TOWNSHIP OF SOUTHWOLD

Environmental Study Report (Final)

Shedden and Fingal Wastewater Strategy

February 2021 – 17-6064

Municipal Class Environmental Assessment
For the Shedden and Fingal Master Servicing Plan

Notice of Completion

The Township of Southwold retained Dillon Consulting Limited to develop a municipal wastewater treatment strategy for the communities of Shedden and Fingal. The strategy was developed to support long term growth in both communities.

The study is recommending a new wastewater treatment facility be constructed south of Shedden on Union Road to provide wastewater treatment for both Shedden and Fingal in the future. This recommended location is on agricultural property owned by the Township and is located near the northern branch of Talbot Creek (**Figure 1**). At this time, there are no plans on when the facility would be designed and constructed. The facility would be required to service future residential growth in the communities.

The facility would be designed to treat wastewater from the existing communities should the need for municipal sanitary service arise in the future. A new sewer system and plans to decommission septic systems would be developed at that time, as well as a strategy to connect existing properties to the system.

The Township is committed to keeping residents informed when the need arises for the facility.

The study was completed following the planning and design process for a Schedule 'C' project, as outlined in the Municipal Engineers Association's, Municipal Class Environmental Assessment (EA) (October 2000, as amended).

An Environmental Study Report (ESR) to summarize the study recommendations is available for public review from **March 11, 2021**, and **April 12, 2021**, on the Township's website: www.southwold.ca

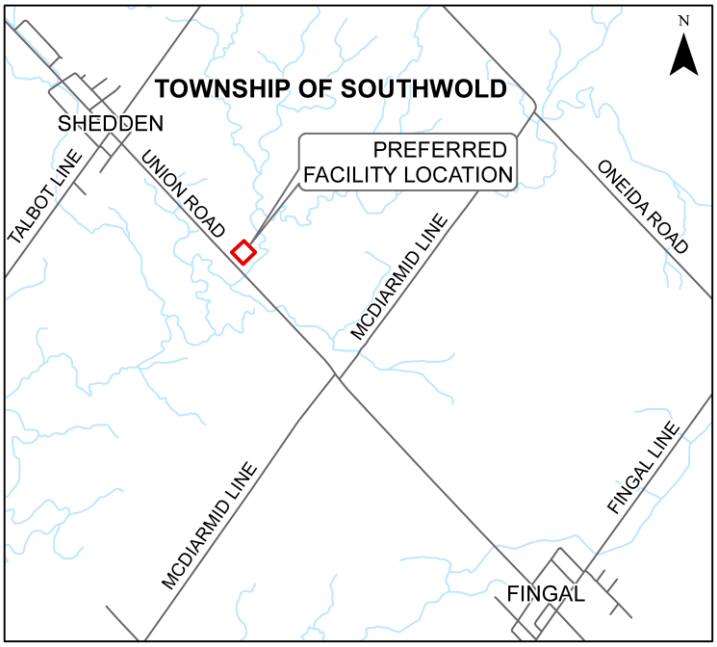

Figure 1: Preferred Facility Location

A hardcopy of the report will not be provided at public review locations. If you wish to review the report and require an alternate format, contact one of the project team members listed below to discuss review options.

Interested persons may provide written comments to our project team between **March 11, 2021,** and **April 12, 2021**. All comments and concerns should be sent directly to:

Lisa Higgs, CAO/Clerk
Township of Southwold
35663 Fingal Line
Fingal, Ontario N0L 1K0
Tel: 519-769-2010
Email: cao@southwold.ca

Scott Praill, Project Manager
Dillon Consulting Limited
10 Fifth Street South
Chatham, Ontario N7M 4V4
Tel: 519-354-7868 ext. 3320
Email: sheddenandfingal@dillon.ca

In addition, a request may be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e. requiring an individual/comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g. require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Requests on other grounds will not be considered. Requests should include the requester contact information and full name.

Requests should specify what kind of order is being requested (request for additional conditions or a request for an individual/comprehensive EA), how an order may prevent, mitigate or remedy those potential adverse impacts on constitutionally protected Aboriginal and treaty rights, and any information in support of the statements in the request. This will ensure that the ministry is able to begin reviewing the request efficiently.

The request should be sent in writing or by email to:

Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto ON, M4V 1P5
EABDirector@ontario.ca

Requests should also be copied to the project team by mail or by e-mail.

Please visit the ministry's website for more information on requests for orders under section 16 of the Environmental Assessment Act at: https://www.ontario.ca/page/class-environmentalassessments-part-ii-order.

All personal information included in your request – such as name, address, telephone number and property location – is collected, under the authority of section 30 of the Environmental Assessment Act and is collected and maintained for the purpose of creating a record that is available to the general public. As this information is collected for the purpose of a public record, the protection of personal information provided in the *Freedom of Information and Protection of Privacy Act* (FIPPA) does not apply (s.37). Personal information you submit will become part of a public record that is available to the general public unless you request that your personal information remain confidential.

This Notice issued March 4 and 11, 2021.

Table of Contents

Figures

Tables

Appendices

1.0 Introduction

The settlement areas of Shedden and Fingal are two small hamlets within the Township of Southwold, Ontario. Over the last few years, Talbotville, another hamlet in the township has experienced significant growth and it is expected that Sheddan and Fingal will also see increasing residential growth pressure. The Township of Southwold is undertaking this Class Environmental Assessment to develop a long-term solution to service potential new growth and provide a wastewater treatment strategy for the communities of Shedden and Fingal. The study reviewed a number of wastewater servicing alternatives including constructing a new treatment facility (or facilities) and diverting the communities' wastewater to a nearby wastewater treatment plant outside the township.

The strategy identified through this study was developed to support long term growth in both communities. Accommodation was also made for the potential to provide municipal sanitary servicing to existing properties in both communities.

The study followed the Municipal Class Environmental Assessment (EA) process, which is a planning process to guide decision making on municipal infrastructure which municipal proponents must use to make infrastructure decisions. The preferred alternative resulting from this process is a new wastewater treatment facility located south of Shedden on Union Road to service the community's needs now and in the future. As noted in Section 5 – Recommended Design Concept, the preferred alternative is being recommended as a ready-to-implement solution for the Township of Southwold when needed in the future. This Environmental Study Report (ESR) summarizes the Class EA process and associated consultation. Technical details and consultation materials have been included as appendices to this ESR. Following a 30 day public and agency review process the recommendations in this ESR are considered to be approved subject to comments received.

Similar to many EA processes there are multiple decisions to make while evaluating alternative for this report. The decisions include: do nothing, connect to another municipality to provide the service or construct a new facility, As those considerations are evaluated there are several factors to consider, because there are more than one community does it make sense to build a facility in each community. Which technology such be used for the solution, and the location of a facility.

In order to organize the process and this report, the decision making sequence will recommend a preferred alternative. The report will then consider if one facility or two are recommended. Technology for a solution will then be considered and finally where the recommended location of that facility would be. Additionally it should be noted that only land owned currently by Southwold will be consider as locations.

1.1 Study Area

The Study Area for this project is the Shedden and Fingal Settlement Areas, defined in the Township of Southwold Official Plan and located within the Township, Elgin County (shown in **Figure 1**).

1.2 Class EA Process

Municipal infrastructure projects must meet the requirements of the *Environmental Assessment Act (R.S.O. 1990, c. E18)*. The Municipal Class EA process (October 2000, as amended in 2007, 2011 and 2015), applies to a group or "class" of municipal infrastructure projects which occur frequently and have relatively minor and predictable impacts.[1] These projects are approved under the *EA Act*, as long as they are planned, designed and constructed according to the requirements of the Class EA.

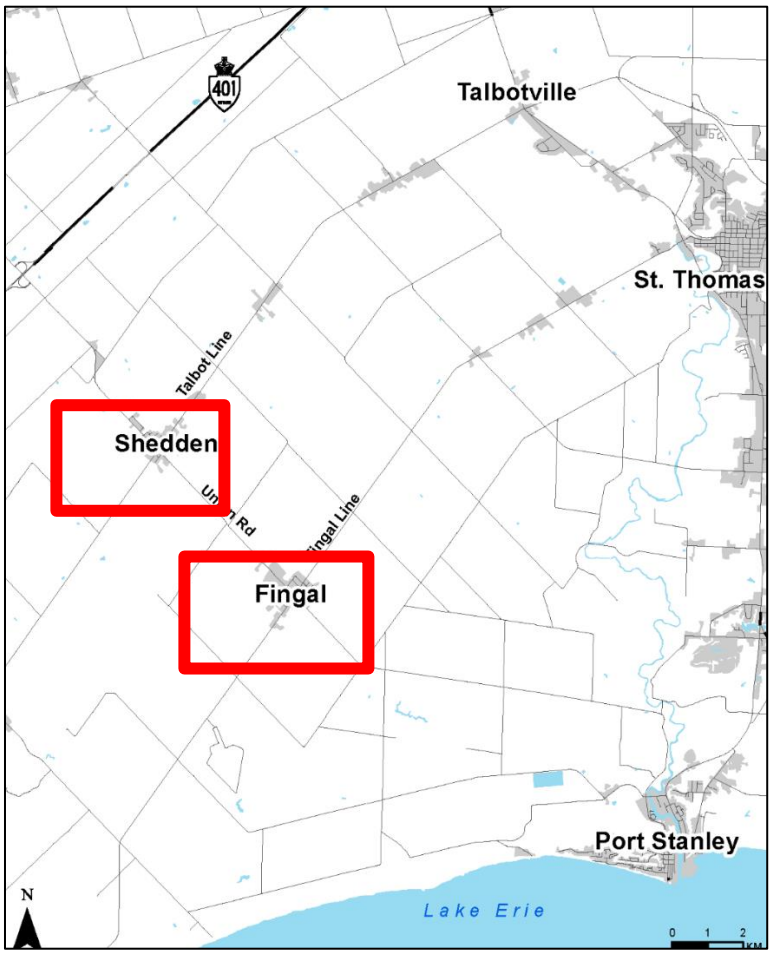

Figure 1: Communities of Shedden and Fingal

[1] It is noted that the Municipal Engineers Association as proposed amendments to the Municipal Class Environmental Assessment including changes to project schedules. As of February 2021 these amendments were not yet approved.

The specific requirements of the Class EA for a particular project depend on the type of project, its complexity, the significance of environmental impacts and cost of the project. There are four categories of projects increasing in complexity from Schedule 'A', 'A+', 'B' to 'C'. The Shedden and Fingal Wastewater Strategy Class Environmental Assessment project involves the construction of a new sewage plant and is categorized as a Schedule 'C' project in the Municipal Class EA *(pg. I-18 of the Municipal Class EA, 2015).*

Schedule 'C' projects must proceed through all of the following four phases of the Class EA process prior to implementation:

- Phase 1 – Outline the Problem/Opportunity
- Phase 2 – Develop and evaluate "Alternative Solutions" and select a preferred solution
- Phase 3 – Develop and evaluate "Alternative Design Concepts" and select a preferred design
- Phase 4 – Prepare an ESR to document the decision making process, including public and agency consultation completed.

The ESR is made available for a 30 day public and agency review period. As outlined by recent Provincial government amendments, the ESR is eligible for Part II Orders reserved for concern(s) related to Aboriginal or Treaty Land Claims only. During that period, any individual or agency with significant concerns may write to the Ministry of the Environment, Conservation and Parks (MECP) requesting that the Minister issue a Part II Order to elevate the status of the project to a higher level of study (an individual/comprehensive EA approval required in order to proceed), or that conditions be imposed (e.g., require further studies). Any Part II Order request and supporting information must be submitted to MECP. A copy of the request and any supporting information must also be forwarded to the Township of Southwold.

If no Part II Order requests are received by MECP during the 30-day period, the project may proceed to Detailed Design, permitting and construction.

2.0 Project Need and Justification

2.1 Background Context

The settlement areas of Shedden and Fingal are located west of St. Thomas, within Elgin County. The areas are part of the Township of Southwold. The Shedden and Fingal settlement areas are both considered 'Hamlets'.

The Shedden Settlement Area is primarily comprised of lands designated as 'residential', with a small number of areas designated as 'General Commercial' and 'Industrial', as identified in Schedule 'A-3' of the Official Plan. The Fingal Settlement Area is primarily comprised of lands designated as 'residential', with a small number of 'General Commercial' and 'Open Space', as identified in Schedule 'A-2' of the Official Plan. Surrounding land in the area is mostly agricultural lands used for the production of cash crops.

The communities of Shedden and Fingal are currently serviced with municipal water, provided via regional water supply, and there is sufficient capacity to service both communities. Drainage is provided by several municipal drains, and sewage is addressed by individual septic tanks and septic drainfield systems.

Overall direction on land use planning and development for municipalities within the Province is provided by the Provincial Policy Statement (PPS) (2020). The PPS requires that municipal water and wastewater servicing be considered prior to new development to promote '*building strong healthy communities*'. The Township of Southwold Official Plan (OP) (2013) identifies a 20 year vision for a growth strategy in the communities, outlining the objectives and policies for development within the Township. Shedden and Fingal are Settlement Areas in the Township OP which are expected to have the highest concentration and intensity of land uses and will be the focus of growth for the Township. A new Official Plan for the Township of Southwold is under review and pending approval from the Town Council, the report makes references to Official Plan (OP) (2013). Some of the Official Plan policies related to growth and servicing in the Township include:

Official Plan Section 1.7, Growth Strategy and Community Structure:

> *"... Until full municipal services or an adequate alternative to partial services are provided, development will be restricted to infilling and rounding out existing development."*

Official Plan Section 4.3.4 Development of Lands in Settlement Areas:

> *"Settlement Areas are intended to be serviced with full municipal services. Where development is proposed to be serviced by other than full municipal services, justification will be provided by an*

Interim Servicing Study to demonstrate that private services will be acceptable for an interim period until full services are available.

An Interim Servicing Study will be required where a plan of subdivision or condominium creating 5 or more lots/units is proposed and may be required where the total number of new developable lots within the settlement area created through the consent process exceeds 5 lots/units."

In 2013, a study was completed for the Township (*Zelinka Priamo Ltd*, July 2013) to determine a set of alternatives for providing servicing to Settlement Areas within the Township's Official Plan. In order to determine the servicing requirements to support future development, the 2013 study considered an increase of Equivalent Residential Units (ERUs) within the communities allocated vacant land supply from 93 without full municipal services, to 505 with full municipal services.

The assumed future flows projected for this study utilized the following socio-economic units, determined during the 2013 study, and applied them to further identify the need for future servicing – assuming a full build-out in the settlement areas were to occur. The population values in **Table 2-1** were based upon the *2013 Township of Southwold Small Settlement Servicing Study (Zelinka Priamo Ltd).*

Table 2-1: Existing Condition Population Values

	Shedden	Fingal
Settlement Boundary (ha)	182	92
Current Population	406	370
Existing Residential Units	145	130
Future Residential Units	245	260
Total Community Units	390	390
Estimated Future Population (based on full build-out of settlement area, assuming 2.8 people/household)	686	728
Vacant Residential Land Supply (ha)	45.4	41.0

With the expectation that the future growth interest seen in Talbotville is likely to manifest in Shedden and Fingal, this EA considered servicing requirements for a full build-out of the available vacant land.

2.2 Problem/Opportunity Statement

Based on the Township's desire for growth and the current waste water servicing capacity constraints, the following Problem/Opportunity Statement was developed as part of Phase 1 of the Class EA process:

> *Recognizing the importance of growth within its communities, the Township of Southwold has initiated a Class EA to determine the best way to provide municipal sanitary services for Shedden and Fingal over the next 20 years. The goal of the Master Servicing Plan is to develop a plan that is:*
>
> - *Economically sustainable for residents and the Township*
> - *Environmentally responsible*
> - *Provides opportunities for growth within the communities.*

The problem/opportunity statement was presented at the first PIC and no suggested revisions were requested. Since beginning this process Southwold has reviewed community growth, and recognizes that these two communities have grown in a manageable way for many years. The existing OP allows for similar growth to continue. This problem /opportunity has been considered if development pressures arise in the communities to be prepared for faster growth. It is not anticipated immediate implementation of this plan will be required.

3.0 Phase 2 – Alternative Solutions

3.1 Alternative Solutions Considered

Phase 2 of the Class EA focussed on identifying an overall approach to address the need to provide wastewater treatment capacity for the communities of Shedden and Fingal to support future growth. Several alternatives to provide wastewater servicing were considered. It was assumed that a common approach would be taken to servicing both Shedden and Fingal and each of the alternatives considered both communities.

As part of Phase 2 of the Class EA, the following alternative solutions to address the problem/opportunity were identified:

- **Do Nothing** – This alternative continues the use of private septic systems to treat wastewater. Based on the OP and PPS private septic systems cannot provide the servicing capacity to serve future growth within Shedden and/or Fingal. This "do nothing" alternative was still considered, as a way to test that proposed improvements are, on balance, preferred over the status quo.
- **Connect to a Neighboring Treatment Facility** – The potential to send sewage from Shedden and Fingal to the St. Thomas Wastewater Treatment Plant (WWTP) or Port Stanley WWTP was considered. This alternative would require sewage from Shedden and Fingal to be pumped up to 12 km to be treated.

- **Construct a New Municipality Treatment Facility(s)** – Construct a new municipal sewage treatment facility in Shedden and/or Fingal. The facility would be owned and operated by the Township.

3.2 Evaluation of Alternative Solutions

The alternative solutions were evaluated using criteria developed to address the full definition of the environment as required in the Class EA process including: natural environment, socio-cultural environment, technical considerations, and cost. Criteria and indicators for the evaluation of the alternative solutions are presented in **Table 3-1**. The completed evaluation of alternative solutions is included in **Table 3-2**.

Based on the completed evaluation, **Alternative 3 – Construct a New Municipal Treatment Facility** is recommended as the preferred solution to providing treatment capacity for both Shedden and Fingal. Alternative 3 is the most expensive alternative but it provides the greatest flexibility for the communities to accommodate future development. It provides a reliable and scalable treatment process that can meet approval requirements.

Alternative 1 – Do Nothing/Status Quo was not preferred as it does not provide servicing for future development. While there is limited potential for construction impacts as a new facility is not included, there is ongoing potential of environmental impacts as existing septic systems reach the end of their life. It is noted that should community growth be limited and lot fabric and intensified development not requested in the future, this solution of the status quo could continue.

Alternative 2 – Connect to a Neighbouring Treatment Facility, provides a reliable treatment method however the Township does not presently have agreements to obtain treatment capacity at either the Port Stanley or St. Thomas wastewater treatment facilities. It is understood that neither plant has the capacity to accept flows from Shedden and Fingal and plant expansions may be required to accommodate these flows. This alternative also restricts potential development to what an adjacent municipality may allow.

The following summarizes the key benefits of Alternative 3 - Construct a New Municipal Treatment Facility:

- Meets the objectives outlined in the Problem/Opportunity Statement
- Can be designed to meet or exceed the treatment requirements for local receivers
- Not reliant on the permission of nearby municipalities to make decisions on growth in the Shedden and Fingal communities
- Provides flexible and reliable treatment for both short and long term growth
- Presents limited potential for significant impacts to the natural environment as the discharge to local watercourses will meet stringent discharge criteria and the siting of the facility can be completed to minimize the potential for impact to the terrestrial environment.

Table 3-1: Wastewater Treatment Alternative Solutions: Evaluation Criteria

Criteria	Indicator
Cultural and Socio-Economic Environment	
Accommodates Planned Future Growth	Ability to meet short and long term growth.
Impacts to archaeological, cultural heritage and built heritage resources	Potential for adverse impacts to archaeological, cultural heritage and built heritage resources.
Natural Environment	
Impacts on Natural Environmental and Water Quality	Potential for adverse impacts to the receiving water quality and terrestrial and aquatic systems.
Potential for impact on terrestrial environment	Potential for impact on terrestrial systems.
Technical Performance	
Performance Flexibility	Flexibility of the technology/equipment and ability to adapt to Shedden and Fingal needs over the planning period.
Approval Potential	Likelihood of receiving MECP approval.
Ease of Construction and Operation	Relative ease to implement/construct and maintain/operate the proposed alternative.
	Relative ease with which the alternative could be expanded in the future.
Reliability	Ability of the technology/equipment associated with the alternative to handle variable loadings and flows.
	Ability of the alternative to operate during a power failure.
Feasibility	
Regulatory and Compliance Requirements	Ability to meet current and future regulatory requirements.
Cost	
Capital Cost	Relative capital cost.
Operating and Maintenance Cost	Relative annual operating costs (including labour, energy, and ongoing routine operating and maintenance activities).

Table 3-2: Evaluation of Alternative Solutions

Evaluation Criteria	Indicators	Alternative 1 – Do Nothing	Alternative 2 – Connect to a Neighbouring Treatment Facility	Alternative 3 – Construct a New Municipal Treatment Facility
	Legend	**Red Shading = Least Preferred**	**Yellow Shading = Less Preferred**	**Green Shading = Preferred**
Socio-Economic Environment				
Accommodates Planned Future Growth	Ability to meet short and long term growth.	Status quo can accommodate short term growth. However, servicing of existing development may be constrained when existing septic systems require replacement if land for new leaching beds is not available. Status quo lacks centralized treatment and cannot accommodate large developments in Shedden and Fingal.	Wastewater treatment allocation to St. Thomas WWTP and Port Stanley WWTP is constrained and does not presently allow for diversion of existing flows from Shedden and Fingal for treatment, or expanded flows from future development.	New facility would be designed to accommodate existing users and proposed short and long term growth.
Impacts to archaeological, cultural heritage and built heritage resources	Potential for adverse impacts to archaeological, cultural heritage and built heritage resources.	No potential for impacts to archaeological, cultural and built heritage resources as no new facility construction.	No potential for impacts to archaeological, cultural and built heritage resources as no new facility construction. It is assumed that the forcemain to transport wastewater to the existing treatment plants would be within the road right-of-way.	The construction of a new facility has the potential for impacts to archaeological, cultural and built heritage resources depending on location. It is assumed that the forcemain to transport wastewater to the existing treatment plants would be within the road right-of-way.
Natural Environment				
Impacts on Natural Environment and Water Quality	Potential for adverse impacts to the receiving water quality and aquatic systems.	Failing and poorly maintained private systems can have significant negative environmental impacts. There is a potential for future impacts to the environment, in the form of breakthrough of nutrients and bacteria from leaching beds to receiving water bodies, as a result of the construction of new leaching bed systems.	Sewage flows would be treated in an existing treatment facility operating in accordance with Ministry of Environment Conservation and Parks approval. All sewage from Shedden and Fingal would be appropriately treated prior to discharge to the environment.	Sewage flows would be treated in a new treatment facility which would operate in accordance with Ministry of Environment Conservation and Parks approval. All sewage would be appropriately treated prior to discharge. .
Potential for impact on terrestrial environment	Potential for impact on terrestrial systems.	The status quo does not involve construction and there is no potential for impact on terrestrial systems.	Connecting to an existing treatment plant does not involve construction of a new facility and there is no potential for impact on terrestrial systems. It is assumed that the forcemain to transport wastewater to the existing treatment plants would be within the road right-of-way.	Constructing a new treatment plant will require developing a new site. Site selection will consider opportunities to minimize impact on natural habitats.
Technical Performance				
Performance Flexibility	Flexibility of the technology/equipment and ability to adapt to Shedden and Fingal needs over the planning period.	No change. Subsurface discharge is an established technology but does not address requirements for replacement of systems reaching the end of their useful life, capacity expansion or servicing of new large developments (existing private systems may be reaching end of life expectancy and may not be able to be replaced).	Wastewater conveyance is a reliable approach to managing flows remote from centralized treatment. Receiving treatment plants operate reliable treatment processes.	Established treatment process would be selected, meeting required effluent performance limits.
Approval Potential	Likelihood of receiving MECP approval.	No approval required.	Approval required. Established process which is likely to receive approval from environmental regulators.	Approval required. Established process which is likely to receive approval from environmental regulators.
Ease of Construction and Operation	Relative ease to implement/construct and maintain/operate the proposed alternative.	No construction for existing facilities. Construction for new systems (i.e., septic tile beds or more sophisticated domestic systems) within new developments may be complex and potentially not permitted. Operation of individual systems is minimal and completed by the property owner.	Somewhat complex construction involving a pumping station and long forcemain installation with watercourse crossings and tie-in to existing treatment facility infrastructure or upstream collection systems. Operation of system would ultimately be maintained by separate authority.	Complex facility construction, including collection system, potential pumping station, forcemain and treatment plant. Complexity of construction may be reduced through the selection of packaged or modular treatment processes. Operation of facility would be assumed by the Township of Southwold.

Evaluation Criteria	Indicators	Alternative 1 – Do Nothing	Alternative 2 – Connect to a Neighbouring Treatment Facility	Alternative 3 – Construct a New Municipal Treatment Facility
	Legend	**Red Shading = Least Preferred**	**Yellow Shading = Less Preferred**	**Green Shading = Preferred**
	Relative ease with which the alternative could be expanded in the future.	Existing leaching beds may not easily replaced to accommodate ongoing flows from existing users. Space requirements for new leaching bed construction may limit the practicality of infill development within communities.	The capacity of the existing treatment facilities has been allocated and is not available presently. If flow from Shedden and Fingal were accepted at these facilities in the future, it could require costly capital expansions to these systems. There is a further risk that if allocated a fixed capacity, Shedden and Fingal may not have access to additional capacity if required in the future.	A new facility can be constructed to allow for future expansion. The facility design can involve modular or phased construction where only the capacity required is constructed initially and expanded in the future as the number of users increases.
Reliability	Ability of the technology/equipment associated with the alternative to handle variable loadings and flows.	Continued subsurface discharge may result in environmental impacts as existing private systems deteriorate. Replacement for existing systems may not be able to be accommodated on existing lot fabric in these communities.	The neighbouring facilities have treatment processes that can reliably manage variable loadings and flows.	A reliable treatment process will be selected to accommodate current and future flows.
	Ability of the alternative to operate during a power failure.	Private owners must address system failures as required.	Proper redundancy could be included to address failure conditions.	Redundant equipment will be included in the facility design to reduce the likelihood for interruptions in treatment even under failure conditions.
Feasibility				
Regulatory and Compliance Requirements	Ability to meet current and future regulatory requirements.	Subsurface discharge would not be permitted for new large developments. Lot sizes for private development would have to be large enough to accommodate minimum setbacks, limiting the density and type of future development including infill.	Established process which is likely to receive approval from environmental regulators. Municipal agreements to discharge to existing facilities are unlikely to be obtained.	Facility will be subject to approval from environmental regulators and the local conservation authority. It is reasonable to assume that approval for a new wastewater treatment facility can be obtained.
Cost				
Capital Cost	Relative Capital Cost.	Low relative capital cost to municipality. High capital cost for individual users both for initial construction and maintenance replacement. Lot design and size may require more advanced subsurface discharge systems than traditional septic leaching beds which may further increase costs. Impacts of failed private systems can lead to high costs to the municipality to address.	High capital cost to construct forcemain and pumping station, and to purchase capacity allocation from receiving facility. Southwold would need to pay for any new costs to expand the existing facility.	Highest capital cost to construct a new treatment facility and construct the forcemain and pumping station to convey sewage to that facility.
Operating and Maintenance Cost	Relative annual operating costs (including labour, energy, and ongoing routine operating and maintenance activities).	Low relative operating and maintenance cost to municipality. Higher operating costs if more sophisticated onsite treatment is used.	Moderate operating cost. Ongoing costs associated with pump operation for forcemain. Operation and maintenance costs associated with the share of receiving treatment capacity allocated to the municipality.	Moderate operating costs. Costs associated with electricity, consumables, sludge disposal, periodic maintenance, equipment replacement and operator labour.
Overall Evaluation		**Not Preferred:** ***Alternative 1 is not preferred as it does not provide servicing for future development. While there is limited potential for construction impacts as a new facility is not included, there is ongoing potential of environmental impacts as existing septic systems reach the end of their life.*** *Note: Should community growth be limited and lot fabric and intensified development not requested in the future, this solution of the status quo could continue.*	**Not Preferred:** ***Alternative 2 is not preferred as the Township does not presently have agreements to obtain treatment capacity at either the Port Stanley or St. Thomas wastewater treatment facilities. It is understood that neither plant has the capacity to accept flows from Shedden and Fingal and plant expansions may be required to accommodate these flows. This alternative also restricts potential development to what an adjacent municipality may allow.***	***Preferred: Alternative 3 is the most expensive alternative but it provides the greatest flexibility for the community to accommodate future development. It provides a reliable and scalable treatment process that can meet approval requirements.***

3.3 Facility Location

Two options for a facility location were considered – one facility for each community (i.e., one for Shedden and one for Fingal); or one shared facility serving both communities which would be located at either of the two locations, only sites owned by the municipality were considered in each community. **Table 3-3** presents the criteria used and the evaluation for determining if one facility or two facilities would be the preferred option. Based on the evaluation, one facility for both communities is preferred as it would accommodate future growth, would have less potential for impact on receiving waters, would be easier to construct and operate with flexibility for expansion, and has a lower cost.

Table 3-3: Evaluation of One Facility vs Two Facilities

Criteria/Indicator	One Facility	Two Facilities
	Green Shading = Preferred	Yellow Shading = Less preferred
Socio-Economic Environment		
Accommodates Planned Future Growth	A combined facility will meet the population demands and can be expanded when necessary.	Each community would be accommodated with their own facility. Expansion can occur when necessary for each community.
Protection of the Natural Environment		
Impacts on Receiving Water Quality	Facility would operate according to a new approval that is required to meet a level of treatment based on provincial standards. High quality effluent may improve the water quality of the water body during low-no flow periods.	Similar to one facility, however, a second facility has a greater total footprint and impacts both branches of Talbot Creek rather than one.
Technical Performance		
Ease of Construction and Operation	Simpler to construct with only one facility site and less overall operational complexity. A pumping station would be required in the community that does not have the treatment plant.	More complex to construct with two facility site areas and greater overall operational complexity. No pumping station would be required.
Expandability	Expansion of a single facility and pump station required to accommodate future growth.	Separate expansion at both facilities is potentially required to accommodate future growth, adding to complexity and cost.
Cost		
Capital Cost	$7.7M	$10.4 M
Operations and Maintenance, Including Capital Replacement Allowance	$490,000	$650,000
Estimated Lifecycle Cost (over a 20-year period) Based on Above Costs	$14M	$20.1M
Overall Evaluation	**Preferred**	Not Preferred

Since the evaluation determined that one facility serving both communities was preferred, the next step was to consider potential locations for a proposed treatment facility. Two potential locations (**Figure 2**) were considered:

- **Location #1** – Agricultural property south of Shedden presently owned by the Township. The site contains a floodplain, an artificial slope associated with a man-made pond and is located near the northern branch of Talbot Creek. The site area is approximately 9,000 m^2; large enough to accommodate a wastewater treatment plant and potential expansions in the future.
- **Location #2** –North of the Fingal Ball Park area within the community of Fingal. This site is adjacent to farm lands, residential property, and the south branch of Talbot Creek. Some treed areas are located on and adjacent to the site. The site area is approximately 4,000 m^2; large enough to accommodate a wastewater treatment plant and potential expansions in the future.

Figure 2: Potential Locations

Table 3-4 illustrates the advantages and disadvantages of the two locations. As shown in the table, Location #2 has more disadvantages and is not as desirable as Location #1. In particular, Location 2 is within an existing public park which would require use of a common access shared with recreational facilities. Location 2 is also located closer to residential development and has a greater potential for noise and odour impacts on nearby residents. The preferred location is south of Shedden Drive on Union Road (Location #1). Key determining factors in the location decision were land ownership and proximity to a receiving watercourse.

Table 3-4: Evaluation of Location Alternatives

	Advantages	Disadvantages
Location #1 – Shedden	• Easy access to a road. • Close proximity to watercourse. • Is large enough to accommodate the treatment plant. • Property is owned by the Township.	• Floodplain nearby; constricts the area suitable for construction.
Location #2 – Fingal	• Close proximity to watercourse. • Is large enough to accommodate the treatment plant.	• No access to a nearby road; would have to go through private property or the existing parkland access road. • Small woodland Located on the site of an existing park. Development of the north portion of the park may conflict with future potential recreation uses. • Located within the developed area of the Fingal community. Maintaining appropriate setbacks to nearby residents and receptors is a consideration.

4.0 Phase 3 – Design Alternatives

Phase 3 of the Class EA process involves developing and evaluating alternative design concepts for the preferred solution, one new municipal treatment facility for both communities located in Shedden. The consideration of alternative design concepts included consideration of treatment and collection systems. This section of the ESR summaries the work completed on each of these components. Additional information is included in **Appendix 1**.

4.1 Treatment Alternatives

The new treatment facility would be designed to accommodate the existing users and the future proposed developments in the communities of Shedden and Fingal. Potential for construction phasing is considered, but the specific phasing sequence or order of connection for users (i.e., new developments, existing residents and projected growth through infill or single-lot construction) is not considered at this time. A potential generic technology was selected in order to establish the size and location of potential treatment system sites.

A conventional municipal WWTP generally includes the following unit processes:

- **Peak flow management**: Management of short-term high flow periods to or within the treatment plant, including the potential storage of excess wet weather flows.
- **Preliminary treatment**: Inlet works or headworks processes to remove solids and grit. The type of preliminary treatment required may vary depending on the requirements of the selected secondary treatment process.
- **Primary Treatment**: This typically consists of primary clarification units. Primary treatment may not be necessary ahead of secondary treatment for some technologies.
- **Secondary treatment**: biological process such as suspended growth, fixed film or hybrid process to achieve removal of organic material through oxidation of dissolved and particulate biodegradable constituents. Solids separation is incorporated into secondary treatment for further removal of Total Suspended Solids (TSS) prior to discharge.
- **Tertiary filtration**: Treatment to further improve quality of effluent prior to discharge. Tertiary filtration may be included to provide additional removal of TSS, and removal of total phosphorus (TP).
- **Disinfection**: Inactivation of microbial contaminants prior to effluent discharge.
- **Sludge management**: Collection, storage, stabilization and volume reduction of waste sludge generated as part of the treatment process. The complexity of the sludge management system required may vary based on secondary treatment technology.

The local receiving waterbody for a new treatment facility, Talbot Creek, has a low flow rate and is impacted by elevated total phosphorous levels. Given this, discharge to Talbot Creek will require a secondary treatment system with tertiary filtration and disinfection.

As there are various secondary treatment technologies, alternatives were considered for this component of the treatment process. Initially a long list of secondary treatment technologies was identified and screened to focus on technologies most appropriate for the Shedden and Fingal context, then the short listed treatment technologies were evaluation to identify a preferred technology.

4.1.1 Screening of Alternative Technologies

The following secondary treatment technologies were considered to address the immediate and long-term wastewater treatment servicing needs:

- Extended Aeration (EA).
- Membrane Bioreactor (MBR).
- Rotating Biological Contactor (RBC).
- Biological Aerated Filter (BAF).
- Aerated Lagoon with Submerged Aerated Gravel Reactor (SAGR).
- Moving-Bed Biofilm Reactor (MBBR).

Appendix 1 explains each of the technologies considered, their key advantages and disadvantages. Screening criteria were developed to identify and eliminate treatment alternatives and process options that would not be applicable, feasible or practical for the Shedden-Fingal WWTP. To be considered feasible or practical, alternatives must meet all of the following screening criteria:

- Operational and Performance Objectives – Can the treatment process reliably meet the needs of the municipality and the specific requirements for discharge to Talbot Creek?
- Experience and Implementation – Is the process well-established as an accepted treatment alternative?
- Expandability – Is the process capable of expansion to accommodate growth or the gradual connection of users?

The results of this screening, as summarized in **Table 4-1**, identified two short list alternatives that were considered further:

- Extended Aeration Treatment.
- Membrane Biological Reactor Treatment.

Table 4-1: Summary of Alternative Treatment Technologies Screening

Alternative	Operational and Performance Objectives	Experience and Implementation	Expandability	Should the Alternative be on the Short List?
Extended Aeration	Y	Y	Y	Y
MBR	Y	Y	Y	Y
RBC	N	Y	N	N
BAF	Y	Y	N	N
Lagoon Aeration	N	Y	N	N
MBBR	N	Y	Y	N

4.1.2 Evaluation of Short-Listed Treatment Alternatives

The two short-listed treatment design alternatives were developed based on the following key objectives:

- Minimize negative impacts on the natural environment.
- Increase treatment capacity to accommodate the Townships goal of pursuing future residential, commercial, and industrial development.
- Provide a design which can be constructed in phases to accommodate gradual growth in the community.

Both alternatives were developed based upon their “ultimate build out” configuration servicing both current residents of Shedden and Fingal presently connected to on-site systems and future users from

new developments. Consideration for the relative cost of a "phased" approach, consisting of an initial 25% capacity construction is included.

The following provides a brief overview of the short-listed design alternatives. Additional information is included in **Appendix 1.** Following the description of the alternatives, **Table 4-2** presents the criteria and indicators used for the evaluation of the alternative designs and summarizes the evaluation results.
It is noted that the construction footprint for the design options is restricted to the municipally owned property at the Shedden location. Additionally, the alternatives considered will have a similar potential for impacts on the natural environment, socio-economic and cultural environments and therefore these criteria groups are not included in **Table 4-2**.

- Treatment Alternative #1 – The extended aeration process consists of aerated tanks containing microbes that break down organic compounds from wastewater and remove nutrients. It is followed by a settling tank where sludge is removed from treated wastewater and a final filtration step occurs to remove the remaining solids and phosphorous before disinfection and discharge. This alternative is easy to operate and is a common and proven technology. The footprint of Alternative #1 is approximately 1600 m^2.
- Treatment Alternative #2 – The Membrane Bioreactor (MBR) process consists of aerated tanks containing microbes that remove organics and nutrients at a much higher concentration than possible with the extended aeration process. This allows treatment tanks to be constructed in a smaller footprint. A specialized fine-pore filter membrane inside the aeration tank separates the treated wastewater from sludge and does not require final filtration before disinfection and discharge. The footprint of Alternative #2 is approximately 1000 m^2.

Based on the evaluation summarized in **Table 4-2**, the **MBR technology** is preferred for implementation. Some of the key benefits of this alternative are its high quality effluent and smaller footprint. This modular nature of this alternative also makes it well suited to phased construction with additions over time. While the total lifecycle cost of the MBR process is estimated to greater than the extended aeration process over 20-years of operation following the construction of full build-out treatment capacity, an initial phase with a capacity matching present community needs, or the needs of an initial phase of new development may be constructed at much lower cost than for extended aeration. It is possible the full build-out phase may not occur for an extended period of time, increasing the value of reducing the cost of the initial phase of construction. This is well suited to the townships needs as only a small fraction of the ultimate capacity may be required for an extended period of time depending on the pace of development.

If community growth is slow, the capital required to provide the service and the ultimate build out costs would be deferred.

Table 4-2: Evaluation of Short-Listed Treatment Alternatives

Criteria Group/ Criterion	Indicator	Extended Aeration	MBR
Legend:	**Green Shading = preferred**	**Yellow Shading = less preferred**	
Technical Performance			
Treatment Performance	Capability of technology to meet effluent objectives.	Requires tertiary filtration to achieve phosphorus removal.	High quality effluent.
Ease of Operation	Relative ease to implement/construct and maintain/operate the proposed alternative.	Less automated process. Slightly less robust to accommodate variability in flow and loading.	Automated process. Knowledgeable operations staff required may be shared from existing Talbotville facility. More robust to accommodate variability in flow and loading.
	Ease of expandability.	Room for expansion.	Room for expansion.
Feasibility			
System Size	Relative footprint of the technology.	Comparatively larger footprint. Greater construction complexity. (approx. 1600 m^2 developed site area)	Small footprint. Facility can be constructed easily at the proposed location. (approx. 1000 m^2 developed site area)
Feasibility of Implementation	Feasibility and practicality of implementing the alternative.	Conventional (concrete tank) construction is more complex and involves greater site disturbance. Greater potential for off-site impacts may complicate implementation.	Modular construction less complex and involves less site disturbance. Contained, containerized construction minimizes off-site impacts.
Practicality of Phased Construction	Ease with which phasing may be accomplished. Relative costs of phased construction.	Most of the cost of constructing the system must be spent upfront with limited savings available by phasing construction.	More suited to phased construction. Modular designs are available that allow for construction of smaller initial phases at a lower fraction of the total cost for complete build-out.
Cost			
Initial 25% capacity capital cost	Estimated initial capital costs	$5.8M	$2.5M
Initial Phase Operating Cost	Estimated initial operating costs	$220,000	$180,000
Capital Cost (Single Facility)	Relative capital costs	$7.5M	$7.7M
Operating and Maintenance Cost	Relative operating costs	$350,000	$490,000
Life Cycle (ultimate build out)		$12.7M	$15.1
Overall Evaluation		***Not Preferred***	***Preferred***

4.2 Local Collection System

A new local collection system will be required to allow for the eventual servicing of existing businesses and residences in Shedden and Fingal through the centralized treatment process.

