and this would obviously reduce the cost to residents connected to the new system. To clarify the potential costs to residents the team will be posting a financing report on the project website and the Town will be releasing a fact sheet on costs to further explain the costs associated with the wastewater system.

I live in a relatively new home on Waterford Drive. I see in the planning you have excluded the new homes of Main St. and homes on Pine Ridge and Delarmbro Dr. If you're going to push this on the residents you need to do it for all, because we need to share this cost. Not selectively picking areas to apply it to. I cannot support a segregation of residents all within proximity of the plant.

We understand your concern regarding the proposed servicing limits for the proposed communal wastewater system and in particular, that specific subdivisions are not proposed to be connected. This matter was addressed in our Septic Survey Technical Memorandum wherein we looked at lot sizes, age profile and location in suggesting a service area. We would refer you to this Memorandum which is on the project website, for additional information concerning the establishment of the service area.

*Opposed to plan for pumping station on Waterford Drive. When I bought my property at 40 Waterford Dr. we were told nothing could **ever** be built in the overflow lot across from my*

> *house. So we went ahead and purchased the lot with the **Town's** confirmation on that the lot would remain empty. Also residents at 49 Waterford confirmed through their realtor that nothing would or could **ever** be put in that location. Thus, how can the **Town** revoke their previous stance?*

We understand your concern regarding the location of the proposed sewage pumping station on Waterford Drive. The proposed location of the pumping station is at a low point in the subdivision allowing adjacent homes to drain to the station by gravity. There is some flexibility in the location of the station within the low-lying area most of which is occupied by an existing Storm Water Management Pond (SWMP) and road allowance. The Town rightly pointed out that the SWMP could not be developed as a building lot and in fact the design capacity of the pond cannot be compromised without risking flooding. The proposed station will be small, servicing only a part of the subdivision. It will be completely buried except for a concrete pad about 18 inches above ground. There will be a control panel similar to a bell panel located adjacent to the station. There will be no building above ground. The area around the small station would be landscaped to minimise/eliminate any impact on the aesthesis. The station can be accommodated between the road and the fence surrounding the SWMP; however, during detailed design in the future, it would be investigated if the station could be accommodated within the SWMP area, which would make it blend-in even more.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

TOWN OF
ERIN

Town of Erin – Urban Centre
Wastewater Municipal Class Environmental Assessment

Public Information Centre

Friday, February 2, 2018

Comment Form

Name: ___

Email: ___

Given what you have heard tonight, do you have any thoughts or comments that you would like to share with the Project Team about the Study?

When we purchased our home in 2003 at 49 Waterford Dr we were told by our realator (who asked the town) that nothing could be built ~~at~~ on water table beside us as it was a flooding area. We have seen it filled with 4 feet of water on various occassions. Pls advise?

For more information on the *Town of Erin Urban Centre Wastewater Municipal Class Environmental Assessment*, please visit: www.erin.ca/town-hall/wastewater-ea

Comments and questions can also be submitted directly to the Project email at: erin.urban.classea@ainleygroup.com

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 4, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were received on February 2, 2018. For convenience we have provided your comments, in blue, followed by our responses.

When we purchased our home in 2003 at 49 Waterford Dr we were told by our realtor (who asked the Town) that nothing could be built on the water table beside us as it was a flooding area. We have seen it filled with 4 feet of water on various occasions. Please advise?

We understand your concern regarding the location of the proposed sewage pumping station on Waterford Drive. The proposed location of the pumping station is at a low point in the subdivision allowing adjacent homes to drain to the station by gravity. There is some flexibility in the location of the station within the low-lying area most of which is occupied by an existing Storm Water Management Pond (SWMP) and road allowance. The Town rightly pointed out that the SWMP could not be developed as a building lot and in fact the design capacity of the pond cannot be compromised without risking flooding. The proposed station will be small, servicing only a part of the subdivision. It will be completely buried except for a concrete pad about 18 inches above ground. There will be a control panel similar to a bell panel located adjacent to the station. There will be no building above ground. The area around the small station would be landscaped to minimize/eliminate any impact on the aesthesis. The station can be accommodated between the road and the fence surrounding the SWMP; however, during detailed design in the future, it would be investigated if the station could be accommodated within the SWMP area, which would make it blend-in even more.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

J. A. Mullan, P.Eng.
Project Manager

TOWN OF
ERIN

Town of Erin – Urban Centre
Wastewater Municipal Class Environmental Assessment

Public Information Centre

Friday, February 2, 2018

Comment Form

Name:

Email:

Given what you have heard tonight, do you have any thoughts or comments that you would like to share with the Project Team about the Study?

