Appendix C

Schedule B Screenings

MEMO

TO: File
FROM: Sabrina Stanlake-Wong, RPP
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SUBJECT: Tecumseh Master Drainage Study – Schedule B Screening
OUR FILE: 164880

This memo was completed as part of the Town of Tecumseh Master Drainage Study and documents the screening completed for each of the identified Schedule B projects. The memo summarizes potential impacts, mitigation measures and next steps required.

The following list of Schedule B projects are recommended as part of the master plan:

Storm Pump Station Improvements

- New storm pump station at the Lesperance pump station site;
- Expansion of the West St. Louis Pump Station;
- Decommission the St. Mark's storm pump station and construct a new consolidated Scully/St. Mark's storm pump station at the existing Scully pump station site;
- New storm pump station at the PJ Cecile storm pump station site; and
- New storm pump station along Southwind Crescent.

Underground/Aboveground Storage

- Incorporate surface storage within the "Tecumseh Soccer Fields" at École Secondaire L'Essor;
- Incorporate surface storage within Buster Reaume Park; and
- Incorporate underground/surface storage in Tecumseh Centre Park.

Existing Conditions

Natural Environment Review

A natural environment review was completed of the Schedule B project locations. The review is included in **Appendix C1**. The memo document the review of available background information and field investigations completed in October 2018. The focus of the field investigations was to identify potential habitat for Species at Risk (SAR) on site that could be impacted by construction activities.

Where access was possible, based on landowner permission, existing buildings within and adjacent to the pump station locations were reviewed. Although no Barn Swallow nests were observed, the buildings at all locations except Brighton Road (due to its dense residential nature), have the potential to provide suitable nesting structures.

Based on the Ecological Land Classification (ELC) survey results, the lands within and adjacent to the pump station locations did not contain rare vegetation communities or significant wildlife habitat. No SAR species or evidence of SAR (i.e. Barn Swallow nests) were observed within and/or immediately adjacent to the pump station locations.

Archaeology and Cultural Heritage Review

The Ministry of Tourism, Culture and Sports (MTCS) *Criteria for Evaluating Archaeological Potential* was completed for each of the eight Schedule B projects. A copy of the checklist is included in **Appendix C2**. The purpose of the checklist is to screen the sites for archaeological potential and to determine which projects will require a full archaeological assessment during detailed design.

Portions of all five of the pump stations sites are considered disturbed based on the existing buildings and other infrastructure. However, due to the proximity of the lake, it is recommended a Stages 1 and 2 archaeological assessment be completed at the outset of the detailed design phase on any portions of the property which do not contain existing infrastructure.

Pumps Station sites where proposed construction requires infrastructure to be built outside the original building footprint will require a Stages 1 and 2 archaeological assessment. These pump station sites include Lesperance Storm Pump Station improvements, West St. Louis Storm Pump Station improvements, new consolidated Scully/St. Mark's Storm Pump Station, PJ Cecile Storm Pump Station improvements, and new Southwind Crescent Storm Pump Station. Drawings of the proposed pump station infrastructure overlaid on existing conditions mapping can be found in **Technical Modelling Report Volume 2, Appendix F**.

The remaining three sites (Surface Storage on St. Gregory's Road, Surface Storage in Buster Reaume Park, and Surface and Underground Storage in Tecumseh Centre Park) have undergone recent disturbance and are not anticipated to retain potential for the discovery of archaeological features.

A previous archaeological assessment was completed in 1996 for a subdivision located within 300m of the proposed new pump station in Southwind Crescent (**Appendix C2**). The findings of the assessment indicate approximately 30,000 artifacts were recovered from the early Late Woodland period (circa A.D. 700 to 1100). Settlement patterns indicate housing structures and portions of at least fifteen other structures. A Stage 4 mitigation excavation was completed, minimizing the direct impacts to the archaeological resources from construction of the subdivision property. The assessment advises that "portions of the site which extend beyond the subdivision still have substantial and significant archaeological resources." Stages 1 and 2 archaeological assessment is required, and extended to Stages 3 and 4 if identified by an archaeologist.

The MTCS *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* is complete for each of the eight proposed pump station upgrades and are included in **Appendix C2**. Results from the checklists indicate that a cultural heritage assessment is not required for the Schedule B projects.

