Report to Civic Works Committee

To: **Chair and Members**
Civic Works Committee
From: **Kelly Scherr, P.Eng., MBA, FEC**
Deputy City Manager, Environment and Infrastructure
Subject: **Adelaide WWTP Climate Change Resilience Class EA – Notice of Completion**
Date: **April 20, 2022**

Recommendation

That on the recommendation of Deputy City Manager, Environment and Infrastructure, the following actions **BE TAKEN** with respect to the Adelaide Wastewater Treatment Plant Climate Change Resilience Class Environmental Assessment – Notice of Completion:

(a) The Notice of Completion **BE FILED** with the Municipal Clerk; and

(b) The Adelaide Wastewater Treatment Plant Climate Change Resilience Class Environmental Assessment report **BE PLACED** on public record for a 30-day review period.

Executive Summary

Purpose

The purpose of this report is to notify Council of the City of London's Adelaide Wastewater Treatment Plant (WWTP) Climate Change Resilience Class Environmental Assessment (EA) prior to posting for final public review and comment.

Context

The Adelaide WWTP is located in a flood prone area, and flooding in the Thames River is expected to increase in frequency and severity due to the effects of climate change. The Class EA was initiated to review options for protecting the facility from floods, considering technical, environmental, economic and social aspects, and then consulting with the public, stakeholders, and First Nations in order to select a preferred solution.

This project is to be funded in part through the government of Canada's Disaster Mitigation and Adaptation Fund. Public consultation is a requirement of both the funding program and of the Municipal Class Environmental Assessment process in Ontario.

Linkage to the Corporate Strategic Plan

This recommendation supports the following 2019-2023 Strategic Plan areas of focus:

- Building a Sustainable City:
    - London's infrastructure is built, maintained, and operated to meet the long-term needs of our community by replacing aged and failing infrastructure with new materials and sizing new infrastructure to accommodate future development; and
    - Protect and enhance waterways, wetlands, and natural areas.

Analysis

1.0 Background Information

1.1 Previous Reports Related to this Matter

- Civic Works Committee – March 29, 2022 – Disaster Mitigation and Adaptation Fund – Contribution Agreement
- Civic Works Committee – March 2, 2021 –Greenway and Adelaide Wastewater Treatment Plants Climate Change Resiliency Class Environmental Assessment Consultant Award
- Civic Works Committee – August 11, 2020 – Climate Emergency Action Plan – Update

2.0 Discussion and Considerations

The City of London's Climate Emergency Action Plan addresses the City's responsibility to reduce greenhouse gas emissions and increase resilience in the face of climate change.

In December 2020, the City of London secured federal funding through the Disaster Mitigation and Adaptation Fund for upgrades to protect the Greenway and Adelaide WWTPs from flooding. Potential strategies include a flood barrier, a pumping station and other upgrades to protect these critical facilities during flood events. The federal funding will contribute 40% of the costs over the full project cycle, from public consultation through design and construction.

A separate Class EA was undertaken for each of the two plants to consider various flood mitigation alternatives and identify the preferred solution through technical studies and consultation with the public, First Nations, and stakeholders. This report details the process and recommendations for the Adelaide WWTP.

2.1 Class Environmental Assessment Process

The Municipal Engineers Association Municipal Class EA is an approved planning process for municipalities to follow to meet the requirements of the *Environmental Assessment Act*. The Class EA process allows for the consideration of alternative solutions to meet the problem/opportunity presented, as well as the review of the various impacts of these alternative solutions.

The City of London recognizes the importance of completing public consultation process in accordance with the Municipal Engineers Association Class EA process to ensure that informed decisions are made when planning, designing, and constructing important infrastructure in the City. An experienced consulting firm, Matrix Solutions Inc., was retained by the City to lead the consultation process.

The Adelaide WWTP Climate Change Resilience Class EA fulfills Schedule B of the Class EA process and satisfies the federal and provincial requirements for public consultation to allow the design and construction to proceed.

2.2 Evaluation of Alternatives

Four alternatives were identified as potential means to protect the Adelaide WWTP from flooding, including:

1) Construct a berm with raised entranceway to suit flood elevations,
2) Construct a berm and plan to use temporary measures to protect the lower elevation area of the entrance road,

3) Construct a berm around the full perimeter, including the adjacent parking lot,
4) Do Nothing.

Option 1, constructing a berm around the plant and raising the access road, was identified as the preferred solution. This protects the plant and ensures that it can still be accessed during a flood, which is necessary to safely maintain plant operation.