- JUST HAD NEW SEPTIC SYSTEM INSTALLED JULY/2017. NO REASON TO HOOK UP INTO PROPOSED SEWAGE SYSTEM THAT WOULD DUMP HAZZARDOUS/CHEMICALS OR MATERIALS INTO THE RIVER. (PULL SEWAGE IN FROM PEEL REGION THRU BALLFOUNTAIN).
- AS PER TOWN WATER NO THANK YOU THAT WHY WE MOVED FROM THE CITY WITH CHLORINATED ~~[illegible]~~ TREATED WATER TO DRINK + WASH NO THANK YOU
- WE HAVE OUR WELL WATER TESTED ALL THE TIME AND ENJOY IT VERY MUCH -

For more information on the *Town of Erin Urban Centre Wastewater Municipal Class Environmental Assessment*, please visit: www.erin.ca/town-hall/wastewater-ea

Comments and questions can also be submitted directly to the Project email at: erin.urban.classea@ainleygroup.com

Ainley & Associates Limited
195 County Crt Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (905) 452-5172
E-mail brampton@ainleygroup.com

April 4, 2018

[redacted]

Email: [redacted]

Ref: **Corporation of the Town of Erin**
Urban Centre Wastewater Services
Class Environmental Assessment (Phase 3 & 4)

Dear [redacted]

On behalf of the Town of Erin, we wish to thank you for your interest in the above-mentioned Class EA. We have reviewed your comments which were left at the February 2, 2018 Public Information Centre (PIC). For convenience we have provided your comments, in blue, followed by our responses.

[We] just had new septic system installed in July 2017. [There is] no reason to hook up [the] proposed sewage system that would dump hazardous chemicals or materials into the river (Pull sewage in from peel region [other] than Belfountain).

As [for] town water, no thank you. That's why we moved from the city with treated chlorinated water to drink and wash - no thank you.

We have our well water tested all the time and enjoy it very much.

We understand your concern over the potential for contamination of the river. The effluent limits for the Wastewater Treatment Plant which have been agreed with the Ministry of Environment and Climate Change (MOECC) and Credit Valley Conservation (CVC) are strict and recognise the sensitivity of the aquatic environment and the need to protect water quality. As such the proposed Wastewater Treatment Plant will use membrane treatment technology that will achieve a very high-quality effluent, which will ensure the river is not contaminated.

To clarify the costs and issues related to hooking up to the system that were raised at the PIC, the Town will be releasing a fact sheet shortly.

Thank you again for your interest in this Class EA.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
Project Manager

TOWN OF
ERIN

Town of Erin – Urban Centre
Wastewater Municipal Class Environmental Assessment

Public Information Centre

Friday, February 2, 2018

Comment Form

Name: ______________________

Email: ______________________

Given what you have heard tonight, do you have any thoughts or comments that you would like to share with the Project Team about the Study?

A potential break of pipe on the Elora Cataract trail is a concern.

The last talk I thought you said the sludge had to be trucked out of town. Why did you change this or remove this item

Will my taxes go up if I am a rural area

Finances / cost.

Feb 28th meeting on schools / Kids

For more information on the *Town of Erin Urban Centre Wastewater Municipal Class Environmental Assessment*, please visit: www.erin.ca/town-hall/wastewater-ea

Comments and questions can also be submitted directly to the Project email at: erin.urban.classea@ainleygroup.com

7.
RE: Per Capita Wastewater Flows

Ainley & Associates Limited
195 County Court Blvd, Suite 300, Brampton, ON L6W 4P7
Tel: (705) 452-5172
E-mail brampton@ainleygroup.com

January 18, 2018 File No. 115157

Triton Engineering Services Limited
Unit 14, 105 Queen Street West
Fergus, Ontario
N1M 1S6