The following two conveyance approaches are possible:

- Gravity Sewer Collection System – Gravity sewers are the most common form of municipal collection system. In a gravity sewer, the collection main must be buried a sufficient depth to be below the basements of connecting residences to reduce the likelihood of backups. A gravity collection system also requires a minimum slope, determined by the size and capacity of the sewer pipe. The requirement to slope the sewer pipe leads to gradually deeper depths of bury along a single sewer run, particularly in areas such as Shedden and Fingal with minimal natural topography. For this reason, gravity sewer networks may either become very deep (and costly to install) or require intermediate pumping stations within the collection network to raise flow to an acceptable depth. Once constructed, gravity collection systems require very little maintenance and can have a long service lifespan.
- Low Pressure Collection System – Low pressure sewer (LPS) collection systems are a newer form of conveyance that has been used in some applications. In LPS applications, each connection is equipped with a small integrated tank and pump system. Pumps are designed to discharge into a pressurized collection main. The pressurized flow allows for the use of smaller, less costly piping, which can be buried at a shallow depth that minimizes ground disturbance. Overall up-front capital costs of LPS systems are typically lower than conventional gravity sewer systems but LPS systems require ongoing maintenance to individual pumping systems which result in higher long term operational costs.

Potential collection sewer servicing layouts for both Shedden and Fingal are shown in **Figure 3** and **Figure 4**.

Figure 3: Potential Shedden Collection System

Figure 4: Potential Fingal Collection System

As shown in **Table 4-3** below, there are advantages and disadvantages for each of the possible collection systems. Overall it is anticipated that gravity and low pressure sewer systems will have similar lifecycle costs. Low pressure sewers require a greater level of care and maintenance and are typically not recommended in Ontario except in instances where construction of conventional sewers is not possible, such as shoreline areas with high groundwater. A final decision on the type of collection system to be implemented for each community should be made when the decision is made to move forward with servicing existing residents.

Table 4-3: Advantages and Disadvantages of Possible Collection Systems

	Advantages	Disadvantages
Gravity Collection System	• Conventional servicing approach. • Minimal ongoing maintenance. • All pumping is located at centralized pumping stations on municipal property.	• Disruptive construction in existing residential areas. • High per-household installation cost. • Minimal drainage slope within Shedden and Fingal communities results in deeper sewer construction at greater cost. • Higher overall cost to residents to implement (approx. $12.3Million).
Low Pressure Sewers	• Installation of shallow, small diameter pressure sewers means construction is less disruptive. • Consistent, modular design of pumping units simplifies maintenance. • Reduced per-household servicing cost. Estimated cost is $5.9 million for both communities.	• Larger number of pumps required as unit required at each household. • Ongoing operational cost for replacement of pump units. • Operational risk associated with power outages at residences and more complex connection of each residence. • Not typically recommended where conventional sewers are possible.

5.0 Recommended Design Concept

Based on the evaluation of the alternative design concepts, the recommended alternative for the construction of the new treatment facility will include the construction of a single treatment facility employing an MBR treatment process at the location approximately 1.2 km south of Shedden on Union Road. Further information on the design is included in **Appendix 1**.

6.0 Anticipated Impacts and Mitigation Measures

The following summarizes the socio-cultural and natural environments where the new facility is proposed (**Figure 5**) including a summary of anticipated impacts and mitigation measures associated with the construction of a new MBR treatment process facility in Shedden. The mitigation measures will be implemented during design, construction and operation.

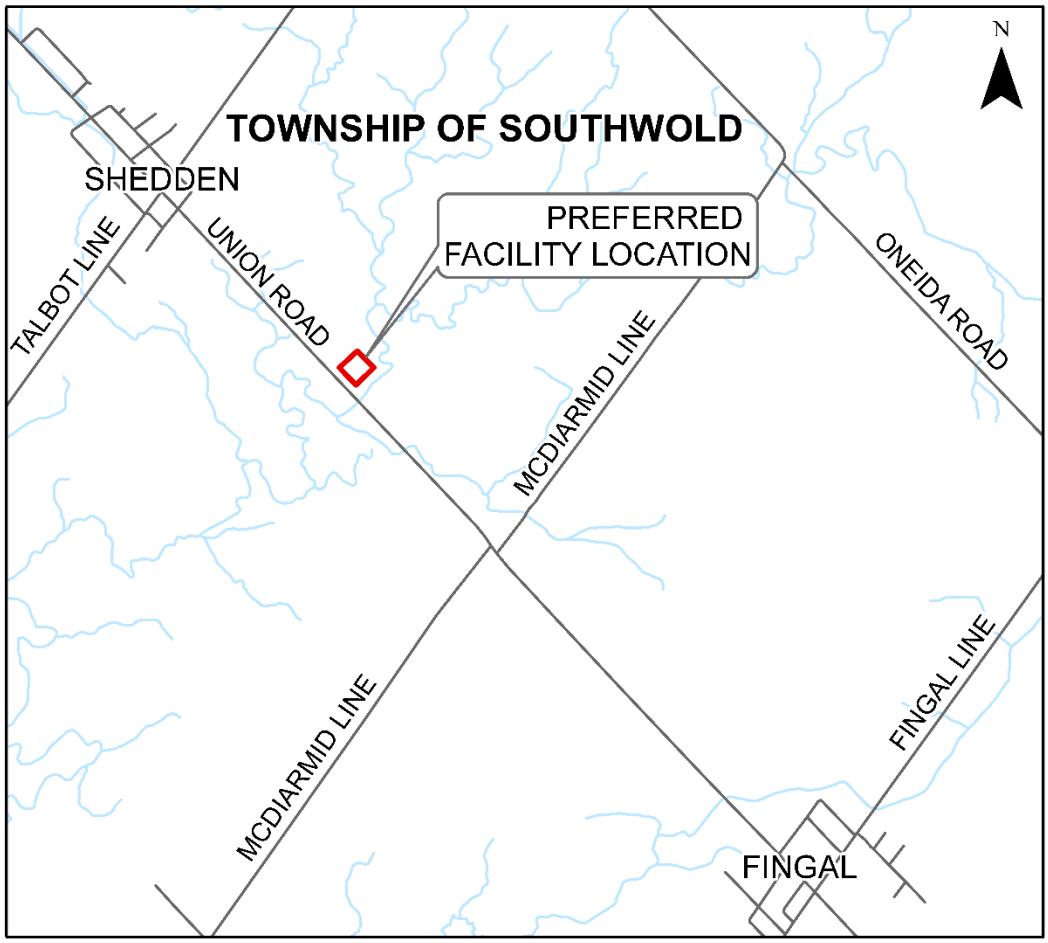

Figure 5: Preferred Facility Location

6.1 Socio - Cultural Environment

The new facility would be constructed on Township property, thereby eliminating the need for property acquisitions. There is one residence located to the northwest and the site has no neighbouring buildings. The property if fully fenced and there is direct access to the site via Union Road. The main intersection of Union Road and Talbot Line is located approximately 1 km northwest of the proposed facility.

6.1.1 Archaeology

A Stage 1 Archaeological Assessment was completed and submitted to the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) (**Appendix 4**). Based on the findings of the Stage 1, the lands identified as the preferred location retain archaeological potential and a Stage 2 shall be completed prior to construction.

6.1.2 Built Heritage

The MHSTCI "Screening for Impacts to Built Heritage and Cultural Heritage Landscapes" checklist was completed to determine potential impacts to cultural heritage resources (**Appendix 5**). Based on the findings of the checklist, the project is unlikely to impact cultural heritage landscapes or built resources, and a Cultural Heritage Evaluation Report is not required. The preferred site has not been designated by the Minister and there are no provincial heritage properties within the Study Area.

6.2 Natural Environment

The proposed facility location off Union Road, approximately 1.2 km south of the Talbot Line and Union Road intersection in the Town of Shedden is currently agricultural land at the outer limits of the built-up area. The appropriate setbacks from the facility would be determined prior to siting the facility.

A Natural Environment Considerations Memo was completed and is included in **Appendix 3**. Records of natural heritage features and species occurrences were identified for the preferred location during the background review. Based on a high-level field investigation conducted in November 2019, several of these features appeared to be present within the preferred location. The preferred location contains a permanent watercourse (Talbot Creek) and a mix of cultural and natural ecological land classification communities, with the latter consisting of areas largely outside of the anticipated wastewater treatment facility footprint. There is potential for this location to provide wildlife habitat, including habitat for eleven species at risk (SAR) and candidate significant wildlife habitats. However, the results of the background review and November 2019 field investigation suggest that proposed activities associated with construction of a wastewater treatment facility within the preferred location have a low likelihood of impacting SAR and/or SAR habitat. Mitigation measures are recommended to reduce the potential for future natural environment impacts of proposed works and are included in the Memo in **Appendix 3**.

As of April 1, 2019, the administration of the *Endangered Species Act* (ESA) transitioned responsibility from the Ministry of Natural Resources and Forestry (MNRF) to the MECP. As a result, it is recommended that the MECP be consulted to confirm whether additional field investigations are required and/or whether permitting and approvals under the ESA will be required in support of the Project during Detailed Design.

If there are potential impacts to fish and fish habitat identified during Detailed Design, it is recommended that a "Request for Review" be submitted to Fisheries and Oceans Canada (DFO) to assist in the determination of whether a *Fisheries Act* Authorization may be required.

Shedden and Fingal are located within the Lower Thames Valley Conservation Authority's (LTVCA) watershed. Designated Natural Heritage Features (Schedule C3) include lands along the Thames River on the east side of the WPCP shown as "Flood Prone Areas" and "Flood Prone LTVCA." The "Flood Prone Areas" and "Flood Prone LTVCA" designations include lands that are susceptible to flooding.

6.2.1 Source Water Protection

The proposed site and discharge location is outside all Highly Vulnerable Aquifers (HVA), Intake Protection Zones, and Wellhead Protection Areas. There are no municipal residential drinking water sources or significant drinking water threats in the immediate vicinity of the proposed location.

6.3 Summary of Social and Natural Environmental Impacts and Mitigation Measures

Table 6-1 summarizes the anticipated impacts and mitigation measures for this project. Mitigation measures must be incorporated into the design and/or construction phase of the project, as outlined in the table.

Table 6-1: Summary of Impacts and Mitigation Measures

Environmental Feature	Potential Benefits and Impacts	Avoidance, Mitigation and Monitoring Measures
1. Social Environment		
Construction Access and Traffic	Potential for Construction traffic.	Union Road (County Road 20) is identified in the Southwold Official Plan as a minor arterial road and is a main road between Shedden and Fingal. Arterial roads are typically designed to accommodate for truck traffic and no mitigation is required.
Construction Disruption	Potential for noise, dust and air quality impacts during construction.	Best practices to mitigate disruption during construction will be put in place as needed and will include: • Watering access road to reduce dust. • Keeping machinery in good working order to minimize noise and reduce emissions. • Avoiding unnecessary idling of construction vehicles. • Keeping the neighbour informed of construction activities that may result in noise or dust.
Operational Disruption	Dust is not expected to be an impact during operation as there is limited access. Periodic noise. Periodic odour	No mitigation related to dust is required.
2. Cultural Environment		
Archaeological Resources	Potential to encounter archaeological resources in areas that are previously undisturbed.	A Stage 2 Archaeological Assessment will be completed and filed with MHSTCI for clearance prior to construction.

Environmental Feature	Potential Benefits and Impacts	Avoidance, Mitigation and Monitoring Measures
		Contractor to suspend work immediately and notify the Contract Administrator in the event archaeological resources or human remains are identified during construction.
3. Natural Environment		
Vegetation removal	Increased erosion and sedimentation of lands adjacent to the construction area. Increased vulnerability of the areas cleared of vegetation to invasion by non-native species.	Vegetation removal may be required based on the final configuration of the site. Vegetation removal will be confirmed during detailed design. • Not anticipated that SAR or significant trees of concern will be impacted by the removals. • Removals will be limited to the extent possible. • Areas temporarily cleared to facilitate construction will be stabilized (e.g., vegetated/seeded) prior to removal of erosion and sedimentation control measures.
Breeding Birds	Vegetation removal may cause direct (injury or mortality) and/or indirect (disturbance) impacts to birds.	Schedule vegetation removal, grading and ground disturbance activities outside the bird active season between October 15th and May 1st to avoid disturbance to migratory birds. If vegetation removal occurs during the active season, prior to site disturbance, confirm that migratory birds are not making use of the site for nesting, by having a qualified biologist conduct a nest sweep, and commence site disturbance and vegetation removals within 48 hours of the sweep.
Sediment and Erosion Control	Release of sediment during construction.	Sediment and erosion control measures will be installed prior to the commencement of work and left in place until the site is restored and disturbed areas are stabilized.
Aquatic Resources	Release of sediment into Talbot Creek, causing impacts on fish/fish habitat.	Sediment and erosion control measures will be installed prior to the commencement of work and left in place prior to the commencement of work and left in place until the site is restored and disturbed areas are stabilized. No in-water work will be completed between March 15th and July 15th of any given year.

6.4 Climate Change

The MECP guide "Considering Climate Change in the Environmental Assessment Process (available at https://www.ontario.ca/page/considering-climate-change-environmental-assessment-process) was reviewed as part of the preparation of the Class EA. As noted in this document it is important to consider a projects potential impact on climate change as well as the impact of climate change on the proposed project.

Impact of the Project on Climate Change – Cities depend on infrastructure, like water and sewage systems, roads, bridges, and power plants, much of which is aging and in need of repair or replacement. Given the small scale if this facility it is not anticipated that it will result in appreciable greenhouse gas emissions.

Impact of Climate Change on the Project – Climate change is anticipated to result in more extreme weather events which could include frequent storms with heavy rains and periods of drought. Treatment capacity has been estimated based on conservative per-capita and serviced land area basis that may accommodate additional flow generation as a result of additional precipitation due to climate change.

7.0 Consultation Activities

This section summarizes stakeholder and agency consultation completed throughout the study. Copies of all consultation materials referred to, are included in **Appendix 2A**. Copies of all First Nations and Indigenous Communities consultation materials referred to, are included in **Appendix 2B**. It should be noted that the notices included in **Appendix 2A** were sent to First Nations and Indigenous Communities.

7.1 Contact List

The study contact list includes approximately 45 stakeholders, including Federal agencies, Provincial ministries, local agencies, interest groups provided by the Township, and First Nations and Indigenous Communities. The list was updated throughout the project.

7.2 Notice of Study Commencement and Public Information Centre #1

The Notice of Study Commencement and Notice of Public Information Centre #1 were combined and were published in the March 22, 2018, and March 29, 2018, editions of the West Elgin Chronicle newspaper. The notice was also posted on the Township's website. The notice was sent to the study contact list the week of March 20, 2018. The notice and a cover letter were sent to First Nations and Indigenous Communities on March 20, 2018.

The PIC was held on April 3, 2018, from 4:00 p.m. to 7:00 p.m. at the Shedden Keystone Complex. The PIC was an open house/drop-in format with staff available to present materials and answer questions. Comment sheets and post-it notes were provided to attendees to complete and provide feedback. The events were attended by approximately 90 individuals, including the municipal councillors.

7.3 Public Information Centre #2

The second PIC was held on December 5, 2019, from 4:00 p.m. to 7:00 p.m. at the Shedden Keystone Complex. The goal of the PIC was to present and seek feedback on the recommended location and treatment technology for the facility. The PIC Notice was published in the November 21, 2019, and November 28, 2019, editions of the West Elgin Chronicle newspaper. The notice was also included in the Municipality's website, and was sent to the study contact list the week of November 28, 2019. The notice and a cover letter were sent to First Nations and Indigenous Communities on March 20, 2018. The PICs were an open house/drop-in format with staff available to present materials and answer questions. The events were attended by approximately 80 individuals, including the municipal councillors.

7.4 Input Received

Four written comments were received from the public, indigenous communities and agencies. The primarily concern from the public was with the construction timing and associated costing for implementation.

Table 7-1 and **Table 7-2** summarize the input received from Agencies and the public during the EA. Input received from First Nations and Indigenous Communities is included in **Section 7.5**.

Table 7-1: Overview of Agency Comments

Organization/Individual	Comment Summary	Response
Ministry of Natural Resources and Forestry (MNRF) Laura Warner Planning Intern	Provided information on completing a screening of natural heritage, including submitting species at risk information requests.	Comments noted.
Ministry of Environment, Conservation and Parks (MECP) Craig Newton Regional Environmental Planner/Regional EA Coordinator	Provided information on the Duty to Consult, including communities identified as potentially affected by the project. Also requested that climate change and source water protection are considered in the EA.	Comments noted.

Organization/Individual	Comment Summary	Response
Ministry of Heritage, Sport, Tourism, and Culture Industries Brooke Herczeg	Requested to advise MHSTCI if any technical cultural heritage studies will be completed for the project and to provide the studies before issuing the Notice of Completion or beginning any work on site. If the screening checklist does not identify 'known or potential cultural heritage resources or impacts to resources', the checklists are to be included in the EA report.	Comments noted.
Lower Thames Valley Conservation Authority Valerie Towsley Resource Technician	Requested information regarding the site location.	Comments noted.
Ministry of Municipal Affairs and Housing Marion-Frances Cabral Planner	Requested future correspondence be directed to her as opposed to the previous contact.	Comments noted.
Ministry of Heritage, Sport, Tourism, and Culture Industries Katherine Kirzati Heritage Planner	Requested a copy of the presentation from PIC #2.	Comments noted.

Table 7-2: Overview of Public Comments

Comment Summary	Response
• Support for project.	Comment noted.
• Existing resident content with current situation.	Comment noted.
• Suggested a location in between Shedden and Fingal is most logical.	Comment noted. The location selected is on Union Road between the two communities.
• Noted existing water supply is great.	Comment noted.
• Questions and concerns were raised around funding and assigned costs. • Request for information on costing. • It was suggested that there must be very open information on the financing of these projects.	Costs will be determined by Council at a later date. It is likely that the project will be funded through a combination of several sources, including user rates, long term debt (loan), Development Charges, grants and reserves. Taxes should not be impacted. The Township will complete a rate study at the appropriate time to establish financial due diligence.

Comment Summary	Response
• Residents who recently installed a new septic system were seeking information on the impact of the project.	No mandatory connect to this system was anticipated at this time. As private systems age and fail they may need to connect to the system.
• Questions and concerns were raised about property impacts from construction. • Request for details on construction date.	Comment noted. Date to be determined by Council.

7.5 First Nations and Indigenous Community Engagement

The Municipality recognizes consultation with First Nations and Indigenous Communities is an important component of Class EA studies. As per recommendation from MECP, a copy of the Notice of Study Commencement and PICs was sent to the following First Nations and Indigenous Communities as part of the study:

- Chippewas of the Thames First Nation
- Chippewas of Kettle & Stony Point First Nation
- Oneida Nation of the Thames
- Caldwell First Nation
- Delaware Nation (Moravian of the Thames)
- Aamjiwnaang First Nation
- Munsee-Delaware Nation
- Bkejwanong Territory (Walpole Island First Nation)
- Metis Nation of Ontario
- Southern First Nation Secretariat.

The combined Notice of Study Commencement and Public Information Centre #1 was sent with a cover letter to First Nations and Indigenous Communities on March 19, 2018. Follow up calls were made on June 12, 2018, to seek feedback on the project and offer additional information if requested. A Notice of PIC #2 and cover letter was sent on November 28, 2019.

Comments received from First Nations and Indigenous Communities are summarized in **Table 7-3**.

Table 7-3: Overview of First Nations and Indigenous Communities Comments

First Nation/Indigenous Community	Comments Received
Chippewas of the Thames First Nation	• Identified minimal concerns with projects. • Request to be kept informed if any changes to the project of a substantive nature.
Chippewas of the Thames First Nation	• Requested a copy of the information that was shared at the PIC.

8.0 Permits, Approvals and Next Steps

This study has provided the recommended alternative for providing waste water servicing to both Shedden and Fingal, in order to address potential future growth in a full build-out scenario. Having a completed Class EA puts the municipality in a positive position to react quickly when growth does occur. Implementation of the facility proposed through this Class EA will be determined at a later date by Council and a decision to proceed would likely be triggered by development interest in the community or by a need to provide an alternate servicing solution for the existing communities. It is recommended that the Township of Southwold provide updates to the public regarding implementation, costing, etc. at the time a decision to proceed is made.

At this time it is not expected that the project will proceed to construction in the near-term. As such, development in Shedden and Fingal will be restricted to infilling and rounding out existing developments as currently outlined in the Official Plan.

The project is not anticipated to required approval under the *Endangered Species Act*. This will be reviewed and confirmed during detailed design. Consultation with MECP will be completed and approval obtained, if required.

Prior to construction of the new treatment facility, the following permits and/or approvals are required:

- Completion of the Stage 2 Archaeological Assessment and sign off by MHSTCI
- ABCA Work within Regulated Area
- ECA Sewage Works
- ECA Air/Noise.

It is noted that if the period of time between filing the Notice of Completion for this Class EA and construction is beyond 10 years then an addendum may be required.

DILLON CONSULTING LIMITED

Appendix 1

Technical Report

TOWNSHIP OF SOUTHWOLD

Shedden-Fingal Wastewater Treatment Class Environmental Assessment

Technical Report – Phase 3 (Revised)

June 2020 – 17-6064

Table of Contents

Figures

Tables

Appendices

1.0 Introduction

This report documents Phase 3 of the Municipal Class Environmental Assessment (EA) for wastewater servicing of the communities of Shedden and Fingal in the Township of Southwold. Phase 3 of the Municipal Class EA process involves developing and evaluating design concepts to implement the preferred solution identified in Phase 2. This report is focussed on identifying the number of individual treatment facilities recommended to treat wastewater from the communities of Shedden and Fingal in the Township of Southwold, a preferred treatment system location and the preferred technology type. This exercise is focused on identifying a preferred design concept for future construction of a centralized facility. The suitability of concepts for phased implementation is considered, but the potential implementation of an Interim Servicing Strategy involving the ongoing installation of onsite systems for limited residential growth is considered outside the scope of this evaluatin. Technologies have been evaluated based on qualitative and quantitative metrics, and conceptual-level costing has been employed to compare overall costs of constructing, operating and maintaining each alternative. A separate report is being prepared to outline the design-making process for the preferred new sanitary collection system and water servicing upgrades in the communities.

The selection of a preferred alternative has been conducted in two parts:

- Potential treatment technologies have been screened through a two-step process involving both long and short list evaluations. The basis for evaluation of each technology is a single system treating both Shedden and Fingal. A single system is potentially less constrained by siting and was viewed as less likely to bias the evaluation of process technologies
- Once a preferred technology was identified, the benefits of a single system treating both Shedden and Fingal were compared to the construction of a dedicated system for each community.

1.1 Treatment System Location

Two locations for the treatment are considered as part of this evaluation. As identified in Phase 2, a treatment system within the communities of Shedden and Fingal is the preferred approach to wastewater servicing. Two locations, one in each community, were considered. Treatment may be located at each site, or a combined facility at one site may service both communities. **Figure 1-1** below identifies the two potential locations, which are described in greater detail in **Section 4.1**.

Figure 1-1: Potential Treatment System Locations

1.2 Treatment Requirements

Each design concept was evaluated based on its ability to provide adequate treatment and to handle the average daily flows from both current Southwold residents and future residential construction within the communities of Shedden and Fingal. The alternatives are documented in following sections of this report and Design Guidelines in **Appendix A**.

Table 1: Average Daily Flows of Communities

Community	Average Daily Flow (ADF)
Shedden	440 m^3/d
Fingal	446 m^3/d
Combined	886 m^3/d

Average contaminant loads were assumed based on standard per-capita mass loading available in the 2008 Design Guidelines for Sewage Works (MECP, 2008) a per-capita waste flow rate of 405L/person/day developed considering water consumption and potential future generation from new developments. Inlet contaminant concentration projections are summarized in **Table 2**.

Table 2: Average Contaminant Concentrations

Contaminant	Design Concentration (mg/L)
Total Suspended Solids (TSS)	185.2
5-day Biochemical Oxygen Demand (BOD_5)	160.5
Total Ammonia-Nitrogen (TAN)	7.4
Total Phosphorus (TP)	4.9
Fats, Oils, and Grease	44.4

Preliminary effluent limits from treatment have been discussed with MECP staff. It is assumed that the selected treatment technology must be capable of meeting the objectives summarized in **Table 3**.

Table 3: Effluent Objectives

Parameters	Effluent Objectives	
BOD (mg/L)	5	
TSS (mg/L)	5	
Ammonia (mg/L)	Summer: 2	Winter: 4
TP (mg/L)	0.1	

2.0 Development and Evaluation of Design Options

2.1 List of Treatment Alternatives

The new treatment facility, or two facilities, would be designed to accommodate the existing users and potential new development areas within the existing Official Plan settlement boundaries in the communities of Shedden and Fingal. The potential for the treatment alternative to be constructed in phases is considered, but the specific phasing sequence, sizes of individual phases and timing of connection for users (i.e., new developments, existing residents and projected growth through infill or single-lot construction) is not considered at this time. A potential generic technology was selected in order to establish the size and location of potential treatment system sites.

A conventional municipal WWTP generally includes the following unit processes:

- **Peak flow management**: Management of short-term high flow periods to or within the treatment plant, including the potential storage of excess wet weather flows
- **Preliminary treatment**: Inlet works or headworks processes to remove solids and grit. The type of preliminary treatment required may vary depending on the requirements of the selected secondary treatment process

- **Secondary treatment**: biological process such as suspended growth, fixed film or hybrid process to achieve removal of organic material through oxidation of dissolved and particulate biodegradable constituents. Solids separation is incorporated into secondary treatment for further removal of solids (TSS) prior to discharge
- **Tertiary filtration**: Treatment to further improve quality of effluent prior to discharge. Tertiary filtration may be included to provide additional removal of TSS, and removal of total phosphorus (TP)
- **Disinfection**: Inactivation of microbial contaminants prior to effluent discharge
- **Sludge management**: Collection, storage, stabilization and volume reduction of waste sludge generated as part of the treatment process. The complexity of the sludge management system required may vary based on secondary treatment technology. We understand the municipality has landfill access for disposal of sludge. Digestion of sludge prior to offsite disposal is assumed to be unnecessary.

The following secondary treatment technologies were evaluated to address the immediate and long-term wastewater treatment servicing needs:

- Moving-Bed Biofilm Reactor (MBBR)
- Rotating Biological Contactor (RBC)
- Biological Aerated Filter (BAF)
- Aerated Lagoon with Submerged Aerated Gravel Reactor (SAGR)
- Extended Aeration (EA)
- Membrane Bioreactor (MBR).

Key features, advantages and disadvantages of each process are described the following sections.

2.1.1 Moving-Bed Biofilm Reactor

The MBBR system is a biofilm process that is comprised of small, lightweight, rigid, plastic carrier media in the aeration tank that are kept in suspension by coarse bubble aeration and/or mixing. Biofilm reactors can be constructed without suspended growth, thus eliminating the need for sludge return streams. Secondary clarification is required following the MBBR system.

Advantages of MBBR treatment technology include:

- Smaller footprint
- Lower sludge production
- Low operating costs
- Can handle variable flow and load conditions.

Disadvantages of MBBR treatment technology include:

- Potential challenges in configuring a system to meet high quality effluent criteria. To meet effluent quality requirements tertiary filtration may be required

- Phasing may be a challenge as size of each phase may be dictated by minimum clarifier size
- Specific Ontario design guidelines are unavailable as this is a proprietary process that is not common in North America.

2.1.2 Rotating Biological Contactor

RBC systems consists of a series of closely spaced circular discs that are mounted on rotating horizontal shafts and partially submerged in wastewater. As the RBC disks rotate, aeration is accomplished by exposure to the atmosphere. Wastewater flows through the disks providing attached bacteria with access to nutrients, and sloughing of biomass occurs as a result. RBC systems require pre-treatment of primary clarification or fine screening and secondary clarification for solid/liquid separation. Primary clarifiers may be located below RBC trough/tank. The process will require tertiary treatment to meet effluent quality.

Advantages of RBC treatment include:

- Low energy requirements
- Small sludge production
- Small footprint
- Low operational cost and low to medium maintenance costs
- Capable of handling a wide range of flows.

Disadvantages of RBC treatment technology include:

- High capital cost
- Potential challenges in configuring a system to meet high quality effluent criteria
- Difficulty in expanding the RBC process to accommodate future increases in loading.

Operating RBC systems in series orientation may improve treatment performance. It is recommended that each RBC system be constructed with at least four stages, separated either by internal baffle walls or located in separate tanks.

2.1.3 Biological Aerated Filter

The BAF is a submerged attached growth system that combines filtration and biological treatment using a biofilm coated media. BAFs can have co-current backwash or countercurrent backwash. The reactor needs to be backwashed periodically to remove solids from suspended growth media. Treated wastewater is drawn through a filter, eliminating the need for secondary clarifiers.

Advantages of BAF treatment include:

- Compact system footprint
- Able to accommodate dilute wastewater
- Does not require separate secondary clarifiers.

Advantages of BAF treatment include:

- High aeration energy demand
- BAF processes are typically constructed as concrete tanks and future expansion to include additional capacity can be more challenging than for other processes
- Less suitable for low TP discharge concentration limits than other processes.

The process is mostly used by large municipalities and is likely not suited to Shedden and Fingal.

2.1.4 Aerated Lagoon

Aerated lagoons are suspended growth lagoons that are shallow earthen basins that are comprised of mechanical aerators on floats or fixed platforms. There are two categories that aerated lagoons can be classified as:

- Partial mixing
  - Facultative partially mixed
  - Aerobic flow through with partial mixing
- Complete mixing
  - Aerobic with solids recycle and nominal complete mixing.

Partial mixing techniques are capable of only sufficiently transferring the amount of oxygen required for biological treatment, but insufficient in maintaining the solids in suspension. This will cause the solids to settle, and with time, undergo anaerobic decomposition.

Complete mixing techniques are essentially the same as extended aeration activated sludge process, with the exception that the earthen basin is used for the aeration basin.

Achieving low nitrogen and phosphorous discharge limits typically requires further effluent polishing prior to discharge. This may be achieved by a submerged aerated gravel reactor (SAGR) bed following the aerated lagoon basins. This approach is common for facilities where an existing lagoon basin may be retrofitted, and combined with a new SAGR system to achieve increased system capacity and improved effluent quality.

Advantages of an aerated lagoon treatment include:

- Cost effective operation
- Lower energy costs
- Easy to operate and maintain.

Disadvantages of an aerated lagoon treatment include:

- Large footprint
- Less effective in cold climates
- Odour and insects may become a nuisance if not properly maintained

- May not meet effluent quality year-round or seasonal discharge may be required to meet effluent quality thus increasing plant size
- May require tertiary filtration to meet effluent limits
- Difficult to construct in phases – up-front construction of all required basin volume may be required.

2.1.5 Extended Aeration

Extended aeration secondary treatment uses modified activated sludge procedures. The BOD removal efficiency is higher than the conventional activated sludge process. An extended aeration treatment packaged plant would require the construction of headworks, aeration tanks, secondary clarifiers, filters and UV disinfection.

Advantages of extended aeration treatment include:

- Common and proven technology used by neighbouring operating authorities.

Disadvantages of extended aeration treatment include:

- Large footprint (in comparison to MBR)
- May require expensive tertiary filtration equipment to achieve high quality effluent.

2.1.6 Membrane Biological Reactor

Membrane Bioreactor (MBR) systems consist of a biological reactor and microfiltration membranes. This utilization combines the unit operations of aeration, secondary clarification, and tertiary filtration in a single process configuration. MBRs can operate at higher mixed liquor suspended solids concentration, leading to better degradation, in comparison to other suspended growth processes such as conventional activated sludge or BNR. Due to the risk of fouling the fine-pore membrane used by the MBR process, a more sophisticated preliminary treatment process with fine-mesh screening is required to protect downstream equipment. Fine pore screening increases the amount of solid screenings collected for disposal.

Advantages of MBR treatment technology include:

- Higher volumetric loading rates and shorter reactor hydraulic retention times
- Longer solid retention times (SRT) resulting in less sludge production and more robust treatment performance for variable loads and temperature conditions
- Achieves very high quality effluent, low in particulate matter and TP and in ammonia
- Less space required for wastewater treatment
- Can be easily phased in as capacity is proportional to the number of membrane modules installed.

Disadvantages of MBR treatment technology include:

- Higher life-cycle cost due to power costs and the potential high cost of periodic membrane replacement.

Several factors must be taken into account when sizing MBR systems, including:

- Ensuring that appropriate air scouring is provided for membrane units submerged directly into bioreactor tanks. Scouring may be provided by locating air diffusers directly below membrane modules
- Providing adequate scouring through aeration or liquid turbulence for membrane units installed in a flow-through tank separate from the main bioreactor
- Providing adequate fine screening to remove large solids or fibrous material that may clog membrane modules.

Design of MBR processes may depend on the specific membrane unit selected and the desired installation configuration. Selection of appropriate design parameters may require pilot testing or data from similar full-scale installations.

2.2 Screening of Treatment Alternatives

Screening criteria were developed to identify and eliminate treatment alternatives and process options that would not be applicable, feasible or practical for the Shedden-Fingal WWTP. To be considered feasible or practical, alternatives must meet all screening criteria.

The following screening criteria were used to identify the short list of alternative design concepts:

- Operational and Performance Objectives – Can the treatment process reliably meet the needs of the municipality and the specific requirements for discharge to Talbot Creek?
- Experience and Implementation: Is the process well-established as an accepted treatment alternative?
- Expandability: Is the process capable of expansion to accommodate growth or the gradual connection of users?

In **Table 4**, 'fail' indicates that the alternative does not meet the criteria and is screened from further consideration.

Table 4: Screening of Alternative Treatment Technologies

Alternative	Operational and Performance Objectives	Experience and Implementation	Expandability	Overall
Extended Aeration	Pass	Pass	Pass	Y
MBR	Pass	Pass	Pass	Y
RBC	Fail	Pass	Fail	N
BAF	Pass	Pass	Fail	N
Lagoon Aeration	Fail	Pass	Fail	N
MBBR	Fail	Pass	Pass	N

Alternative design concepts which passed all three screening criteria above were short-listed for further review.

2.3 Short List of Treatment Alternatives

Based on the long list evaluation, the following alternatives were short-listed:

- Extended Aeration Treatment
- Membrane Biological Reactor Treatment.

Both alternatives are evaluated based upon their "ultimate build out" configuration servicing current and future users. Consideration for the relative cost of a "phased" approach, consisting of an initial 25% capacity construction is given in the evaluation matrix.

2.4 Short List Evaluation and Screening Criteria

The evaluation process described in this report was used to identify a technically preferred design option to provide municipal wastewater treatment for Shedden and Fingal. The evaluation considered the potential impacts to the natural, social and cultural environment, as well as technical issues and cost. This included:

- Documenting key advantages and disadvantages of the alternative design options to identify whether there are some alternatives that should be screened from further consideration based on their technical feasibility
- Alternatives satisfying preliminary screening were comparatively evaluated using a set of evaluation criteria. Criteria are presented in **Table 5**.

Table 5: Shedden-Fingal WWTP Class EA – Evaluation Criteria

Criteria	Indicator
Technical Performance	
Treatment Performance	Capability of technology to meet effluent objectives
Ease of Operation	Relative ease to implement/construct and maintain/operate the proposed alternative
Feasibility	
System Size	Relative footprint of the technology
Feasibility of Implementation	Feasibility and practicality of implementing the alternative
Practicality of Phased Construction	Ease with which phasing may be accomplished. Relative costs of phased construction
Cost	
Initial 25% Capacity Capital Cost	Cost to construct a facility servicing a small initial number of connections to centralized treatment
Initial Phase Operating Cost	Cost to operate the initial phase of the facility
Capital Cost	Capital cost to construct the full future design flow
Operating and Maintenance Cost	Operating cost for the full future design flow
Life Cycle (ultimate build-out)	Life Cycle Cost considering capital construction and operation for 20 years. A net-present-value discount rate is assumed for future expenditures in estimating this value

It is noted that the construction footprint for the design options is restricted to municipally owned properties. Additionally, the alternatives considered will have a similar potential for impacts on the natural environment, socio-economic and cultural environments. This is reflected in a condensed set of evaluation criteria and concepts presented in this report.

2.4.1 Extended Aeration Activated Sludge Process

Extended aeration treatment would require the construction of headworks, aeration tanks, clarifiers, filters and UV treatment.

Preliminary Treatment

The headworks would consist of an inlet works building with mechanical screening and grit removal.

Primary Treatment

An extended aeration process does not require a separate primary clarifier ahead of the secondary treatment process.

Secondary Treatment

An extended aeration tank would be fitted with fine bubble aerators to provide air needed by the biomass to perform treatment reactions. Hydraulic detention time in the aeration tank is typically a minimum of six hours under peak flow, and 15 hours under average flow.

A final clarifier is required to separate the biomass from the treated effluent and recycle the biomass to the aeration tanks to maintain required the required concentration of biomass in the aeration tanks to properly treat raw wastewater. Biomass is expressed as mixed-liquor suspended solids (MLSS).

Tertiary Filtration and Total Phosphorus Removal

A Tertiary filtration system, consisting of deep-bed sand filtration or cloth media filtration and UV disinfection will be required to achieve high quality effluent.

Sludge Handling, Digestion and Biosolids Removal

A sludge holding tank will be required. Biosolids are presumed to be disposed of at a landfill under an existing arrangement with the Municipality. To meet requirements for landfilling, biosolids must be dewatered prior to disposal. In some jurisdictions, digestion of biosolids is performed prior to dewatering and disposal to reduce the overall volume of material that must be managed. Since the municipality has an existing arrangement to manage biosolids relatively inexpensively through landfilling, the cost of constructing and operating a digestion process is not necessary. Dewatering of sludge would occur without prior digestion.

Proposed Treatment Components

A proposed extended aeration treatment concept would consist of the following processes components:

- Fine screens, grit removal and equipment
- Extended aeration tank and equipment
- Final clarifier tank and equipment
- Chemical phosphorus precipitation
- Sand filtration system
- UV treatment system
- Sludge holding tank
- Centrifuge
- Dewatered sludge holding bin.

The potential “full build out” footprint of an Extended Aeration facility is shown in the figures below. Tank footprints correspond to volumes required to accommodate flows from one community. Process and administration building size is approximate and may be further reduced depending on operation needs.

Figure 2-1: Shedden Location – Extended Aeration Facility

Figure 2-2: Shedden Location – Extended Aeration Facility Detail

Figure 2-3: Fingal Location – Extended Aeration Facility

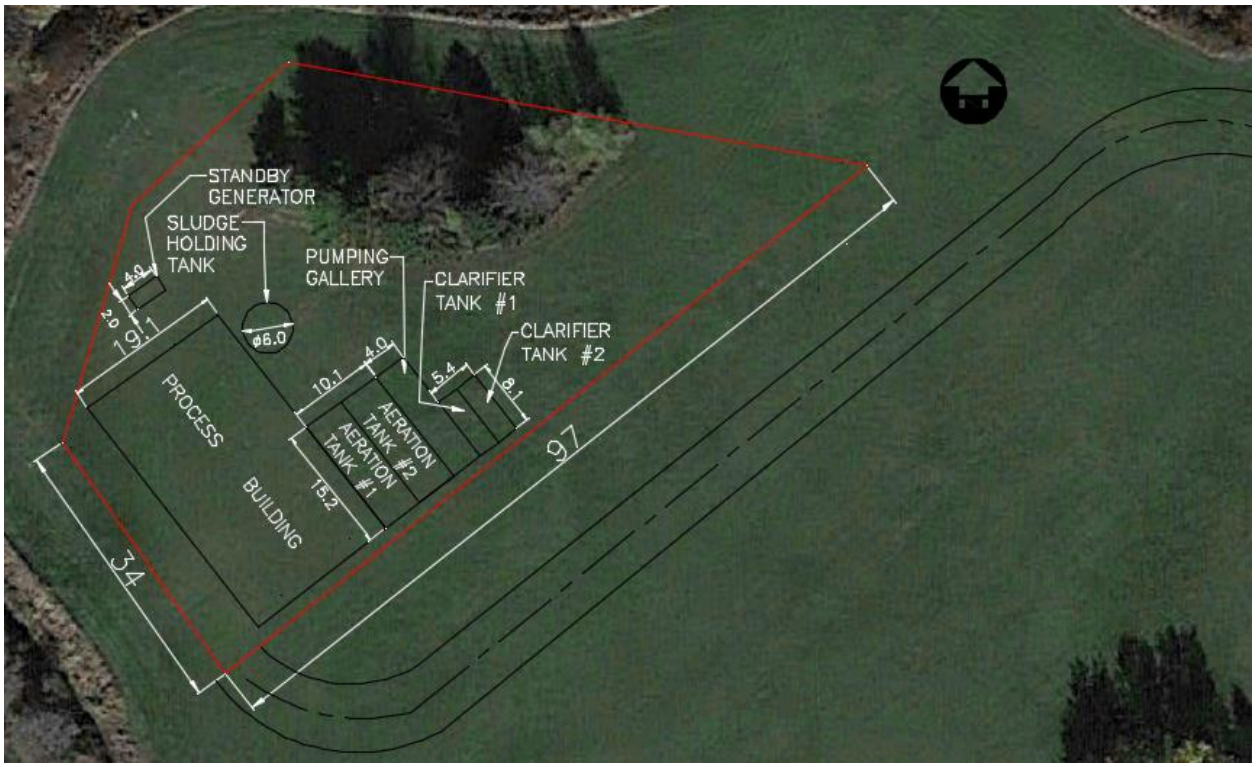

Figure 2-4: Fingal Location – Extended Aeration Facility Detail

2.4.2 Membrane Biological Reactor

MBR process is an advanced activated sludge wastewater treatment process that achieves aeration, secondary clarification, and tertiary filtration in a single process configuration. The most common MBR process configuration consists of a bioreactor followed by membrane filtration tanks that provide in-situ filtration of the mixed liquor using either microfiltration or ultrafiltration membranes.