Description of Proposed Projects

Lesperance Storm Pump Station Improvements

The pump station is located at 12280 Riverside Drive, north of the Riverside Drive/Lesperance Road intersection. Lake St. Clair is located immediately to the north of the site. The pump station site is surrounded by residential properties. The property currently includes the pump station building, parking area, manicured lawn, and a paved asphalt to a lookout point north at Lake St. Clair.

There are currently three different types of pumps at the existing Lesperance pump station:

- 1957 vertical turbine pump with a horizontal electrical motor and a gearbox
- 1986 a single screw pump station was constructed beside the existing facility
- 2002 expansion included a duplex submersible turbine pump station.

It is recommended that the 1957 vertical pump station and the screw pump station be demolished and the 2002 expansion pump station be kept in service. It is recommended to construct a new pump station expansion equipped with vertical submersible axial flow pumps similar to the 2002 pump station. The expansion of the pump station would be located east of the existing screw pump station.

The outfall from the existing and expansion pump station will merge to a single outfall pipe connected to the existing outfall structure. The outfall structure will be modified within its existing footprint to accommodate a larger size outfall pipe and to convey the increased flow.

West St. Louis Storm Pump Station Improvements

The pump station is located at 12920 Riverside Drive, north of Riverside Drive East, between Baryn Avenue and Centennial Drive. Lake St. Clair is located immediately to the north of the site. The site includes the pump station, outfall structure, driveway, parking area and a manicured lawn. The site is surrounded by residential properties. The pump station was construction in 1991 and is in good condition. The existing pump station design identified an expansion to the station to the east and through a review of the as-built drawings, the outfall was originally constructed to accommodate the expansion.

It is recommended to leave the existing pump station in service and to construct an expansion to the pump station east of the existing structure. The expansion would utilize vertical submersible axial flow pumps consisting of one duty and one stand-by pump in the expansion structure. An interconnection to the new pump station would be constructed from the existing inlet chamber. The outfall would be connected to the existing outfall structure by new outfall pipes.

New Consolidated Scully/St. Mark's Storm Pump Station

The Scully Pump Station is located at 13698 Riverside Drive East, north of the roadway and between the intersections of Grant Avenue and Edgewater Boulveard. The property is surrounded by residential properties. The site includes the pump station building, parking area, manicured lawn, and an asphalt pathway to a lookout along Lake St. Clair.

The St. Mark's Pump Station is located at 13770 Riverside Drive East, less than 200 m east of the Scully Pump Station. The site includes the pump station, parking area, manicured lawn as well as a public access to the water. The site is referred to as "St. Mark's Beach Park".

There are currently three vertical turbine pumps installed at the existing Scully pump station. No upgrades have been completed since the station was put into operation in 1974. The electrical equipment is approaching end of its life. The St. Mark's pump station currently has two vertical turbine pumps and was constructed in 1957 and is also reaching its end of its life. The current pump station structures on both sites cannot be expanded to accommodate the increased flow.

Based on the age of the pump station infrastructure at this location and through the modelling analysis, it is recommended that a new pump station is constructed at the Scully pump station site to handle flow from a consolidated service area of the Scully and St. Mark's pump stations. The new station would utilize vertical submersible axial flow pumps. The station would be located north of the existing structure and will require a new inlet and outfall pipe, and expanded outfall structure. The existing pump stations would be kept in service during construction.

PJ Cecile Storm Pump Station Improvements

The Peter J Cecile Pump Station is located at 14080 Riverside Drive East, located north of the Riverside Drive and Kensington Boulevard intersection. The Beach Grove Golf and Country Club is located immediately to the east. The Country Club includes a small marina to the north along the lake. The current outlet for the pump station is directed into the marina. There is a private beach area north of the pump station and a jetty surrounding the marina. The majority of the pump station property is manicured lawn.

There are currently two vertical turbine pumps installed at the pump station both equipped with 40 hp motors. No upgrades have been completed since the station was put into operation in 1974. The electrical equipment is approaching end of its life.

It is recommended that a new pump station is constructed at the PJ Cecile PS site. Due to site restraints, the construction of the new pump station is proposed to be constructed over the footprint of the existing structure. The new station would utilize vertical submersible axial flow pumps. The installation of temporary pumps using portable pump stations is recommended to provide servicing during the construction. A new outfall pipe will be required to provide increased flow capacity. At this time, it is recommended to extend the new outfall to the northern end of the jetty bank to eliminate additional flow from entering the Beach Grove harbour, which is the location of the existing outfall. The inlet pipe to the pump station will be replaced with a larger diameter pipe in the existing alignment.

