

Appendix 'A'
Executive Summary

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The City of London retained Stantec Consulting Ltd. to complete a Schedule B Class Environmental Assessment (Class EA) for the Mornington Area Storm Drainage Area. Quebec Street, between Oxford Street and Dundas Street is underserved by aging sanitary and storm sewers and currently does not have a suitable storm outlet. This area has had historical basement flooding, sewer overflows, and capacity constraints related to the sanitary sewer system, therefore a sanitary sewer servicing strategy is also required. This project has been carried out in accordance with the requirements for Schedule B projects under the terms of the Municipal Engineers Association Municipal Class Environmental Assessment process (2000, as amended in 2007, 2011, and 2015), an approved Class under the Ontario Environmental Assessment Act.

The study area is located within a developed community in the core of London, Ontario. The area is mostly residential with some commercial properties along Oxford Street and Dundas Street. A CP Rail Corridor with Switching Yard is located within the study area, which crosses under the Quebec Street overpass. There is an existing Stormwater Management Facility (SWMF) in McCormick Park to the northeast of the CP Rail Corridor.

Historical record drawings indicate the area was known to be developed in circa. 1915, with some sewers installed in the 1800's. As the city developed and capacity issues arose, a Relief Sewer was constructed along Quebec Street and Oxford Street in the 1950's which drains to the west along Lorne Avenue and discharges to the Thames River. The intention of the Relief Sewer was to reduce flows in the sanitary sewer network and reduce the risk of basement flooding by constructing sanitary sewer overflow connections into the Relief Sewer.

In a 2013 Pre-Design Report for the 2013 Infrastructure Renewal work along Burbrook Place, prepared by Dillon Consulting Ltd., capacity concerns were noted along the Oxford Street storm sewer system and it was recommended an alternative storm outlet be investigated. The report identified three (3) potential stormwater storage facility sites and the potential need for land acquisition, which triggered the need for a Schedule B Class EA to evaluate the alternative solutions.

1.2 CLASS EA APPROACH

The intent of the Mornington Area Storm Drainage Servicing Schedule B Class EA is to address public, agency and First Nations community requirements and concerns, as well as to ensure a reasonable range of alternatives are fairly assessed and reviewed in a public forum before being finalized and carried forwarded into implementation. Schedule B projects are required to complete Phase 1 and 2 of the Class EA planning process. These phases include the identification of a problem or opportunity, and the identification and evaluation of a reasonable range of alternative solutions. The Class EA process is

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then documented in a Project File that is submitted for a 30-day mandatory public, agency and Indigenous community review period.

1.3 CONSULTATION

Members of the public were notified of project commencement and were invited to attend Public Information Centre (PIC) by way of delivered letters to residents in the study area and on the City's website. The PIC notification was also published in the Londoner newspaper and the PIC display material was posted on the City's website. An Indigenous Consultation Log was completed for this project to document the consultation process with Indigenous Communities contacted as part of the Class EA process.

1.4 PHASE 1 – PROBLEM AND OPPORTUNITIES

A number of previous studies were reviewed in order to determine the need and justification for undertaking this study. Previous studies reviewed included:

- 2013 Infrastructure Renewal Contracts Tender T13-20 – Contract #9 Burbrook Place – Draft Preliminary Design Report (Burbrook Place – Draft PDR). Dillon Consulting Ltd., January 2013.
- Pall Mall Street Sewershed Hydraulic Modeling Report (CH2M Hill, September 2014).

Based on the review of background information, the following Problem and Opportunity Statement has been developed:

The existing storm drainage and sanitary servicing infrastructure within the study area is approaching or exceeds 100 years of age, has capacity constraints, and requires improvements. The Mornington Area Storm Drainage Servicing Municipal Class Environmental Assessment (Class EA) will review alternative solutions to address the capacity concerns within the existing storm drainage infrastructure and will include the development of a sanitary servicing strategy. The preferred storm drainage and sanitary solution should address existing capacity deficiencies and infrastructure condition and mitigate flooding impacts within the neighbourhood, while minimizing disruption to existing properties.