Preliminary Treatment

The MBR process requires fine screening of upstream flows (from 1 mm to 3 mm based on the screen size), in order to prevent operational difficulties.

Primary Treatment

A separate primary clarifier tank is not required upstream of the membrane bioreactor process.

Secondary Treatment

After the screening and grit removal process, the raw sewage is directly discharged to the aeration tanks similar to the extended aeration process. The MBR replaces the secondary clarification process as the solids/liquid separation is achieved through the use of ultrafiltration membranes.

Tertiary Filtration and Total Phosphorus Removal

The use of membranes eliminates the need for external clarification and tertiary filtration. Chemical phosphorus precipitation is required to meet stringent effluent Total Phosphorus quality criteria.

Sludge Handling, Digestion and Biosolids Removal

Sludge dewatering is required prior to the disposal of sludge. The dewatering method depends on the characteristics of the sludge.

Proposed Treatment Components

A proposed MBR treatment facility may be composed of the following processes and technologies:

- EQ tank and equipment
- Modular MBR process trains consisting of bioreactor tanks, membrane tanks, pumps and controls
- Screen building
- Chemical system for phosphorus precipitation
- Sludge dewatering system
- Dewatered sludge storage.

The potential “full build out” footprint of an MBR facility is shown in the following figures. Footprints indicate the size of a facility sized to accommodate flow from both the Shedden and Fingal communities. Footprints are based upon modular process configurations, with equipment, operations areas and tankage assumed to be included within the modular package footprint.

Figure 2-5: Shedden Location – MBR Facility

Figure 2-6: Fingal Location – MBR Facility

The sizing of an MBR facility fits well within each of the two sites. As shown in the above figures, there is addition room for potential future expansion if necessary. In both locations the facilities set back more than 15 m rom the Talbot Creek top-of-bank as required by Lower Thames Valley Conservation Authority (LTVCA) documentation and *O. Reg. 152/06*.

2.5 Short List Screening of Treatment Alternatives

The short-list screening table shown below identifies key differentiators between the MBR and Extended Aeration process. For comparative purposes, a single-site facility capturing flows from both the Shedden and Fingal communities is assumed.

2.5.1 Cost Estimation

The cost of implementation for each alternative was developed considering the equipment cost, site construction cost associated with the components described above and operating and maintenance costs. Costs were established through input from equipment vendors, standard unit pricing and Dillon's professional experience.

2.5.1.1 Capital Cost

Capital costing was developed for each alternative. Costs consider the following:

- Capital equipment purchase
- Site preparation

- Construction of process buildings and site roadways
- Building services and supporting equipment.

Capital purchases include installation markups of between 0% and 20% per item. Standard subcontractor and general contractor markups of 15% and 5% respectively have been considered where appropriate. In addition to the total "direct" cost of construction, standard "indirect" markups have been included to reflect the assumed actual cost of implementation, and uncertainty at this level of design.

2.5.1.2 Operating Cost

Operating were established for each alternative. Where possible, costs have been estimated using technology-specific utility consumptions and operating requirements based on discussions with vendors. Preliminary operating cost estimates are primarily intended to demonstrate the relative cost to operate different process equipment alternatives. Additional operating costs associated with staff facilities are anticipated to be minor, and would be established based on the Township's requirements at the time of detailed design. Operating costs and may include the following:

- Electrical utility costs
- Water utility costs
- Natural gas cost, for process equipment and building heating
- Process chemical consumption (where appropriate)
- Allowance for routine maintenance and spare parts (typically 1% or equipment value per year)
- Operations staff costs. We have assumed that the extended aeration facility alternative would require a one full time equivalent (FTE) at a total cost of $100,000/year, while the MBR facility would only require 0.75 FTE due to greater automation.

2.5.1.3 Life Cycle Cost

Life cycle costing was established in 2018 dollars to allow comparison overall costs associated with each alternative. Life cycle costing was completed with the following assumptions:

- 3.5% Net Present Value Discount Rate
- 2% Annual inflation for costs associated with labour, capital expenditures and consumables
- 4.5% annual inflation associated with electricity costs
- 2020 construction date for the alternative, with capital dated to this year
- Yearly capital allocation for end-of-life replacement of equipment captured as a portion of operating costs.

2.5.2 Evaluation Table

Criteria/Indicator	Extended Aeration	MBR
Treatment Performance		
Ease of Operation	Less automated process. Slightly less robust to accommodate variability in flow and loading.	Automated process. Knowledgeable operations staff required may be shared from existing Talbotville facility. More robust to accommodate variability in flow and loading.
Ease of Expandability	Room for expansion	Room for expansion
Feasibility of Phased Construction		
System Footprint	Comparatively larger footprint. Greater construction complexity.	Small footprint. Either facility can be constructed easily at either of the proposed locations.
Feasibility of Implementation	Conventional (concrete tank) constriction more complex and involving greater site disturbance. Greater potential for offsite impacts may complicate implementation.	Modular construction less complex and involving less site disturbance. Contained, containerized construction minimizes offsite impacts.
Cost		
Initial Phase (250 m^3/d) Cost	$5.8M	$2.5M
Initial Phase Operating Cost	220,000	$180,000
Capital Cost (Single Facility)	$7.5M	$7.7M
Operating and Maintenance Cost	$350,000	$490,000
Life Cycle (ultimate build out phase)	$11.3	$15.1
Overall Evaluation	***Not Preferred***	***Preferred***

*The costing is based on having one combined facility.

Based on the Short list screening table summarized above, the MBR technology is preferred for implementation. While the total lifecycle cost of the MBR process is estimated to be slightly greater than the extended aeration process over 20-years of operation at full build-out, an initial phase may be constructed at much lower cost than for extended aeration. It is possible the full build-out phase may not occur for an extended period of time, increasing the value of achieving savings in initial phases. This is well suited to the townships needs as only a small fraction of the ultimate capacity may be required for an extended period of time depending on the pace of development.

3.0 Local Collection System

A new local collection system will be required to allow for the eventual servicing of existing businesses and residences in Shedden and Fingal through a centralized treatment process.

Two potential conveyance approaches were considered:

1. Servicing of all residences with a conventional gravity sewer network, discharging to the centralized treatment system, or an intermediate pump station
2. Servicing of all residences using a low pressure sewer (LPS) system with pumping provided at each connection point.

Potential collection sewer servicing layouts for both Shedden and Fingal are shown below in **Figure 3-1** and **Figure 3-2**

Figure 3-1: Potential Fingal Collection System

Figure 3-2: Potential Shedden Collection System

3.1 Gravity Sewer Systems

Gravity sewers are the most common form of municipal collection system. In a gravity sewer, the collection main must be buried below the basements of connecting residences to reduce the likelihood of sewage backups and flooding. A gravity collection system also requires a minimum slope, defined by the size of the sewer pipe and flow capacity, in order to convey sewage downstream to a centralized collection point or pump station. The requirement to slope the sewer pipe leads to gradually deeper depths of bury along a single sewer run, particularly in areas such as Shedden and Fingal where there is minimal topography providing a natural slope. For this reason, gravity sewer networks may either

become very deep (and costly to install) or require intermediate pumping stations within the collection network to raise buried piping to a shallower depth. Once constructed, gravity collection systems require very little maintenance and can have a long service lifespan.

3.2 Low Pressure Sewer Systems

Low pressure collection systems are a newer form of conveyance that has been used in some applications. LPS applications, connection is equipped with a small integrated tank and pump system. Pumps are designed to discharge into a pressurized collection main. The pressurized flow allows for the use of smaller, less costly piping, buried at a shallow depth which minimizes ground disturbance and installation cost. Overall up-front capital costs are typically lower than conventional gravity sewer systems but LPS systems require ongoing maintenance to individual pumping systems, which result in higher ongoing operational costs.

3.3 Comparison

	Gravity Collection System	Low Pressure Sewers
Advantages	• Conventional servicing approach • Minimal ongoing maintenance • All pumping is located at centralized pumping stations on municipal property.	• Installation of shallow, small diameter pressure sewers means construction is less disruptive • Consistent, modular design of pumping units simplifies maintenance • Reduced per-household servicing cost. Estimated construction cost is **$5.9 Million** for both communities.
Disadvantages	• Disruptive construction in existing residential areas • High per-household installation cost • Minimal drainage slope within Shedden and Fingal communities results in deeper sewer construction at greater cost • Higher overall cost to residents to implement. Estimated construction cost is **$12.3 Million** for both communities.	• Larger number of pumps required as unit required at each household • Ongoing operational cost for replacement of pump units • Operational risk associated with power outages at residences and more complex connection of each residence • Not typically recommended where conventional sewers are possible.

Overall, it is anticipated that gravity and low pressure sewer systems will have similar lifecycle costs. Low pressure sewers require a greater level of care and maintenance and are typically not recommended in Ontario except in instances where construction of conventional sewers is not possible, such as shoreline areas with high groundwater. A final decision on the type of collection system to be implemented for each community should be made when the decision is made to move forward with servicing existing residents.

4.0 Location Alternatives

The treatment technology and sanitary collection system strategy was considered independently from an evaluation of the practicality of servicing the two communities each with their own dedicated facility or a single common facility. In evaluating the preferred number of facilities the following assumptions were considered:

- The evaluation completed considered a hypothetical treatment facility comprised of a compact MBR process or other system capable of being implemented in a modular configuration with a small, low cost initial phase
- The treatment facility/facilities will be located within the settlement area boundaries of Shedden and/or Fingal
- A one-facility concept would be located south of Shedden due to greater available land at this location
- Any facility constructed must be located near the Talbot creek receiver
- The two-facility concept would allow each facility to operate receiving flows directly from gravity sewers or a low-pressure sewer system. No intermediate pumping upstream of the treatment facilities would be required. The one-facility concept would require one pump station north of Fingal.

4.1 Wastewater Treatment Location Alternatives

The potential locations and site outlines are shown on the following pages; **Figure 4-1** shows both locations with respect to the communities, **Figure 4-2** and **Figure 4-3** show the sites at each location. In each case, setbacks to roads and watercourses are shown and a hypothetical MBR treatment process footprint is also shown.

Figure 4-1: Location of Sites with Respect to Shedden and Fingal

Site #1 is in an agricultural area owned by the township south of Shedden. The site contains a floodplain, an artificial slope associated with a man-made pond and is located near the northern branch of Talbot Creek. The site area is approximately 9,000 m^2; large enough to accommodate a wastewater treatment plant and potential expansions in the future.

Advantages of Site #1 include:

- Easy access to a road
- Can accommodate either facility (combined or single).

Disadvantages of Site #1 include:

- Floodplain nearby; constricts the area suitable for construction.

Figure 4-2: Shedden Location – Site #1

Figure 4-3: Fingal Location – Site #2

4.1.1 Two-Facility Concept

Site #2 is located near a park, northwest of Fingal. Adjacent to the site are farm lands, residential property, and the south branch of Talbot Creek. Some treed areas are located on and adjacent to the site, creating a potential for species-at-risk considerations. The site area is approximately 4,000 m^2; large enough to accommodate a wastewater treatment plant and potential expansions in the future.

Advantages of Site #2 include:

- Can accommodate either facility (combined or single)
- Nearby waterbody.

Disadvantages of Site #2 include:

- No access to a nearby road; would have to go through private property or the existing parkland access road
- Small woodland
- Located on the site of an existing park. Development of the north portion of the park may conflict with future potential recreation uses
- Vehicle access to the plant would be shared with existing park areas
- Located within the developed area of the Fingal community. Maintaining appropriate setbacks to nearby residents and receptors is a consideration.

For each community to have its own wastewater treatment facility, the needs of each are assessed separately. The following subsections show the design basis used to determine which facility and features would best accommodate their respective communities.

4.1.1.1 Shedden Facility

Future treatment needs were assessed by forecasting residential growth for Shedden. The basis for determining the required treatment capacity is outlined in **Table 6**.

Table 6: Shedden Facility – Design Basis

Design Basis	
Existing Population	406
Future Serviced Population	1,092
Future Average Daily Flow (m^3/d)	440
Maximum Day Flow (m^3/d)[1]	880
Peak Domestic Sewage Flow (m3/d)	1,177
Peak Domestic Sewage Flow (L/s)	13.6

[2]Maximum Day Flow = Average Daily Flow x 2
*Sewage flows are estimated based on residential contributors only.

4.1.1.2 Fingal Facility

Future treatment needs were assessed by forecasting residential growth for Fingal. The basis for determining the required treatment capacity is outlined in **Table 7**.

Table 7: Fingal Facility – Design Basis

Design Basis	
Existing Population	370
Future Serviced Population	1,098
Future Average Daily Flow (m^3/d) [1]	446
Maximum Day Flow (m^3/d)[2]	892
Peak Domestic Sewage Flow (m3/d)	1,244
Peak Domestic Sewage Flow (L/s)	14.4

[1]Maximum Day Flow = Average Daily Flow x 2
*Sewage flows are estimated based on residential contributors only.

4.1.2 One-Facility Concept

In order to accommodate both communities with one facility, a larger process would be required in one location of a community with a pump station located in the other. The pump station is required to collect and pump the wastewater from its community to the facility located in the other community. Future treatment needs were assessed by forecasting the combined residential growth of Shedden and Fingal. **Table 8** outlines the basis for determining the required treatment capacity.

Table 8: Combined Facility – Design Basis

Design Basis	
Existing Population	776
Future Serviced Population	2,190
Future Average Daily Flow (m^3/d) [1]	886
Maximum Day Flow (m^3/d)[2]	1,772
Peak Domestic Sewage Flow (m3/d)	2,301
Peak Domestic Sewage Flow (L/s)	26.6

[1]Maximum Day Flow = Average Daily Flow x 2
*Sewage flows are estimated based on residential contributors only.

Advantages of having a combined facility include:

- Potential to be more economical
- One site is required instead of two
- Easier permitting; only one facility would potentially require an upgrade.

Disadvantages of having a combined facility include:

- A pump station is required for one of the communities.

4.2 Evaluation of Location Alternatives

Table 9: Alternative Design Evaluation

Criteria/ Indicator	Meets evaluation criteria Somewhat meets evaluation criteria Does not meet evaluation criteria	One Facility	Two Facilities
Socio-Economic Environment			
Accommodates Planned Future Growth		A combined facility will meet the population demands and can be expanded when necessary.	Each community would be accommodated with their own facility. Expansion can occur when necessary for each community.
Protection of the Natural Environment			
Impacts on Receiving Water Quality		Facility would operate according to a new approval that is required to meet a level of treatment based on provincial standards. High quality effluent may improve the water quality of the water body during low-no flow periods.	Similar to one facility, however, a second facility has a greater total footprint and impacts two watercourses rather than one.
Technical Performance			
Ease of Construction and Operation		Simpler to construct with only one facility site and less overall operational complexity.	More complex to construct with two facility site areas and greater overall operational complexity.
Expandability		Expansion of a single facility and pump station required to accommodate future growth	Separate expansion at both facilities is potentially required to accommodate future growth, adding to complexity and cost
Cost			
Capital Cost		$7.7M	$10.4 M
Operations and Maintenance, Including Capital Replacement Allowance		$490,000	$650,000
Estimated Lifecycle Cost (over a 20-year period) Based on Above Costs		$14M	$20.1M
Overall Evaluation		Preferred	Not Preferred

As shown in **Table 9**, it is recommended to have one treatment facility serve both communities.

4.3 Recommended Design Concept

Based on the evaluation of the alternative design concepts, the recommended alternative for the construction of the new treatment facility will include the construction of a single treatment facility employing an MBR treatment process at the location south of Shedden on Union Road.

5.0 References

Metcalf & Eddy, Inc. (2003). Wastewater Engineering: Treatment and Reuse. Boston: McGraw-Hill

Ministry of the Environment, Conservation and Parks (MECP) (2008). Design Guidelines for Sewage Work.

DILLON CONSULTING LIMITED
LONDON, ONTARIO

Appendix A

Design Summary

Extended Aeration Design

Table A-1 shows the MOECP design guidelines for extended aeration.

Table A-1: MECP Design Guidelines

Parameter	Extended Aeration
BOD_5 Loading	0.17-0.24 kg/(m^3·d)
F/M_v	0.05-0.15 d^{-1}
Hydraulic Retention Time (minimum)	15 hours
Return Sludge Rate	50-200% of Q_{avg}
Solid Retention Time (minimum)	>15 days
Oxygen Demand	1.5 kg O_2/kg BOD_5 + 4.6 kg O_2/kg TKN
MLSS	3,000-5,000 mg/L

Table A-2: MECP Typical Residential Wastewater

Constituent	Mass Loading (g/person/d)	Concentration (mg/L) [1]
Total Suspended Solids (TSS)	35-75 g/person/d	155-330 mg/L
Volatile Suspended Solids (VSS)	35-60 g/person/d	110-265 mg/L
5-day Biochemical Oxygen Demand (BOD_5)	35-65 g/person/d	155-286 mg/L
Chemical Oxygen Demand (COD)	115-150 g/person/d	500-600 mg/L
Total Ammonia-Nitrogen (TAN)	1-3 g/person/d	4-13 mg/L
Total Phosphorus (TP)	1-2 g/person/d	6-12 mg/L
Fats, Oils, and Grease	12-18 g/person/d	70-105 mg/L

[1]Assuming water generation rate of 225 L/person/day

Table A-3: MECP Effluent Objectives

Parameters	Effluent Objectives	
BOD (mg/L)	5	
TSS (mg/L)	5	
Ammonia (mg/L)	Summer: 2	Winter: 4
TP (mg/L)	0.1	

In order to determine the peak sewage flows for the municipal sewer design for the residential areas, the following criteria is required:

- Design population derived from drainage area and expected maximum population over the design period
- Average daily domestic flow (exclusive of extraneous flows) of 225 to 450 L/cap·d
- Peak extraneous flow
- Peak domestic sewage flows to be calculated using the following formula:

$$Q(d) = \frac{PqM}{86.4} + IA$$

$$M = 1 + \frac{14}{4 + P^{0.5}}$$

where

Q (d)	=	**Peak domestic sewage flow (including extraneous flows) in L/s**
P	=	Design population, in thousands
q	=	Average daily per capita domestic flow in L/ cap·d
I	=	Unit of peak extraneous flow, in L/(ha·s)
A	=	Gross tributary area in hectares
M	=	Peaking factor (as determined from Harmon Formula); minimum permissible peaking factor is 2.0

1-Facility Extended Aeration Design

Sewage Flows

Table A-4: 2017 Combined Sewer Design

Parameter		2017	Unit
P	=776/1000	0.776	in thousands
q	= 250+90[1]	340	L/cap·d
Average Day Flow, ADF	= P*q	263.8	m^3/d
I		-	L/ha·s
M		3.87	
Q		11.8	L/s
		1,020.6	m^3/d
Max. Day Flow	= ADF*2	527.7	m^3/d

[1]90 L/cap·d is added to take into consider the Inflow Infiltration.

Table A-5: Future Combined Sewer Design

Parameter		Future	Unit
P	=1414/1000	1.414	in thousands
q*	=350+90	440	L/cap·d
M		3.70	
ADF	$=(P*q)_{2017}+(P*q)_{future}$	886	m^3/d
Max. Day Flow	=ADF*2	1,772	m^3/d
Q		26.6	L/s
		2,300.7	m^3/d

*the average daily capita domestic flow was chosen to be 350 L/cap·d in order to consider Infiltration/Inflow, as well as to consider the increase in rate once the new development is built.

Extended Aeration Design

Assuming the water generation rate as 405 L/person/day and choosing the higher end of the mass loading range, **Table A-6** shows the adjusted design concentration for the combined communities.

Table A-6: Combined Wastewater Design Parameters

Constituent	Design Mass Loading	Design Concentration[1]
Total Suspended Solids (TSS)	75 g/person/d	185 m/L
Volatile Suspended Solids (VSS)	60 g/person/d	148 mg/L
5-day Biochemical Oxygen Demand (BOD_5)	65 g/person/d	158 mg/L
Total Ammonia-Nitrogen (TAN)	3 g/person/d	7.4 mg/L
Total Phosphorus (TP)	2 g/person/d	4.9 mg/L
Fats, Oils, and Grease	18 g/person/d	44.4 mg/L

[1]Assuming water generation rate of 405 L/person/day

Extended Aeration Tank

Table A-7: Extended Aeration Design Parameters

Parameter	Formula	Design	Unit
Organic Load	Mass Load * Population	142350	g BOD_5/d
BOD_5 Loading	Assumed	0.24	kg/(m^3.d)
Volume	Organic Load/Loading/1000	708.5	m^3
MLSS	Assumed	3500	mg/L
VSS Load	Population * VSS Mass Loading	131400	g VSS/d
TSS Load	Population * TSS Mass Loading	164250	g VSS/d
VSS/TSS	VSS Load/TSS Load	0.8	
MLVSS	MLSS * VSS/TSS	2800	mg/L
		2.8	kg/m^3
F/M_v	BOD_5 Loading/MLVSS	0.09	d^{-1}
HRT	Volume/ADF * 24	19.2	hours
Return Sludge Rate	100% of Q_{avg}	886	m^3/d
RAS Concentration	MLSS * ($RSR+Q_{avg}$)/RSR	7000	mg/L
BOD_5 Removed	BOD_5 Design Conc. – Eff. Obj.	155.4938272	mg/L
Yield		0.6	
SRT	(V * MLSS)/(Q_{max} * BOD_5 Removed)	15.00	d
Oxygen Demand	1.5 kg O_2/kg BOD_5 + 4.6 kg O_2/kg TKN	82661	
WAS	V * MLSS/RAS * SRT	11.54	m^3/d

[1] First assumed 0.24 kg/(m^3.d) but the SRT would be below the minimum requirement of 15 days. With trial and error, 0.17 kg/(m^3.d) achieved the minimum volume requirement for SRT to be >15 days; however, lowered the F/M_v below the minimum requirement

[2] The minimum allowable volume is 411.1 m^3 based on the BOD_5 Loading of 0.17 kg/(m^3.d)

Table A-8: Combined Aeration Tank

Dimensions	Size
Volume (being split into 2 tanks)	412.25 m^3
Depth	4.6 m
Width	4.39 m
Length	13.16 m

Secondary Clarifier Tank

Table A-9: Combined Clarifier Tank

Parameter	Design	Unit
Surface Overflow Rate	40	$m^3/m^2.d$
Peak Solids Loading w/RAS[1]	65.5	$kg/m^2.d$
Peak Solids Loading[2]	170	$kg/m^2.d$
Area	170.28	m^2
Width	4.05	m
Length	16.19	m
Depth	4.05	m
Volume	265.1	m^3

[1]Based on MOECP Design Guideline

[2]Based on MOECP "Clarifier peak solids loading rate should be computed based on the design peak daily flow plus the design maximum return sludge flow rate and the design MLSS under aeration" = $(Q_{peak}+RSR)*(MLSS/1000)/A$

Appendix 2A

Stakeholder and Agency Consultation Materials

Shedden and Fingal EA
Master Servicing Plan
Township of Southwold
Contact List

Master Contact List

Salutation	Surname	First Name	Organization	Department	Title	Address	City, Prov	Postal Code	Tel.	Tel. Extension	Contact by Email Only?	E-Mail
MPP												
MPP	Yurek	Jeff			MPP	750 Talbot Street, Suite 201 West Wing	St. Thomas, ON	N5P 1E2	519-631-0666			jeff.yurekco@pc.ola.org
Federal Agencies												
Ms.	Morton	Emily	Fisheries and Oceans Canada	Southern Ontario District	Fish Habitat Biologist	304-3027 Harvester Road	Burlington, Ontario	L7R 4K3	(905)-639-0411			emily.morton@dfo-mpo.gc.ca
Provincial Ministries & Agencies												
Mr.	MacPherson	Michael	Ministry of Indigenous Relations and Reconciliation	Indigenous Relations Unit	Manager	160 Bloor Street East, 9th Floor	Toronto, ON	M7A 2E6	(416) 326-4214			kevin.mcclure@ontario.ca
Ms.	Hatcher	Laura	Ministry of Tourism, Culture and Sport	Culture Services Unit	Team Lead	401 Bay Street, Suite 1700	Toronto, ON	M7A 0A7	416-314-7133			dave.depuydt@ontario.ca
	Herczeg	Brooke	Ministry of Tourism, Culture and Sport	Heritage Program Unit	Heritage Planner	402 Bay Street, Suite 1700	Toronto, ON	M7A 0A8				Brooke.Herczeg@ontario.ca
Mr.	Cooper	Craig	Ministry of Municipal Affairs and Housing	Community Planning and Development	Planner	659 Exeter Road, 2nd Floor	London, ON	N6E 1L3	(519)-873-4769			Craig.Newton@ontario.ca
Ms.	Paller	Claire	Ministry of Natural Resources & Forestry	Aylmer District	A/ District Planner	615 John Street North	Aylmer, ON	N5H 2S8	(519)-773-4750			Andrea.Fleischhauer@ontario.ca
Ms.	Riddell	Heather	Ministry of Natural Resources & Forestry	Aylmer District	District Planner	615 John Street North	Aylmer, ON	N5H 2S8	(519)-773-4750			
Ms.	Warner	Laura	Ministry of Natural Resources & Forestry	Aylmer District	Planning Intern	616 John Street North	Aylmer, ON	N5H 2S9				MNRF.Ayl.Planners@ontario.ca
Mr.	Newton	Craig	Ministry of the Environment & Climate Change		Environmental Assessment Co-Ordinator	733 Exeter Rd 2nd Floor	London ON	N6E 1L3	(519)-873-5014			Craig.Newton@ontario.ca
Ms.	Stroyberg	Angela	Ministry of the Environment & Climate Change		Provincial Officer, Water Inspector	3232 White Oak Rd. 3rd Floor	London, ON	N6E 1L8	519-873-5091			angela.stroyberg@ontario.ca
	Abernathy	Scott	Ministry of the Environment & Climate Change			3232 White Oak Rd. 3rd Floor	London, ON	N6E 1L8	519-873-5091			
Municipality Contacts												
Ms.	Higgs	Lisa	Township of Southwold		CAO/Clerk	35663 Fingal Line	Fingal, ON	N0L 1K0	519-769-2010			cao@wouthwold.ca
Mr.	Clutterbuck	Brent	Township of Southwold		Drainage Superintendent	35664 Fingal Line	Fingal, ON	N0L 1K0	519-769-2010			drainage@southwold.ca
Mr.	Loveland	Ken	Township of Southwold	Planning Department		35665 Fingal Line	Fingal, ON	N0L 1K0	519-769-2010			planning@southwold.ca
Ms.	McKillop	Jane	Township of Southwold		Public Works Superintendent	35665 Fingal Line	Fingal, ON	N0L 1K0	519-769-2010			roads@southwold.ca
Ms.	Gonyou	Julie	Elgin County		CAO	450 Sunset Drive	St. Thomas	N5R 5V1	519-631-1460	161		
First Nations/Aboriginal Communities (township to mail on their letterhead)												
Chief	Henry	A. Myeengun	Chippewas of the Thames First Nation			320 Chippewa Road, RR 1	Muncey, ON	N0L 1Y0	(519)-289-5555			
Chief	Phillips	Randall	Oneida Nation of the Thames			2212 Elm Avenue	Southwold, ON	N0L 2G0	(519)-652-3244			
Chief	Duckworth	Mary	Caldwell First Nation			14 Orange Street	Leamington, ON	N8H 1P5	(519) 322-1766			
			Metis Nation of Ontario			500 Old Patrick Street, Unit 3	Ottawa, ON	L1N 9G4	(613)-798-1488			
Mr.	Schisler	Paul	Southern First Nations Secretariat			22361 Austin Line	Bothwell, ON	N0P 1C0				
Conservation Authority Contacts												
Mr.	Homewood	Jason	Lower Thames Valley Conservation Authority		Water Resources and Regulations Technician	100 Thames Street	Chatham, ON	N7L 2Y8	519-354-7310			jason.homewood@ltvca.ca
	Peacock	Mark	Lower Thames Valley Conservation Authority		General Manager	100 Thames Street	Chatham, ON	N7L 2Y8	519-354-7310			mark.peacock@ltvca.ca
	Pratt	Austin	Lower Thames Valley Conservation Authority		Water Quality Specialist	100 Thames Street	Chatham, ON	N7L 2Y8	519-354-7310			austin.pratt@ltvca.ca
	Wintermute	Jason	Lower Thames Valley Conservation Authority		Water Management Supervisor	100 Thames Street	Chatham, ON	N7L 2Y8	519-354-7310			jason.wintermute@ltvca.ca
Local Agencies & Interest Groups												
Mr.	MacPherson	Jamie	Hydro One		Engineering Technologist	P.O. Box 2700	London, ON	N6A 4H6				macpherj@londonhydro.com
Mr.	Thompson	Reg	Union Gas			109 Commissioners Rd W	London, On	N6A 4P1				rthompson@uniongas.com
	Collard	Karen	Frome United Church			9539 Mill Road, RR3	Shedden, ON	N0L 2E0	519-764-2437			
	Clutterbuck	Mary	Boxall Women's Institute			6619 Boxall Road	Pt. Stanley, ON	N5L 1J2	519-769-2822			
	Carroll	Margaret	Middlemarch Women's Institute			40490 John Wise Line, RR 5 Stn Main	St. Thomas, ON	N6P 3S9	519-631-4719			
	Morris	Jennifer	Iona Station Baptist									jkward@rogers.com
	Webster	Debra	Fingal Presbyterian Church			35597 Fingal Line	Fingal, ON	N0L 1K0	519-769-2803			debrawebster@rogers.com
	Carmichael	Ron	Rosy Rhubarb			35976 Talbot Line	Shedden, ON	N0L 2E0				
	Carder	James	Shedden-Fingal Optimist Club			36037 Fourth Line, RR1	Southwold, ON	N0L 2G0				jamescarder@live.ca
	Danowski	Joseph	Southwold Township Optimist Club			197 Gladman Ave.	London, ON	N6J 1X6	647-525-4469			josephdanowski@gmail.com
	Quenneville	Ruth	Talbot Optimist Club			37406 John Wise Line, RR7	St. Thomas, ON	N5P 3T2				
	Young	Audrey	Shedden R E B E K A H's			10271 Sunset Road, RR7	St. Thomas, ON	N5P 3T2				
	Longhurst	Shirley	Shedden Agricultural Soceity			34547 Third Line, RR 1	Southwold, ON	N0L 2G0				
	Taylor	Doug	Shedden Odd Fellows			7949 Inverness St.	Fingal, ON	N0L 1K0				
	Longhurst	Shirley	Lawrence Station Kensington Club			34547 Third Line, RR 1	Southwold, ON	N0L 2G0				
	Longhurst	Shirley	Lawrence Station Hall Board			12334 William St.	Lawrence Station, ON	N0L 2G0				
	Wilson	Gary	Southwold Volunteer Fire Department			35663 Fingal Line	Fingal, ON	N0L 1K0	519-769-2010			
	Lunn	Ray	Eastern Star			7936 Argyle Street	Fingal, ON	N0L 1K0	519-769-2093			
	Nichols	David	Masonic Lodge of Fingal			39707 Talbot Line	St. Thomas, ON	N5P 3T2				
	Keith	Robert	Masonic Lodge of Iona Station			9369 Currie Road	Wallacetown, ON	N0L 2M0				
	Chairperson	Manse	Talbotville United Church			10734 Sunset Rd.	Talbotville, ON	N0L 2K0				
	Jones	Sherri	Shedden Soccer			4426 Thomas Rd.	Port Stanley, ON	N5L 1J1	519-852-8781			
	Cummings	Bob	Southwest Ontario Tractor Pullers Association			36089 Talbot Line	Shedden, ON	N0L 2E0	519-764-2057			
	Neil	Adrian	Shedden Cubs and Scouts			35788 Talbot Line	Shedden, ON	N0L 2E0				
	Lunn	Ray	SS12 School Committee			7936 Argyle Street	Fingal, ON	N0L 1K0	519-769-2093			
	Chamberlain	Roy	Triple C Saddle Club									rchamberlain@westernfairdistrict.com

Shedden and Fingal EA
Master Servicing Plan
Township of Southwold
Contact List

Master Contact List												
Salutation	Surname	First Name	Organization	Department	Title	Address	City, Prov	Postal Code	Tel.	Tel. Extension	Contact by Email Only?	E-Mail
Local Landowners (Southwold to Provide - see tabs)												
Requests to be Kept Informed												
[redacted]												

Shedden and Fingal EA
Master Servicing Plan
Township of Southwold
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Salutation	Surname	First Name	Organization	Department	Title	Address	City, Prov	Postal Code	Tel.	Tel. Extension	Contact by Email Only?	E-Mail

Municipal Class Environmental Assessment for the Shedden and Fingal Master Plan and Wastewater Servicing

Notice of Study Commencement and Public Information Centre

The Township of Southwold has retained Dillon Consulting Limited to develop a municipal wastewater treatment strategy for the communities of Shedden and Fingal, in the Township of Southwold. The study will review a number of wastewater servicing alternatives including constructing a new treatment facility (or facilities) and diverting the communities' wastewater to a nearby wastewater treatment plant. Shedden and Fingal require new wastewater treatment systems to permit additional development and support future infrastructure improvement needs. Access to sanitary connections for existing properties within the communities will be made available through phased road and infrastructure improvement projects.

The study is being completed following the planning and design process as outlined in the Municipal Engineers Association's, Municipal Class Environmental Assessment (EA) (October 2000, as amended).

Public consultation is important to the success of this study. Two Public Information Centres (PICs) are planned for this study. These PICs will provide stakeholders and the public an opportunity to obtain background information, meet the project team, and provide feedback. The first PIC will be held as follows:

Date: **Tuesday, April 3, 2018**

Time: **4:00 PM to 7:00 PM**
(Drop in/Open House format)

Location: **Shedden Keystone Complex**
35921 Talbot Line
Shedden, Ontario

The second Public Information Centre will be held later in 2018. A report documenting the process will be available for review at the end of the study. Updates on the study will also be available on Township of Southwold's website, www.southwold.ca, under Departments - Planning, and published in local newspapers.

PUBLIC COMMENTS INVITED

There is an opportunity at any time during this project for interested persons to review outstanding issues and bring concerns to the attention of the project team. Information collected will be used in accordance with the *Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. M.56*. With the exception of personal information, all comments will become part of the public record.

For further information or to be added to the mailing list, please contact:

Lisa Higgs, CAO/Clerk
Township of Southwold
35663 Fingal Line
Fingal, Ontario N0L 1K0
Tel: 519-769-2010
Fax: 519-769-2837
Email: cao@southwold.ca

Ron Antuma, Project Manager
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario N6A 5R2
Tel: 519-438-1288 ext. 1294
Fax: 519-672-8209
Email: sheddenandfingal@dillon.ca

Example of cover letter sent to Agencies

March 20, 2018

Mr. Jeff Yurek, MPP
750 Talbot Street, Suite 201 West Wing
St. Thomas, Ontario
N5P 1E2

Municipal Class Environmental Assessment for the Shedden and Fingal Master Plan and Wastewater Servicing
Notice of Study Commencement and Public Information Centre

Dear Mr. Yurek:

As outlined in the enclosed Notice of Study Commencement, the Township of Southwold has retained Dillon Consulting Limited to undertake a study to develop a municipal wastewater treatment strategy for the communities of Shedden and Fingal. The project will follow the planning and design process as outlined in the Municipal Engineers Association's, Municipal Class Environmental Assessment (EA) (October 2000, as amended).

Two Public Information Centres (PICs) are planned for this study. These PICs will provide stakeholders and public with an opportunity to obtain background information, meet the project team, and provide feedback. The first PIC will be held as follows:

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Location:	**Shedden Keystone Complex** **35921 Talbot Line** **Shedden, Ontario**

For further information or to provide comments, please contact the project team at the following email address: sheddenandfingal@dillon.ca.

Yours sincerely,

DILLON CONSULTING LIMITED

Eric Vanderleeuw, B.A.
for Ron Antuma, P.Eng.
Project Manager

EJV:rrk
Enclosure

cc: Ms. Lisa Higgs, Township of Southwold

Our file: 17-6064

DILLON CONSULTING

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519.672.8209

Dillon Consulting Limited

Entegrus, St. Thomas Energy merger approved

C-K-based utility will become 10th largest LDC in Ontario on April 1

Postmedia Network

Chatham-Kent's electrical utility is about to make it into the top 10.

The Ontario Energy Board has issued a decision and order approving the application to allow Entegrus Powerlines Inc. to merge with St. Thomas Energy Inc.

The St. Thomas utility will adopt the Entegrus Powerlines name on April 1, at which time the combined utility will be serving 17 communities throughout Southwestern Ontario with a customer base of more than 58,000, making it the 10th largest local distribution company in Ontario.

The Municipality of Chatham-Kent will be the majority owner, followed by the City of St. Thomas. Corix will continue to be a minority shareholder.

"We are committed to offering the excellent levels of service customers have come to expect," stated Entegrus president and CEO Jim Hogan in a media release. "Together, we will continue to operate by the strong values that guide us to be a safe, customer and community-focused, and sustainable utility."

Rob Kent, chief operating officer of St. Thomas Energy, will become vice-president of IT services and fibre operations with Entegrus.

Fibre optic network services previously offered by Ascent in St. Thomas will be provided under the Entegrus group of companies.

"We look forward to working with our new team as we begin this transition to merge our operations," Kent said in the media release.

"There will be no disruption to services offered by St. Thomas Energy," he said, adding the main office will remain open.

"Additional changes may occur as we begin to merge systems, but we will continue to communicate any changes that will affect our customers," Kent said.

St. Thomas Energy branding will change to Entegrus in the coming months on the building, fleet, customer billing and website.

Additional merger-related information is available online at www.entegrus.com.

"The combined expertise and dedication of our employees will ensure our customers and communities we serve will benefit from increased resources and experience," Kent said. "The name St. Thomas Energy may be changing, but as a company we are still committed to operating with local values in mind."

Distribution rates are expected to remain fairly stable over the next several years, with projected increases being less than inflation, stated the release.

The merged utility plans to seek OEB approval for harmonization of distribution rates between all communities during the next scheduled distribution rate application in 2026.

Municipal Class Environmental Assessment for the Shedden and Fingal Master Plan and Wastewater Servicing

Notice of Study Commencement and Public Information Centre

The Township of Southwold has retained Dillon Consulting Limited to develop a municipal wastewater treatment strategy for the communities of Shedden and Fingal, in the Township of Southwold. The study will review a number of wastewater servicing alternatives including constructing a new treatment facility (or facilities) and diverting the communities' wastewater to a nearby wastewater treatment plant. Shedden and Fingal require new wastewater treatment systems to permit additional development and support future infrastructure improvement needs. Access to sanitary connections for existing properties within the communities will be made available through phased road and infrastructure improvement projects.

The study is being completed following the planning and design process as outlined in the Municipal Engineers Association's, Municipal Class Environmental Assessment (EA) (October 2000, as amended).

Public consultation is important to the success of this study. Two Public Information Centres (PICs) are planned for this study. These PICs will provide stakeholders and the public an opportunity to obtain background information, meet the project team, and provide feedback. The first PIC will be held as follows:

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Shedden, Ontario

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Lisa Higgs, CAO/Clerk
Township of Southwold
35663 Fingal Line
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Tel: 519-438-1288 ext. 1294
Fax: 519-672-8209
Email: sheddenandfingal@dillon.ca

Ridgetown native among those named to Ag Hall of Fame

Special to Postmedia Network

A native of Ridgetown is among five people who will be invested into the Ontario Agricultural Hall of Fame for their life-long commitment to the province's agricultural sector.

The late Gordon Leitch was named by the Ontario Agricultural Hall of Fame Association.

He will be invested at the Hall of Fame's annual induction ceremony at Milton on June 10.

The others are the late William Beaty, William (Barry) Hill, Harvey Graham, and the late James Morrison.

"Our board of directors had an incredibly difficult selection process this year," said John Kikkert, President of the Ontario Agricultural Hall of Fame Association. "The five inductees for 2018 were chosen from many worthy candidates, each of whom had made significant impacts to Ontario agriculture. These inductees, however, were chosen on the basis of the lasting legacies that they made in their respective fields."

Nominated by Masterfeeds Inc., Gordon Clifford Leitch (1890-1954) was raised in Ridgetown and as a young man travelled to Western Canada to gain experience in the grain business, working first for the Manitoba Wheat Pool and then returning to Ontario to serve as manager of the Toronto branch of the Canadian Wheat Pool.

Leitch then went on to be general manager of the first elevator on the Toronto waterfront which ultimately grew into what is now known as Masterfeeds Inc.

His contributions to Ontario agriculture are significant as they established the logistics network still used today by Canadian farmers to facilitate grain trade across the country and around the world.

The other nominees:

William Harvey Beaty (1916-1994) was born in Halton Region. He was the founder and chairman of Cold Springs Farm Ltd., an enterprise that he started in 1949 in Thamesford on 100 acres of land. By the time of his death, the business had grown to include 60 farms and 9,000 acres raising hogs, turkeys, chickens, beef cattle and crops along with a feed mill, grain elevators, processing plant, fertilizer plant and more.

Beaty was involved with many agricultural organizations including the Ontario Federation of Agriculture, Ontario Poultry Council, Poultry Industry Conference and Exhibition, Ontario Egg Producers' Marketing Board and Ontario Turkey Producers' Marketing Board among others. He was responsible for creating thousands of jobs in Ontario and innovating in the fields of product development, swine and poultry genetics and production quality.