New Southwind Crescent Storm Pump Station

It is recommended a new pump station is constructed for the existing gravity outfall servicing the Southwind and Starwood residential development. The station is proposed to be constructed within the existing easement directly east of the Southwind right-of-way. The pump station will comprise of a below grade wet well and an above grade electrical panel. The existing outfall pipe will be maintained as the outlet and structure will be constructed within the existing easement.

Surface storage within the "Tecumseh Soccer Fields" Park at École Secondaire L'Essor

École Secondaire L'Essor is located at 13605 St Gregory's Road. The school property includes the school buildings, parking area, running track and soccer fields. The Tecumseh Soccer Fields Park is owned by the L'Essor High School and Conseil Scolaire Catholique (CSC) Providence.

The proposed works include construction of a 0.70 m depression at the existing northern soccer fields to provide approximately 3,200 m^3 of aboveground surface storage with a 200mm diameter storm sewer connection to the existing 750 mm diameter storm sewer along St. Gregory's Road.

Surface Storage within Buster Reaume Park

Based on the analysis, the need to identify a surface flooding solution within the Lemire and Lanoue Street area to reduce surface flooding along both the localized roadways and within existing residential private properties was identified. The preferred option includes constructing a 0.80 m depression along the southwestern portion of Buster Reaume Park to provide approximately 4,100 m^3 of aboveground surface storage with a connection to the upgraded municipal storm sewers.

Surface and Underground Storage within Tecumseh Centre Park

Underground and surface storage of stormwater runoff in the park behind Tecumseh Town Hall is proposed to provide added resiliency to improve surface flooding in the Lesperance pump station service area, specifically along Lesperance Road fronting essential emergency service buildings including the Tecumseh OPP Police Station and Tecumseh Fire.

The following SWM solution is recommended:

- Depression of open space green areas for approximately 1,081 m^3 of surface storage behind Tecumseh Town Hall; and
- Incorporation of approximately 2,000 m^3 of underground chamber system storage behind Tecumseh Town Hall (Modelled as a series of Stormtech MC4500 units).

The SWM solution is proposed to be connected to the Lesperance storm trunk sewer through an overflow sewer from the municipal system. The surface storage and underground storage chambers were assessed under the decision matrix for an enhanced level of service and it was determined that the solution only warranted a traditional level of service based on the extent of surface flooding along Lesperance adjacent to the Town Fire Hall and Police Station directly south of Tecumseh Town Hall. This stormwater storage system is proposed to only be used during larger storm events where water levels in the Lesperance storm trunk sewer can surcharge through the storm connection and into the underground storage chambers. Surface storage will not be used until the water levels within the system reach the surface and the underground storage is fully utilized.

Impact Assessment and Mitigation Measures

The following table outlines potential impacts and mitigation measures that must be incorporated into the detailed design and construction phases.

Table 1 outlines the assessment completed for the pump stations. Impacts and mitigation measures are common for most of the pump stations, however where applicable, differences between the stations are noted.

Table 2 outlines the assessment completed for the surface storage projects.

TABLE 1: MITIGATION MEASURES – PUMP STATIONS

Environmental Feature	Impacts and Mitigation
Engineering Considerations	
Services and Utilities	Potential sanitary servicing conflicts have been reviewed but are required to be further assessed and confirmed during detailed design. It must be confirmed that sufficient power is available to accommodate each storm pump station improvement.
Impacts on Cultural Resources	
Archaeological Resources	Portions of all five of the pump stations sites are considered disturbed based on the existing buildings and other infrastructure. However, due to the proximity of the lake, it is recommended a Stages 1 and 2 archaeological assessment be completed at the outset of the detailed design phase on any portions of the property which do not contain existing infrastructure. Pumps Station sites where proposed construction requires infrastructure to be built outside the original building footprint will require a Stages 1 and 2 archaeological assessment. Should deeply buried artifacts be uncovered during construction, MTCS shall be contacted immediate contact with MTCS is required. The Ontario *Cemeteries Act* applies to discovery of unmarked human remains.
Natural Environment	
Existing Vegetation	The pump station locations include a mix of manicured lawn and landscaped, primarily nonnative, trees. If removal of existing landscape trees is necessary based on the detailed design, the removals should be completed outside of the migratory bird nesting season (no removals completed from April 1 to July 31).
Fish and Fish Habitat	The design and construction activities should limit in-water works at the pump station outlets where possible. Where work is required on new or existing outfalls, a review of potential impacts and mitigation measures under the Fisheries Act should be completed. Is it