1.5 PHASE 2 – EXISTING CONDITIONS

The study area includes local storm sewers, local sanitary sewers, and a storm Relief Sewer. The majority of the storm sewers drain to Queens Avenue at the south west of the Study Area and discharge into the North Branch of the Thames River. Storm sewers east of the Study Area drain to the Burbrook Trunk sewer and storm sewers north of the CP Rail corridor are directed to the Mornington SWMF and discharges to a storm sewer trunk adjacent to the Burbrook Trunk sewer. Both ultimately discharge into the South Branch of the Thames River.

The Pall Mall / Lorne Avenue Relief Sewer (Relief Sewer) was constructed to alleviate capacity issues and runs from Oxford Street, south along Quebec Street and west to Lorne Avenue. A separate branch runs north of Quebec Street and flows west of Queens Avenue the connects to the main Relief Sewer.

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A portion of the sanitary sewer along Oxford Street, east of Curry Street, acts as a combined sewer and captures flows through connected catchbasins. Separation of this sewer was considered during this project. There is also a total of 14 sanitary sewer overflow (SSO) connections which discharge into the storm and relief sewer. The sanitary sewers along Quebec Street north of the CP Rail Corridor discharge to the Pall Mall Sanitary Trunk Sewer whereas the sanitary sewers south of the CP Rail Corridor discharge to the Vauxhall Sewershed . Reverse overflows have been observed and flap-gates have been recommended in previous studies, but not implemented.

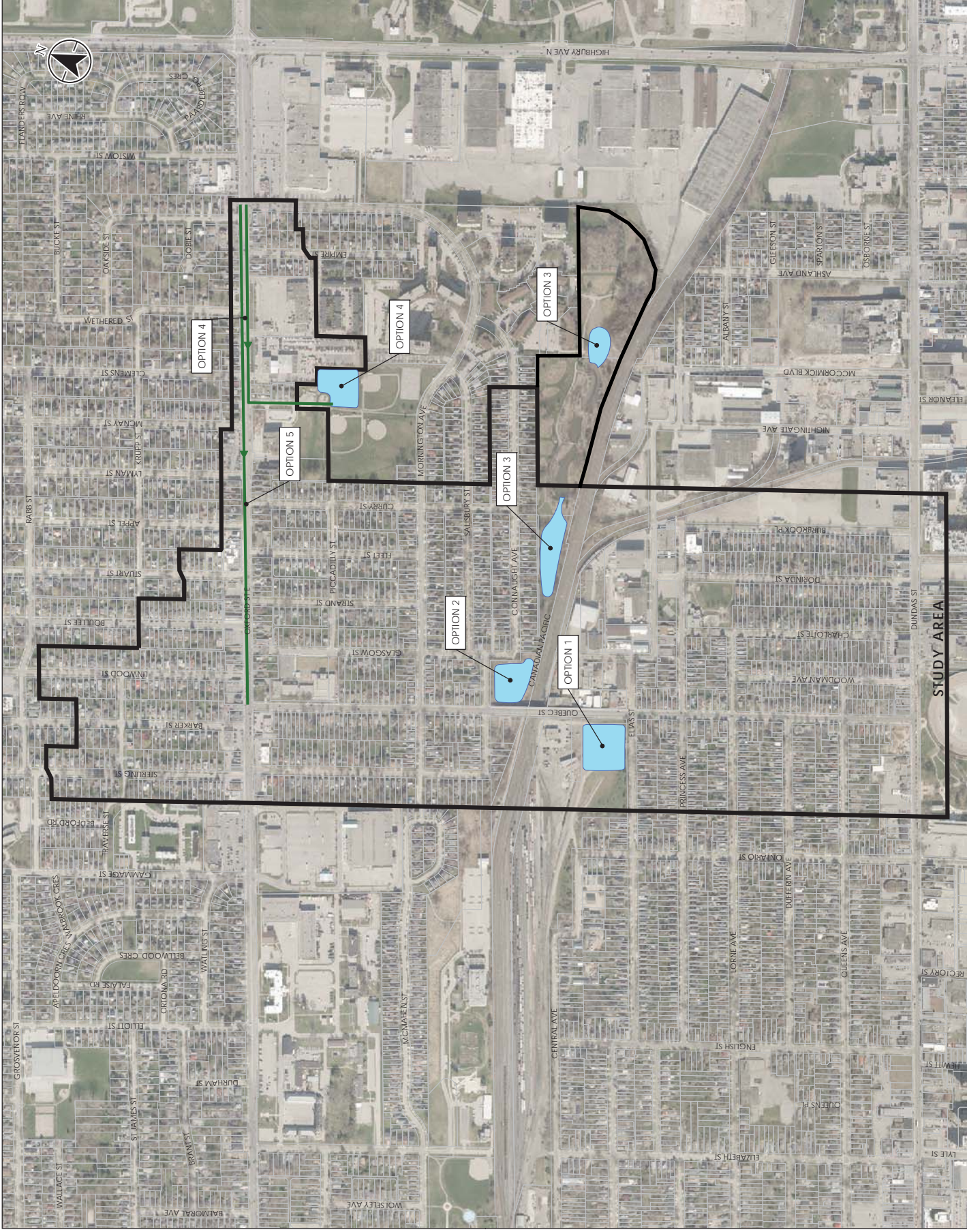
A desktop review was also undertaken of the socio-economic, cultural, and natural environments within the study area in order to identify potential impacts of the alternative solutions being considered. Species at Risk (SAR) tree species were identified within the general study area. Blue ash trees were identified on the edge of the rail corridor and the SWMF and require a minimum of a 23 m radius root protection zone for each tree. The 23 m buffer zone has been identified and shall protect the species from construction disturbances through appropriate tree protection fencing.