Harvey John Graham (1935-) Harvey Graham of Durham Region has spent his entire career working as an agricultural advocate locally, provincially and nationally to ensure a sustainable future for the beef industry in both Ontario and Canada. He was a director and president of the Ontario Cattlemen's Association (now Beef Farmers of Ontario), a director to the Canadian Cattlemen's Association, helped to establish the Ontario Feeder Cattle Loan Guarantee Program, was instrumental in establishing the Environmental Stewardship Award and relentlessly encouraged beef farmers to institute the latest management practices to enhance their herd health, marketing, accounting and the environment.

He also helped to implement the national beef check-off program to fund work in support of the beef industry.

William Barry Hill (1943 -) of Brant County has made significant contributions to agriculture in Ontario through his insightful leadership of organizations at the provincial level and the development of new initiatives for agriculture and economic sustainability within the First Nations Community.

He was instrumental in the formation of the First Nations Agri Group Co-operative, designed to provide purchasing power for crops and livestock inputs, which was seen as a model for other First Nations communities across Canada. He was a board member and president of the Ontario Soil and Crop Improvement Association, a founding board member of the Integrated Grain Processors Co-operative for the production of ethanol and has provided his business expertise to over 400 businesses through the Two Rivers Community Development Centre.

James J. Morrison (1861- 1936) was known as the "father of the Ontario Farm Movement" and was born on a farm south of Arthur. In 1914, he helped to create the United Farmers of Ontario (UFO) on the grounds that farmers and rural Ontario needed to work together to achieve the goals of good business and living conditions. By 1919, the UFO had 50,000 members and won the Ontario election.

Municipal Class Environmental Assessment for the Shedden and Fingal Master Plan and Wastewater Servicing

Notice of Study Commencement and Public Information Centre

The Township of Southwold has retained Dillon Consulting Limited to develop a municipal wastewater treatment strategy for the communities of Shedden and Fingal, in the Township of Southwold. The study will review a number of wastewater servicing alternatives including constructing a new treatment facility (or facilities) and diverting the communities' wastewater to a nearby wastewater treatment plant. Shedden and Fingal require new wastewater treatment systems to permit additional development and support future infrastructure improvement needs. Access to sanitary connections for existing properties within the communities will be made available through phased road and infrastructure improvement projects.

The study is being completed following the planning and design process as outlined in the Municipal Engineers Association's, Municipal Class Environmental Assessment (EA) (October 2000, as amended).

Public consultation is important to the success of this study. Two Public Information Centres (PICs) are planned for this study. These PICs will provide stakeholders and the public an opportunity to obtain background information, meet the project team, and provide feedback. The first PIC will be held as follows:

Date: **Tuesday, April 3, 2018**

Time: **4:00 PM to 7:00 PM**
(Drop in/Open House format)

Location: **Shedden Keystone Complex**
35921 Talbot Line
Shedden, Ontario

The second Public Information Centre will be held later in 2018. A report documenting the process will be available for review at the end of the study. Updates on the study will also be available on Township of Southwold's website, www.southwold.ca, under Departments - Planning, and published in local newspapers.

PUBLIC COMMENTS INVITED

There is an opportunity at any time during this project for interested persons to review outstanding issues and bring concerns to the attention of the project team. Information collected will be used in accordance with the *Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. M.56.* With the exception of personal information, all comments will become part of the public record.

For further information or to be added to the mailing list, please contact:

Lisa Higgs, CAO/Clerk
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35663 Fingal Line
Fingal, Ontario N0L 1K0
Tel: 519-769-2010
Fax: 519-769-2837
Email: cao@southwold.ca

Ron Antuma, Project Manager
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario N6A 5R2
Tel: 519-438-1288 ext. 1294
Fax: 519-672-8209
Email: sheddenandfingal@dillon.ca

SHEDDEN & FINGAL MASTER SERVICING PLAN

Township of Southwold

Municipal Class Environmental Assessment

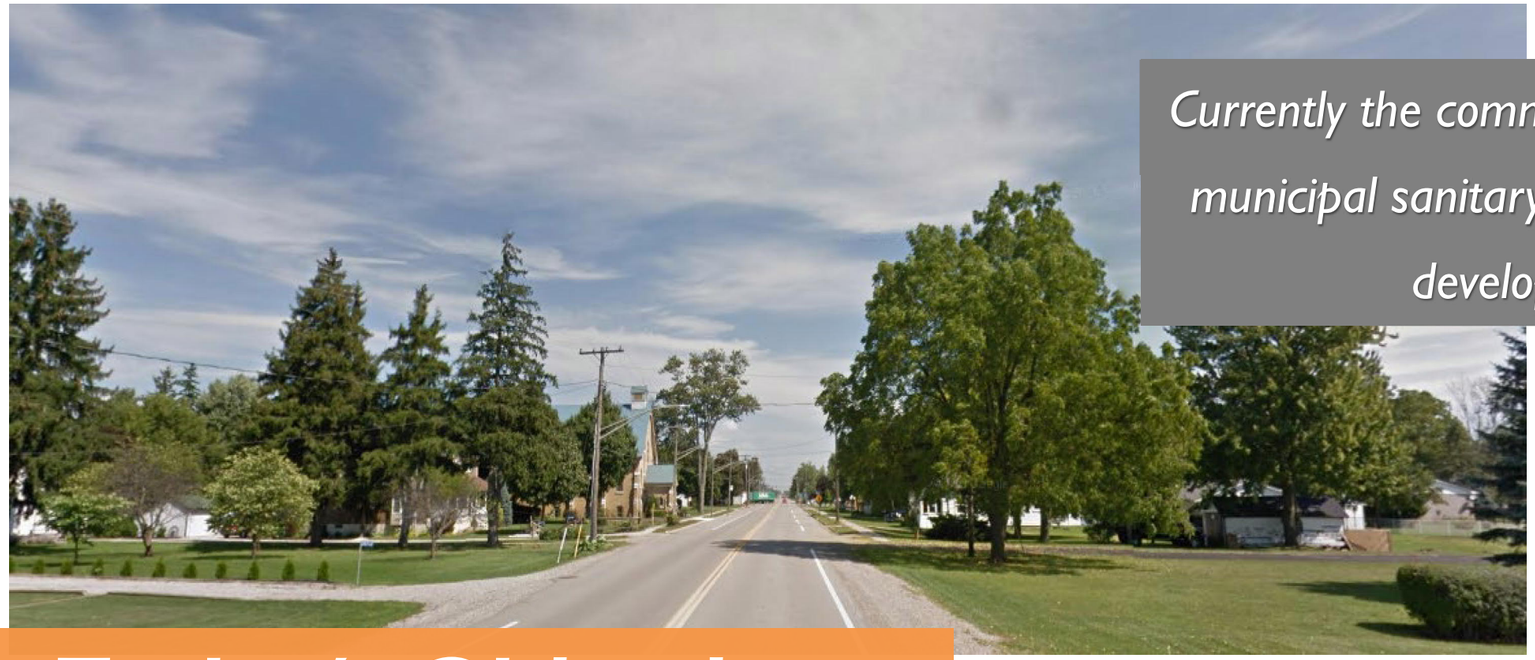
PUBLIC INFORMATION CENTRE

APRIL 3, 2018

DILLON CONSULTING

Township of Southwold 1850

WELCOME!



Currently the communities of Shedden and Fingal do not have municipal sanitary services, which limits the extent of future development within the communities.

Today's Objectives

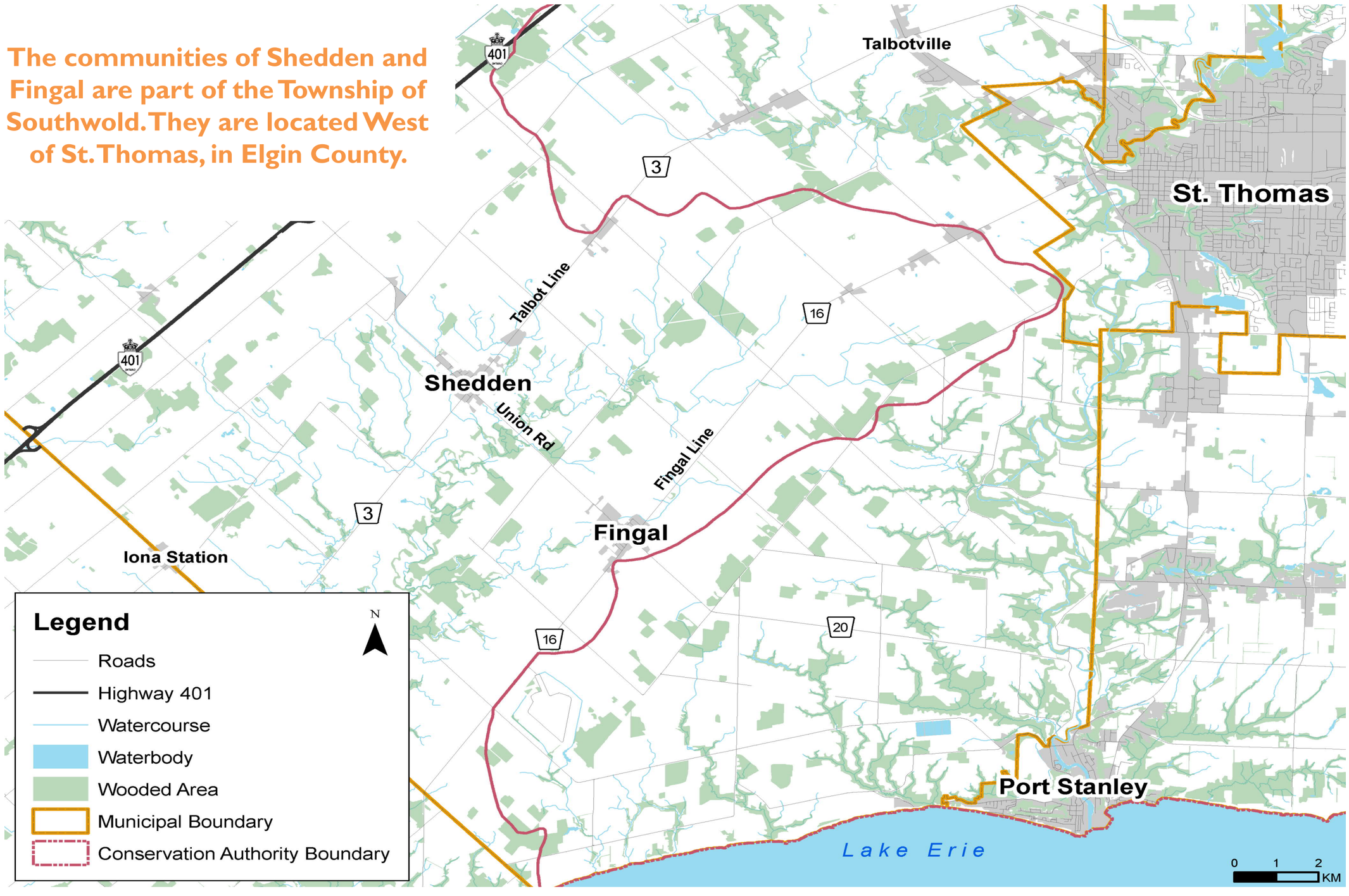
- **OUTLINE** the project need and justification
- **PROVIDE** background information
- **PRESENT** alternatives considered, including the evaluation completed
- **SUMMARIZE** the next steps in the study

DILLON CONSULTING

Township of Southwold 1850

STUDY AREA

The communities of Shedden and Fingal are part of the Township of Southwold. They are located West of St. Thomas, in Elgin County.



STUDY PROCESS

PHASE 1: Problem/ Opportunity

- ✓ Confirm the study purpose and justification

PHASE 2: Alternative Solutions

- ✓ Identify reasonable alternative solutions to the problem/opportunity
- ✓ Overview of existing conditions
- ✓ Consult review agencies and the public
- ✓ Evaluate alternatives and recommend a solution
- ✓ Select the preferred solution
- ✓ Document the decision making process in a Project File Report (for a Schedule B undertaking)

PHASE 3: Alternative Design Concepts for Preferred Solution

- ✓ Identify alternative design concepts
- ✓ Detailed review of existing conditions
- ✓ Evaluate alternatives and select a recommended design
- ✓ Consult review agencies and the public.
- ✓ Select the preferred design.

PHASE 4: Environmental Study Report

- ✓ Document the decision making process in an Environmental Study Report (ESR) for a Schedule C project

PHASE 5: Implementation

- ✓ Design phase
- ✓ Proceed to design/construction of the project
- ✓ Monitor for environmental provisions and commitments

PUBLIC INFORMATION CENTER

WE ARE HERE

The Study is following the requirements of the Municipal Class Environmental Assessment (EA) (October 2000, as amended).

The Class EA process ensures:

- ✓ All relevant social, environmental and engineering factors are considered in the planning and design process
- ✓ Public and agency input is integrated into the EA process

Based on the level of complexity, projects follow a prescribed project "schedule" from Schedule A (minor improvements) to Schedule C (major improvements)

The Class EA project schedule will be confirmed when the preferred alternative is selected:

- **Schedule B follows Phases 1, 2 and 5**
- **Schedule C follows Phase 1 through 5**

STUDY FOCUS

PROBLEM / OPPORTUNITY STATEMENT:

Recognizing the importance of growth within its communities, the Township of Southwold has initiated a Class EA to determine the best way to provide municipal services for Shedden and Fingal. The goal of the Master Servicing Plan is to develop a plan that is:

- Economically sustainable for residents and the Township
- Environmentally responsible
- Provides opportunities for growth within the communities.

The study has two primary objectives:

1. WASTEWATER SERVICING:

- Identify the preferred alternative for providing municipal sanitary servicing to allow for future development in the communities.

2. WATER SERVICING:

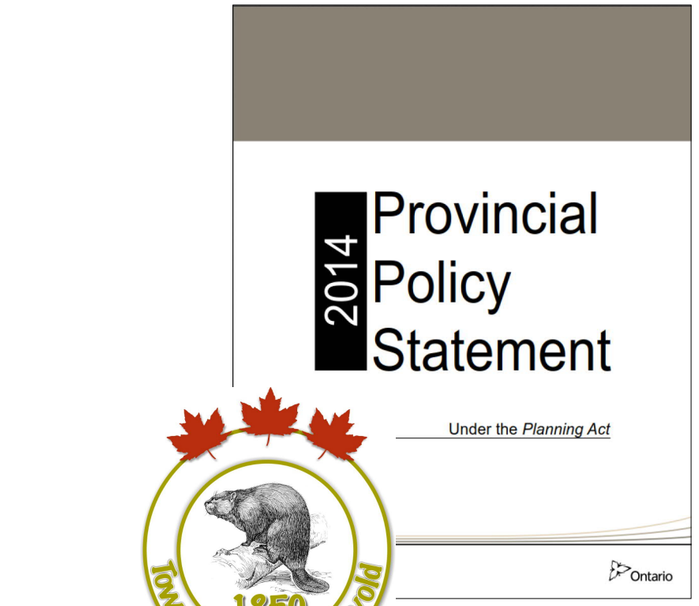
- Identify existing concerns with the municipal water service and identify upgrades to accommodate future development in the communities.

PROJECT BACKGROUND

The Provincial Policy Statement (PPS) provides direction on land use planning and development within the Province. The PPS emphasizes that municipal water and wastewater servicing be considered prior to new development to promote '*building strong healthy communities*'.

Providing a solution for servicing is integral to the future development in the communities of Shedden and Fingal.

A 2013 Township of Southwold *Small Settlement Servicing Study* (Zelinka Priamo Ltd.) identified the need for water supply and municipal servicing reviews for Shedden and Fingal to accommodate development.



PROJECT NEED

The existing servicing is currently available in the Township of Southwold:

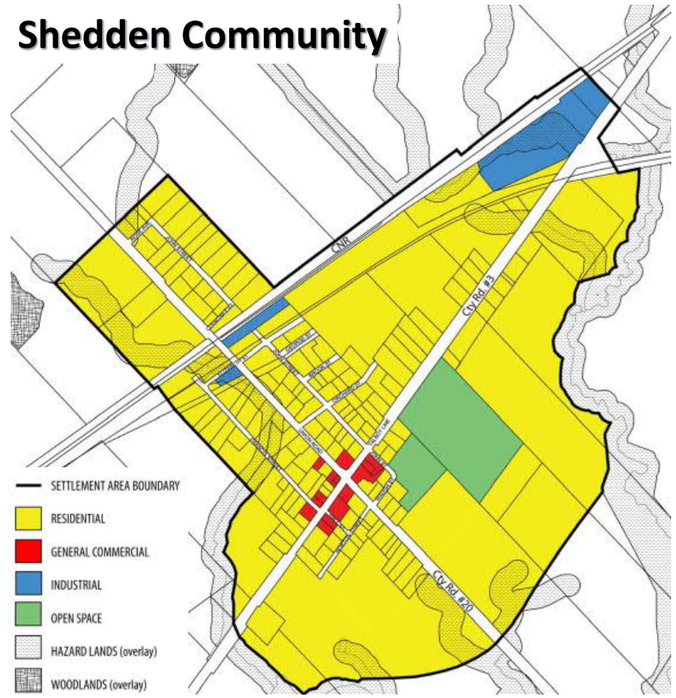
- Water Supply:
  - Township of Southwold is provided via the Regional Water Supply (RWS)
- Existing Sewage Disposal:
  - Properties are serviced by private systems (septic and drainfield systems)
  - Municipal drains provide stormwater collection

	Shedden	Fingal
Settlement Boundary (ha)	182	92
Current Population	406	370
Future Development Population	686	728
Vacant Residential Land Supply (ha)	45.4	41.0

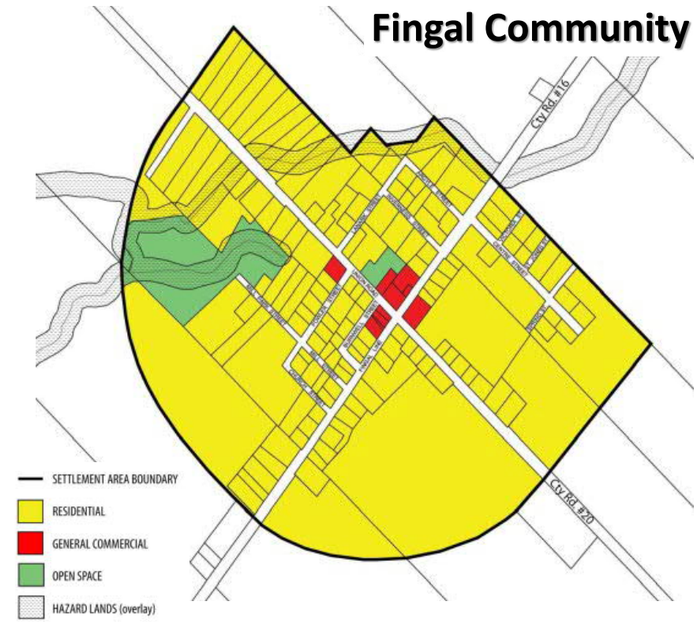
- Both communities are within the Lower Thames Valley Conservation Authority boundary and drain to the Talbot Creek watershed (eventually reaches Lake Erie at Port Talbot).

**The population values were based upon the* 2013 Township of Southwold *Small Settlement Servicing Study* (Zelinka Priamo Ltd.)

Shedden Community



Fingal Community



MUNICIPAL WATER REVIEW

Valves

Watermain

The team is currently reviewing opportunities to improve the existing water servicing for Shedden and Fingal.

IS THERE ANYTHING YOU WANT TO TELL US ABOUT YOUR EXISTING WATER SUPPLY?

Use the post-it notes to provide your comments! i.e.. Smell, colour, pressure, etc.

ALTERNATIVE SOLUTIONS – Wastewater Management

Three alternatives are being considered for municipal wastewater management:

1. **Do Nothing**
2. **Connect to a neighboring treatment facility**
3. **New Municipal Treatment Facility(s)**

I. Alternative One: Do Nothing (continued servicing on private septic systems with limited future development)

Benefit:

- Low cost alternative

Disadvantage:

- Limits additional growth within the communities
- Cost of upgrading or replacing current systems
- Future environmental impact as a result of failing systems

IS THERE ANYTHING YOU WANT TO TELL US ABOUT YOUR EXISTING SEPTIC SYSTEMS?

Use the post-it notes to provide your comments!

➡

ALTERNATIVE SOLUTIONS
Alternative 2: Connect to a neighboring treatment facility

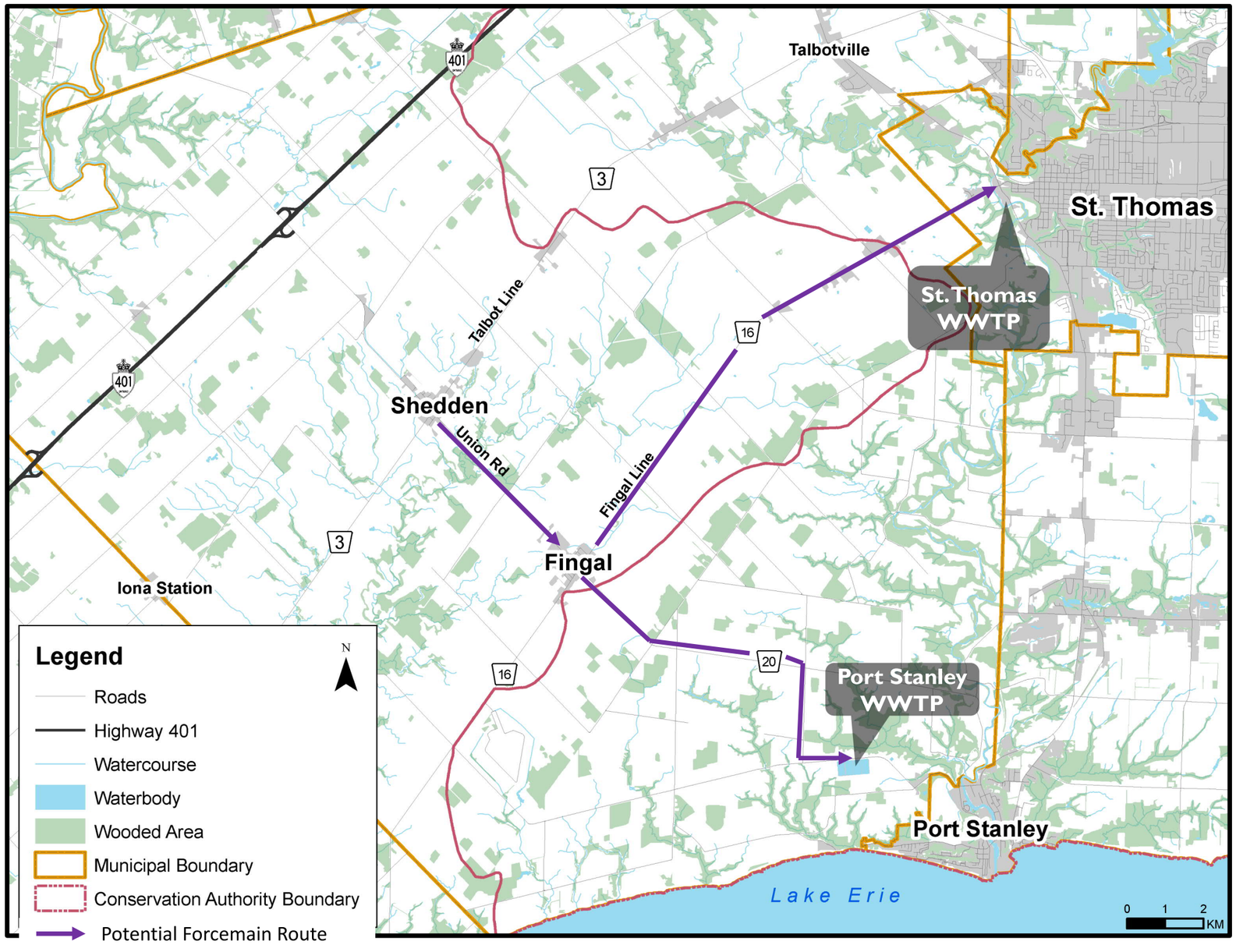
The potential to send sewage from Shedden and Fingal to the St. Thomas WWTP or Port Stanley WWTP was considered. This would include local sewers and pumping to a central pump station at Fingal and long distance pumping (between 8 and 12 km) from one location through a new forcemain to an existing treatment facility.

Benefit:

- Treatment facility does not need to be sited within the community

Disadvantage:

- Costly construction of pump station and forcemain to nearby facility.
- Treatment facilities are not owned by the Township
- Lack of agreements with neighbouring municipalities to accept sewage and limited control over servicing for future needs
- Neighbouring municipalities have indicated capacity is not available at their facilities to service Shedden and Fingal



ALTERNATIVE SOLUTIONS
Alternative 3: New Municipal Treatment Facility(s)

Construct a new municipal sewage treatment facility in Shedden and/or Fingal. A location for the facility has not yet been selected. The facility would be owned and operated by the Township.

Benefit

- Facility would be planned to meet current and future needs
- New plant could be designed to be an enclosed building with a relatively small footprint (similar to the new Talbotville WWTP)
- Provides flexibility for the timing of future development
- Township has recent experience with the approach and technology
- No major obstacles to permitting are anticipated
- Community in control
- Managed growth
- Effluent managed by MOECC

Disadvantage

- Facility site must be located near water
- Design must consider proper setbacks from adjacent properties
- On-going operating and maintenance cost

DECISION MAKING PROCESS

An evaluation of the alternatives was completed to identify the recommended solution to carry forward for municipal wastewater. As required by the Class EA process, the evaluation considered the natural environment, cultural and socio-economic environment, technical performance, feasibility, and relative cost.

The evaluation criteria are grouped into the following primary categories:

1. **Cultural and Socio-Economic Environment**
   - Impact on residents, land uses and heritage features
2. **Natural Environment**
   - Impacts on Air Water and Soil
3. **Technical Performance**
   - Ability of the alternative to meet treatment needs
4. **Feasibility**
   - Practicality of alternative to meet needs
5. **Relative Cost**
   - Relative capital and operating cost for the alternative
6. **Meets Study Objectives**
   - Consistent with project objectives

STEP 2: EVALUATION RESULTS

Evaluation Criteria	**ALTERNATIVE 1** Do Nothing	**ALTERNATIVE 2** Connect to a neighbouring WWTP	**ALTERNATIVE 3** New Municipal Treatment Facility(s)
Minimize negative impacts to Cultural and Socio-Economic Environment			
Minimize negative impacts to Natural Environment			
Technical Performance			
Feasibility			
Relative Cost – lower cost preferred			
Addresses Problem / Opportunity Statement			

LEGEND: SUMMARY OF EVALUATION

 DOES NOT MEET EVALUATION CRITERIA

 SOMEWHAT MEETS EVALUATION CRITERIA

 MEETS EVALUATION CRITERIA

EVALUATION SUMMARY

Alternative 1 *is not considered feasible as it does not provide servicing for future development.*

Alternative 2 *is not feasible as the Township does not presently have agreements to obtain treatment capacity at either the Port Stanley and St. Thomas facilities and capacity is not anticipated to be allocated in the near future. As a result, potential development is restricted to what an adjacent municipality may allow.*

Based on the evaluation completed, **Alternative 3 – Construct a New Treatment Facility(s)** is technically recommended based on the following:

- Meets the objectives outlined in the Problem / Opportunity Statement
- New treatment facility(s) will be designed to meet or exceed the treatment requirements for local receivers
- Meets current best practices for treatment and is not reliant on the future permission of nearby municipality

NEXT STEPS

- **Review feedback from this meeting**

- **Confirm preferred solution**

- **Identify the preferred number of treatment facilities:**
  - One facility each for Shedden and Fingal or one shared facility for both communities

- **Identify potential location(s) for the facility(s) and evaluate**

- **Identify preferred treatment technology**

Example of a STEP Low Pressure Sewer

- **Develop a timing or phasing strategy for servicing existing users**

- **Review alternatives for conveyance:**
  - A strategy is required to collect wastewater from individual properties and convey it to a central location for treatment. Selection of an appropriate strategy is needed to provide effective servicing to as many residences as possible and limit cost. Septic tank effluent pump (STEP) or septic tank effluent gravity (STEG) systems are suitable for small sewage conveyance and will be evaluated alongside conventional gravity sewers. STEP and STEG systems may be constructed with less roadway disturbance and at lower cost than conventional gravity systems.

THANK YOU FOR ATTENDING!

Your input is important to the outcome of this project. Please complete a comment form and return it by: **April 20, 2018**

A second public meeting may be held later this year to present recommendations related to the above items and solicit feedback

Municipal Class Environmental Assessment for the Shedden and Fingal Wastewater Treatment Strategy

Notice of Public Information Centre #2

The Township of Southwold retained Dillon Consulting Limited to develop a municipal wastewater treatment strategy for the communities of Shedden and Fingal. The strategy is being developed to support long term growth in both communities. The strategy also considered the potential for providing municipal sanitary servicing to existing properties in both communities.

It was recommended at Public Information Centre (PIC) #1 held in April 2018, that the Township construct a new sewage treatment facility(s) to service the communities of Shedden and Fingal.

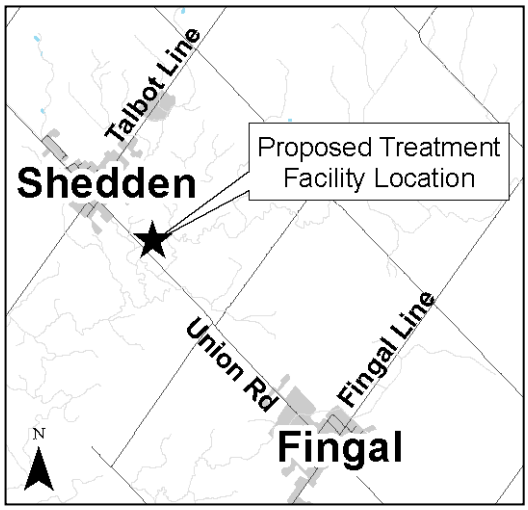
A second PIC is being held to present and seek feedback on the recommended location and treatment technology for the facility. The study is recommending one facility be constructed to service both communities. The proposed location is on lands currently owned by the Township, south of Shedden, adjacent to the north branch of Talbot Creek on the East side of Union Road. There are currently no plans to construct the facility in the near future, however this study provides a long term plan for both communities that can be implemented when required.

The second PIC will be held as follows:

Date: **Thursday, December 5, 2019**

Time: **4:00 PM to 7:00 PM**
(Drop in/Open House format)

Location: **Shedden Keystone Complex**
35921 Talbot Line
Shedden, Ontario



The study is being completed following the planning and design process for a Schedule 'C' project, as outlined in the Municipal Engineers Association's, Municipal Class Environmental Assessment (EA) (October 2000, as amended).

A report documenting the process will be available for review at the end of the study, in early 2020.

There is an opportunity at any time during this project for interested persons to review outstanding issues and bring concerns to the attention of the project team. Information collected will be used in accordance with the *Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. M.56.* With the exception of personal information, all comments will become part of the public record.

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Scott Praill, Project Manager
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Chatham, Ontario N7M 4V4
Tel: 519-354-7868 ext. 3320
Email: sheddenandfingal@dillon.ca

BOARD MEMBERS ELECTED Members of the Dutton-Dunwich Horticultural Society held election of officers for 2020. From left are Edith Richardson, Karen Rose, Ann-Marie Stephenson, Julie Henley Kapeleris, Debbie Polska, Corry Bachmeier, Dianne Beattie, Leslie Whittington-Carter and Linda Van Ray. Absent was Lin McCann.

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Rodney Lions Club news

Despite the wet and chilly weather, trick-or-treaters of all ages enjoyed free hotdogs and hot chocolate Halloween night, supplied and served by the Rodney Lions Club.

Served were 288 hotdogs and 200 cups of hot chocolate.

The electricity was donated by M & D Restorations, the location was donated by Dollar Haven, and treats were donated by the Rodney Senior Apartment residents.

The Chronicle

Accessible playground coming to Miller Park

West Lorne's Miller Park will be the home to a new accessible playground next year.

The Optimist Club of West Lorne Inc., in partnership with the Municipality of West Elgin, plans to start building the new playground in the spring of 2020.

West Elgin Mutual Insurance recently increased the club's fundraising efforts with a $5,000 donation towards the $170,000 project.

"Our parks and playgrounds play a vital role in providing a fun, safe and welcoming environment for children," said Optimist Ken Neil. "This new inclusive playground is a welcome addition for our children in our community."

The community playground will consist of various slides, swings, other activities and will be wheelchair accessible.

Neil said such projects cannot take place without the support from community donors. Public support will be recognized with a commemorative plaque and tax receipt for contributions over $100, he said.

To contribute contact the Municipality of West Elgin or The Optimist Club of West Lorne Inc. at 519-768-2691. Cheques are made payable to the Municipality of West Elgin or e-transfer donations to westlorneoptimistclub@gmail.com.

The Chronicle

West Elgin Mutual Insurance has donated $5,000 towards a $170,000 project to build a new accessible playground at West Lorne's Miller Park. The playground is a project of partners Optimist Club of West Lorne and the Municipality of West Elgin. From left are Bill Luyks, Vic Lapadat, Ken Neil, Marsha Kalita, Nick Doelman and Ruleen Lilly. *HANDOUT*

CELEBRATES 100 YEARS Norma McMillan was presented congratulations from Elgin County Warden Duncan McPhail for her 100th birthday at an open house held Sunday, Nov. 17 at Beattie Manor. She greeting 150 guests of family and friends. She also received recognition and congratulations certificates from many including the Queen. Norma ended her celebration with a wheelchair dance, enjoyed by all.

Municipal Class Environmental Assessment for the Shedden and Fingal Wastewater Treatment Strategy

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Correction

A cutline for a photograph for the Dutton Dunwich Horticultural Society, published in the West Elgin Chronicle, contained two misspelled names.

The cutline should have read: Members of the above group held election of officers for 2020. From left are Edith Richardson, Karen Rose, Ann-Marie Stephenson, Julie Henley Kapeleris, Debbie Polsky, Corry Bachmeier, Dianne Beattie, Leslie Whittington-Carter, Linda van Raay.
Absent was Lin McCann.

SHEDDEN & FINGAL MASTER SERVICING PLAN

Township of Southwold

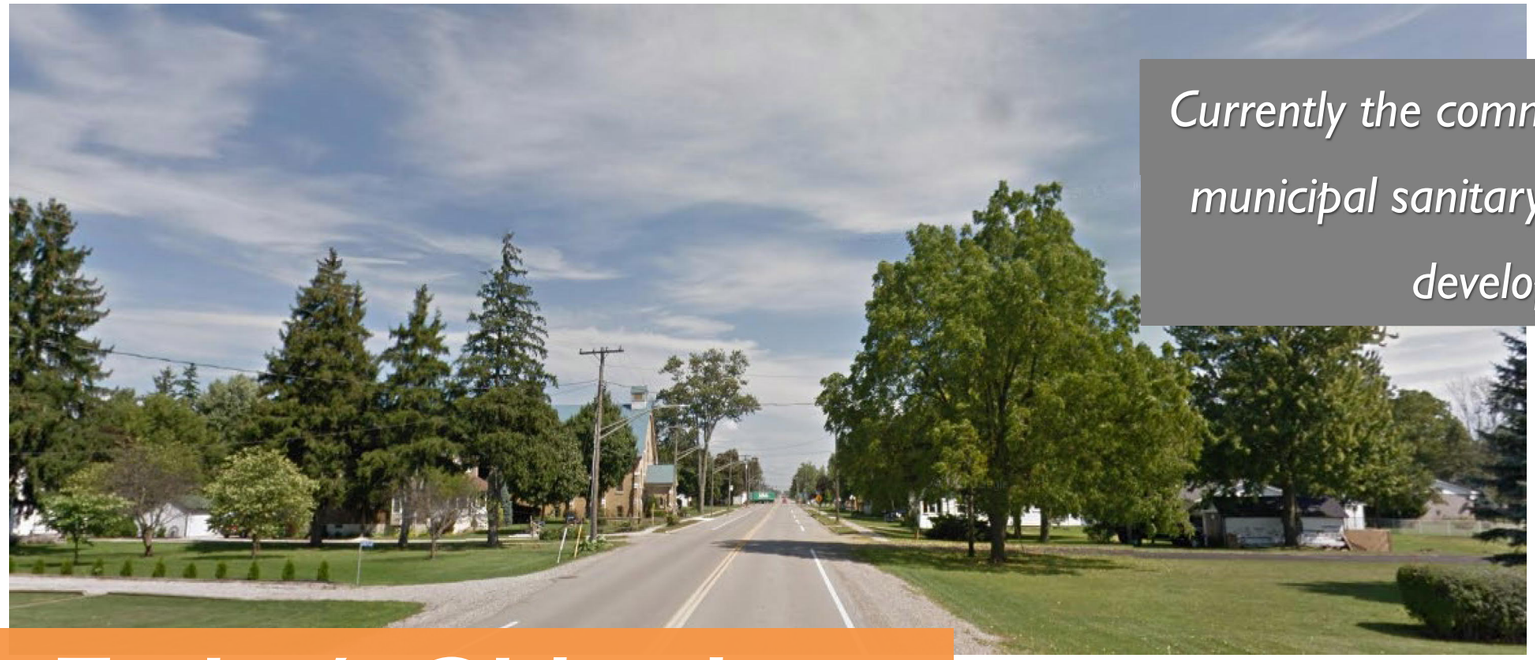
Municipal Class Environmental Assessment

PUBLIC INFORMATION CENTRE #2

December 5, 2019

DILLON CONSULTING

WELCOME



Currently the communities of Shedden and Fingal do not have municipal sanitary services, which limits the extent of future development within the communities.

Today's Objectives

- **OUTLINE** the project need and justification
- **BUILD** on the preferred solution presented at Public Information Centre #1 and determine a location for the new sewage treatment facility(s)
- **EVALUATE** and **RECOMMEND** a design option for wastewater treatment
- **SUMMARIZE** the next steps in the study

DILLON CONSULTING

Township of Southwold 1850

STUDY AREA

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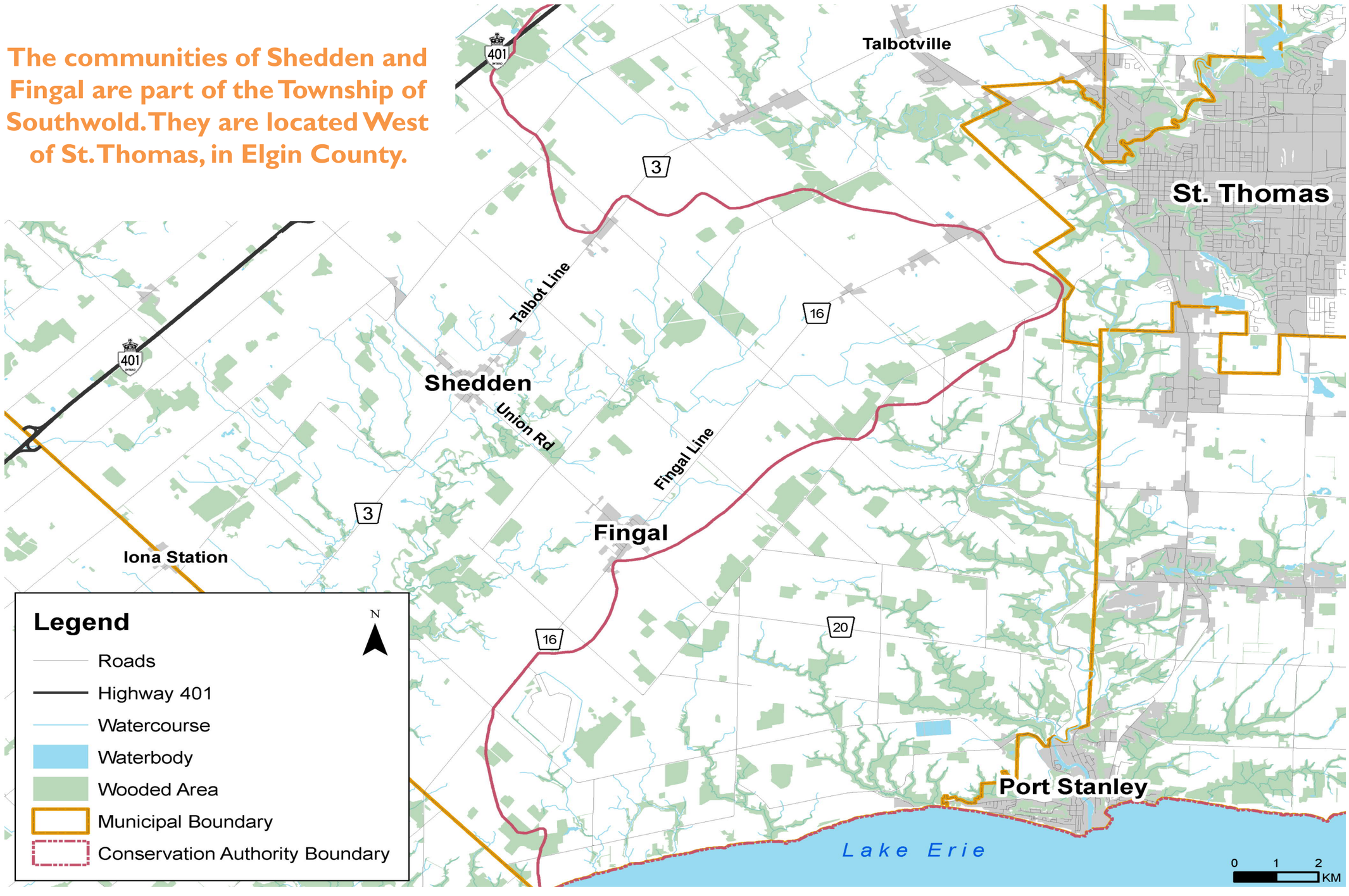

STUDY PROCESS

PHASE 1: Problem/ Opportunity

- ✓ Confirm the study purpose and justification

PHASE 2: Alternative Solutions

- ✓ Identify reasonable alternative solutions to the problem/opportunity
- ✓ Overview of existing conditions
- ✓ Consult review agencies and the public
- ✓ Evaluate alternatives and recommend a solution
- ✓ Select the preferred solution

PUBLIC INFORMATION CENTER #1 April 2018

PHASE 3: Alternative Design Concepts for Preferred Solution

- ✓ Identify alternative design concepts
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PUBLIC INFORMATION CENTER #2 December 2019

★ WE ARE HERE

PHASE 4: Environmental Study Report

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PHASE 5: Implementation

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- ✓ Proceed to design/construction of the project
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The Class EA process ensures:

- ✓ All relevant social, environmental and engineering factors are considered in the planning and design process
- ✓ Public and agency input is integrated into the EA process

Based on the level of complexity, projects follow a prescribed project "schedule" from Schedule A (minor improvements) to Schedule C (major improvements).