Attn: **Ms. Christine Furlong, P.Eng.**

Ref: **Town of Erin**
Class Environmental Assessment Phase 3 and 4
Per Capita Flows for Wastewater System

Dear Christine:

At the January 9, 2018 Council meeting, a question was asked in relation to the per capita wastewater flow (wastewater flow allowance per person) that we are utilizing to size the proposed Wastewater Treatment Plant and associated collection system. In particular, it was noted that the per capita flows may be too high and as such Council requested that we provide details on the impacts (financial versus risks) associated with using a lower per capita flow rate. Therefore, we provide the following background information along with options and a recommendation for the Town's consideration moving forward.

<u>Background</u>

When designing a Wastewater Treatment Plant and the associated collection system one of the first items is to determine the wastewater flows that will be generated by the following three main areas:

i. Residential users
ii. Inflow/Infiltration
iii. Commercial/Industrial properties.

For the residential users, we utilize an industry standard procedure of the determination how many homes (existing & future) will be connected to the collection system and multiplied by the average number of persons per house (2.8 based upon information obtained from Wellington County Planning Department) and then applying an "anticipated" residential flow per person (per capita flow). The Ministry of the Environment and Climate Change (MOECC) who are the approval authority in relation to the Wastewater Treatment Plants and collection systems produce Guidelines that recommend per capita flow allowance of between 225 on 450 litres/capita/day (L/p/d).

When B.M. Ross completed the SSMP in 2014 they utilized a residential per capita flow of 345 L/p/d plus an inflow and infiltration (I/I) rate of 90 L/c/d for a total of 435 L/p/d.

<u>Current Urban Centres Class EA</u>

During Phase 2 of the project Ainley developed a recommended sewage flow and system capacity. This work was documented in a Technical Memorandum dated November 2016 and this memorandum was part of the materials presented through the Public information Centre (PIC) in

June 2017. Within this Technical Memorandum we have developed a residential per capita flow of 290 L/p/d plus an inflow and infiltration rate of 90 L/p/d for a total of 380 L/p/d. The development of this per capita flow allowance was based upon the following:

- Average water consumption in the communities between 2013 – 2015 of 195 L/p/d;
- The addition of a 50% safety factor to water consumption to allow for future variations including changes in demographics. For example the “10 Year Housing & Homeless Plan” prepared by the County of Wellington in 2013 identified eight goals to address affordable housing and homelessness. One of eight goals within this report is to “Encourage the development of Secondary Suites; allowing groups such as low-income seniors or adults with a disability to live independently in their community close to family and friends.” Although it is hard to quantify the impact this would have on water and wastewater flows, we are confident that the creation of Secondary Suites within the existing community and/or future development areas would increase the water and wastewater flows from each property.
- A recommended inflow and infiltration allowance of 90 L/p/d for all gravity based sewers based upon MOECC Guidelines;

The Technical Memorandum also included a comparison of the residential per capita flow rate and the inflow and infiltration flow used by other Municipalities around Erin, which are summarized below:

Region/Municipality	**Residential Per Capita Flow**	**Inflow/Infiltration**
Erin Class EA Phase 3 & 4	290 L/p/d	90 L/p/d
Region of Waterloo and member Municipalities	350 L/p/d	0.15 litre per hectare per day allowance
City of Guelph	350 L/p/d	0.15 litre per hectare per day allowance
Region of Peel and member Municipalities	303 L/p/d	0.2 litre per hectare per day allowance
Region of Halton and member Municipalities	275 L/p/d	0.286 litre per hectare per day allowance
City of Barrie	225 L/p/d	0.1 litre per hectare per day allowance

As noted above, most other adjacent Municipalities calculate Inflow/Infiltration using a “litres per hectare per day allowance” which typically yields wastewater flows substantially higher than using a per capita flow allowance. However, this is appropriate given that these other Municipalities have aging collection systems which as they deteriorate over time allow larger amounts of water to infiltrate into the system. Whereas, the Erin system will be completely new and considering the underlying soil conditions in the communities, we have utilized the MOECC suggested inflow/infiltration per capita flow rate of 90 L/p/d, which is lower than the comparable inflow and infiltration being allowed for in the aforementioned collection systems.