1.6 PHASE 2 – ALTERNATIVE SOLUTIONS AND EVALUATION

After the problem / opportunity statement was established and justification for the project was determined, alternative solutions were developed. Socio-economic environment, cultural environment, and the natural environmental criteria were identified to evaluate each alternative. To address the existing capacity concerns with the storm and relief sewer system for the area north of the CP Rail Corridor, the following types of alternative solutions were considered:

- Do Nothing
- Stormwater Storage Solutions
- Stormwater Network Upgrades
- A Combination of Storage and Network Upgrades

It was determined a storage solution would have a greater impact on the sewer network performance when compared to the sewer network upgrade solutions. Sewer network upgrades were refined based on the alternative storage solutions evaluated. **Table 1-1** provides summary of the alternative solutions, as depicted in **Figure 1**, which were reviewed as a part of this report. The alternatives focus on the stormwater storage solutions. Various network upgrades have been identified in conjunction with the recommended solution, as described in Section 1.7.



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Table 1-1: Longlist of Alternative Solutions

Alternative Solutions	Screening
Alternative 0: Do Nothing	Shortlisted
Alternative 1: Elias Street CPR Switching Yards	Eliminated
Alternative 2: Former Furniture Factory Lands	-
A. Discharge into the existing Storm Sewer along Quebec Street	Shortlisted
B. Discharge into the existing Relief Sewer along Quebec Street	Shortlisted
C. Discharge to the existing Mornington SWM Facility outlet and divert into the Burbrook Place sewer.	Eliminated
Alternative 3: Mornington Stormwater Pond Expansion	Shortlisted
Alternative 4: Infiltration Beds in Mornington Park	Eliminated
Alternative 5: Exfiltration Pipe within the Right-of-Way	Eliminated

Following the review of longlisted alternatives, Alternatives 1, 2C, 4, and 5 were eliminated and were not further reviewed. Alternative 1 was not carried forward due to the significant impact on the existing CP Rail switching yard operations and the unlikelihood that CP Rail would not endorse the sale of these lands. Alternative 2C was eliminated as this solution would require discharging to Burbrook Place Trunk Sewer, which is known to be nearing capacity, and requiring additional storage in the existing Mornington SWMF. Alternative 4 would require another alternative be implemented to address all storm flows in the study area, therefore the benefit of this alternative was minimal. Alternative 5 was not carried forward as the water table and clay soils would hinder the performance of an exfiltration pipe system.

The shortlisted alternatives include the “Do-Nothing” Alternative (Alternative 0) along with Alternatives 2A, 2B, and 3. Alternative 2A involves the construction of a SWMF on the Former Furniture Factory property. The SWMF would be designed to function as a dry pond, which would outlet to the existing Quebec Street storm sewer.