The Class EA project schedule was confirmed when the preferred alternative was selected at PIC #1 which recommended the construction of a new facility(s). The project is being completed as a **Schedule C** project which follows Phase 1 through 5 of the EA process.

PROJECT BACKGROUND

The Provincial Policy Statement (PPS) provides direction on land use planning and development within the Province. The PPS requires that municipal water and wastewater servicing be considered prior to new development to promote '*building strong healthy communities*'.

The Township of Southwold is undertaking this study to develop a long-term solution to service new growth and provide a wastewater treatment strategy for existing communities of Shedden and Fingal. The growth strategy for the communities are guided by the objectives and policies of the Official Plan:

Official Plan Section 1.7, Growth Strategy and Community Structure:

> *"... Until full municipal services or an adequate alternative to partial services are provided**, development will be restricted to infilling and rounding out existing development**."*

Official Plan Section 4.3.4 Development of Lands in Settlement Areas:

> *Settlement Areas are intended to be serviced with full municipal services. Where development is proposed to be serviced by other than full municipal services, justification will be provided by an Interim Servicing Study to demonstrate that private services will be acceptable for an interim period until full services are available.*
>
> *An Interim Servicing Study will be required where a **plan of subdivision or condominium creating 5 or more lots/units is proposed and may be required where the total number of new developable lots within the settlement area created through the consent process exceeds 5 lots/units**.*

This EA provides a long-term wastewater treatment strategy for both communities that can be implemented when required, as new growth occurs. Future development would require an Interim Servicing Study which would be supported by the strategy recommended as part of this EA.

PROJECT NEED

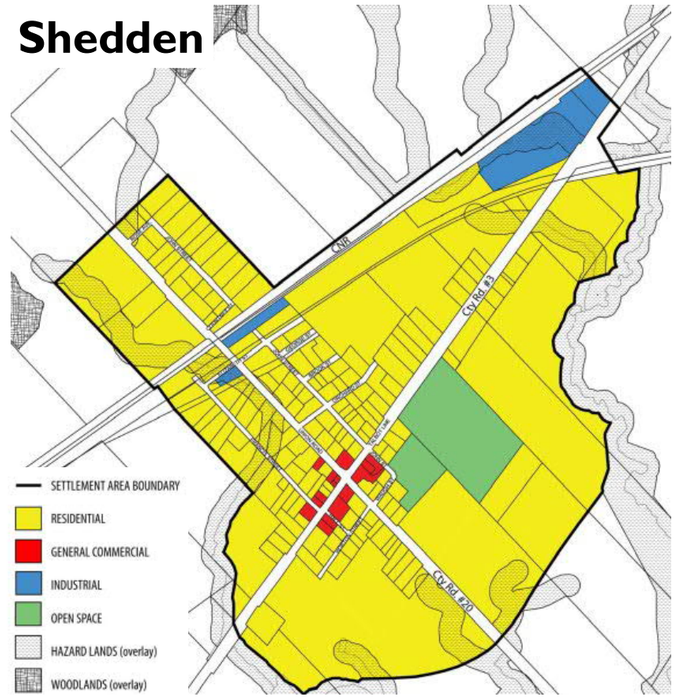
The existing servicing is currently available in the Township of Southwold:

- Water Supply:
  - Township of Southwold is provided via the Regional Water Supply
- Existing Sewage Disposal:
  - Properties are serviced by private systems (septic and drainfield systems)
  - Municipal drains provide stormwater collection
- Both communities are within the Lower Thames Valley Conservation Authority boundary and drain to the Talbot Creek watershed (eventually reaches Lake Erie at Port Talbot).

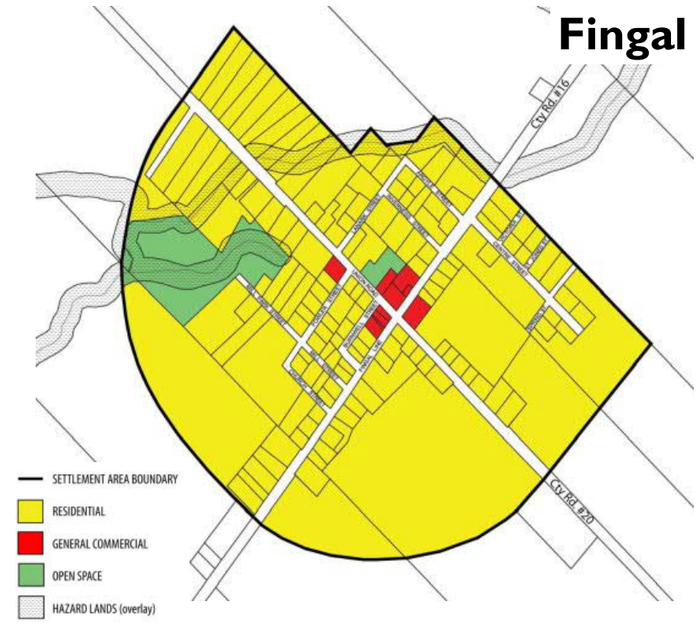
	Shedden	Fingal
Settlement Boundary (ha)	182	92
Current Population*	406	370
Existing Residential Units	145	130
Estimated Future Population (based on full build-out of settlement area, assumes 2.8 people/household)	686	728
Future Residential units	245	260
Total Community Units	390	390
Vacant Residential Land Supply (ha)	45.4	41.0

**The population values were based upon the* 2013 Township of Southwold *Small Settlement Servicing Study* (Zelinka Priamo Ltd.)

Shedden



Fingal



ALTERNATIVE SOLUTIONS – Wastewater Management

Three alternatives were considered for municipal wastewater management at Public Information Centre #1:

1. Do Nothing

Decision: *Not recommended as it does not provide servicing for future development.*

2. Connect to a neighboring treatment facility

The potential to send sewage from Shedden and Fingal to the St. Thomas Wastewater Treatment Plant (WWTP) or Port Stanley WWTP was considered. This alternative would require sewage from Shedden and Fingal to be pumped up to 12 km to be treated.

Decision: *Not recommended as the Township does not have agreements to obtain treatment capacity at either the Port Stanley or St. Thomas facilities. Servicing future developments in Shedden and/or Fingal would be controlled by an adjacent municipality. Note: A potential connection to Talbotville WWTP was also ruled out due to capacity limitations and distance to the site.*

3. New Municipal Treatment Facility(s)

Construct a new municipal sewage treatment facility in Shedden and/or Fingal. A location for the facility was not determined at the time of PIC #1. The facility would be owned and operated by the Township.

Decision: *Recommended alternative as this meets the objectives outlined in the Problem / Opportunity Statement, would meet or exceed the treatment requirements for local receivers, and would meet the current best practices for treatment and is not reliant on the future permission of a nearby municipality.*

STUDY FOCUS

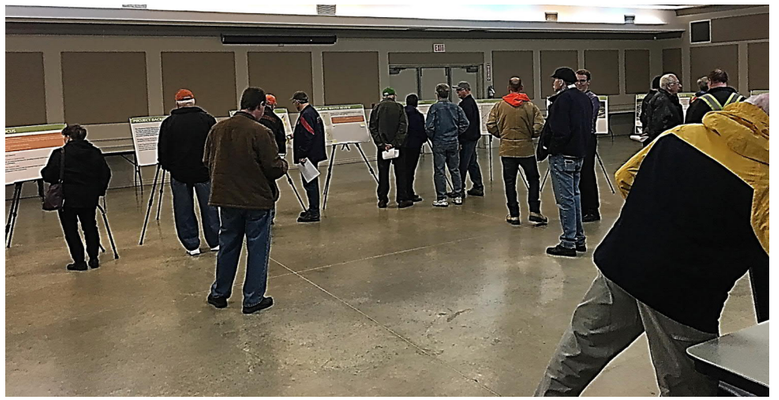
PROBLEM / OPPORTUNITY STATEMENT:

Recognizing the importance of growth within its communities, the Township of Southwold has initiated a Class EA to determine the best way to provide municipal sanitary services for Shedden and Fingal. The goal of the Master Servicing Plan is to develop a plan that is:

- Economically sustainable for residents and the Township
- Environmentally responsible
- Provides opportunities for growth within the communities.

Public Information Centre #1

- Approximately 90 people attended the event held on April 3, 2018
- General support / understanding that municipal servicing is needed for the communities to grow
- Input received generally concerned with phasing, cost, and timelines of implementation
- Received a total of 19 written comments



The recommendation made at Public Information Centre #1 was that the Township of Southwold **Construct a New Sewage Treatment Facility(s)** to service new growth and to service the existing communities when the need arises:

- ✓ Meets the objectives outlined in the Problem / Opportunity Statement
- ✓ New treatment facility(s) will be designed to meet or exceed the treatment requirements for discharging into a receiving outlet such as a watercourse
- ✓ Meets current best practices for treatment and does not rely on capacity or limitations from adjacent municipalities.

Phase 3: ALTERNATIVE SOLUTIONS
Screening of Technology Alternatives

Discharge to Talbot Creek requires biological treatment to remove nutrients, filtration to remove solids and disinfection to destroy pathogens.

Several biological treatment alternatives were evaluated:

- Extended Aeration (EA)
- Membrane Bioreactor (MBR)
- Rotating Biological Contactor (RBC)
- Biological Aerated Filter (BAF)
- Aerated Lagoon with Tertiary Treatment (SAGR)
- Moving-Bed Biofilm Reactor (MBBR).

Treatment technologies were screened based on three criteria:

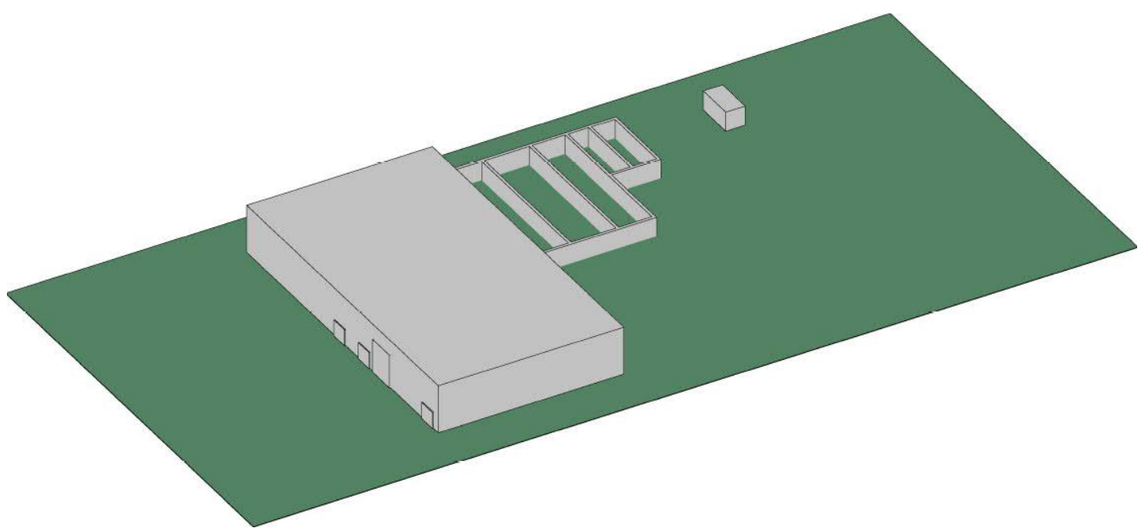
1. Operational and performance objectives: Will the technology meet the township's needs and provide the acceptable biological treatment performance?
2. Experience and implementation: Is the technology well established?
3. Expandability: How easily can the system be phased to accommodate growth or future connections?

Alternative	Operational and Performance Objectives	Experience and Implementation	Expandability	Screening Summary
Extended Aeration	✓	✓	✓	✓
Membrane Bioreactor	✓	✓	✓	✓
Rotating Biological Contactor	⊘	✓	⊘	⊘
Biological Aerated Filter	✓	✓	⊘	⊘
Aerated Lagoon with Tertiary Treatment	⊘	✓	⊘	⊘
Moving-Bed Biofilm Reactor	⊘	✓	⊘	⊘

✓ **Extended Aeration and Membrane Bioreactor biological treatment technologies were selected for further consideration as they were the only two options to meet the criteria.**

DESIGN OPTION 1 – Extended Aeration

The extended aeration process consists of aerated tanks containing microbes that break down organic compounds from wastewater and remove nutrients. It is followed by a settling tank where sludge is removed from treated wastewater and a final filtration step to remove remaining solids and phosphorous before disinfection and discharge.



Advantages

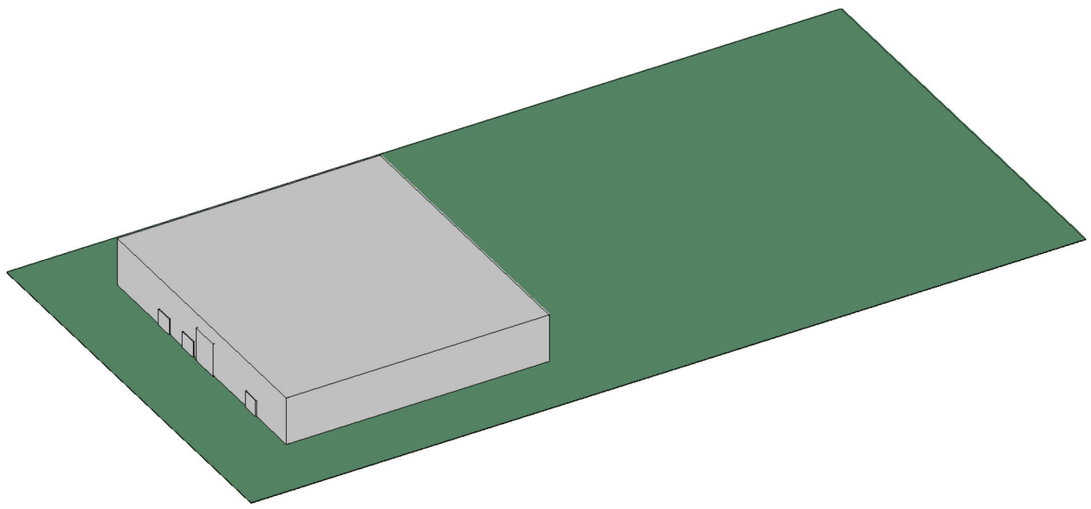
- Common and proven technology used by neighbouring operating authorities.
- Capable of handling normal changes in the flow rate and strength of wastewater from municipal sources and consistently meeting treatment requirements

Disadvantages

- Tanks, clarifiers and filters required for the extended aeration process require more space than Option 2 - MBR
- Most of the cost of constructing the system must be spent upfront with limited savings available by phasing construction to provide treatment for a small number of residents initially and more users over time.
- Less ability to phase construction means initial users must pay an increased connection fee, or the township must carry debt until more users are connected to the system.

DESIGN OPTION 2 – Membrane Bioreactor

The Membrane Bioreactor (MBR) process consists of aerated tanks containing microbes that remove organics and nutrients at a much higher concentration than possible with the extended aeration process. This allows treatment tanks to be constructed in a smaller footprint. A specialized fine-pore filter membrane inside the aeration tank separates the treated wastewater from sludge and does not require final filtration before disinfection and discharge.



Advantages

- Less space required since aeration tanks may be smaller and the membrane filtration process removes the need for clarifiers or final filtration
- The technology produces less sludge than extended aeration
- MBR treatment generally produces higher quality treated wastewater than extended aeration that is low in solids, phosphorous and ammonia
- The technology can easily be installed in phases, with only the capacity needed constructed.

Disadvantages

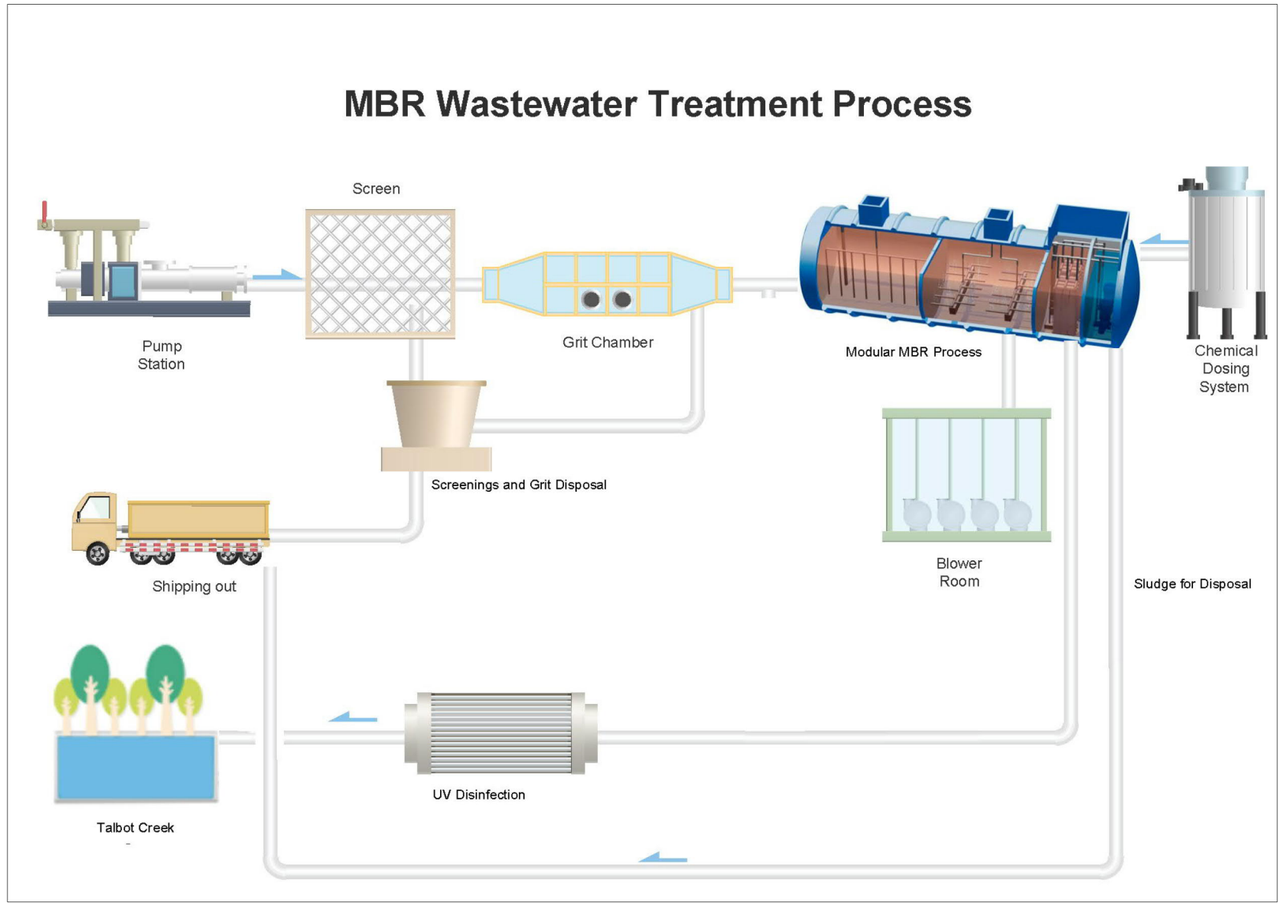
- Higher operating cost due to extra power demand for MBR equipment, and the cost of periodically replacing the membrane units.

PREFERRED DESIGN OPTION

Design options were evaluated based on their "ultimate build out" configuration, which includes servicing current residences of Shedden and Fingal, and potential new developments in the future.

Based on the evaluation, MBR was selected as the preferred design option which has the following advantages:

- is capable of achieving high quality effluent to meet requirements for discharge to Talbot Creek
- supports cost-effective phasing as the facility can be expanded as required
- Provides technology that is consistent with the existing Talbotville wastewater treatment plant.



The timing of construction and size of the initial phase will be dependent on the pace of development within the communities or the need to provide alternative treatment to existing residences as septic systems reach the end of their useful life.

PROPOSED FACILITY LOCATION

Two locations were considered for a potential treatment facility(s):

- **Location #1** - Agricultural property south of Shedden presently owned by the Township adjacent to the north branch of Talbot Creek

- **Location #2** –North of the Fingal Ball Park area within the community of Fingal

The study evaluated a single facility serving both communities at one of the two sites or separate facilities at each of the locations.

PROPOSED TREATMENT FACILITY EVALUATION

	One Facility	Two Facilities
Accommodates Planned Future Growth	✓ May be expanded	✓ May be expanded when required by each community
Impacts on Receiving Water Quality	✓ High-performance treatment process with minimal impact on receiving water	✓ Minimal impact on receiving water. Greater overall footprint of the two facilities and two separate discharges increases potential impact
Ease of Construction and Operation	✓ Single facility is simpler to construct and operate	⊘ More complex and costly to construct and operate two separate facilities
Expandability	✓ Expansion of facility and pump station required to accommodate future growth	⊘ Separate expansion at both facilities is potentially required to accommodate future growth
Capital Cost	✓ $6.5 Million – $8.0 Million	⊘ $8.5 Million - $10.5 Million
Operations and Maintenance, Including Capital Replacement Allowance	✓ $470,000/year	⊘ $620,000/year
Overall Evaluation	✓ **Preferred**	⊘ **Not Preferred**

Based on the evaluation completed, one Facility is recommended to provide service to both Shedden and Fingal:

- One facility is preferred, however will require a forcemain and pump station to service Fingal
- Facility will be modular, allowing it to expand based on growth.

PROPOSED TREATMENT FACILITY

Final design of the treatment facility would be confirmed during 'Phase 5 – Implementation' which will be carried out at a later date, as determined by the Township of Southwold. During this process the latest available technologies would also be reviewed.

Based on preliminary estimates:

- Ultimate cost to construct the facility plus pumping station from Fingal to treatment facility (excluding local collection system) is anticipated to be $6.5 - $8 million

- Estimated connection cost for existing properties to the system may be approximately $20,000 per household (this number will be refined as the design and evaluation of the collection system is completed)

- The most economical and practical approach is construction of a single treatment process at the location shown servicing both communities.

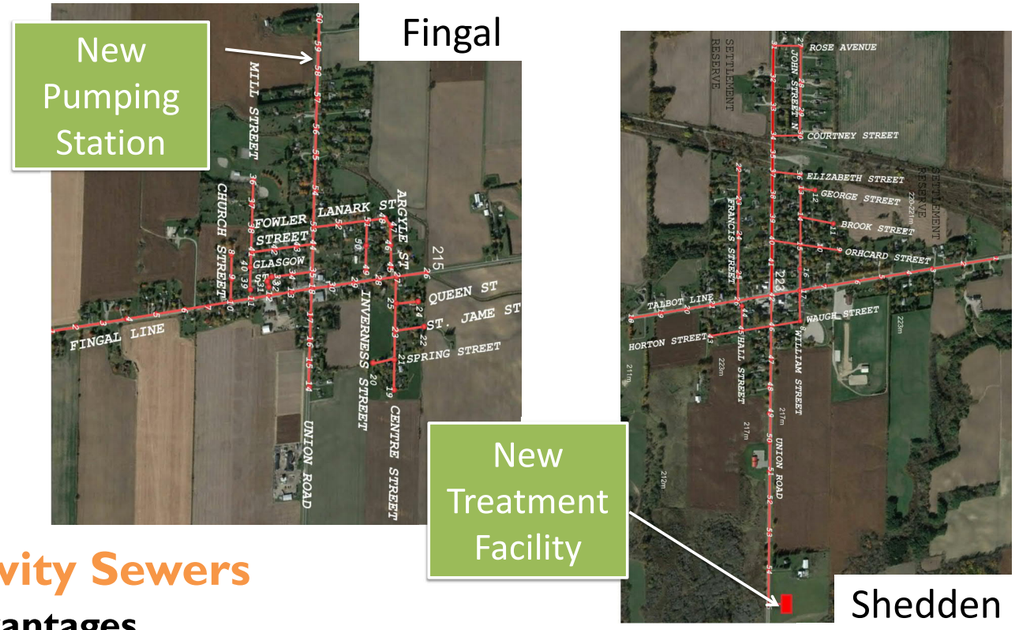
SEWER SERVICING – Options

Why do we need sewers?

- Provides infrastructure to transport wastewater from a residence to a municipal wastewater facility, eliminating the need for individual septic tanks
- Septic systems typically last 15-40 years (*Source: SepticSmart!, OMAFRA*). After a septic system failure there may not be enough area in existing properties to install new leaching beds and maintain separation distances required under the Ontario Building Code.
- It is anticipated a new subdivision would be constructed with sewers. If the subdivision is approved and built with individual septic systems, the Municipality would likely require properties connect to the municipal system when it is available.
- Servicing may consist of conventional gravity sewers or a pressure sewer system.

Option #1 - Gravity Sewers	Option #2 - Pressure Sewers
• New gravity sewers may be installed within existing roadways with connections to residences • Must be placed relatively deep underground (below basement elevations) to reduce risk of flooding and to provide slope to drain to the treatment facility or pump station	• Installed below roadway or township-owned roadway medians or boulevards. • Smaller in diameter than gravity sewers and may be installed at a shallower depth which would result in reducing costs • Each residence would require a new integrated tank/pump system to discharge into the new sewer

SEWER SERVICING – Gravity vs Pressure Sewers



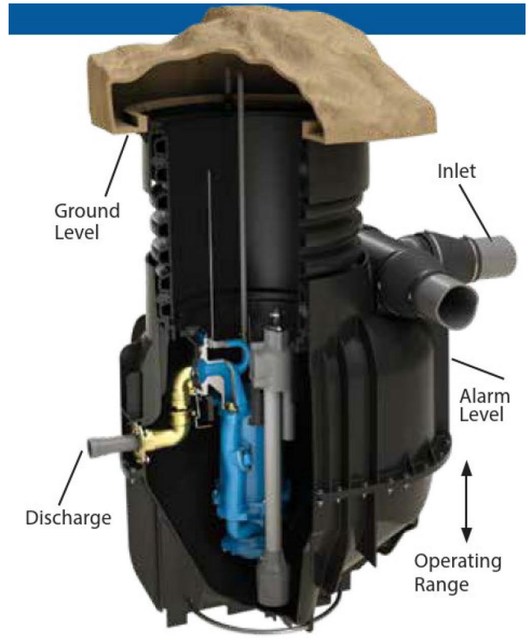
Gravity Sewers

Advantages

- Conventional servicing approach
- Minimal ongoing maintenance
- All pumping is located at centralized pumping stations on municipal property

Disadvantages

- Disruptive construction in existing residential areas
- High per-household installation cost
- Minimal drainage slope within Shedden and Fingal communities results in deeper sewer construction at greater cost
- Higher overall cost to residents to implement. (approx. $12.3Million)



Pressure Sewers

Advantages

- Installation of shallow, small diameter pressure sewers means construction is less disruptive
- Consistent, modular design of pumping units simplifies maintenance
- Reduced per-household servicing cost. Estimated cost is $5.9 million for both communities.

Disadvantages

- Larger number of pumps required as unit required at each household
- Ongoing operational cost for replacement of pump units
- Operational risk associated with power outages at residences and more complex connection of each residence
- Not typically recommended where conventional sewers are possible

Selection of a sewer servicing option (gravity or pressure) will be determined by council at a later date, as each option provided have similar overall lifecycle cost and present various advantages and disadvantages.

NEXT STEPS

2019	2020	
Winter	Spring	Summer
Review feedback from this meeting →		
Complete impact assessment for recommended design option →		
Complete EA study and publish an Environmental Study Report →		
Detailed Design and Potential Construction Start	At this time, development in Shedden and Fingal will be restricted to infilling and rounding out existing developments (5 or more lots/units per year). Implementation of the facility will be completed at a later date to support new growth and / or to provide a servicing solution for the existing communities of Shedden or Fingal. Additional necessary permits and approvals will also be required prior to construction.	

THANK YOU FOR ATTENDING

Your input is important to the outcome of this project. Please complete a comment form and return it by: **December 20, 2019**

TOWNSHIP OF SOUTHWOLD OFFICIAL PLAN REVIEW

Official Plan Review Background:

- In 2019, the Township of Southwold launched its Official Plan Review project
- Current Official Plan was adopted in 2011 and approved in 2013
- Since the adoption of the Plan, there have been a number of important changes which underpin the need for an updated Official Plan
    1. Township is facing a number of emerging growth management pressures
    2. New Provincial Policy Statement
    3. New County Official Plan

OPR Process:

1. Policy Directions

✓Provincial Policy Statement (PPS) Audit
✓Policy Background Report
✓Council Presentations 1 & 2

2. Draft Official Plan

- Draft Official Plan #1
- Draft Official Plan #2
- Public Open House (Planning Act)

3. Final Official Plan

- Final Official Plan
- Statutory Public Meeting under Planning Act
- Council Adoption

The Official Plan Project is entering into the second phase of work, which involves the preparation of an updated Official Plan and public open house.

If you wish to stay updated on this project, please sign up at the front desk!

Comment Sheet

April 3, 2018
SHEDDEN & FINGAL MASTER SERVICING PLAN
PUBLIC INFORMATION CENTRE #1

Name / Email Address: [redacted]

Mailing Address:

PLEASE RETURN THIS FORM BY EMAIL TO: **SHEDDENANDFINGAL@DILLON.CA** OR RETURN THIS FORM TO:

Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario N6A 5R2
Attention: Ron Antuma

We'd like to hear from you....

Is there anything you want to tell us about your exisiting water supply? i.e. smell, colour, pressure, etc.

THE HYDRANT AT OUR HOUSE IS THE END OF THE LINE. WE HAVE NO REAL PROBLEMS WITH THE WATER, BUT BEING ONE OF TWO HOMES ON THE BRANCH FLUSHING MORE OFTEN WOULD BE BENEFICIAL.

Is there anything you want to tell us about your existing septic system?

OUR SEPTIC TANK + TILE BED ARE IN GOOD CONDITION. THE LINES FROM THE HOUSE TO THE TANK WERE REPLACED IN THE LAST 10 YEARS. BUT THE SEPTIC SYSTEM IS BEHIND THE HOUSE

Is there anything you saw today that you would like more information on? FROM THE INFORMATION PROVIDED IT SEEMS OUR OPTIONS ARE #1 OR #3 AS ST. THOMAS AND PORT STANLEY HAVE INDICATED THE CAN'T ACCOMODATE SOUTHWOLD.

Information collected for the study will be used in accordance with the Municipal Freedom of Information and Protection of Privacy Act. With the exception of personal information,

Comment Sheet

April 3, 2018
SHEDDEN & FINGAL MASTER SERVICING PLAN
PUBLIC INFORMATION CENTRE #1

Other comments or suggestions?

WE ARE GOING TO HAVE TO TEAR OUR BASEMENT ~~A~~APART (NOT AN ACCEPTABE OPTION) OR TAKE A LINE BEHIND THE HOUSE, BEHIND THE GARAGE, AND OUT TO THE ROAD. WHAT SIZE LINE IS REQUIRED? THE SAME 3"OR4" LINE TO THE SEPTIC TANK WE CURRENTLY HAVE OR SOMETHING ELSE? DO WE HAVE TO REMOVE THE SEPTIC TANK? THERE WAS SOME TALK OF A LOW PRESSURE PUMP. WOULD THIS BE IN THE SECOND TANK CHAMBER? IS THERE ANY IDEA OF COST? WE HAVE A GOOD SEPTIC SYSTEM, BUT I REALIZE ~~THE~~ THERE ARE A NUMBER OF HOMES IN THE COMMUITY THAT ARE NOT IN THAT POSITION.

WILL WE HAVE AN OPTION OF OPTING NOT TO CONNECT TO A SEWER SYSTEM OR WILL IT BE MANDATORY?

DILLON CONSULTING

Ward, Annmarie <award@dillon.ca>

MNRF Comments: Shedden and Fingal Master Plan and Wastewater Servicing

1 message

MNRF Ayl Planners (MNRF) <MNRF.Ayl.Planners@ontario.ca> Fri, Mar 23, 2018 at 3:23 PM
To: "sheddenandfingal@dillon.ca" <sheddenandfingal@dillon.ca>

Ministry of Natural

Resources and Forestry

615 John Street North

Aylmer, ON N5H 2S8

Tel: 519-773-9241

Fax: 519-773-9014

Ministère des Richesses naturelles et des Forêts

615, rue John Nord

Aylmer ON N5H 2S8

Tél: 519-773-9241

Téléc: 519-773-9014

Ontario

March 23, 2018

Ron Antuma, Project Manager

Dillon Consulting Limited

130 Dufferin Avenue, Suite 1400

London, ON N6A 5R2

Subject: Shedden and Fingal Master Plan and Wastewater Servicing – Notice of Study Commencement and Public Information Centre

Dear Mr. Antuma,

Ministry of Natural Resources and Forestry (MNRF) Aylmer District received the Notice of Study Commencement and Public Information Centre for the Shedden and Fingal Master Plan and Wastewater Servicing on March 22, 2018. Thank for you for circulating this notice to our office, however, **please note that we have not completed a screening of natural heritage (including species at risk) or other resource values for the project at this time**. Please also note that it is your

responsibility to be aware of and comply with all relevant federal or provincial legislation, municipal by-laws or other agency approvals.

This response provides information to guide you in identifying and assessing natural features and resources as required by applicable policies and legislation, and engaging with MNRF Aylmer District for advice as needed.

Natural Heritage & Endangered Species Act

- Please refer to Aylmer District's *Species at Risk Screening Process Technical Bulletin* (attached) for information about the process for seeking *Endangered Species Act 2007* advice, including the information required and where to submit a request.

Petroleum Wells & Oil, Gas and Salt Resource Act

There may be petroleum wells within the proposed project area. Please consult the Ontario Oil, Gas and Salt Resources Library website (www.ogsrlibrary.com) for the best known data on any wells recorded by MNRF. Please reference the 'Definitions and Terminology Guide' listed in the publications on the Library website in order to better understand the well information available. Any oil and gas wells in your project area are regulated by the *Oil, Gas and Salt Resource Act*, and the supporting regulations and operating standards. If any unanticipated wells are encountered during development of the project, or if the proponent has questions regarding petroleum operations, the proponent should contact the Petroleum Operations Section at 519-873-4634.

Public Lands Act & Lakes and Rivers Improvement Act

Some Municipal projects may be subject to the provisions of the *Public Lands Act* or *Lakes and Rivers Improvement Act*. Please review the information on MNRF's web pages provided below regarding when an approval is required or not. Please note that many of the authorizations issued under the *Lakes and Rivers Improvement Act* are administered by the local Conservation Authority.

- For more information about the *Public Lands Act*: https://www.ontario.ca/page/crown-land-work-permits
- For more information about the *Lakes and Rivers Improvement Act*: https://www.ontario.ca/document/lakes-and-rivers-improvement-act-administrative-guide

After reviewing the information provided, if you have not identified any of MNRF's interests stated above, there is no need to circulate any subsequent notices to our office. If you have any questions or concerns, please feel free to contact me.

Sincerely,

Laura Warner

Planning Intern

Ministry of Natural Resources and Forestry, Aylmer District

615 John St. N. Aylmer, ON, N5H 2S8

E-mail: MNRF.Ayl.Planners@ontario.ca

2 attachments

image001.jpg
153K

2017-04_SAR Screening Process_Technical Bulletin.pdf
142K

Ministry of Natural Resources and Forestry
615 John Street North
Aylmer ON N5H 2S8
Tel: 519-773-9241
Fax: 519-773-9014

Ministère des Richesses naturelles et des Forêts
615, rue John Nord
Aylmer ON N5H 2S8
Tél: 519-773-9241
Téléc: 519-773-9014

Ontario

Technical Bulletin: Aylmer District Species at Risk Screening Process

This technical bulletin outlines the process for engaging the Ministry of Natural Resources and Forestry (**MNRF**) Aylmer District Office regarding the *Endangered Species Act, 2007* (**ESA**).

The ESA provides protection for species listed as Endangered or Threatened on the Species at Risk in Ontario List. Individuals receive protection under Section 9 and their habitat is protected under Section 10. The ESA is a law of general application that is binding on everyone in the province of Ontario, and applies to both private and public lands. MNRF Aylmer District provides review of a project's compliance under the ESA by responding to species at risk (**SAR**) information requests (Stage 1) and project screening requests (Stage 2) only when both of the following conditions are met:

1. The request comes directly from the property owner or their delegate (e.g. consultants) on their behalf; and,
2. A specific project/activity is proposed.

MNRF Aylmer District Contact Information

All ESA-related requests must be submitted to MNRF Aylmer District via our ESA inbox at ESA.Aylmer@ontario.ca

> ***NOTE:*** *MNRF response time is between 8 and 10 weeks after receipt of all required information, due to the high volume of requests received.*

Stage 1: Information Request

To ensure due diligence under the ESA, MNRF encourages property owners and/or their delegates proposing to conduct site alteration (such as construction, vegetation/debris removal, site grading, etc.) to request SAR information from Aylmer District prior to beginning site alteration and/or conducting SAR surveys. For MNRF to respond to an information request, the following information is required:

- Proponent information (name, mailing address, and email address);
- Property location and mapping (municipal address and/or lot and concession);
- Digital photos of the property, including the vegetation on-site, if available;
- General description of all proposed activities and extent of development footprint (e.g. residential, driveway, vegetation clearing). Maps / site layout drawings are beneficial;
- Current state of vegetation, property maintenance/management (e.g. frequency of mowing), and recent property landscape history/changes (within the last five years);
- Timing and duration of proposed activities;
- Copies of past correspondence with MNRF about the property, if applicable; and,
- Status of municipal planning or Environmental Assessment process, if any.

Once the above information has been provided, MNRF will review available SAR data to determine if SAR species and/or their habitat(s) are known or likely to occur on or in the general area of the property. MNRF's response will be one of the following:

Ministry of Natural Resources and Forestry
615 John Street North
Aylmer ON N5H 2S8
Tel: 519-773-9241
Fax: 519-773-9014

Ministère des Richesses naturelles et des Forêts
615, rue John Nord
Aylmer ON N5H 2S8
Tél: 519-773-9241
Téléc: 519-773-9014

Ontario

1. There is a **low** likelihood for SAR species and/or habitat to occur and/or be impacted
   - Further project screening will not be needed unless recommendations to avoid impacts cannot be followed or significant changes to the project are made (e.g. natural vegetation proposed to be removed).

2. SAR species and/or habitat are **known** to occur on or near the property, or there is a **high** likelihood for SAR species and/or habitat to occur
   - MNRF may recommend that field assessments by a qualified biologist are needed to determine whether the proposed project may contravene the ESA.
     - It is expected that the retained qualified biologist will use the information provided by MNRF to scope and design the field assessments, including identifying appropriate species-specific survey methodologies and timing.
     - MNRF can provide guidance on field assessments (i.e. protocols or proposed work plans). Some field assessment methodologies may require MNRF authorizations under the ESA and the *Fish and Wildlife Conservation Act*.
   - After field assessments have been completed, proceed to Stage 2.

   NOTE: *MNRF strongly recommends that no on-site activity (i.e. site alteration, vegetation/debris removal, etc.) occur until Stage 2 is complete, in order for proponents to demonstrate due diligence and remain in compliance with the ESA. Failure to comply with this recommendation could result in a contravention of the ESA and possible compliance / enforcement action.*

Stage 2: Project Screening / IGF Review

Following MNRF's recommendations, a qualified biologist should complete appropriate field assessments and submit the results in an Information Gathering Form (**IGF**) to initiate a project screening request.

Link to IGF:
http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/MinistryResults?Openform&SRT=T&MAX=5&ENV=WWE&STR=1&TAB=PROFILE&MIN=018&BRN=21&PRG=31

MNRF will review the IGF to determine whether the project is likely to contravene the ESA (Section 9 and/or Section 10). MNRF's response will be one of the following:

1. Contravention under the ESA is **not likely** to occur:
   - A response will be provided, which could include recommendations necessary to avoid impacts to SAR; or,

2. Contravention under the ESA is **likely** to occur:
   - MNRF will recommend options for seeking approval under the ESA, such as applying for a permit or assessing eligibility for alternative regulatory processes. Please be advised that applying for a permit does not guarantee approval and processes can take several months before a permit may be issued.