Any project that proposes the creation of flood protected areas must also consider the impacts that displacing that volume of water can have on areas upstream and downstream of the flood protection. This project involved extensive modelling of expected impacts and potential mitigation, which were presented to the Upper Thames River Conservation Authority (UTRCA). The analysis showed that the impacts are expected to be negligible in the context of the Thames River floodway, and any additional mitigation measures (e.g. cutting large depressions in adjacent park space to provide additional flood storage volume) would be costly and disruptive with little measurable benefit.

An essential component of any of the options that provide flood protection (options 1, 2 or 3) is the construction of an effluent pumping station. Because plant flows leave via gravity flow, when the Thames River is in a flooding condition, treated flows may not be able to leave the plant even if the flood waters are prevented from entering. This would effectively flood the plant from within. An effluent pumping station lifts flows above the level of the river, allowing treated wastewater to leave the plant and ensuring that full treatment capacity is protected and maintained.

Multiple scenarios were evaluated for potential effluent pumping arrangements. The primary difference between them involved how to handle high flows that exceed the treatment plant's capacity when the river is high. The recommended strategy is to maintain existing overflow and bypass routes, with the pumping station sized to handle all flows that are treated by the plant. This strategy avoids oversizing the effluent pumping station and makes best use of the existing infrastructure on site. Flow equalization, (i.e., storing high flows until the event subsides) can prevent some overflow and bypass activity from entering the environment, and is recommended to be examined as part of the detailed design.

Wastewater treatment plant projects consider several evaluation criteria:

- **Technical**: technically feasible and can be designed and constructed
- **Environmental**: improvements enhance climate change resiliency, and any environmental impacts to be mitigated
- **Financial**: costs to be planned, reviewed, and approved through current programs, budgets, as supplemented by federal and provincial funding
- **Jurisdictional/regulatory**: aligns with local, provincial, and federal plans, policies, programs, etc.
- **Social/cultural**: any construction and operational impacts to be mitigated to minimize impacts on communities/public, including odour and noise.

The preferred flood protection strategies at Adelaide WWTP address all of the above. While fulfilling the technical requirements, they also minimize the impact to the public by keeping the majority of construction within the plant site and the adjacent City works yard. While there will be some temporary impacts during construction, there are not expected to be any observable differences in plant operation from the perspective of neighbouring residents and park users.

An Environmental Impact Study was conducted as part of the Class EA. No major issues were identified with any of the alternatives presented outside of managing construction practices to minimize impacts. In general, the environment will benefit from ensuring that the plant can remain fully operational, even during a severe flood event.

No archaeological potential was identified in any areas selected for construction in the preferred alternatives.

2.3 Public Engagement and Consultation

A project website and Get Involved webpage were developed to allow for enhanced consultation during the ongoing COVID-19 pandemic. Two virtual Public Information Centres were held: the first on October 6, 2021; and the second on March 9, 2022. Recordings of each session were made available following the live presentation and question and answer period. A presentation was also made to the Environment, Ecological and Planning Advisory Committee (EEPAC) on February 17, 2022.

The following First Nations were consulted as part of this Class EA:

- Aamjiwnaang First Nation;
- Bkejwanong (Walpole Island);
- Caldwell First Nation;
- Chippewas of Kettle and Stony Point;
- Chippewas of the Thames First Nation;
- Oneida Nation of the Thames;
- Delaware Nation at Moraviantown (Eelūnaapèewii Lahkèewiit); and
- Munsee-Delaware Nation.

Letters were provided to each First Nation to accompany each of the project notices. The Class EA included the following First Nations engagement opportunities:

- Online virtual workshop with representatives of Chippewas of Kettle and Stony Point First Nation - Wednesday, March 23, 2022

3.0 Recommendations and Next Steps

The recommended option for flood protection of the Adelaide WWTP includes the construction of a flood protection berm, raising portions of the access road and constructing an effluent pumping station to discharge treated flows when river levels are elevated in the Thames River. The complete strategy is presented in the final draft of the Class EA report. The Notice of Completion and 30-day public review period will be advertised in the Londoner and the report will be made available on the Get Involved webpage during the public review period. Appendix ‘A’ to this report includes the Notice of Completion for the study as well as the Executive Summary of the report. Upon expiry of the public review period, any comments will be considered in the final report and addressed as possible. Detailed design of the recommended solution would begin in mid-2022, with construction planned for 2023-24.

Conclusion

The Adelaide Wastewater Treatment Plant Climate Change Resilience Class Environmental Assessment has been completed in accordance with the Municipal Class Environmental Assessment process and fulfills Schedule B. Staff recommend posting the final report for public review and comment.

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Submitted by:	**Shawna Chambers, P.Eng., DPA** **Acting Director, Water, Wastewater, and Stormwater**
Recommended by:	**Kelly Scherr, P.Eng., MBA, FEC** **Deputy City Manager, Environment and Infrastructure**

Appendix ‘A’ - Notice of Completion and Executive Summary