Alternative 2B involves the construction of a SWMF on the Former Furniture Factory property. The SWMF would be designed to function as a dry pond, which would outlet to the Relief Sewer along Quebec Street.

Alternative 3 involves the expansion of the existing Mornington SWMF to provide storage for the Quebec Street Sewer System. The lands associated with this alternative are located north of the CP Rail Corridor and are currently owned by the City of London and make-up part of McCormick Park. The flows would be temporarily stored and discharged into the Burbrook Place trunk sewer system.

An evaluation of the shortlisted alternatives was completed, in which the impacts to the natural, socio-economic and technical environments were reviewed. Alternative 3 was identified as the recommended alternative. The Key advantages and disadvantages identified for Alternative 3 are provided below:

Advantages:

- Provides sufficient stormwater storage volume to accommodate storm flows from the upstream catchment area for a 100-year storm event;

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- This alternative provides the greatest improvement to sewer performance and a greater reduction in the risk of flooding within the study area when compared to the other alternatives; and
- Acquisitions of lands is not required as the storage facility is already City owned property.

Disadvantages:

- Requires a large portion of existing parkland to be repurposed for stormwater management; and
- The implementation of a stormwater storage facility within the McCormack Park lands would require significant tree removals, including the removal of trees that were recently planted in 2013 by volunteers.

The feasibility of low impact development (LID) opportunities was also reviewed. There are many opportunities to implement LID features in the area and it was recommended these opportunities are reviewed in more detail as a part of the City's Infrastructure Renewal Program.

1.7 RECOMMENDED ALTERNATIVE

Alternative 3, which includes the expansion of the existing Mornington SWMF to provide storage for the Quebec Street Storm Sewer System has been identified as the recommended solution. Network upgrades are required, including the installation of a separate storm sewer along Oxford Street from Curry Street to Mornington Avenue and along Sterling Street where the existing systems operate as combined sewers. The solution also includes upgrading the storm sewer along Quebec Street and Oxford Street as a part of the Infrastructure Renewal program.

The lands are owned by the City and will not require any land acquisition. Consultation with City of London Parks Planning staff and ReForest London will be required during the design phase of this project. It is anticipated that impacts to the SAR tree species located within McCormick Park can be avoided through site design, and a buffer area has been identified. Provided the buffer area is maintained and mitigation measures implemented, a permit under the Endangered Species Act is not anticipated but shall be confirmed during detailed design.

Due to the south sloping topography, and lack of storm outlet within the study area, minimal sewer performance improvements in the south area are anticipated. It is recommended that further investigation be completed to review the capacity within the separated storm system downstream.

In conjunction with the stormwater management facility, stormwater network upgrades have also been identified as part of the recommended solution and will consist of the following components:

- Reconstruction of the storm sewer system along Oxford Street and Quebec Street;
- Separation of combined sewers along Oxford Street and along Sterling Street; and
- Remove storm flows from the Relief Sewer.







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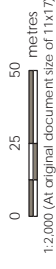
The current storm sewer along Quebec Street does not provide sufficient capacity to accept additional storm flow, therefore the storm catchments contributing to the Relief Sewer cannot be diverted to the storm system until it is upgraded. The storm sewer network upgrades will involve reconstruction of the separated storm sewer along Quebec Street and Oxford Street East, and sewer separation along Sterling Street, to allow all storm flows to be captured by the separated storm system. This will eliminate storm flows from entering the Relief Sewer under typical operation. The recommended stormwater storage solution is depicted in **Figure 2**, and the network upgrades are identified in **Figure 3**.



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Legend

-  Blue Ash Tree Location (approximate)
-  Blue Ash Buffer (23 metres)
-  Proposed New Storm Sewer
-  Proposed Decommissioning of Storm Sewer
-  Existing Storm Sewer
-  Existing SWM Pond
-  Proposed SWM Pond
-  Proposed Pathway Connection