DILLON CONSULTING

Ward, Annmarie <award@dillon.ca>

Comment sheet returned

1 message

[redacted] Fri, Apr 13, 2018 at 4:27 PM

Good Afternoon

From the open house/presentation at the Keystone Complex, Shedden on April 3, my comments are attached.

[redacted]

Sewer comment sheet 13 Apr 2018.pdf
1036K

Comment Sheet

April 3, 2018
SHEDDEN & FINGAL MASTER SERVICING PLAN
PUBLIC INFORMATION CENTRE #1

Name / Email Address: [redacted]

Mailing Address:

PLEASE RETURN THIS FORM BY EMAIL TO: **SHEDDENANDFINGAL@DILLON.CA** OR RETURN THIS FORM TO:

Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario N6A 5R2
Attention: Ron Antuma

We'd like to hear from you....

Is there anything you want to tell us about your exisiting water supply? i.e. smell, colour, pressure, etc.

we have town water - what more is there to say.

Is there anything you want to tell us about your existing septic system?

it works well; cost is minimal - seldom needs pumping out.

Is there anything you saw today that you would like more information on?

Since St Thomas & Port Stanley could not handle additional areas, were there discussions with Talbotville to build larger with added costs paid by Southwold residents? There was no projected time line given or even estimated costs per household & how these costs would be paid. Sewer systems must be added to existing communities & similar size frequently; or are we inventing the wheel?

Information collected for the study will be used in accordance with the Municipal Freedom of Information and Protection of Privacy Act. With the exception of personal information, such as name, address and property location, all comments received throughout the study will become part of the public record and included in project documentation.

Comment Sheet

April 3, 2018
SHEDDEN & FINGAL MASTER SERVICING PLAN
PUBLIC INFORMATION CENTRE #1

Other comments or suggestions?

I was disappointed with the presentation Anyone I spoke with had no answers for the questions I asked

DILLON CONSULTING

Ward, Annmarie <award@dillon.ca>

Comment on plan

1 message

[redacted] Tue, Apr 3, 2018 at 4:59 PM

I think this plan is great! Southwold needs there own sewage plan and one located between Shedden and Fingal makes the most sense.
Must be built to accommodate new houses.
The existing water supply is wonderful—I have seen no problems with it
Thanks. [redacted]

Sent from my iPhone

DILLON CONSULTING

Ward, Annmarie <award@dillon.ca>

Shedden and Fingal Master Plan and Wastewater Servicing Class EA

1 message

Herczeg, Brooke (MTCS) <Brooke.Herczeg@ontario.ca> Tue, Apr 17, 2018 at 10:44 AM
To: "sheddenandfingal@dillon.ca" <sheddenandfingal@dillon.ca>

Dear Mr. Vanderleeuw,

Please see the attached MTCS comments for the Shedden and Fingal Master Plan and Wastewater Servicing Class EA project. If you have any question please feel free to contact me.

Thank you,

Brooke

Brooke Herczeg MPL

Heritage Planner

Heritage Program | Programs and Services Branch | Ministry of Tourism, Culture and Sport

401 Bay Street Suite 1700 Toronto ON M7A 0A7

Tel. 416.314.7133| email: Brooke.Herczeg@ontario.ca

0008541 MTCS Comments.pdf
32K

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 7133
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 7133
Téléc: 416 212 1802

Ontario

April 17, 2018 (EMAIL ONLY)

Eric Vanderleeuw
130 Dufferin Avenue
London, ON N6A 5R2
Mail Box 426
E: Sheddenandfignal@dillon.ca

RE: MTCS file #: 0008541
Proponent: Township of Southwold
Subject: Notice of Commencement
Class EA for the Shedden and Fingal Master Plan and Wastewater Servicing
Location: Municipality/Township/District, Ontario

Dear Mr. Vanderleeuw:

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 Master Plan 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 Municipal Class Environmental Assessment (EA) process, the proponent is required to determine a project's potential impact on cultural heritage resources. A Master Plan project at minimum will address Phases 1 and 2 of the Municipal Class EA process. Developing and reviewing inventories of known and potential cultural heritage resources within the study area can identify specific resources that may play a significant role in guiding the evaluation of alternatives for subsequent project-driven EAs.

While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation. Indigenous communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Indigenous 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 Master Plan project may impact archaeological resources and you should screen the project with the MTCS *Criteria for Evaluating Archaeological Potential* and *Criteria for Evaluating Marine Archaeological Potential* to determine if archaeological assessments will be needed for subsequent project-driven Municipal Class EAs. MTCS archaeological sites data are available at *archaeology@ontario.ca*, and if your Master Plan project area exhibits archaeological potential or encompasses archaeological sites of high cultural heritage value or interest, these data should be used in the evaluation of alternatives.

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 Master Plan project may impact cultural heritage resources. The Clerk/s for the Town of Southwold can provide information on property registered or designated under the *Ontario Heritage Act* and municipal Heritage Planners can also provide information that will assist you in completing the checklist. A determination of whether the Master Plan project area impacts potential or known heritage resources of cultural heritage value or interest should be used in the evaluation of alternatives.

If subsequent project-driven Municipal Class EAs may impact potential or known heritage resources 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 Master Plan projects. Please advise MTCS whether any technical heritage studies will be completed for your Master Plan 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 Master Plan report or file.

Thank-you for consulting MTCS on this project: please continue to do so through the Master Plan process, and contact me for any questions or clarification.

Sincerely,

Brooke Herczeg
Heritage Planner
Brooke.Herczeg@Ontario.ca

DILLON CONSULTING

Ward, Annmarie <award@dillon.ca>

Sewer proposal

1 message

[redacted] Tue, Apr 24, 2018 at 10:28 PM

Hi, I know this is a late reply but I would appreciate a reply if you could please.

[redacted]

To follow the guidelines in the comment sheet we will start with that.

Our existing water supply, quality and pressure seems just fine in every aspect. I would not call it London water but it has not ever disappointed us yet.

We bought property in Shedden approx. 6 years ago with plans to build a home and leave London. In leaving London we were hoping to also leave the higher taxes and sewer surcharge fee's. During this time unfortunately Southwold taxes went up at least 30% but we still went ahead with our project. I consulted with the township during the process to ask about future plans in regards to any type of sewer system possibilities and was told "not a chance here" of which I was fine with.

During consultation with planners in regards to septic design and home elevation , we decided to go with a much more expensive system which should and will outlast my lifetime with hopes of some return on investment due to the saving of surcharges etc. We made no plans for future connection to any sewer system and since we would like to use what we have personally invested in, I do not want to connect to or be inconvenienced by the installation of a sewer in my area.

So here we are wondering a few things.

1: Do we have to connect?

2: What will be the connection fee if so?

3: Will the connection be forced upon us if we say no thanks?

4:Will any part of the sewer system be intrusive on the existing storm drains?

5:Will the residents of the area be able to vote whether they want it or not?

6: If the sewer is installed, where will the sewer lines be in relationship to the roadway?

Thank you for listening, looking forwards to your reply,

[redacted]

DILLON CONSULTING

Ward, Annmarie <award@dillon.ca>

FW: MOECC Response To Notice of Commencement Shedden/Fingal Master Wastewater Servicing Plan: Indigenous Communities listing

1 message

Newton, Craig (MOECC) <Craig.Newton@ontario.ca> Mon, Mar 26, 2018 at 3:12 PM
To: "cao@southwold.ca" <cao@southwold.ca>
Cc: "sheddenandfingal@dillon.ca" <sheddenandfingal@dillon.ca>, "Ron Antuma (rantuma@dillon.ca)" <rantuma@dillon.ca>, "Abernethy, Scott (MOECC)" <Scott.Abernethy@ontario.ca>, "Stroyberg, Angela (MOECC)" <Angela.Stroyberg@ontario.ca>, "Wrigley, Rob (MOECC)" <Rob.Wrigley@ontario.ca>, "jdelaronde@dillon.ca" <jdelaronde@dillon.ca>

Dear Ms. Lisa Higgs:

Please find attached MOECC's **Revised Response** to the above noted Notice of the Commencement.

Your consultant, Joe de Laronde, of Dillon Consultants in London, correctly noted to me today that I had not included some Indigenous Communities that need to be consulted with this project in this ministry's previous correspondence to you of March 23rd, 2018.

It was certainly my intent to add the additional communities listed in the latest attached ministry letter dated today, March 26th, 2018, but in my haste to get that letter out last Friday afternoon, in my cut and pasting exercise putting that letter together, I mistakenly did not include the last three communities, but I should have.

My apologies for the foregoing, and by copy of this e-mail, thank you Joe for catching my previous oversight.

This ministry's attached letter of March 26th, 2018, should supersede the ministry's previous letter of March 23rd, 2018.

Please note that this serves as the ministry's formal correspondence and will only be delivered via this email

Yours truly,

Craig Newton

Regional Environmental Planner / EA Coordinator

Ministry of the Environment & Climate Change

Southwestern Region

(519) 873-5014

From: de Laronde, Joe [mailto:jdelaronde@dillon.ca]
Sent: March-26-18 1:35 PM
To: Newton, Craig (MOECC)
Cc: Joseph de Laronde
Subject: MOECC Response To Notice of Commencement Shedden/Fingal Master Wastewater Servicing Plan: Indigenous Communities listing

Good afternoon Craig,

Its been a long time since we've last talked....I hope your doing well.

Thank you for the letter that identifies the list of Indigenous communities that may have an interest in the project listed in the subject line. I am wondering however, at the possible missing of the Oneida Nation of the Thames in that list of Communities? As the most proximate Iroquois Confederacy Community signatory to the Albany Deed (Nanfan "Treaty") of 1701, the provincial practice had been to also include either the Oneida or 6 Nations of the Grand. Has that practice or direction changed?

Can you provide comment either way to the inclusion or exclusion of Oneida of the Thames for this project please?

Likewise, I would be remiss if I did not also inquire about including either of the Lene Lanapew (Delaware) Nations; the Munsee-Delaware First Nation or Delaware Nation (Moravian of the Thames First Nation). While not signatory to Treaties that would include the project area or currently having no traditional territory assertions that include the project area, the provincial practice had been to include the most proximate Lene Lanapew community.

Thank you in advance and I look forward to hearing from you soon.

Joe

Joseph de Laronde
Dillon Consulting Limited
130 Dufferin Avenue Suite 1400
London, Ontario, N6A 5R2
T - 519.438.1288 ext. 1298
F - 519.672.8209
JdeLaronde@dillon.ca
www.dillon.ca

Please consider the environment before printing this email

Revised MOECC Response To Notice of Commencement Shedden Fingal Master Wastewater Servcing Plan - Municipal Class EA.pdf
2240K

Ministry of the Environment and Climate Change

733 Exeter Road
London ON N6E 1L3
Tel': 519 873-5000
Fax: 519 873-5020

Ministère de l'Environnement et de l'Action en matière de changement climatique

733, rue Exeter
London ON N6E 1L3
Tél.: 519 873-5000
Fax: 519 873-5020

Ontario

March 26th, 2018

Township of Southwold
35663 Fingal Line
Fingal, Ontario
N0L 1K0

Attention: Ms. Lisa Higgs, CAO/Clerk

Re: MOECC Response to Notice of Commencement Shedden and Fingal Master Servicing Plan – Municipal Class EA

Dear Ms. Higgs:

This letter acknowledges this ministry's receipt of the Notice of Commencement for the above noted project.

It is this ministry's understanding that the municipality is undertaking a Master Wastewater Servicing Plan so as to develop a municipal wastewater treatment strategy for the communities of Shedden and Fingal in the Township of Southwold. The study will reportedly review a number of wastewater servicing alternatives including constructing a new treatment facility (or facilities) and diverting the communities wastewater to a nearby wastewater treatment plant. Shedden and Fingal reportedly require new wastewater treatment systems to permit additional development and support future infrastructure improvement needs. Access to sanitary connections for existing properties within the communities will reportedly be made available through phased road and infrastructure improvement projects.

As you know, the Class Environmental Assessment (Class EA) planning process includes consultation with interested stakeholders, evaluation of alternatives, assessment of the effects of the proposed works and identification of measures to mitigate any adverse impacts. In addition to consultation with public agencies and the general public, consultation with Aboriginal communities is required.

Aboriginal Consultation

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty right and contemplates conduct that may adversely impact that right. Before authorizing this project, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the consultation process.

Your proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. Where the Crown's duty to consult is triggered in relation to your proposed project, **the MOECC is delegating the procedural aspects of rights-based consultation to you through this letter.** The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit.

Based on information you have provided to date and the Crown`s preliminary assessment you are required to consult with the following communities who have been identified as potentially affected by your proposed project:

Nation	Contact Information
Aamjiwnaang First Nation	Aamjiwnaang First Nation 978 Tashmoo Ave. Sarnia, ON N7T 7H5 519-336-8410 Chief Joanne Rogers chief@aamjiwnaang.ca Other Contacts: Sharilyn Johnston, Environment Coordinator sjohnston@aamjiwnaang.ca Christine Rogers, Enviroment Worker crogers@aamjiwnaang.ca (same mailing address for all)
Bkejwanong Territory (Walpole Island First Nation)	Bkejwanong Territory 117 Tahgahoning Road R.R.#3 Wallaceburg, ON N8K 4K9 519-627-1481 Chief Dan Miskokomon drskoke@wifn.org Other Contacts: Dean Jacobs, Consultation Manager Walpole Island Heritage Centre 2185 River Road R.R.#3 Wallaceburg, ON N8K 4K9 519-627-1475 dean.jacobs@wifn.org and Janet Macbeth, Project Review Coordinator janet.macbeth@wifn.org
Chippewas of Kettle and Stony Point First Nation	Chippewas of Kettle and Stony Point First Nation 6247 Indian Lane, R.R.#2 Forest, ON N0N 1J1 519-786-2125 Chief Tom Bressette thomas.bressette@kettlepoint.org Other Contact: Valerie George Consultation Coordinator valerie.george@kettlepoint.org
Chippewas of the Thames First Nation	Chippewas of the Thames First Nation 320 Chippewa Rd., Muncey, ON N0L 1Y0 519-289-5555 Chief Myeengun Henry myeengun@cottfn.com Other Contacts: Kelly Riley, Acting Director - Lands & Environment kriley@cottfn.com 519-289-2662 ext. 209 Rochelle Smith, Consultation Coordinator rsmith@cottfn.com 519-289-2662 ext 213
Caldwell First Nation	Caldwell First Nation P.O. Box 388 Leamington, ON N8H 3W3 519-322-1766 or 1-800-206-7522 Chief Mary Duckworth chief.duckworth@caldwellfirstnation.ca Director of Operations, Allen Deleary allen.deleary@caldwellfirstnation.ca

Oneida Nation of the Thames ONYOTA'A:KA	Oneida Nation of the Thames 2212 Elm Ave. Southwold, ON N0L 2G0 519-652-3244 Chief Randall Phillips randall.phillips@oneida.on.ca Other Contact: Political Chief Assistant: Catherine Cornelius catherine.cornelius@oneida.on.ca
Munsee-Delaware Nation	Munsee-Delaware Nation 289 Jubilee Rd R.R.#1 Muncey, ON N0L 1Y0 519-289-5396 Chief Roger Thomas chief@munsee.ca Other Contact: Glenn Forrest, Band Manager glenn@munsee.ca
Delaware Nation	Delaware Nation 14760 School House Line R.R.#3 Thamesville, ON N0P 2K0 519-692-3936 Chief Denise Stonefish denise.stonefish@delawarenation.on.ca

Steps that you may need to take in relation to Aboriginal consultation for your proposed project are outlined in the "Code of Practice for Consultation in Ontario's Environmental Assessment Process" which can be found at the following link:

https://www.ontario.ca/document/consultation-ontarios-environmental-assessment-process

Additional information related to Ontario's Environmental Assessment Act is available online at: www.ontario.ca/environmentalassessments.

You must contact the Director of Environmental Approvals Branch under the following circumstances subsequent to initial discussions with the communities identified by MOECC:

- aboriginal or treaty rights impacts are identified to you by the communities;
- you have reason to believe that your proposed project may adversely affect an aboriginal or treaty right;
- consultation has reached an impasse;
- a Part II Order request or elevation request is expected.

The Director of the Environmental Approvals Branch can be notified either by email with the subject line "Potential Duty to Consult" to EAASIBgen@ontario.ca or by mail or fax at the address provided below:

Email:	EAASIBGen@ontario.ca Subject: Potential Duty to Consult
Fax:	416-314-8452
Address:	Environmental Approvals Branch 135 St. Clair Avenue West, 1st Floor Toronto, ON, M4V 1P5

The MOECC will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role you will be asked to play in them.

Source Water Protection

As per the recent amendments to the Municipal Engineers Association (MEA) Class Environmental Assessment parent document approved October 2015, proponents undertaking a Municipal Class EA project must identify early in the process whether a project is occurring within a source water protection vulnerable area. This must be clearly documented in a Project File report or ESR. If the project is occurring in a vulnerable area, then there may be policies in the local Source Protection Plan (SPP) that need to be addressed (requirements under the Clean Water Act). The proponent should contact and consult with the appropriate Conservation Authority/Source Protection Authority (CA/SPA) to discuss potential considerations and policies in the SPP that apply to the project.

Please include a section in the report on Source Water Protection. Specifically, it should discuss whether or not the project is located in a vulnerable area or changes or creates new vulnerable areas, and provide applicable details about the area. If located in a vulnerable area, proponents should document whether any project activities are a prescribed drinking water threat and thus pose a risk to drinking water (this should be consulted on with the appropriate CA/SPA). Where an activity poses a risk to drinking water, the proponent must document and discuss in the Project File Report/ESR how the project adheres to or has regard to applicable policies in the local SPP. If creating or changing a vulnerable area, proponents should document whether any existing uses or activities may potentially be affected by the implementation of source protection policies. This section should then be used to inform and should be reflected in other sections of the report, such as the identification of net positive/ negative effects of alternatives, mitigation measures, evaluation of alternatives etc. As a note, even if the project activities in a vulnerable area are deemed not to be a drinking water risk, there may be other policies that apply and so consultation with the local CA/SPA is important.

Climate Change

The Municipality is strongly encouraged to include climate change in this EA. Climate change should be considered in the context of mitigation and the context of adaptation. The Ministry has recently released a guidance document to support proponents in including climate change in environmental assessments. The guide can be found online:

https://www.ontario.ca/page/considering-climate-change-environmental-assessment-process

It should be noted that Climatic Features are identified in Appendix 2 of the Municipal Class EA page 2-7 (2015).

Conclusion

Thank you for the opportunity to comment on this project. Please keep this office fully informed of the status of this project as it proceeds through the Class EA process.

Please send all future correspondence with respect to this project to my attention, as I am this ministry's one window contact for this project: Craig Newton, Regional Environmental Planner / Regional EA Coordinator at the address below; email address:craig.newton@ontario.ca; telephone number: 519-873-5014.

A draft copy of the Environmental Study Report should be forwarded to my attention prior to the filing of the final report, allowing a minimum of 30 days for the ministry's technical reviewers to provide comments. Please also forward the Notice of Completion and final ESR to me when completed. Thank you in advance.

Yours truly,

Craig Newton
Regional Environmental Planner / Regional EA Coordinator
Ministry of Environment and Climate Change
733 Exeter Road
London ON, N6E 1L3
519 873-5014

Copy: Mr. Scott Abernethy, Group Leader Surface Water, Water Resources Unit, MOECC SWR
Ms. Angela Stroyberg, Drinking Water Inspector, MOECC Safe Drinking Water, MOECC London
Mr. Robert Wrigley, District Manager, MOECC London District
Mr. Ron Antuma, Project Manager, Dillon Consulting Limited, London

Appendix 2B

Indigenous Communities Consultation Materials

DILLON CONSULTING

Example of cover letter sent to First Nation Communities

TOWNSHIP OF SOUTHWOLD

OFFICE OF THE CLERK

35663 Fingal Line
Fingal, ON N0L 1K0

Phone: (519) 769-2010
Fax: (519) 769-2837
Email: *cao@southwold.ca*

March 19, 2018

Chippewas of the Thames First Nation
320 Chippewa Road, RR 1
Muncey, Ontario
N0L 1Y0

Attention: Chief A. Myeengun Henry

Municipal Class Environmental Assessment for the Shedden and Fingal Master Plan and Wastewater Servicing
Notice of Study Commencement and Public Information Centre

Dear Chief Henry:

As outlined in the enclosed Notice of Study Commencement, the Township of Southwold has retained Dillon Consulting Limited to undertake a study to develop a municipal wastewater treatment strategy for the communities of Shedden and Fingal. The project will follow the planning and design process as outlined in the Municipal Engineers Association's, Municipal Class Environmental Assessment (EA) (October 2000, as amended).

Two Public Information Centres (PICs) are planned for this study. These PICs will provide stakeholders and public with an opportunity to obtain background information, meet the project team, and provide feedback. The first PIC will be held as follows:

Date: **Tuesday, April 3, 2018**

Time: **4:00 p.m. to 7:00 p.m.**
(Drop in/Open House format)

Location: **Shedden Keystone Complex**
35921 Talbot Line
Shedden, Ontario

For further information or to provide comments, please contact the project team at the following email address: sheddenandfingal@dillon.ca.

Yours sincerely,

Ms. Lisa Higgs, CAO/Clerk
Township of Southwold

cc: Ron Antuma, P.Eng, Project Manager
Dillon Consulting Limited

Example First Nation Letter

November 28, 2018

Chippewas of the Thames First Nation
320 Chippewa Road, RR 1
Muncey, ON
N0L 1Y0

Attention: Chief Jacqueline French

Municipal Class Environmental Assessment for the Shedden and Fingal Wastewater Treatment Strategy
Notice of Public Information Centre #2

As outlined in the enclosed Notice of Public Information Centre, the Township of Southwold has retained Dillon Consulting Limited to undertake a study to develop a municipal wastewater treatment strategy for the communities of Shedden and Fingal. The strategy is being developed to support long term growth in the communities.

It was recommended at Public Information Centre (PIC) #1 held in April 2018, that the Township construct a new sewage treatment facility(s) to service the communities of Shedden and Fingal. A second PIC is being held to present the recommended location and treatment technology for the facility. The study is recommending one facility be constructed to service both communities.

The PIC will provide stakeholders and public with an opportunity to obtain background information, meet the project team, and provide feedback. The second PIC will be held as follows:

Date:	**Tuesday, December 5, 2019**
Time:	**4:00 p.m. to 7:00 p.m.** **(Drop in/Open House format)**
Location:	**Shedden Keystone Complex** **35921 Talbot Line** **Shedden, Ontario**

For further information or to provide comments, please contact the project team at the following email address: sheddenandfingal@dillon.ca.

Yours sincerely,

Ms. Lisa Higgs, CAO/Clerk
Township of Southwold

cc: Scott Praill, P.Eng, Project Manager

Ward, Annmarie <award@dillon.ca>

Shedden and Fingal Master Plan and Wastewater Servicing

1 message

Rochelle Smith <rsmith@cottfn.com> Wed, May 23, 2018 at 9:49 AM
To: "cao@southwold.ca" <cao@southwold.ca>
Cc: "sheddenandfingal@dillon.ca" <sheddenandfingal@dillon.ca>, Consultation <consultation@cottfn.com>

Good morning Ms. Higgs,

Please find attached the correspondence that was mailed out today regarding the Shedden and Fingal Master Plan and Wastewater Servicing.

If you need further clarification of this letter, please do not hesitate to contact me.

Kind regards,

Rochelle Smith

Rochelle Smith

Consultation Coordinator, Chippewas of the Thames First Nation

320 Chippewa Rd Muncey, ON N0L 1Y0 | 519-289-5555 | www.cottfn.com

2 attachments

image001.png
20K

Shedden and Fingal Master Plan and Wastewater Servicing.pdf
364K

CHIPPEWAS OF THE THAMES FIRST NATION

May 23, 2018

Lisa Higgs
Township of Southwold
35663 Fingal Line
Fingal, ON N0L 1K0

RE: Shedden and Fingal Master Plan and Wastewater Servicing
Municipal Class Environmental Assessment

Ms. Higgs,

We have received information concerning the abovementioned project, dated March 19, 2018. The proposed work will be conducted within the McKee Treaty (1790) area to which Chippewas of the Thames First Nation (COTTFN) is a signatory. The proposed work is also located within the Big Bear Creek Addition to Reserve (ATR) land selection area, as well as COTTFN Traditional territory.

At this time, with the information that has been provided to us, we have minimal concern with this project. However, if there are any substantive changes to this project, we ask that you keep us informed. As well, we request that a copy of the information presented at the PIC on April 3, 2018, as well the Municipal Class Environmental Assessment and the Environmental Study Report be sent to COTTFN upon completion.

We look forward to continuing this open line of communication. To implement meaningful consultation, COTTFN has developed its own protocols — a document and a process that will guide positive working relationships. We would be happy to meet with you to review COTTFN's Consultation Protocol.

Please do not hesitate to contact me if you need further clarification of this letter.

Sincerely,

Rochelle Smith
Consultation Coordinator
Chippewa of the Thames First Nation
(519) 289-5555 Ext. 252
rsmith@cottfn.com

c: Ron Antuma, Project Manager, Dillon Consulting Limited.

Appendix 3

Natural Environment Considerations Memo

Memo

To: Internal File

From: Dylan Morse

cc: Scott Praill – Project Manager

Date: May 21, 2020

Subject: Southwold Master Servicing Plan – Natural Environmental Baseline Conditions

Our File: 17-6064

Introduction

The Township of Southwold retained Dillon Consulting Limited (Dillon) to assist with developing a master servicing plan for the communities of Shedden and Fingal within the Township of Southwold. As part of the master servicing plan exercise, an approach was developed for providing centralized wastewater treatment for both communities. A preferred site for a centralized treatment facility was identified south of Shedden on Union Road near Talbot Creek.

A review of existing natural environment conditions at this site was completed as part of the Class EA for the project location.

This memo summarizes the natural environment existing conditions within the Study Area to determine potential environmental effects of the Project, as well as potential future approval considerations during Detailed Design with respect to fisheries and Species at Risk (SAR) (**Attachment A**; Figure 1). Information to support the summary of existing natural environment conditions was collected through background review and field reconnaissance.

Study Area

The Study Area is located off Union Road, approximately 1.2 km south of the Talbot Line and Union Road intersection in the town of Shedden (**Attachment A**; Figure 1). For the purposes of documenting the existing natural environmental conditions, the Study Area includes the Project Location as well as the area within 120 m of the Project Location.

Background Information Review – Methods

The background information contained in this memo was derived from a combination of existing published data, information made available through various public agencies, and web-based mapping platforms. Information sources reviewed in support of the background data collection process are listed below in **Table 1**.

TABLE 1: LIST OF BACKGROUND INFORMATION, LITERATURE, AND SECONDARY SOURCES

Record Source	Records Requested and/or Reviewed
Ontario Ministry of Natural Resources and Forestry (MNRF)	
Land Information Ontario (LIO); accessed February 2020	Natural features; interactive online mapping tool.
LIO GIS Aquatic Resources Area Database; accessed November 2018	Fisheries and watercourse data.
Natural Heritage Information Centre (NHIC)	GIS database for SAR and Species of Conservation Concern (SCC) based on 1 km squares 17MH7320, 17MH7330 & 17MH7331 adjacent to the Study Area.
Species at Risk in Ontario (SARO) List and Distribution Maps; accessed February 2020	Accessed to determine the at-risk status of wildlife species under the Endangered Species Act, 2007 (ESA), and their distribution within Elgin County.
MNRF	Significant Wildlife Habitat Technical Guide (2010) and Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (2015).
Environment Canada and Fisheries and Oceans Canada	
Species at Risk Registry	Accessed to determine the at-risk status of wildlife species under Schedule 1 of the *Species at Risk Act*, 2002 (SARA).
Fisheries and Oceans Canada (DFO) Aquatic SAR map	Aquatic SAR map (August 2019).
Wildlife Atlases and Distribution Data	
Ontario Breeding Bird Atlas (OBBA); accessed February 2020	Second Atlas (2001-2005) – data for square 17MH73 – grid based on 10 km^2 system.
Christmas Bird Count (CBC); accessed February 2020	Closest CBC circle ONST (St. Thomas) – historical records from 1966 – 2017.
Ontario Reptile and Amphibian Atlas; accessed via Ontario Nature February 2020	List of reptile and amphibian species occurrences for square 17MH73.
Ontario Butterfly Atlas; accessed via Toronto Entomologists Association February 2020	List of butterfly species occurrences for square 17MH73.
Bumble Bees of North America – (Williams *et al.* 2014)	Distribution data for bumble bees.
Atlas of the Mammals of Ontario – (Dobbyn 1994)	Distribution data for mammals.
Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)	
Agricultural Information Atlas; accessed November 2018	AgMaps.

Background Information Review – Results

Designated Natural Areas

Provincial Parks, Conservation Reserves, and Conservation Areas

A search and analysis of the records outlined in **Table 1** did not identify provincial parks or conservation reserves/areas within the Study Area.

Area of Natural and Scientific Interest (ANSI)

A search and analysis of the records and resources outlined in **Table 1** did not identify ANSI's within the Study Area.

Terrestrial Resources

Wetlands

A search and analysis of the records and resources outlined in **Table 1** did not identify wetlands within the Study Area.

Woodlands

A search and analysis of the records and resources outlined in **Table 1** identified areas of MNRF mapped woodland in the northeastern and southwestern portions of the Study Area (**Attachment A**; Figure 2).

Flora and Fauna

Several flora and fauna were documented as having the potential to occur within and/or in proximity (i.e., 1 km) to the Study Area based on review of the information included in **Table 1**. However, given that the Study Area is largely associated with anthropogenic disturbances (i.e., existing agriculture), it is not unrealistic to assume that the majority of the flora and fauna occurrences are associated with the natural features located outside of the Project Location. The potential presence of SAR and SCC is discussed in subsequent sections below.

Aquatic Resources

A review of MNRF base mapping and OMAFRA AgMaps mapping identifies Talbot Creek, a permanent natural watercourse and tributary of Lake Erie, in the east portion of the Study Area (**Attachment A**; Figure 2). Talbot Creek is classified as 'Not Rated' by DFO; its confluence with Lake Erie is located approximately 25 km downstream of the Study Area at Port Talbot. The 'Not Rated' classification indicates data regarding flow regime, thermal regime and fish community is unknown.

A review of DFO Aquatic SAR mapping (August 2019) was completed and no Threatened or Endangered aquatic species were identified within Talbot Creek in the vicinity (i.e., within 1 km) of the Study Area. A review of the NHIC database was completed and although there are no 1 km squares within the Study Area, there were no aquatic SAR identified in the 1 km squares adjacent to the Study Area.

A review of LIO GIS data (Aquatic Resource Area Line Segment, 2018) identified a mixed community of spring and summer spawning baitfish, coarse fish and sportfish, including a top predator (Northern Pike (*Esox lucius*) in Talbot Creek. **Table 2** includes the list of fish species identified in Talbot Creek during the background review.

TABLE 2: FISH SPECIES IN TALBOT CREEK BASED ON BACKGROUND REVIEW

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	ARA[4]
Alosa pseudoharengus	Alewife	---	---	SNA	x
Ameiurus melas	Black Bullhead	---	---	S4	x
Pomoxis nigromaculatus	Black Crappie	---	---	S4	x
Rhinichthys atratulus	Blacknose Dace	---	---	S5	x
Percina maculata	Blackside Darter	---	---	S4	x
Pimephales notatus	Bluntnose Minnow	---	---	S5	x
Labidesthes sicculus	Brook Silverside	---	---	S4	x
Ameiurus nebulosus	Brown Bullhead	---	---	S5	x
Umbra limi	Central Mudminnow	---	---	S5	x
Ictalurus punctatus	Channel Catfish	---	---	S4	x
Cyprinus carpio	Common Carp	---	---	SNA	x
Luxilus cornutus	Common Shiner	---	---	S5	x
Semotilus atromaculatus	Creek Chub	---	---	S5	x
Notropis atherinoides	Emerald Shiner	---	---	S5	x
Pimephales promelas	Fathead Minnow	---	---	S5	x
Dorosoma cepedianum	Gizzard Shad	---	---	S4	x
Moxostoma erythrurum	Golden Redhorse	---	---	S4	x
Lepomis cyanellus	Green Sunfish	---	---	S4	x
Etheostoma nigrum x Etheostoma olmstedi	Johnny Darter x Tesselated Darter	---	---	S4/S5	x
Micropterus salmoides	Largemouth Bass	---	---	S5	x
Percina caprodes	Logperch	---	---	S5	x
Lepisosteus osseus	Longnose Gar	---	---	S4	x
Notropis volucellus	Mimic Shiner	---	---	S5	x
Esox Lucius	Northern Pike	---	---	S5	x
Lepomis gibbosus	Pumpkinseed	---	---	S5	x
Carpiodes cyprinus	Quillback	---	---	S4	x
Ambloplites rupestris	Rock Bass	---	---	S5	x
Micropterus dolomieu	Smallmouth Bass	---	---	S5	x
Notropis hudsonius	Spottail Shiner	---	---	S5	x
Morone chrysops	White Bass	---	---	S4	x
Pomoxis annularis	White Crappie	---	---	S4	x
Catostomus commersonii	White Sucker	---	---	S5	x

[1]Federal Species at Risk Act designation; [2]Provincial Endangered Species Act designation; [3]Provincial Conservation Ranking where SNA = not applicable, S5= secure and S4= apparently secure; [4]LIO GIS Aquatic Resource Area Line Segment Database

An outlet for the wastewater treatment facility is planned along Talbot Creek within the Study Area. Further assessment of the facility's outlet into Talbot Creek is recommended during detailed design to confirm potential *Fisheries Act* requirements.

Species at Risk and Species of Conservation Concern

Species at Risk

A review of the information included in **Table 1** identified twenty-one SAR with the potential to occur within and/or in proximity (i.e., 1 km) to the Study Area. However, given that the Study Area is largely associated with agricultural lands, it is not unrealistic to assume that the majority of the SAR occurrences are associated with the natural features located outside of the Project Location.

Based on Dillon's previous field work experience in the general location of the Study Area, as well as review of aerial imagery, the Study Area has the potential to provide habitat for seven SAR identified during background review. Refer to **Attachment B** for the SAR screening.

Species of Conservation Concern

A review of the information included in **Table 1** identified eleven SCC with the potential to occur within and/or in proximity (i.e., 1 km) to the Study Area. However, given that the Study Area is largely associated with agricultural lands, it is not unrealistic to assume that the majority of the SCC occurrences are associated with the natural features located outside of the Project Location.

Based on Dillon's previous field work experience in the general location of the Study Area, as well as review of aerial imagery, the Study Area has the potential to provide habitat for eight SCC identified during background review. Refer to **Attachment B** for the SCC screening.

Field Investigation – Methods

Terrestrial Resources

A high-level field reconnaissance was completed within the Study Area on November 22, 2019, by a Dillon field biologist.

The field investigation included a visual assessment of the lands and natural heritage features within the Study Area. The purpose of the field investigation was to complete a high-level field reconnaissance with the objective of confirming the presence of the features identified in the background review, and identifying additional features, if present. Access to private lands within portions of the Study Area was not available during the field survey. In-depth details for features over multiple seasons, and confirmation of the presence or absence of wildlife, SAR, and/or their habitats was not part of the field investigation.

Ecological Land Classification (ELC)

Vegetation communities were reviewed at a high-level using ELC as a first step to identify potential natural heritage features within the Study Area. During the field reconnaissance, vegetation was characterized using the ELC System for Southern Ontario (Lee *et al.*, 1998) in order to classify and map ecological communities to the vegetation level. The ecological community boundaries were determined through the review of aerial photography during the background review and then further refined while on site.

The ELC protocol recommends that a vegetation community be a minimum of 0.5 ha in size before it is defined. Based on the composition of vegetation communities within the Study Area, patches of vegetation less than 0.5 ha or disturbed/planted vegetation were described, provided they clearly fit within an ELC vegetation type.

Aquatic Resources

The aquatic assessment included documenting (where applicable) channel form, presence/absence of flow, substrate type, channel dimensions, riparian vegetation and whether the watercourse had the potential to support fish habitat. Fish sampling was not completed.

Field Investigation – Results

Terrestrial Resources

Ecological Land Classification

The ELC communities observed within the Study Area during the field investigations were observed to be generally consistent with the ELC communities identified during the background review. The ELC community observations are described below and illustrated in Figure 3 (**Attachment A**).

The majority of the Open Pasture (OAG) community was observed to be comprised of two pasture fields consisting predominately of grasses. The fields are located within the Talbot Creek floodplain in the southeast portion of the Study Area and on the tablelands in the northwest portion of the Study Area. The Graminoid Meadow (MEG) community was observed to be generally comprised of meadow grassland habitat along Talbot Creek. The MEG community consisted of Wild Carrot (*Daucus carota*), Common Milkweed (*Asclepias syriaca*), Golden Rod (*Solidago sp.),* grasses (*Poa sp.*) and Aster (*Symphiotricum sp.)* species. The Open Aquatic (OA) communities consisted of Talbot Creek and an agricultural pond in the east and south portions of the Study Area, respectively. The FOD community observed in the north portion of the Study Area consisted of Black Walnut (*Juglans nigra*), American Beech (*Fagus grandifolia*), Dogwood (*Cornus sp.)* and Ash (*Fraxinus sp.)* species, as observed from the property limits. The remaining FOD communities were observed to contain a mix of deciduous species. Detailed species occurrences in association with the FOD communities were not obtained given the proximity of the features from the anticipated wastewater treatment facility (i.e., the Project Location).

The remaining ELC communities appeared to consist of a Mixed Thicket and Deciduous forest west of Union Road, a Rural Property (**Attachment A**; Figure 3 [CVR_4]), Mixed Woodland (**Attachment A**; Figure 3 [WOM]) and Open Agriculture within the Study Area. Representative photos can be found in **Attachment C** (Photo 1 – Photo 5).

Aquatic Resources

From the Study Area, Talbot Creek flows southwest for approximately 25 km to its outlet at Lake Erie. Within the Study Area Talbot Creek consists of a naturally meandering watercourse with a permanent flow regime. Watercourse morphology consisted of run-pool-flat habitat with varied substrate including clay, gravel and silt. Mean wetted width was approximately 3 m and the mean wetted depth was approximately 0.5 m at the time of assessment. Dominant in-stream fish habitat consisted of emergent aquatic vegetation, primarily in the form of Reed Canary Grass (*Phalaris arundinacea*), among others and also included undercut banks. The banks were vegetated with meadow species, however, signs of recent erosion were observed in some locations, including bare soil and fractured banks. The riparian community adjacent to the watercourse consisted predominately of a meadow community with a deciduous woodland in the north and east portion of the Study Area. At the time of site investigation, watercourse conditions were turbid and no fish were observed. Based on results of the background review and site investigation, Talbot Creek is expected to provide direct fish habitat for a mixed community of warm water baitfish, coarse fish and sportfish, including top predators (i.e., Northern Pike). For representative photos, refer to **Attachment C** (Photos 6 – 10).

SAR and SCC Habitat Screening

The SAR identified during the background review with the potential to occur within the general vicinity of the Study Area were refined based on the field investigation results. **Table 3** includes the refined list of SAR with the potential to occur within the Study Area.

TABLE 3: SAR WITH THE POTENTIAL TO OCCUR WITHIN THE STUDY AREA

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	Potential to be Impacted by the Project?
Birds					
Chaetura pelagica	Chimney Swift	THR	THR	S4B,S4N	No
Hirundo rustica	Barn Swallow	THR	THR	S4B	No
Reptiles					
Pantherophis gloydi pop. 2	Eastern Foxsnake (Carolinian population)	END	END	S2	No
Heterodon platirhinos	Eastern Hog-nosed Snake	THR	THR	S3	No
Mammals					
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3	No
Myotis lucifugus	Little Brown Myotis	END	END	S4	No
Myotis septentrionalis	Northern Myotis	END	END	S3	No
Pipistrellus subflavus	Tri-colored Bat	END	END	S3?	No
Plants					
Cornus florida	Eastern Flowering Dogwood	END	END	S2?	No

[1]Federal SARA status, where END = Endangered, THR = Threatened, and SC = Special Concern; [2]Ontario ESA status, where END = Endangered, THR = Threatened, and SC = Special Concern; [3]Provincial Conservation/Sub-national Rank (SRank) is an indicator of commonness in the province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common; --- denotes no information or not applicable.

With exception to Eastern Flowering Dogwood which has regulated habitat, each of the SAR identified as having the potential to occur in the Study Area has general habitat protection under the ESA. General habitat includes areas in which species depend on, directly or indirectly, to carry out life processes. Habitat regulations under *Ontario Regulation 242/08* (*O. Reg. 242/08*) replaces general habitat protection and provides more precise definition on the species habitat, geographic boundaries and/or other unique characteristics. Regulated habitat may be smaller and/or larger than general habitat, and may also include areas in which the species is not currently being observed in.