Utilizing the 380 (290 + 90) litres per capita flow allowance, the Wastewater Treatment Plant and associated collection system to service the full buildout scenario (14,600± residential pop.) needs to be able to accommodate an Average Date Flow (ADF) of 7,172 m^3/day (approx. 7.2 Megalitres per day). The Preliminary Capital Cost estimates presented to Council on January 9 were based upon this flow capacity.

Alternative per capita flow allowance

We have examined the effect on the Wastewater Treatment Plant and associated collection system from lowering the residential flow rate from 290 L/p/d to 225 L/p/d. This would reduce the safety factor over the current water consumption values from 50% to 15%.

Utilizing the same Infiltration/Inflow allowance of 90 L/p/d would create a total residential flow rate of 315 L/p/d (as opposed to 380 L/p/d). The change would have the following impacts:

- The capacity of the Wastewater Treatment Plant capable of servicing the full buildout scenario (14,600± residential pop.) would be reduced from 7.2 MLD to 6.23 MLD. This would have the effect of reducing Preliminary Capital Cost estimate by approximately $6.8 million ($61.1 million to $54.3 million);
- The trunk sewer system including pumping stations and forcemains capable of servicing the full buildout scenario (14,600± residential pop.), could have some of the components downsized resulting in a cost saving of approximately $2.0 million.
- All the local sewers servicing the existing areas would continue to be the minimum sewer size of 200 mm diameter, as such there would no reduction in costs.

Therefore, reducing the residential flow rate from 380 L/p/d to 315 L/p/d could save approximately $8.8 million from the previously calculated Preliminary Capital Cost to service full buildout (14,600± residential pop.) of $118 million. This cost saving would be shared between the existing community and developers.

Recommendation

Although the aforementioned cost savings are significant, we recommend that we do not change and that we continue to use 380 L/p/d as the residential flow rate for the following reasons:

- The proposed per capita residential flow of 290 L/p/d is similar too or below other Municipalities design standards.
- The Inflow/Infiltration flows of 90 L/c/d is substantially lower than the design standards used by other Municipalities;
- The current average municipal water consumption rate is low and represents a “conserved” demand level. This is likely due to the water rates and the restrictions associated with use of septic systems. Following removal of the septic system restriction, it may be anticipated that development on existing properties will increase the water demand and wastewater flows from these properties.
- The development of Secondary Suites on existing properties, as per the strategy developed by Wellington County to address affordable housing and homelessness throughout the region would increase the water & wastewater flows.
- The life of many of the wastewater infrastructure components can be expected to be between 80 to 100 years. While some components such as treatment components and equipment will have a shorter expected life, other critical components such as the trunk sewer system and the treatment plant infrastructure will service the community for many decades and through several future Official Plan review processes.

- Subsequent to the Wastewater Class EA, an Official Plan review process will be undertaken to define the level, location and type of growth within the community. Until this work is completed there will remain a degree of uncertainty associated with determining wastewater flows and it is therefore considered prudent to retain some flexibility in the capacity analysis.
- Implementation of the recommendations arising out of this Urban Centre Wastewater Servicing Class EA, represent a considerable long-term infrastructure investment for the Town.
- Securing approvals for a 7.2 MLD discharge to the Credit River provides the Town with great flexibility moving forward with the planning process.

However, should the Town wish Ainley to reduce the residential per capita flow rate of 380 L/p/d to 315 L/p/d then the following previously completed Reports/Technical Memorandum would have to be revised and updated:

- Assimilative Capacity Study (ACS);
- Technical Memorandum - System Capacity and Sewage Flows;
- Technical Memorandum - Pumping Stations and Forcemain;
- Technical Memorandum - Treated Effluent Outfall Site Selection;
- Technical Memorandum - Treatment Technology Alternatives.

The engineering fees to revise, review and finalise these reports is $40,000. Should the Town wish to move forward with the revisions, it is suggested that this could be done after the upcoming PIC and incorporated into the Environmental Study Report (ESR).

Yours truly,

AINLEY & ASSOCIATES LIMITED

Joe Mullan

J. A. Mullan, P.Eng.
President & CEO