Notes

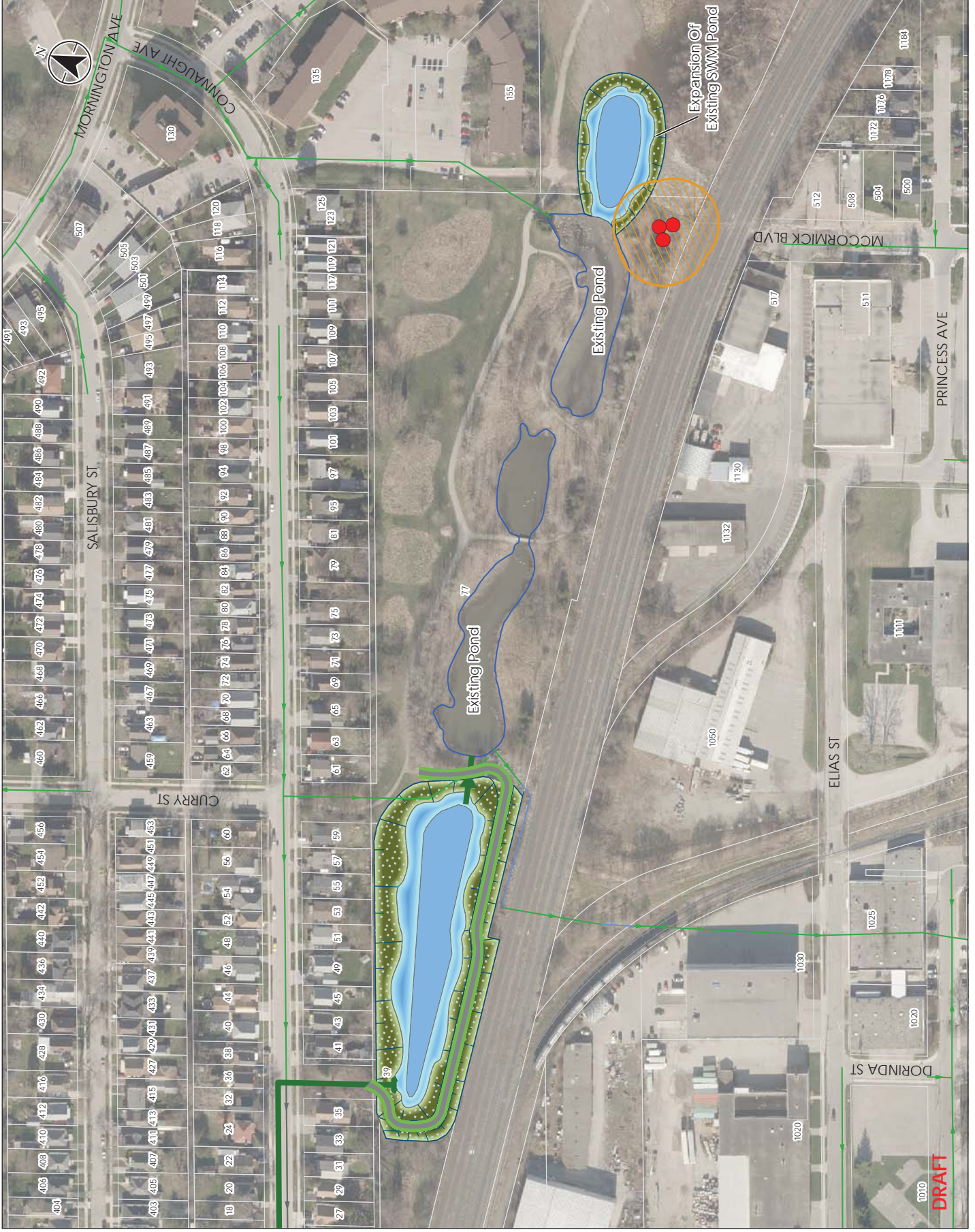
1. Coordinate System: NAD 1983 UTM zone 17N
2. Base features produced using City of London Open Data.