In the event project activities have the potential to impact SAR and/or their habitat, species-specific surveys may be required to confirm presence/absence during Detailed Design. The MECP should be consulted in advance of Detailed Design to determine where species-specific surveys are required. Based on the results included herein, and the current understanding of proposed works, the potential to impact SAR and/or SAR habitat has been assessed as low, if any. Potential impacts can generally be avoided through appropriate mitigation measures and best practices (e.g., timing windows, project siting, etc.). During Detailed Design, the site layout and areas of disturbance will be confirmed.

The SCC identified during the background review with the potential to occur within the general vicinity of the Study Area were refined based on the field investigation results. **Table 4** includes the refined list of SCC with the potential to occur within the Study Area.

TABLE 4: SCC WITH THE POTENTIAL TO OCCUR WITHIN THE STUDY AREA

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	Potential to be Impacted by the Project?
Birds					
Melanerpes erythrocephalus	Red-headed Woodpecker	THR	SC	S4B	No
Contopus virens	Eastern Wood-pewee	SC	SC	S4B	No
Lepidoptera					
Pieris virginiensis	West Virginia White	---	SC	S3	No
Danaus plexippus	Monarch	SC	SC	S2N,S4B	No
Reptiles					
Thamnophis sauritus	Eastern Ribbonsnake (Great Lakes population)	SC	SC	S3	No
Chelydra serpentina	Snapping Turtle	SC	SC	S3	No
Mammals					
Scalopus aquaticus	Eastern Mole	SC	SC	S2	No
Microtus pinetorum	Woodland Vole	SC	SC	S3?	No

[1]Federal SARA status, where END = Endangered, THR = Threatened, and SC = Special Concern; [2]Ontario ESA status, where END = Endangered, THR = Threatened, and SC = Special Concern; [3]Provincial Conservation/Sub-national Rank (SRank) is an indicator of commonness in the province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common; --- denotes no information or not applicable.

Assessment of Candidate Significant Wildlife Habitat

Significant Wildlife Habitats (SWHs) are types of natural heritage features that are identified for protection by the PPS. They consist of wildlife habitats, including vegetation communities, that are ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or a natural heritage system. SWHs are identified on the basis of ELC communities using applicable criteria specific to a region.

In order to identify candidate SWH within the Study Area, ELC communities identified in the Study Area were compared to those listed in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNRF 2015). Based on review of the SWHs listed under Ecoregion 7E, the following candidate SWH have the potential to occur within the Study Area:

- Raptor Wintering Area
- Bat Maternity Colonies
- Turtle Wintering Areas
- Reptile Hibernaculum
- Amphibian Breeding Habitat (Woodland)
- Special Concern and Rare Wildlife Species.

The aforementioned candidate SWHs are illustrated on Figure 4 in **Attachment A**. Based on the current project extents, none of the aforementioned candidate SWHs are located within the proposed project impact area (i.e., Project Location).

Potential Impacts and Mitigation

Table 5 summarizes the anticipated impacts and mitigation measures for this project. Mitigation measures are to be incorporated into the design and/or construction phase of the project, as outlined in the table.

TABLE 5: SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Environmental Feature	Potential Impacts	Avoidance, Mitigation and Monitoring Measures
Natural Environment		
Natural Features and Vegetation	Increased erosion and sedimentation of lands adjacent to the construction area. Increased vulnerability of the areas cleared of vegetation to invasion by non-native species.	Based on the current project extents, no vegetation removal is required outside of the agricultural pasture lands. The final extents of vegetation removal will be confirmed during Detailed Design. Impacts to vegetation will be minimized as follows: • Erosion sediment control (ESC) (e.g., silt fencing or similar) should be installed where surfaces will be cleared of vegetation and there is a risk of sedimentation of natural features (e.g., Talbot Creek). • ESC measures should be monitored regularly and/or after every 10 mm or greater rainfall event. If deficiencies are found, they should be repaired and/or replaced as soon as possible. • Temporarily disturbed vegetated area should be re-vegetated to minimize invasion and colonization by non-native species.
Wildlife and Significant Wildlife Habitat	Potential temporary disruption to wildlife movement and habitat avoidance during construction.	• If wildlife is encountered in the construction area, work should be temporarily suspended until the animal leaves the work area on its own accord. If the species persists, a person qualified and authorized to handle wildlife should be contacted and the animal relocated. • Workers should be vigilant and check work areas and machinery for presence of wildlife prior to each day of construction. • ESC measures (silt fencing or similar) are anticipated to provide a dual purpose of also serving as a wildlife exclusion measure.

Environmental Feature	Potential Impacts	Avoidance, Mitigation and Monitoring Measures
Breeding Birds	Potential temporary disruption to wildlife movement and habitat avoidance during construction.	Vegetation within the current project extents has the potential to provide nesting habitat for birds protected under the Migratory Birds Convention Act, 19949 MBCA). As a result, the following measures should be implemented in support of construction: • Vegetation removals are to be completed outside of the breeding bird season (no vegetation removal between **April 1 and August 31**). • If additional vegetation removal is required during the breeding bird season, a nest search should be conducted by a qualified biologist within 48 hours of the proposed clearing activity. If breeding birds and/or active nests are encountered, an appropriate bugger will be determined and work should not continue within the buffer until after August 31, or as soon as it has been determined by a qualified biologist that the young have left the nest or the nest is considered inactive. This may result in delays to the construction schedule and should be used as a last resort.
Species at Risk	Potential temporary disruption to SAR movement and habitat avoidance during construction.	Although the potential for SAR habitat was identified within the Study Area, the potential habitats are associated with natural features outside of the current project extents. To mitigation potential impacts on SAR, the following measures should be implemented in support of construction: • ESC measures (silt fencing or similar) are anticipated to provide a dual purpose of also serving as a wildlife exclusion measure. • If SAR is encountered in the construction area, work should be temporarily suspended until the animal leaves the work area on its own accord. If the species persists, a person qualified and authorized to handle SAR should be contacted and the animal relocated. • Workers should be vigilant and check work areas and machinery for presence of SAR prior to each day of construction. • In the event tree removal is required based on the final design, schedule vegetation removals to occur during non-active bat season (no tree removals between **April 15 and October 15**) to avoid potential impacts to SAR bats.
Aquatic Resources	Release of sediment into Talbot Creek, causing impacts to fish/fish habitat Increased footprint for an outlet and erosion protection below the high water mark within/along Talbot Creek.	Sediment and erosion control measures should be installed prior to the commencement of work and left in place until the site is restored and disturbed areas are stabilized. If in-water work is required, work will be completed within an isolated work area in Talbot Creek within the spring spawning timing window (NO in-water work should be completed between March 15th and July 15th of any given year). Site specific mitigation measures will be confirmed during detailed design.

Summary

Records of natural heritage features and species occurrences were identified for the Study Area during the background review. Based on a high-level field investigation conducted in November 2019, these features appeared to be present within the Study Area. The Study Area contains a permanent watercourse (Talbot Creek) and a mix of cultural and natural ELC communities, with the latter consisting of areas largely outside of the anticipated wastewater treatment facility location. Although there is potential for the Study Area to provide wildlife habitat, including habitat for nine SAR and candidate SWH's, these habitats are beyond the Project Location where construction is proposed. The results of the background review and November 2019 field investigation suggest that proposed activities associated with construction of a wastewater treatment facility within the Study Area have a low likelihood of impacting SAR and/or SAR habitat. Mitigation measures are recommended to reduce the potential for future natural environment impacts of proposed works.

Next Steps

It is recommended that the MECP be consulted in advance of Detailed Design to confirm whether the project can proceed under a Letter of Advice or whether additional field investigations are required in support of potential permitting and/or approvals under the ESA.

If potential impacts to fish and fish habitat are identified during Detailed Design, it is recommended that a "Request for Review" be submitted to Fisheries and Oceans Canada (DFO) to assist in the determination of whether a *Fisheries Act* Authorization may be required.

Attachments:
Attachment A – Figures
Attachment B – SAR and SCC Habitat Screening Assessment
Attachment C – Site Photographs

Attachment A

TOWNSHIP OF SOUTHWOLD
Shedden and Fingal Servicing Master Plan

Project Location
Figure 1

Project Location
Study Area (120 m)
Watercourse

0 25 50 75 m 1:1,600

N W E S

MAP DRAWING INFORMATION:
ESRI IMAGERY

MAP CREATED BY: SFG
MAP CHECKED BY: DM
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

FILE LOCATION: G:\cad\GIS\176064 - Shedden and Fingal SMP\MXD\Project Location.mxd

DILLON CONSULTING

PROJECT: 191793
STATUS: DRAFT
DATE: 2020-05-19

TOWNSHIP OF SOUTHWOLD
Shedden and Fingal Servicing Master Plan

Natural Features
Figure 2

- Project Location
- Study Area (120 m)
- Watercourse (MNRF)
- Woodland (MNRF)

0 25 50 75 m 1:1,600

N W E S

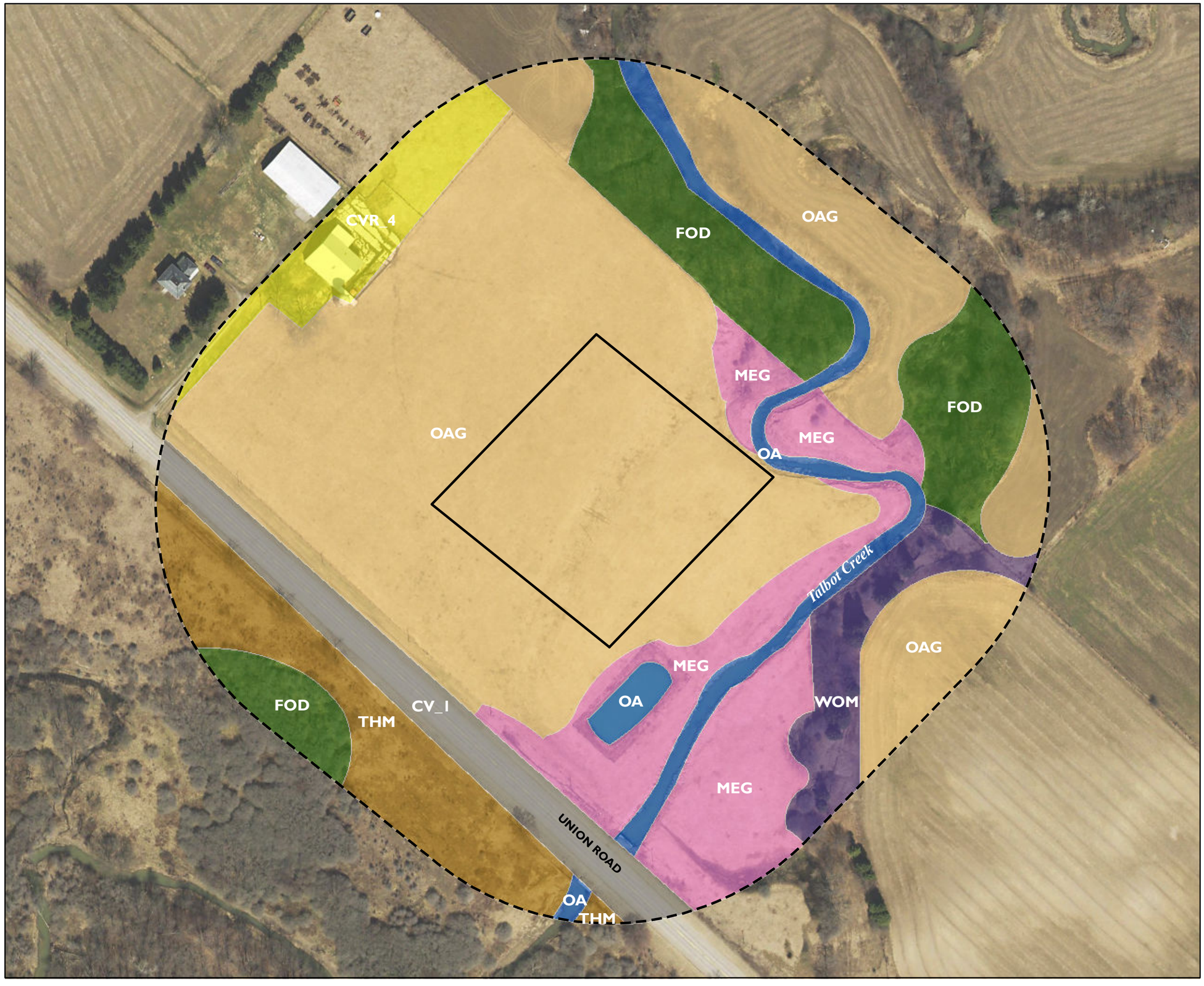
MAP DRAWING INFORMATION:
ESRI IMAGERY

MAP CREATED BY: SFG
MAP CHECKED BY: DM
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

FILE LOCATION: G:\cad\GIS\176064 - Shedden and Fingal SMP\MXD\Natural Features.mxd

DILLON CONSULTING

PROJECT: 191793
STATUS: DRAFT
DATE: 2020-05-19



TOWNSHIP OF SOUTHWOLD
Shedden and Fingal Servicing Master Plan

Ecological Land Classifiation
Figure 3

Project Location
Study Area (120 m)

Ecological Land Classification

- CVR_4: Rural Property
- CV_1: Transportation and Utiilities
- FOD: Deciduous Forest
- MEG: Graminoid Meadow
- OA: Open Aquatic
- OAG: Open Pasture
- WOM: Mixed Woodland
- THM: Mixed Thicket

0 25 50 75 m 1:1,600

N W E S

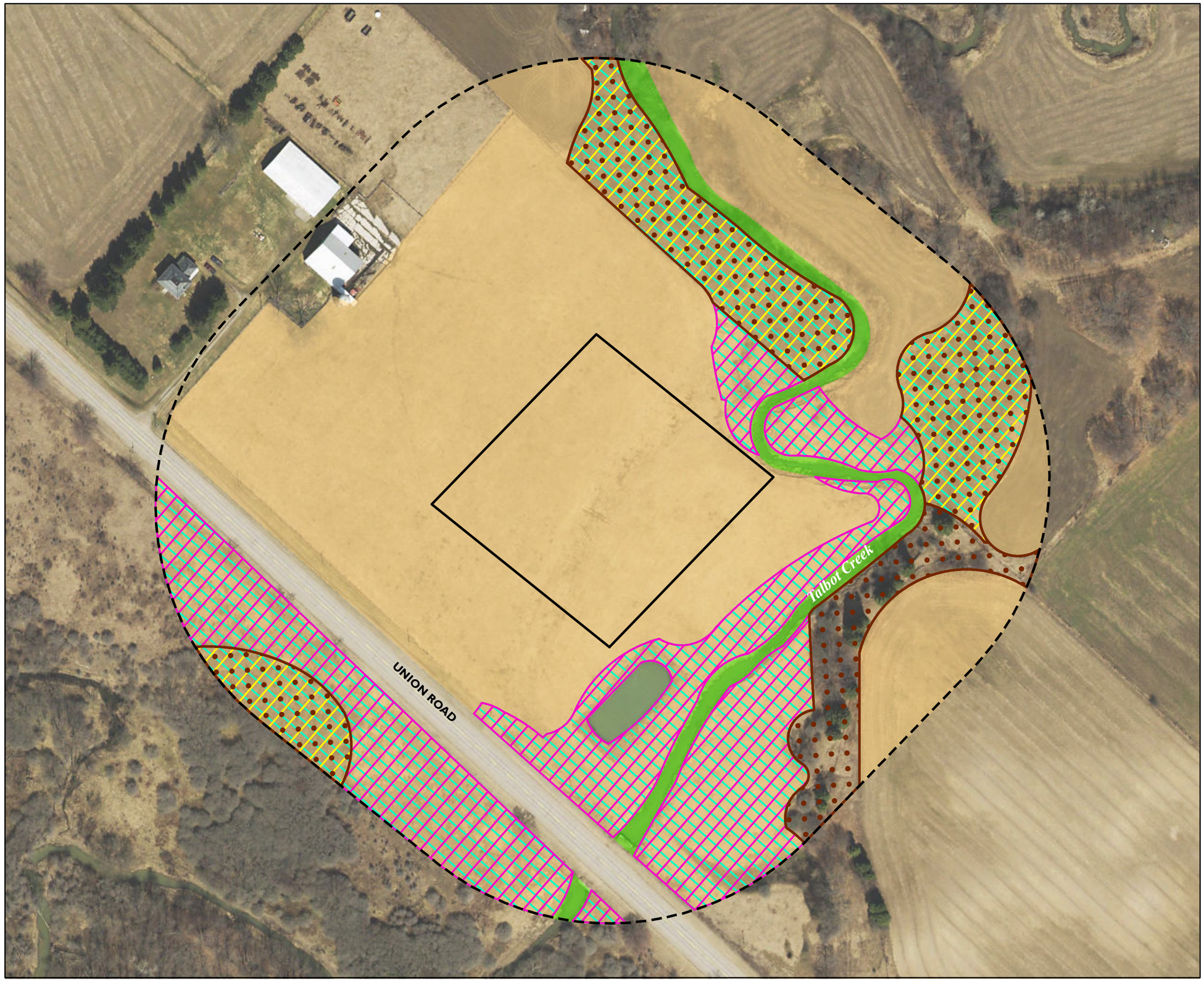
MAP DRAWING INFORMATION:
ESRI IMAGERY

MAP CREATED BY: SFG
MAP CHECKED BY: DM
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

FILE LOCATION: G:\cad\GIS\176064 - Shedden and Fingal SMP\MXD\Ecological Land Classification.mxd

DILLON CONSULTING

PROJECT: 191793
STATUS: DRAFT
DATE: 2020-05-19



TOWNSHIP OF SOUTHWOLD
Shedden and Fingal Servicing Master Plan

Candidate Significant Wildlife Habitat
Figure 4

- Project Location
- Study Area (120 m)

Candidate Significant Wildlife Habitat

- Amphibian Breeding Habitat (woodland)
- Bat Maternity Colonies
- Raptor Wintering Area
- Reptile Hibernaculum
- Special Concern and Rare Wildlife Species
- Turtle Wintering Areas

0 25 50 75 m 1:1,600

N W E S

MAP DRAWING INFORMATION:
ESRI IMAGERY

MAP CREATED BY: SFG
MAP CHECKED BY: DM
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

FILE LOCATION: G:\cad\GIS\176064 - Shedden and Fingal SMP\MXD\Candidate Significant Wildlife Habitat.mxd

DILLON CONSULTING

PROJECT: 191793
STATUS: DRAFT
DATE: 2020-05-19

Attachment B

Table B1: Species at Risk with the Potential to Occur within the Study Area – Habitat Screening Assessment

Scientific Name	Common Name	SARA Status[1]	ESA Status[2]	SRank[3]	Information Source[4]	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Potential for Project to Impact Habitat
Chaetura pelagica	Chimney Swift	THR	THR	S4B,S4N	OBBA	Commonly found in urban areas near buildings; nests in hollow trees, crevices of rock cliffs, chimneys; highly gregarious; feeds over open water.	Y	Within Range and Suitable Habitat	N
Hirundo rustica	Barn Swallow	THR	THR	S4B	OBBA	Farmlands or rural areas; cliffs, caves, rock niches; buildings or other man-made structures for nesting; open country near body of water.	Y	Within Range and Suitable Habitat	N
Dolichonyx oryzivorus	Bobolink	THR	THR	S4B	OBBA	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland ≥5 ha.	N	Unsuitable Habitat (e.g., the Open Pasture within the Study Area is less than 5 ha)	N
Sturnella magna	Eastern Meadowlark	THR	THR	S4B	OBBA, NHIC	Open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas ≥5 ha in size. –	N	Unsuitable Habitat (e.g., the Open Pasture within the Study Area is less than 5 ha)	N
Heterodon platirhinos	Eastern Hog-nosed Snake	THR	THR	S3	OHA	Sandy upland fields, pastures, savannahs, sandy beaches; dry open oak-pine-maple forest with sandy soils; prefer forest areas > 5ha.	Y	Within Range and Suitable Habitat	N
Emydoidea blandingii	Blanding's Turtle	THR	THR	S3	OHA	Shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats; hibernates in bogs; not readily observed.	N	Unsuitable Habitat	N
Urocyon cinereoargenteus	Gray Fox	THR	THR	S1	MWH	Hardwood forests with a mix of fields and woods; swamps; wooded, brushy or rocky habitats; woodland farmland edge; old fields with thickets; dens in hollow log or tree; individual has numerous winter dens throughout its range which is > 40 ha.	N	Outside Range	N

Scientific Name	Common Name	SARA Status[1]	ESA Status[2]	SRank[3]	Information Source[4]	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Potential for Project to Impact Habitat
Colinus virginianus	Northern Bobwhite	END	END	S1	NHIC	Grassland, prairie or hay fields with woody cover in form of thickets, tangles of vines, shrubs; fence rows or woodland edges; cropland growing corn, soybeans or small grains and clover or grass; well-drained sandy or loamy soil; pond edges.	N	Unsuitable Habitat	N
Stylurus amnicola	Riverine Clubtail	END	END	S1	OOA	This dragonfly is found in and near streams and rivers with sandy, muddy, or gravely beds. Larvae often burrow in the river bottom and prey on small animals such as other insects. After emerging, adults tend to move from riverbanks to the forest canopy to feed. Adults hang vertically off leaves as they await prey flying by.	N	Outside Range	N
Stylurus laurae	Laura's Clubtail	---	END	S1	OOA, MNRF Reg. Habitat	Shallow, sandy or sandy-muddy bottomed creeks with forested shorelines. Only found in unpolluted waters. During their adult life stage, they require forest cover beside the creek. Adults use riffle areas in the stream for foraging and require vegetation along the creek to perch between flights.	N	Outside Range	N
Anaxyrus fowleri	Fowler's Toad	END	END	S2	MNRF Reg. Habitat	In Ontario, Fowler’s Toads inhabit open beaches, dunes, sandy shorelines, rocky pools, creek and stream mouths, backshore wetlands, and marshes along the northern shore of Lake Erie.	N	Outside Range	N
Ambystoma jeffersonianum	Jefferson Salamander	END	END	S2	MNRF Reg. Habitat	Moist, loose soil, under logs or in leaf litter. They lay their eggs in clumps attached to underwater vegetation. By midsummer, the larvae lose their gills and leave the pond and head into the surrounding forest. Underground in rodent burrows, and under rocks and stumps. They feed primarily on insects and worms.	N	Outside Range	N
Pantherophis gloydi pop. 2	Eastern Foxsnake (Carolinian population)	END	END	S2	OHA, MNRF Reg. Habitat	Old fields, marshes, along hedgerows, drainage canals and shorelines. Females lay their eggs in rotting logs, manure or compost piles, which naturally incubate the eggs until they hatch.	Y	Within Range and Suitable Habitat	N

Scientific Name	Common Name	SARA Status[1]	ESA Status[2]	SRank[3]	Information Source[4]	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Potential for Project to Impact Habitat
Pantherophis spiloides pop. 2	Gray Ratsnake (Carolinian population)	END	END	S1	OHA, MNRF Reg. Habitat	Mix of agricultural land and deciduous forest, preferring habitat where forest meets more open environments. Often lay eggs in logs or compost piles that serve as incubators.	N	Outside of Range	N
Plestiodon fasciatus pop. 1	Common Five-lined Skink (Carolinian population)	END	END	S2	MNRF Reg. Habitat	The Carolinian population can be found under woody debris in clearings with sand dunes, open forested areas, and wetlands. They bask on sunny rocks and logs to maintain a preferred body temperature (28-36°C). During the winter, they hibernate in crevices among rocks or buried in the soil.	N	Outside Range	N
Taxidea taxus jacksoni	American Badger (Southwestern Ontario population)	END	END	---	MWH	Found in a variety of habitats, such as tall grass prairie, sand barrens, and farmland.	N	Unsuitable Habitat	N
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3	MWH	Roosts in caves, mine shafts, crevices or buildings that are in or near woodland; hibernates in cold dry caves or mines; maternity colonies in caves or buildings; hunts in forests.	Y	Within Range and Suitable Habitat	N
Myotis lucifugus	Little Brown Myotis	END	END	S4	MWH	Uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges.	Y	Within Range and Suitable Habitat	N
Myotis septentrionalis	Northern Myotis	END	END	S3	MWH	Hibernates during winter in mines or caves; during summer males roost alone and females form maternity colonies of up to 60 adults; roosts in houses, manmade structures but prefers hollow trees or under loose bark; hunts within forests, below canopy.	Y	Within Range and Suitable Habitat	N
Pipistrellus subflavus	Tri-colored Bat	END	END	S3?	MWH	Can be found in a variety of forested habitats. They form day roosts and maternity colonies in older forest and occasionally in barns or other structures, and overwinter in caves. They forage over water and along streams in the forest.	Y	Within Range and Suitable Habitat	N

Scientific Name	Common Name	SARA Status[1]	ESA Status[2]	SRank[3]	Information Source[4]	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Potential for Project to Impact Habitat
Cornus florida	Eastern Flowering Dogwood	END	END	S2?	MNRF Reg. Habitat	An understory species native to the Carolinian zone of southwestern Ontario.	Y	Within Range and Suitable Habitat	N

1 – Status identified by the Committee on the Status of Endangered Wildlife in Canada under the federal SARA, 2002; 2 – SAR in Ontario List under the provincial ESA, 2007; 3 – Ontario SRank; S5 = secure; S4= apparently secure; S3 = vulnerable; S2 = imperiled; SX = Extirpated; SH = Possibly Extirpated; SNA = non-native or exotic species to Ontario; 4 – NHIC = MNRF Natural Heritage Information Centre, MNRF SAR in Area = MNRF Species at Risk in Ontario List by area of the province; MNRF Reg. Habitat = MNRF Regulated Habitat (O. Reg. 242/08); MNRF Consult. = MNR Consultation, OBBA = Ontario Breeding Bird Atlas, MWH = Digital Distribution Maps of the Mammals of the Western Hemisphere, version 3.0, OHA = Ontario Herpetofaunal Atlas, OOA = Ontario Odonata Atlas; OBA = Ontario Butterfly Atlas; CBC = Christmas Bird Count, DFO = Fisheries and Oceans Canada Aquatic SAR Mapping (2019); 5 – MNRF Significant Wildlife Technical Guide - Appendix G (2000).

Table B2: Species of Conservation Concern (SCC) with the Potential to Occur within the Study Area – Habitat Screening Assessment

Scientific Name	Common Name	SARA Status[1]	ESA Status[2]	SRank[3]	Information Source[4]	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Potential for Project to Impact Habitat
Melanerpes erythrocephalus	Red-headed Woodpecker	THR	SC	S4B	OBBA	Open, deciduous forest with little understory; fields or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees; feeds on insects and stores nuts or acorns for winter; loss of habitat is limiting factor; requires cavity trees with at least 40cm dbh; require about 4 ha for a territory.	Y	Within Range and Suitable Habitat	N
Hylocichla mustelina	Wood Thrush	END	SC	S4B	OBBA	Carolinian and Great Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12m.	N	Unsuitable Habitat	N
Contopus virens	Eastern Wood-pewee	SC	SC	S4B	OBBA	Open, deciduous, mixed or coniferous forest; predominated by oak with little understory; forest clearing, edges; farm woodlots, parks.	Y	Within Range and Suitable Habitat	N
Danaus plexippus	Monarch	SC	SC	S2N,S4B	OBA	Caterpillars feed on Milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in a variety of habitats feeding on nectar from a variety of wildflowers.	Y	Within Range and Suitable Habitat	N
Pieris virginiensis	West Virginia White	---	SC	S3	OBA	Moist, deciduous woodlots. Requires a supply of toothwort, a small, spring-blooming plant that is a member of the mustard family.	Y	Within Range and Suitable Habitat	N
Chelydra serpentina	Snapping Turtle	SC	SC	S3	OHA	Permanent, semi-permanent fresh water; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water; often hibernate together in groups in mud under water; home range size ~28 ha.	Y	Within Range and Suitable Habitat	N
Thamnophis sauritus	Eastern Ribbonsnake (Great Lakes population)	SC	SC	S3	OHA	Sunny grassy areas with low dense vegetation near bodies of shallow permanent quiet water; wet meadows, grassy marshes or sphagnum bogs; borders of ponds, lakes or streams; hibernates in groups.	Y	Within Range and Suitable Habitat	N

Scientific Name	Common Name	SARA Status[1]	ESA Status[2]	SRank[3]	Information Source[4]	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Potential for Project to Impact Habitat
Graptemys geographica	Northern Map Turtle	SC	SC	S3	OHA	Rivers and lakeshores with emergent rocks and trees for basking. Habitat must contain suitable basking sites, such as rocks and deadheads, with an unobstructed view. Hibernate on the bottom of deep, slow moving sections of river. Require high quality water that supports the female's mollusc prey.	N	Unsuitable Habitat	N
Microtus pinetorum	Woodland Vole	SC	SC	S3?	MWH	Mature deciduous forest in the Carolinian forest zone, with loose sandy soil and deep humus; grasslands, meadows and orchards with groundcover of duff or grass.	Y	Within Range and Suitable Habitat	N
Scalopus aquaticus	Eastern Mole	SC	SC	S2	MWH	Forests, open woodlands, meadows, pastures and fields. Urban settings such as parks, cemeteries and residential yards. Prefers stone-free sand and sandy-loam soil with a cover of woody plants.	Y	Within Range and Suitable Habitat	N
Arisaema dracontium	Green Dragon	---	SC	S3	NHIC	Somewhat wet to wet deciduous forests along streams, particularly maple forest and forest dominated by Red Ash and White Elm trees.	N	Outside Range	N

1 – Status identified by the Committee on the Status of Endangered Wildlife in Canada under the federal SARA, 2002; 2 – SAR in Ontario List under the provincial ESA, 2007; 3 – Ontario SRank; S5 = secure; S4= apparently secure; S3 = vulnerable; S2 = imperiled; SX = Extirpated; SH = Possibly Extirpated; SNA = non-native or exotic species to Ontario; 4 – NHIC = MNRF Natural Heritage Information Centre, MNRF SAR in Area = MNRF Species at Risk in Ontario List by area of the province; MNRF Reg. Habitat = MNRF Regulated Habitat (O. Reg. 242/08); MNRF Consult. = MNR Consultation, OBBA = Ontario Breeding Bird Atlas, MWH = Digital Distribution Maps of the Mammals of the Western Hemisphere, version 3.0, OHA = Ontario Herpetofaunal Atlas, OOA = Ontario Odonata Atlas; OBA = Ontario Butterfly Atlas; CBC = Christmas Bird Count, DFO = Fisheries and Oceans Canada Aquatic SAR Mapping (2019); 5 – MNRF Significant Wildlife Technical Guide - Appendix G (2000).

Attachment C

Attachment C: Site Photos

Photo 1: Maintained open pasture in the south portion of the Study Area (facing northeast).	
Photo 2: Agricultural pond within the southern portion of the Study Area (facing east).	

Photo 3: Meadow habitat along Talbot Creek with open pasture in the background (facing south).	
Photo 4: Deciduous forest adjacent to open pasture in the northern portion of the Study Area (facing northeast).	

Photo 5: Open pasture with agricultural infrastructure in the background within the northwest portion of the Study Area (facing northwest).	
Photo 6: Talbot Creek within the western portion of the Study Area and meadow riparian habitat (facing northeast).	

Photo 7: Talbot Creek within the western portion of the Study Area. Abundant in-stream vegetation including Reed Canary Grass and Rushes (facing northeast).	

Photo 8: Typical evidence of recent bank erosion along Talbot Creek within the Study Area (facing east).	
Photo 9: Pool habitat in Talbot Creek within the eastern portion of the Study Area (facing east).	

Photo 10: Meander bend along Talbot Creek within the northeastern portion of the Study Area (facing northeast).	

Appendix 4

Stage 1 Archaeological Assessment

FISHER ARCHAEOLOGICAL CONSULTING

SHEDDEN AND FINGAL MASTER SERVICING PLAN
PART LOT 16, SE TALBOT ROAD N BRANCH
SOUTHWOLD TOWNSHIP, ELGIN COUNTY, ONTARIO

ARCHAEOLOGICAL STAGE 1: BACKGROUND STUDY
FINAL REPORT

Part Lot 16, SE Talbot Road N Branch
Southwold Township, Elgin County, Ontario

PIF# 115-0056-2020
9 June 2020

SHEDDEN AND FINGAL MASTER SERVICING PLAN
PART OF LOT 16, SE TALBOT ROAD N BRANCH
SOUTHWOLD TOWNSHIP, ELGIN COUNTY, ONTARIO

ARCHAEOLOGICAL STAGE 1: BACKGROUND STUDY

FINAL REPORT
(Original)

Property Location:
Part of Lot 16, SE Talbot Road N Branch
Southwold Township, Elgin County, Ontario

Submitted to:
Ontario Ministry of Heritage, Sport, Tourism, and Culture Industries

&

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PIF No.: P115-0056-2020
(PIF is valid)

9 June 2020

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

SHEDDEN AND FINGAL MASTER SERVICING PLAN
PART OF LOT 16, SE TALBOT ROAD N BRANCH
SOUTHWOLD TOWNSHIP, ELGIN COUNTY, ONTARIO

ARCHAEOLOGICAL STAGE 1: BACKGROUND STUDY

EXECUTIVE SUMMARY

Fisher Archaeological Consulting (FAC) was retained by Dillon Consulting Limited to undertake the Archaeological Stage 1: Background Study for the Shedden and Fingal Master Servicing Study, Township of Southwold, County of Elgin, Ontario. The purpose of the overall project is to build a new water treatment plant for the villages of Shedden and Fingal. This study is one component of a Municipal Class Environmental Assessment.

The Study area is situated within Lot 16, SE Talbot Road N Branch Concession. It is 1.5 ha in size and is currently within a farm field on the east side of Union Road; it is south of a farm complex at number 9184 and north and east of Talbot Creek. The topography is generally flat except for a gentle slope down to the level of Talbot Creek. There are no standing structures in the Study Area.

The background research indicates that the Study Area has a high potential for Indigenous archaeological resources based on proximity to Talbot Creek, which runs along the southeast edge of the Study Area. In addition, the potential for Euro-Canadian archaeological resources is judged to be high based on the proximity to Union Road, which was converted to a corduroy road in 1820, and on the proximity to Talbot Creek.

Therefore, FAC recommends the following:

1) That the Study Area as indicated on ***Figure 7*** has archaeological potential and is recommended for further archaeological work (Stage 2: Assessment) by pedestrian survey at a five metre interval as described in the *Standards and Guidelines* **Section 2.1.1** (MHSTCI 2011). If ploughing for pedestrian survey is not feasible due to slope, vegetation or proximity to Talbot Creek, these portions of the Study Area should be assessed by shovel testing at a five metre interval as described in the *Standards and Guidelines* **Section 2.1.2** (MHSTCI 2011).

SHEDDEN AND FINGAL MASTER SERVICING PLAN
PART OF LOT 16, SE TALBOT ROAD N BRANCH
SOUTHWOLD TOWNSHIP, ELGIN COUNTY, ONTARIO

ARCHAEOLOGICAL STAGE 1: BACKGROUND STUDY

FINAL REPORT

1.0 PROJECT CONTEXT

The following is a Stage 1 report, prepared for review by the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI). Archaeological consultants, licensed by the Ministry, are required to follow the *Standards and Guidelines for Consultant Archaeologists* (MHSTCI 2011) during land use planning as part of the evaluation of cultural heritage resources. This includes reporting all findings to MHSTCI. There are four stages for archaeological work — Stages 1 to 4.

Stage 1 — Background research and Property Inspection. The purpose of the Stage 1 archaeological study is two-fold. Firstly, it is to determine the potential for the presence of as yet undocumented cultural heritage resources, and secondly, to determine whether known cultural heritage resources are extant on the subject land(s).

Stage 2 — Field work. Stage 2 is the actual field examination of high potential areas, and involves either surface survey of ploughed fields or shovel testing in areas that are undisturbed or cannot be cultivated.

Stage 3 — Testing. The purpose of the Stage 3 is to ascertain the dimensions of the site, its cultural affiliation (if possible), and to evaluate its significance. If the site in question is determined to be archaeologically significant, then appropriate mitigation measures will be decided upon.

Stage 4 — Mitigation. Stage 4 involves the mitigation of the development impacts to the archaeological site through either site excavation or avoidance (preservation).

Stage 1 determines the amount of Stage 2 work required. Stage 2 determines if Stage 3 is warranted, and Stage 3, in turn, determines if the archaeological resources are significant and warrant proceeding to Stage 4, either a full excavation or avoidance. This report solely relates to Stage 1 of this archaeological process.

All work was conducted under archaeological licence P115. The Stage 1: Background Study work pertains to project information number (PIF) P115-0056-2020.

1.1 Development Context

Fisher Archaeological Consulting (FAC) was retained by Dillon Consulting Limited to undertake the Archaeological Stage 1: Background Study for the Shedden and Fingal Master Servicing Study, Township of Southwold, Ontario (***Figure 1 and 2***). The archaeological component belongs to the Municipal Class Environmental Assessment for this project.

The Study Area encompasses a locale proposed for a wastewater treatment plant that will serve the Settlement Areas of Shedden and Fingal in the Township of Southwold. A location in between the two settlements has been chosen, and this land is currently owned by the Township. The Study Area is 1.5 ha in size and includes the proposed spatial envelope of the treatment plant and an additional space for access from Union Road (***Figure 3***). A development plan will be created as part of the detailed design work for this project. It is situated on Lot 16, SE Talbot Road N Branch Concession. In this area, lots and

concessions follow the shoreline of Lake Erie, and so concession lines are oriented in a northeast-southwest direction. In this report, grid north is True north, and since the survey lines are skewed, the corners of the Study Area are referred to by their cardinal direction (the north corner, the west corner...).

1.2 Archaeological Context

The Study Area is located within a farm field on the east side of Union Road, south of a farm complex at number 9184 Union Road, and north and east of Talbot Creek. The topography is generally flat except for a small slope down to the level of Talbot Creek. A dugout pond is in the south corner of the field outside of the Study Area. There are no standing structures in the Study Area.

The following discussion details the environmental and cultural setting of the research area, with further historical details presented in ***Section 1.3 Historical Context***. There are a number of environmental factors such as water sources, soil types, physiographic features, and vegetation that influence the archaeological potential of an area; these factors are discussed in detail below. This provides a framework for conducting the archaeological potential survey.

1.2.1 Physiographic Features

The topography of southern Ontario has been influenced primarily by glacial and post-glacial actions. The Lake Erie Basin, in which the Study Area is located, has been shaped and re-shaped by these glacial events. The Late Wisconsin ice sheet covered the area, as well as most of southern Ontario, until around 17,000 B.P. when it started to retreat, forming many pro-glacial lakes at the ice sheet margins (Morgan *et al*. 2000: 9). During the Port Bruce Stade of around 15,000 to 14,500 years ago, there was another glacial advance and much of Ontario was again under ice. It was during the Port Bruce timeframe that a series of the glacial lakes was initiated on the ice free margins of southwestern Ontario (Karrow and Warner 1990: 8-9).

The Study Area is located in the Ekfrid Clay Plain physiographic region. This clay plain is derived from the lake bottom sediments of proglacial Lakes Warren and Whittlesley and includes the area of silt sediment near Fingal, including the Study Area (Chapman and Putnam 1984: 28, 146-147). The ground surface in this region is fairly level. Soils are very calcerous and easy to till, although slow to drain. Most of the land surface has been cleared for agriculture, and as of the mid-1980s only 7% of the land in the immediate area was woodlot (Chapman and Putnam 1984: 147).

1.2.2 Bedrock and Soils

Bedrock in the Study Area belongs to the Middle Devonian Dundee Formation; a limestone (OGS 1995). The soils in the north part of Study Area are Tuscola silt loam, a deep medium textured soil derived from lacustrine sources containing layers of fine to very fine textured material. It is imperfectly drained (Schut 1992). This soil was classified as Haldimand Silt Loam in the 1929 soil survey of Elgin County (OAC 1929). In the south part of the Study Area are Valley Complex soils composed of undifferentiated material with a variable texture and drainage (Schut 1992).

Generally, a preference for settlement sites would be on well-drained soils, rather than poor ones such as clay or muck soils. However, soil type cannot be used as the sole criterion for predictive modelling of site locations, as has been observed through archaeological survey and excavation.

1.2.3 Water Sources and Vegetation

Proximity to water sources is a key criterion for considering archaeological site potential. The availability of water is crucial to settlement viability, varied resource procurement, and transportation. A property located within 300 metres of a water source is considered of high archaeological potential in the *Standards and Guidelines* (MHSTCI 2011: **Section 1.4.1** Standard 1 cii).

The Study Area lies immediately north of Talbot Creek, a permanent watercourse that flows toward the southwest and Lake Erie. It is not a navigable waterway.

A region's natural vegetation, both past and present, has significant bearing on its archaeological potential. Diverse floral communities attract a variety of fauna, and the plants themselves are an important resource for food, shelter, and materials for everyday life.

The Study Area is located within the Deciduous Forest Region of Canada, and the pre-settlement forest type is classified as Southern Hardwood, also known as the Carolinian Forest. Characteristic tree species once found more commonly in the Carolinian Forest included flowering dogwood, tulip tree, paw paw, sassafras, wild crab apple, black walnut, pignut hickory, chestnut, red mulberry, cucumber tree, Kentucky coffee tree, redbud, black gum, blue ash, black oak, pin oak, swamp white oak, and sycamore (Hosie 1979:21).