	recommended a DFO self-assessment be completed during detailed design to determine the need for a request for review to DFO. Mitigation measures to protect fish and fish habitat will be determined during detailed design, once the assessment has been completed. At this time it is not anticipated fish SAR will be impacted with appropriate design and mitigation to isolate outlet work areas from adjacent aquatic habitat.
Water Quality	Water quality considerations will be addressed through the identification of potential Best Management Practices and confirmed during detailed design.
Species At Risk – Barn Swallow	Although no Barn Swallow nests were observed, the buildings at all locations have the potential to provide suitable nesting structures. A search of the structures during detailed design should be completed to confirm the presence/absence of barn swallow nests. In the event Barn Swallow nest(s) are observed and will be disturbed by construction activities, the regulations specified under Section 23.5 (Barn Swallow) of *Ontario Regulation 242/08* shall be followed to avoid contravention under the *Endangered Species Act*, 2007. It is recommended an information sheet on barn swallow be provided to the contractor for reference.
Species At Risk – General	For SAR incidentally encountered on the project location, they must be allowed to leave on their own accord. Activities within 30 m should cease until the individual disperses. Construction machinery/equipment must maintain a minimum operation distance of 30 m from the individual until it disperses the project location on its own accord. Should on-site personnel be unable to allow an incidentally-encountered SAR individual to disperse from the active construction area on its own accord, a qualified person (i.e. biologist) should be contacted immediately for additional guidance. Observations of SAR should be reported to MECP staff within 48 hours of the observation, or the next working day, whichever comes first
Socio-Economic Impacts	
Permitting and Construction Measures	The following should also be completed during detail design: • In-situ Infiltration testing if the use of Low Impact Development Techniques are considered; • Erosion and Coastal assessments surrounding pump station outlet improvements; • Ministry of the Environment, Conservation and Parks Environmental Compliance Approval for all storm sewer and pump station infrastructure works; and • Confirm and obtain permit from Essex Region Conservation Authority. Traffic control measures are required to follow Ontario Traffic Manual – Book 7. Standard mitigation measures in the Ontario Provincial Standard Specifications (OPSS) related to noise and dust during construction would apply.

Adjacent Property Owners	Construction of the pump station upgrades will cause temporary localized disruptions in the immediate vicinity of the construction area, typical of a construction project. For the PJ Cecile Station – the detailed design phase should review opportunities to limit long term disruptions to the Kensington Beach Area directly north of the existing station. Planned disruptions to the beach area should be communicated to residents prior to the start of construction.
Noise	During detailed design, address concerns from residents over noise caused by pumping stations.

TABLE 2: MITIGATION MEASURES – SURFACE STORAGE PROJECTS

Environmental Feature	Impacts and Mitigation
Engineering Considerations	
Services and Utilities	The need for utility relocations to be confirmed during detailed design.
Impacts on Cultural Resources	
Archaeological Resources	Based on the MTCS checklist completed, it is anticipated the sites do not retain archaeological potential and an archaeological assessment will not be required. This should be confirmed during detailed design. Should deeply buried artifacts be uncovered during construction, immediate contact with MTCS is required. The Ontario *Cemeteries Act* applies to discovery of unmarked human remains.
Natural Environment	
Existing Vegetation	The project locations include a mix of manicured lawn and limited landscaped trees. If removal of existing landscape trees is necessary based on the detailed design, the removals should be completed outside of the migratory bird nesting season (no removals completed from April 1 to July 31).
Water Quality	Water quality considerations will be addressed through the identification of potential Best Management Practices and confirmed during detailed design.
Socio-Economic Impacts	
Permitting and Construction Measures	The following should also be completed during detail design: • In-situ Infiltration testing if the use of Low Impact Development Techniques are considered; • Ministry of the Environment, Conservation and Parks Environmental Compliance Approvals; • Confirm and obtain (if required) permits from Essex Region Conservation

	Authority; and • Consultation with primary stakeholders. Traffic control measures are required to follow Ontario Traffic Manual – Book 7. Standard mitigation measures in the Ontario Provincial Standard Specifications (OPSS) related to noise and dust during construction would apply. Construction timing for the surface storage solution within the Tecumseh Soccer Fields should seek to work around the Tecumseh Soccer schedule.