Project Location: City of London
 165630127 REVA
 Prepared by KDB on 2019-01-11

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Figure No. **2**
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Title: **Recommended Solution - Stormwater Storage Facility**



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Legend

- Study Area
- Proposed New Storm Sewer
- Proposed Decommissioning of Storm Sewer
- Existing Storm Sewer
- Existing Storm and Relief Sewer
- Proposed SWM Pond
- Existing SWM Pond
- Existing Local Storm Sewer Area
- Combined Sewer Area to be Separated
- Storm Sewer Area to be Diverted from Relief Sewer to Local Sewer
- Area Tributary to Mornington SWM Pond



Notes

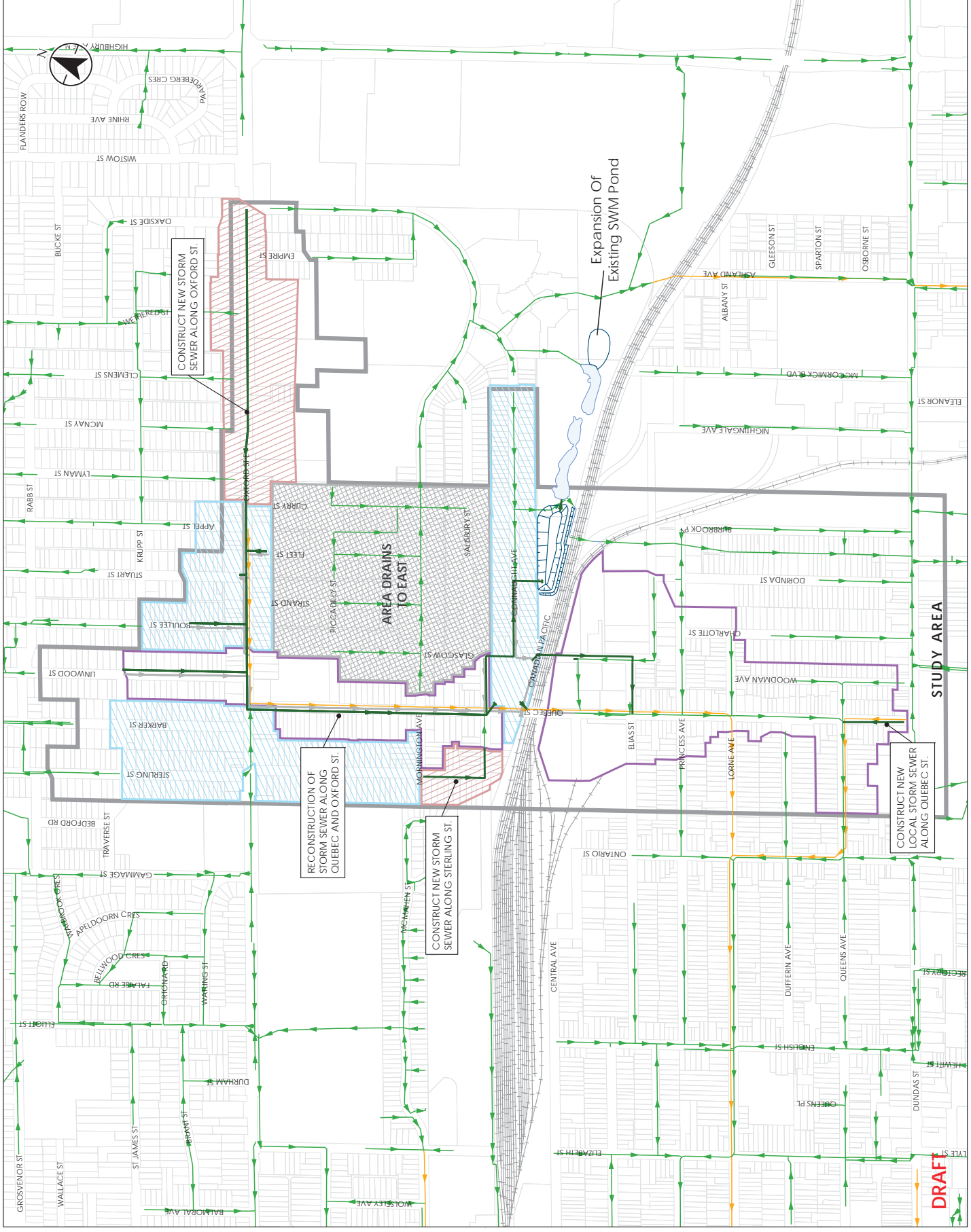
1. Coordinate System: NAD 1983 UTM Zone 17N
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Project Location: City of London
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Figure No. **3**
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The Recommended Solution - Stormwater Network Upgrades



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