During the initial land surveys of Upper Canada in the late 18th and early 19th century, surveyors noted the predominant tree cover in each lot as it was surveyed. Lot 16, which contains the Study Area was covered in a Maple-Beech forest (Findlay 1973). Ermatinger (1904:3) likewise noted that tree species included "Beech and maple, oak, ash and stately elm, walnut and butternut, chestnut and hickory ... pine, spruce, tamarac [sic] and hemlock."

1.2.4 Lithic Sources

Sources of siliceous stone, primarily chert, for making tools were often focal areas for pre-contact Indigenous peoples. If locally unavailable, chert would have been transported from other regions.

There are no known chert sources within the immediate vicinity of the Study Area; the closest is an outcrop of Kettle Point chert, approximately 75 kilometres to the northwest on the shore of Lake Huron. Further to the east of the Study Area, Onondaga, Bois Blanc, and Dundee Formation cherts outcrop between Long Point and the Niagara River along the north shore of Lake Erie (Eley and von Bitter 1989). Other sources in the Great Lakes region of the United States would have been easily accessible to people with well-developed transportation and trade routes. Central Ohio in particular is notable for sources of high-quality chert (Mullett 2009: 8).

1.2.5 Registered Archaeological Sites

Indigenous peoples have inhabited Southern Ontario for over 11,000 years, and there is potential to find evidence of the earliest groups (Paleo) through to the post-European contact period in the current Study Area.

FAC conducted a search of the MHSTCI Ontario Archaeological Sites Database (OASD) for registered archaeological sites within one kilometre of the Study Area which returned a null result. This is probably more reflective of a lack or research or development driven assessment in the region, than a lack of human presence in the landscape of the past.

1.2.6 Previous Archaeological Work

FAC performed a search of OASD for archaeological reports within 50 metres of the Study Area using the MHSTCI report database, using the identifiers of lot and concession. This search returned zero results.

1.3 Historical Context

1.3.1 Indigenous History

Indigenous peoples have inhabited Southern Ontario for over 11,000 years, and there is potential to find evidence of the earliest settlement (the Early and Late Palaeo periods) through to the post-Contact period.

The earliest recognized group inhabiting Ontario were Palaeo peoples who depended upon hunting and foraging of wild foods in order to survive. They would have moved their camps on through the seasons to areas that provided resources as they became available. The size of the groups of people would in part depend upon the size and nature of those resources available at a particular location (Ellis and Deller 1990: 52). People would have gathered or dispersed through the year depending on the availability of resources and social constraints. At this time, the predominant vegetation was spruce parkland/woodland which later gave way to pine forests, and their limited productivity would have necessitated frequent moves and a large range of territory in order acquire adequate resources.

The transition from the Paleo to the Archaic period in southern Ontario occurred ca. 10,000 B.P.; this subsequent period lasted substantially longer than the Palaeo-period until ca. 2,800 B.P. Archaeological evidence indicates that Indigenous peoples were subsisting in smaller territories than the former Paleo-peoples, thereby becoming more regionalised. Their population was increasing, probably due to the more reliable food resources as well as greater biodiversity in these resources.

The Archaic is commonly divided into three periods: Early (10,000 - 8,000 B.P.), Middle (8,000 - 4,500 B.P.), and Late (4,500 - 2,800 B.P.) (Ellis *et al*. 2009). Early Archaic lifeways were generally similar to those of the Paleo period, adapting to the changing climate and vegetation. Subsistence practices began to shift during the Middle Archaic, with netsinkers, bannerstones, and groundstone tools becoming more common on sites of this period (Ellis *et al.* 1990: 81). By the latter part of the Middle Archaic, a trend toward distinct regional distributions of artifacts becomes apparent in the archaeological record. This probably reflects that culturally distinctive Indigenous groups were settling into specific territories. As well, there is the earliest evidence of people using native copper.

The designation of the Late Archaic is based on a number of factors from the archaeological record. Changes in the Late Archaic include the development of new mortuary practices through the use of cemeteries, and the expansion of previously-existing trade networks to include more exotic materials (Ellis *et al*. 1990: 120). There was the earliest evidence of fish weirs and cemeteries, and even smaller seasonal foraging rounds than during the previous Middle Archaic. The Late Archaic is further subdivided based on factors such as temporal constraints and projectile point styles. The styles present in the Late Archaic were the Narrow, Broad, and Small Points, each one used for a period of a few hundred years before giving way to the next type. By the end of the Late Archaic, the water levels of the Great Lakes were essentially modern. The north shore of Lake Erie, where the Study Area is located, would have a been a prime area of settlement at this time.

One of the major differences between the Late Archaic and Early Woodland (800 to *ca.* 450 BCE) in the archaeological record of southern Ontario was the appearance of pottery. By the time of the Middle Woodland, there was a major shift in the way people settled the landscape and procured foods. It is at this time (450 BCE to 700 CE) that people were making fish a more important aspect of their diet, although hunting and foraging were still key sources of food and materials. As a consequence, rich and large sites began to appear on river valley floors. The sites were inhabited periodically for sometimes hundreds of years, and represented a warm season macroband base camp, to take advantage of spawning fish. People kept returning to particular fish spawning grounds, and became more reliant on this resource. People were becoming more sedentary and had a restricted band territory, compared to the people of the Archaic.

When exactly the Late Woodland began and the Middle Woodland ended has been debated by archaeologists, but the designation has been based on a number of material distinct differences from the Middle Woodland. Differences include new settlement and subsistence strategies, a new type of pottery construction, different pottery decorating techniques, and a variety of projectile point forms. Based on these characteristics, it is generally felt that the Late Woodland period began at around 800 CE and continued until 1650 CE, after which the time frame is designated as post-contact period.

During the Late Woodland period, the Study Area lay in a region inhabited by peoples of the Ontario Iroquoian Tradition, who lived in a broad area along the north shores of Lake Erie and Lake Ontario, extending up to the southern shore of Georgian Bay and the southern limit of the Canadian Shield. Around 1200 CE, a cluster of Iroquoian villages was established 20 km north and northeast of the Study Area in the Thames valley (Dodd *et al*. 1990), these communities persisted for three centuries up until the middle of the 16th century(Pearce 1984; Lennox and Fitzgerald 1990). By this time, villages in the region are recognized as being ancestral to the Attawandaron, the Neutral Confederacy. Notable settlements include the Southwold village, located 6.5 km south of the Study Area (see **Section 1.3.6** below). After *ca*. 1550 CE, the ancestral Neutral withdrew east to the Grand River valley and Niagara Peninsula, the region surrounding the Study Area was depopulated, situated as it was between two established territories, that of the Neutral Iroquoians to the east, and that of the Central Algonquian Western Basin Tradition to the west (Murphy and Ferris 1990, Ferris 2009:33).

Early in the 17th century, Indigenous peoples in the Great Lakes region made contact with European peoples and a period of great turmoil began, characterized by epidemics of infectious diseases, warfare among Indigenous confederacies and between Indigenous peoples and the European powers who were establishing colonies on the Atlantic seaboard and St. Lawrence valley (Trigger 1985). The north shore of Lake Erie was repopulated by Anishinabeg people in the late 17th century, continuing into the 18th century. These are the direct ancestors of the contemporary Anishinabeg, who settled in this region (Ferris 2009), and who treated with the British after Britain defeated France in the Seven Years War and then lost the Atlantic colonies in the American Revolution (Surtees 1994).

Treaty 11, sometimes known as McKee's Purchase was negotiated in 1793. Through this treaty, the British acquired lands on the south shore of Lake Erie from the "Ottawa, Chippewa, Potawatomie and Huron Nations of Detroit," who at that time mostly lived west of the Detroit River (Surtees 1994: 108).

1.3.2 History of the Talbot Settlement, Shedden and Fingal

In 1804, Colonel Thomas Talbot, a former personal assistant to Lieutenant Simcoe, was granted 5,000 acres of land at Port Talbot on the north shore of Lake Erie, which marked the beginning of the Talbot Settlement (Coyne 1908:31-32). One of Talbot's major aims was the construction of a reliable road network in the lands north of Lake Erie, with the main Talbot Road extending from Long Point to Sandwich (Coyne 1908: 37), as well as secondary roads that would allow the interior to be settled.

Talbot was active initially in building the Talbot Road and placing settlers on lots closer to Lake Erie (Ermatinger 1904:32-38). By 1811, his focus shifted to land further north, and Mahlon Burwell surveyed the Talbot Road North Branch, also known as "the Back Street," and new lots were laid out on either side (Ermatinger 1904:91). Settlers continued to flow in during the first part of the 19th century and small settlements began to coalesce. Shedden was initially known as "Wilkie's Corners," and a saw mill and pottery were built in 1819 where Talbot Road North Branch and Union Road met (Clark and Vicary 1979:99). The Back Street and Union Road were converted to corduroy roads in 1820, and by 1840 a school, two blacksmiths' shops, general store, tannery, and other "cottage" industries were present (Clark and Vicary 1979:100). The community was renamed "Corseley" in the 1860s, and finally "Shedden" in 1871 when the Canada Southern Railway was constructed through the settlement (Clark and Vicary

1979:102-103). Fingal was surveyed into village lots 1830 and a tavern and general store were soon built (Page 1877). A threshing machine factory was established in 1848 (Ermatinger 1904:125).

1.3.3 Study Area History

This section provides a detailed description of the sources utilised in determining the previous land use of the Study Area. A summary of the information gathered from the visual images consulted is presented in **Table 1**. These sources include historic maps, topographic maps, and aerial imagery. Knowing the former land uses aids determination of archaeological potential for Pre- and Post-Contact human habitation of the Study Area.

Table 1
Summary of Visual Records Examined

Source	Year	Comments
Delaware Township Mahlon Burwell Ontario Archives F 501-1-0-0-6	1810	- Lots and Concessions laid out north and south of Talbot Road North - Lot 16 SE granted to Will'm [William] [Waugh?]
A map of the province of Upper Canada, describing all the new settlements, townships, &c. Sir David William Smyth	1813	- Bounds of Southwold Township shown - Township still within Middlesex County - Talbot Road passes from Port Talbot, through the Township to Yarmouth - Mouth of Kettle Creek labelled
North Branch of Talbot Road Mahlon Burwell Ontario Archives F 501-1-0-0-34	1816-1819	- Lots and Concessions laid out north and south of Talbot Road North - Lot 16 SE granted to Will'm [William] [Waugh?]
Upper Canada &c. John Arrowsmith	1833	- Two roads through Southwold Township: one along the lakeshore, one between Port Talbot and St. Thomas
Upper Canada Henry Schenck Tanner Scale 1:2,000,000	1842	- Talbot Road shown connecting Port Talbot to St Thomas - Parallel road present north of Talbot Road
West Canada John Tallis & Company	ca.1851-1854	- Talbot Road shown connecting Port Talbot to Port Stanley through Southwold Township
Canada West or Upper Canada J.H. Colton & Co.	1855 or 1856	- Port Stanley the terminus of a N-S line - Unlabelled dot for Fingal shown along the (also unlabelled) Talbot Road
Upper Canada Theodor Ettling Scale 1:2,000,000	1860	- Road layout does not seem to match previous maps - Fingal and Port Stanley both present - Port Stanley the terminus of a N-S line through London to Stratford
Ontario or province of Upper Canada, describing all the new settlements, townships, &c. James Wyld Scale 1:1,440,000	ca.1872	- Fingal shown in the middle of Southwold Township, not connected by any roads - Additional large creek shown through Southwold Township between Port Talbot and Kettle Creek

Source	Year	Comments
Southwold Township, In *Illustrated Historic Atlas of Elgin County, Ontario* H.R. Page & Co. Scale 50 Chains to the inch ***Figure 5***	1877	- Lot 16 west half, owned by Abraham Waugh, farmhouse and orchard are shown at the north end of the lot near Shedden, away from the Study Area - no structures shown near Study Area
Railroad and county map of Ontario George F. Cram Company Scale 1:1,238,000	ca.1880	- Shedden a stop on an E-W railway line - Fingal shown as a large settlement, not connected to railway
Port Stanley. NTS map 40i11, 1st edition Scale 1:63,360 ***Figure 6a***	1910	- Study Area is an agricultural field - Farmstead immediately north of the Study Area is depicted - Talbot Creek is immediately south of the Study Area
Port Stanley. NTS map 40i11, 1st edition revised Scale 1:63,360	1920	- no changes from previous map
Port Stanley. NTS map 40i11, 1st edition revised Scale 1:63,360	1933	- no changes from previous map
Port Stanley. NTS map 40i11, 2nd edition Scale 1:63,360	1948	- no changes from previous map
Air photo 426.812 University of Toronto Library	1954	- Study Area is an agricultural field, no structures are present, farmstead is present to the north, the only trees in the Study Area are those growing on the margin of Talbot Creek
Fingal NTS map 40i11g, 1st edition Scale 1:25,000 ***Figure 6b***	1971	- dugout pond at south end of Study Area is present
Port Stanley NTS map 40i11, 7th edition Scale 1:50,000 ***Figure 1***	1990	- no changes from previous map
Google Earth, image	30/12/ 2006	- Study Area is in pasture, dugout pond is present
Google Earth, image	14/08/ 2008	- no changes from previous image
Google Earth, image	27/09/ 2013	- no changes from previous image
Google Street View, image	09/2014	- Study Area is in pasture, the difference in elevation between the north part and south parts of the field is apparent, grass is longer on the slope between the two, dugout pond is present

Source	Year	Comments
Google Earth, image	22/10/ 2015	- no changes from previous Google Earth image
Southwestern Ontario Orthophotography Project (SWOOP) Elgin County Interactive mapping ***Figure 2***	2015	- no changes from previous image
Google Earth, image	2/07/ 2018	- no changes from previous image

Lot 16 SE Talbot Road N Branch was patented to a settler possibly named Waugh. By 1879, a probable descendant, Abraham Waugh, is listed as the owner of the lot. At that time, the farmhouse and farm complex were located at the north end of the lot, away from the Study Area. By 1910, a farmhouse immediately north of the Study Area had been established. Maps and an aerial photograph record few changes over the following decades of the 20th century. By 1971, a dugout pond had been excavated south of the Study Area, and maps and images from later years show no changes to the Study Area. The farm field has consistently been in pasture. Google Street View shows a gentle "step" in the Study Area, where the land surface slopes down to the level of Talbot Creek. This sloped "step" is distinct from the patterns of the pastured field above and below. There is no obvious spoil heap or dump of soil from the excavation of the dugout pond.

1.3.4 Historic Plaques

A search of Ontario historical plaques located within one kilometre of the Study Area revealed no results, and no other plaques were found relating to the history of the Study Area or to the history of Shedden or Fingal (OHP 2020). There are no buildings with heritage status in the vicinity of the Study Area. There is no archaeological management plan for Elgin County or Southwold Township.

The nearest historic plaque is for Southwold Earthworks National Historic Site, located 6.5 km south of the Study Area. This Parks Canada managed property was an Indigenous village inhabited by members of the Attawandaron (the Neutral Confederacy) *circa* CE 1500, and it features an earthwork ring surrounding the settlement (Parks Canada 2019).

2.0 ANALYSIS AND CONCLUSIONS

Mapping and aerial imagery indicate that the Study Area is uniform in its land use and vegetation cover. No change in land use has been noted since the 19th century. Adequate recommendations for the Study Area can be made without reference to results from a property inspection (*Standards and Guidelines* **Section 1.2**). For these reasons, a property inspection was judged to not be necessary.

2.1 Analysis of Archaeological Potential

The information presented above is considered when determining the archaeological potential of the Study Area. The *Standards and Guidelines* (MHSTCI 2011) ***Sections 1.3.1*** and ***1.4.1*** indicate that the following features or characteristics indicate archaeological potential:

- Previously-identified archaeological sites
- Water sources
    - Primary water sources (lakes, rivers, streams, creeks) ✓
    - Secondary water sources (intermittent streams/creeks, springs, marshes, swamps)

- Features indicating past water sources
- Accessible or inaccessible shorelines

- Elevated topography (drumlins, plateaux, dunes)
- Pockets of well-drained sandy soil
- Distinctive land formations (waterfalls, caves)
- Resource areas
  - Food or medicinal plants (migratory routes, spawning areas) ✓(probable)
  - Scarce raw materials (copper, chert outcrops)
  - Early Euro-Canadian industry (fur trade, logging, prospecting)
- Early historic transportation routes (roads, rail, portages) ✓
- Areas of early Euro-Canadian settlement ✓
- Property listed on a municipal register or designated under the Ontario Heritage Act or that is a federal, provincial, or municipal historic landmark or site
- Property that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations

Archaeological potential for Indigenous sites is based on environmental factors such as distance to water and soil type, and proximity to known sites and features (such as trails or specific resources). The background research indicates that the Study Area has a high potential for Indigenous archaeological resources based on proximity to Talbot Creek, which runs near the south and east edges of the Study Area.

Archaeological potential for Euro-Canadian sites is based on the examination of historical records to determine any relationship to areas of early Euro-Canadian settlement, historic transportation routes, and known sites and features, in addition to the environmental factors. Potential for Euro-Canadian archaeological resources was judged to be high based on the proximity to Union Road, which was converted to a corduroy road in 1820, and the due to the presence of the creek.

3.0 FINAL RECOMMENDATIONS

Therefore, FAC recommends the following:

1) That the Study Area as indicated on ***Figure 7*** has archaeological potential and is recommended for further archaeological work (Stage 2: Assessment) by pedestrian survey at a five metre interval as described in the *Standards and Guidelines* **Section 2.1.1** (MHSTCI 2011). If ploughing for pedestrian survey is not feasible due to slope, vegetation or proximity to Talbot Creek, these portions of the Study Area should be assessed by shovel testing at a five metre interval as described in the *Standards and Guidelines* **Section 2.1.2** (MHSTCI 2011). The dugout pond indicated on ***Figure 7*** does not have archaeological potential and does not need to be assessed.

4.0 ADVICE ON COMPLIANCE WITH LEGISLATION

Standard 1

a) This report is submitted to the Minister of Culture as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and

preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism and Culture, a letter will be issued by the minister stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

b) It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has complete archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

c) Should previously undocumented archaeological resources be discovered, there may be an archaeological site present, and therefore be subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48(1) of the *Ontario Heritage Act*.

d) The Cemeteries Act, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, c.33requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries, Ministry of Government and Consumer Services (416 212-7499).

Standard 2

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence.

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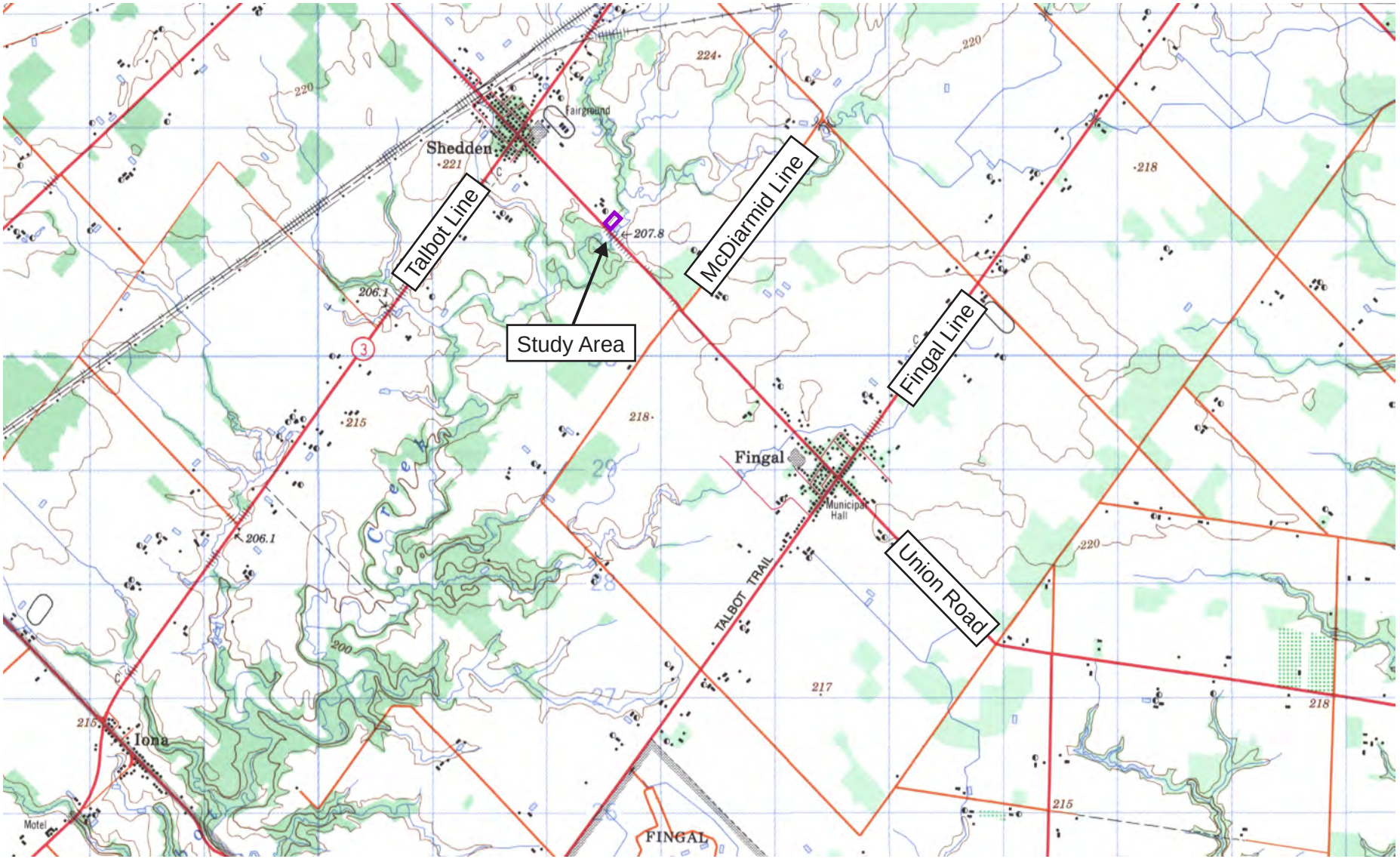


National Topographic System 40i11 7th Ed. 1990

FAC

Date: 11/02/20

Designer: NJW

KEY

Study Area

N

Scale

0 2 km

SHEDDEN & FINGAL MASTER SERVICING PLAN
Archaeological Stage 1: Background Study

Figure 1: Study Area Location and Topography

Source: Elgin County interactive mapping. Base image: SWOOP 2015

FAC

Date: 8/06/20

Designer: JM

KEY

Study Area

N

0 Scale 100 m

SHEDDEN & FINGAL MASTER SERVICING PLAN
Archaeological Stage 1: Background Study

Figure 2: Aerial View of the Study Area

TOWNSHIP OF SOUTHWOLD
Shedden and Fingal Servicing Master Plan

Study Area
Figure 1

Study Area
Watercourse

0 25 50 75 m 1:1,600

2

MAP DRAWING INFORMATION:
ESRI IMAGERY

MAP CREATED BY: SFG
MAP CHECKED BY: DM
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

FILE LOCATION: C:\Users\10EJV\Desktop\Project Location Shedden.mxd

DILLON CONSULTING

PROJECT: 191793
STATUS: DRAFT
DATE: 2020-06-04

FAC
Date: 8/6/20
Designer: JM

KEY

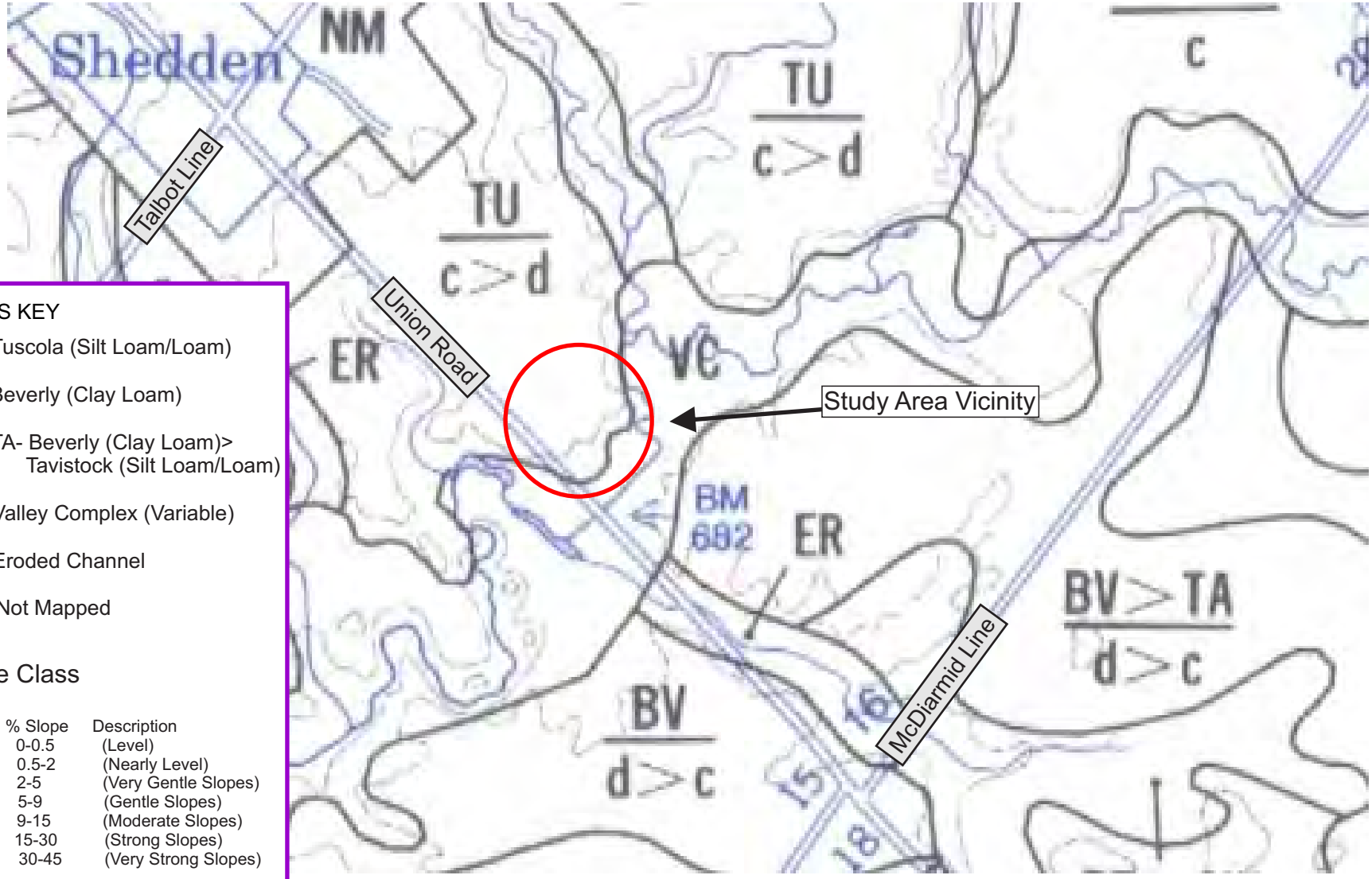
Archaeological Stage 1 Study Area

N

Scale
0 100 m

SHEDDEN & FINGAL MASTER SERVICING PLAN
Archaeological Stage 1: Background Study

Figure 3: Location of Study Area Provided by Proponent



SOILS KEY

TU- Tuscola (Silt Loam/Loam)

BV- Beverly (Clay Loam)

BV>TA- Beverly (Clay Loam)> Tavistock (Silt Loam/Loam)

VC- Valley Complex (Variable)

ER- Eroded Channel

NM- Not Mapped

Slope Class

Class	% Slope	Description
A	0-0.5	(Level)
B,b	0.5-2	(Nearly Level)
C,c	2-5	(Very Gentle Slopes)
D,d	5-9	(Gentle Slopes)
E,e	9-15	(Moderate Slopes)
F,f	15-30	(Strong Slopes)
G,g	30-45	(Very Strong Slopes)

Soils of Elgin County, Central Townships, Ontario. Sheet 2, Soil Volume Report No. 63. Agriculture Canada, 1993.

FAC

Date: 02/18/20

Designer: NJW

KEY

Study Area Vicinity

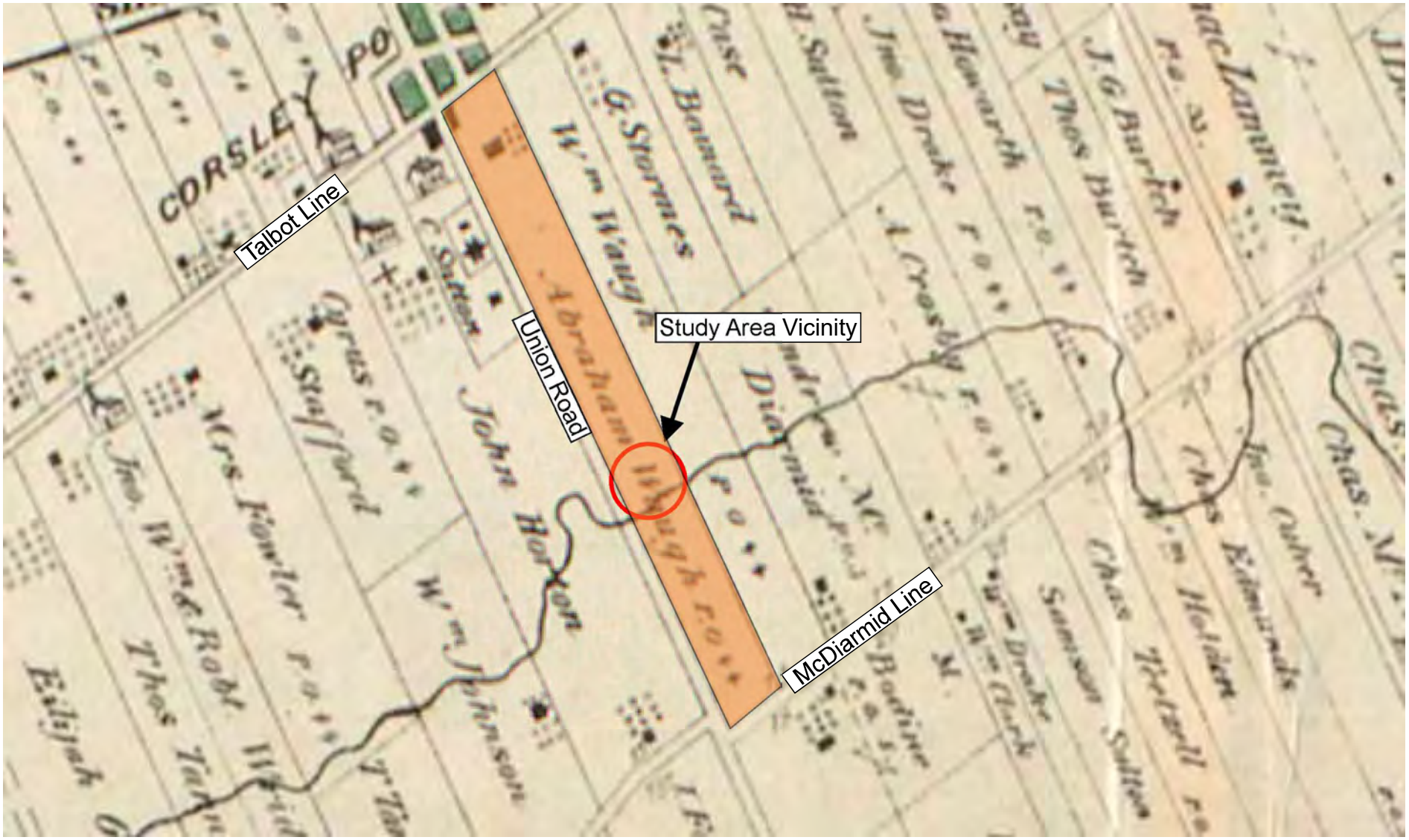
N

Scale

0 1km

SHEDDEN & FINGAL MASTER SERVICING PLAN
Archaeological Stage 1: Background Study

Figure 4: Soils in the Vicinity of the Study Area



FAC

Date: 18/02/20

Designer: NJW

KEY

Study Area Vicinity

Lot 16 (SE of Talbot Line N Branch)

N

Scale

0 500 m

SHEDDEN & FINGAL MASTER SERVICING PLAN
Archaeological Stage 1: Background Study

Figure 5: 1877 Illustrated Historic Atlas, Southwold Township

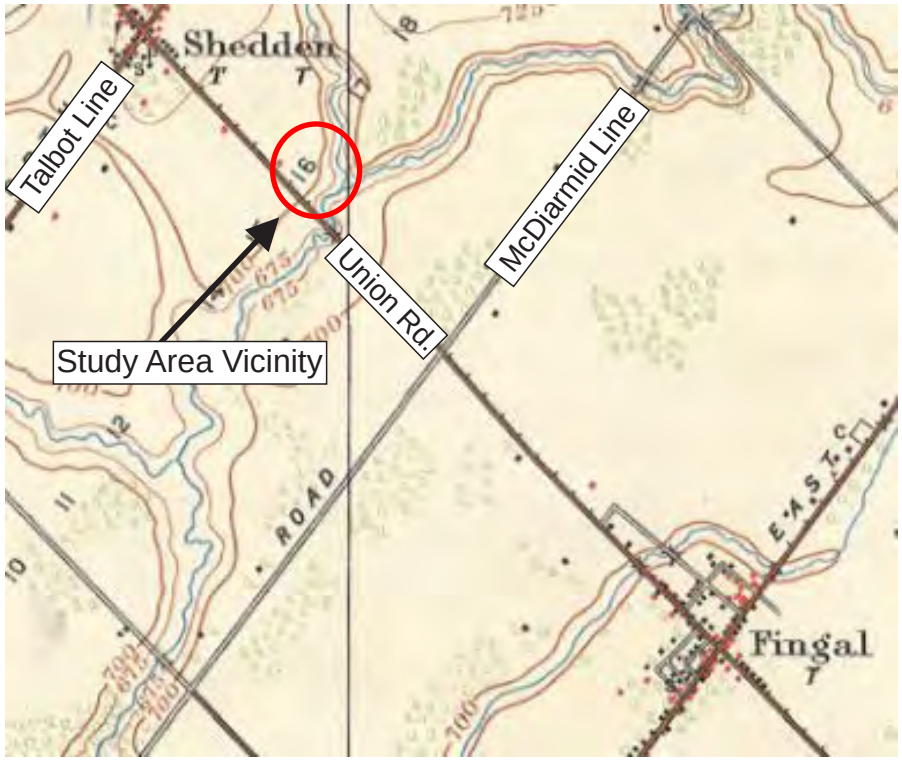


Fig 6a: 1910 NTS map 1:63,360

Scale
0 1 km

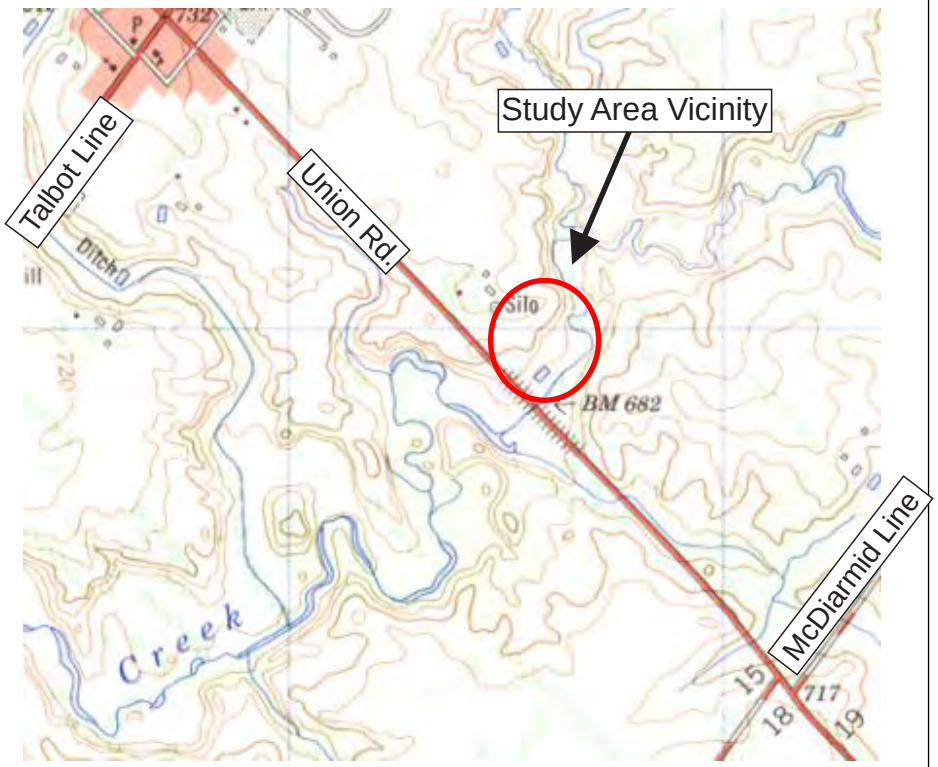


Fig. 6b: 1971 NTS map 1:25,000

Scale
0 500 m

FAC

Date: 18/02/20

Designer: NJW

KEY

Study Area Vicinity

N

SHEDDEN & FINGAL MASTER SERVICING PLAN
Archaeological Stage 1: Background Study

Figure 6: Superceded Topographic Maps

Source: Elgin County interactive mapping. Base image: SWOOP 2015

FAC

Date: 8/06/20

Designer: JM

KEY

Study Area

High Archaeological Potential
& Further Archaeological Work Recommended

N

Scale 0 100 m

SHEDDEN & FINGAL MASTER SERVICING PLAN
Archaeological Stage 1: Background Study

Figure 7: Archaeological Potential and Stage 1 Recommendations

Appendix 5

MHSTCI Built Heritage Checklist

Ontario

Ministry of Tourism, Culture and Sport

Programs & Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7

Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes

A Checklist for the Non-Specialist

The **purpose of the checklist** is to determine:

- if a property(ies) or project area:
    - is a recognized heritage property
    - may be of cultural heritage value
- it includes all areas that may be impacted by project activities, including – but not limited to:
    - the main project area
    - temporary storage
    - staging and working areas
    - temporary roads and detours

Processes covered under this checklist, such as:

- *Planning Act*
- *Environmental Assessment Act*
- *Aggregates Resources Act*
- *Ontario Heritage Act* – Standards and Guidelines for Conservation of Provincial Heritage Properties

Cultural Heritage Evaluation Report (CHER)

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person(s) (see page 5 for definitions) to undertake a cultural heritage evaluation report (CHER).

The CHER will help you:

- identify, evaluate and protect cultural heritage resources on your property or project area
- reduce potential delays and risks to a project

Other checklists

Please use a separate checklist for your project, if:

- you are seeking a Renewable Energy Approval under Ontario Regulation 359/09 – separate checklist
- your Parent Class EA document has an approved screening criteria (as referenced in Question 1)

Please refer to the Instructions pages for more detailed information and when completing this form.

Project or Property Name

Shedden and Fingal Wastewater Strategy

Project or Property Location (upper and lower or single tier municipality)

Township of Southwold, Elgin County

Proponent Name

Township of Southwold

Proponent Contact Information

Lisa Higgs, CAO/Clerk, Township of Southwold, 519-769-2010, cao@southwold.ca

Screening Questions

	Yes	No
1. Is there a pre-approved screening checklist, methodology or process in place?	☐	☑

If Yes, please follow the pre-approved screening checklist, methodology or process.

If No, continue to Question 2.

Part A: Screening for known (or recognized) Cultural Heritage Value

	Yes	No
2. Has the property (or project area) been evaluated before and found **not** to be of cultural heritage value?	☐	☑

If Yes, do **not** complete the rest of the checklist.

The proponent, property owner and/or approval authority will:

- summarize the previous evaluation and
- add this checklist to the project file, with the appropriate documents that demonstrate a cultural heritage evaluation was undertaken

The summary and appropriate documentation may be:

- submitted as part of a report requirement
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

	Yes	No
3. Is the property (or project area):		
a. identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value?	☐	☑
b. a National Historic Site (or part of)?	☐	☑
c. designated under the *Heritage Railway Stations Protection Act*?	☐	☑
d. designated under the *Heritage Lighthouse Protection Act*?	☐	☑
e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?	☐	☑
f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	☐	☑

If Yes to any of the above questions, you need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report, if a Statement of Cultural Heritage Value has not previously been prepared or the statement needs to be updated

If a Statement of Cultural Heritage Value has been prepared previously and if alterations or development are proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No, continue to Question 4.

Part B: Screening for Potential Cultural Heritage Value

	Yes	No
4. Does the property (or project area) contain a parcel of land that:		
a. is the subject of a municipal, provincial or federal commemorative or interpretive plaque?	☐	☑
b. has or is adjacent to a known burial site and/or cemetery?	☐	☑
c. is in a Canadian Heritage River watershed?	☐	☑
d. contains buildings or structures that are 40 or more years old?	☐	☑

Part C: Other Considerations

	Yes	No
5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area):		
a. is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area?	☐	☑
b. has a special association with a community, person or historical event?	☐	☑
c. contains or is part of a cultural heritage landscape?	☐	☑

If Yes to one or more of the above questions (Part B and C), there is potential for cultural heritage resources on the property or within the project area.

You need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report (CHER)

If the property is determined to be of cultural heritage value and alterations or development is proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No to all of the above questions, there is low potential for built heritage or cultural heritage landscape on the property.

The proponent, property owner and/or approval authority will:

- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g. under the *Environmental Assessment Act, Planning Act* processes
- maintained by the property owner, proponent or approval authority