

Public Information Centre No. 2



Class Environmental Assessment for the Greenway
Wastewater Treatment Plant Climate Change Resiliency

Schedule B Municipal Class Environmental Assessment



Contact Information

If you would like to provide comment or complete the project questionnaire, please see the Get Involved Page

<https://getinvolved.london.ca/greenway-climate-change>

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Thank you for participating!

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Land Acknowledgement

We acknowledge that we are gathered today on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak, and Attawandaron.

We acknowledge all the treaties that are specific to this area: the Two Row Wampum Belt Treaty of the Haudenosaunee Confederacy/Silver Covenant Chain; the Beaver Hunting Grounds of the Haudenosaunee NANFAN Treaty of 1701; the McKee Treaty of 1790, the London Township Treaty of 1796, the Huron Tract Treaty of 1827, with the Anishinaabeg, and the Dish with One Spoon Covenant Wampum of the Anishnaabek and Haudenosaunee.

This land continues to be home to diverse Indigenous peoples (First Nations, Metis, and Inuit) whom we recognize as contemporary stewards of the land and vital contributors to society. We hold all that is in the natural world in our highest esteem and give honour to the wonderment of all things within Creation. We bring our minds together as one to share good words, thoughts, feelings, and sincerely send them out to each other and to all parts of creation. We are grateful for the natural gifts in our world and we encourage everyone to be faithful to the natural laws of Creation.

The three Indigenous Nations that are neighbours to London are the Chippewas of the Thames First Nation; Oneida Nation of the Thames; and the Munsee-Delaware Nation who all continue to live as sovereign Nations with individual and unique languages, cultures, and customs.

This land acknowledgment is a first step towards reconciliation. It is the work of all citizens to take steps towards decolonizing practices and bringing our awareness into action. We encourage everyone to be informed about the traditional lands, Treaties, history, and cultures of the Indigenous people local to their region.

Overview

Agenda

1. Project Overview
2. Public Information Centre No. 1 Summary
3. Alternative Design Solutions
4. Impact Assessment
5. Evaluation of Alternative Solutions
6. Next Steps
7. Questions

Public information centre no. 1 (late 2021)

- Introduced the public to the project.
- Presented alternative solutions and evaluation criteria for input.
- Provided opportunity for interested parties to identify any concerns or information that will support the Municipal Class Environmental Assessment process.

Public information centre no. 2

- Present alternative solutions and a detailed evaluation of them.
- Provide opportunity for interested parties to identify any concerns or information that will support the Municipal Class Environmental Assessment process.

Project Overview



Study Area

Greenway Wastewater Treatment Plant

109 Greenside Avenue



Image Source: City of London

Climate Change Resiliency

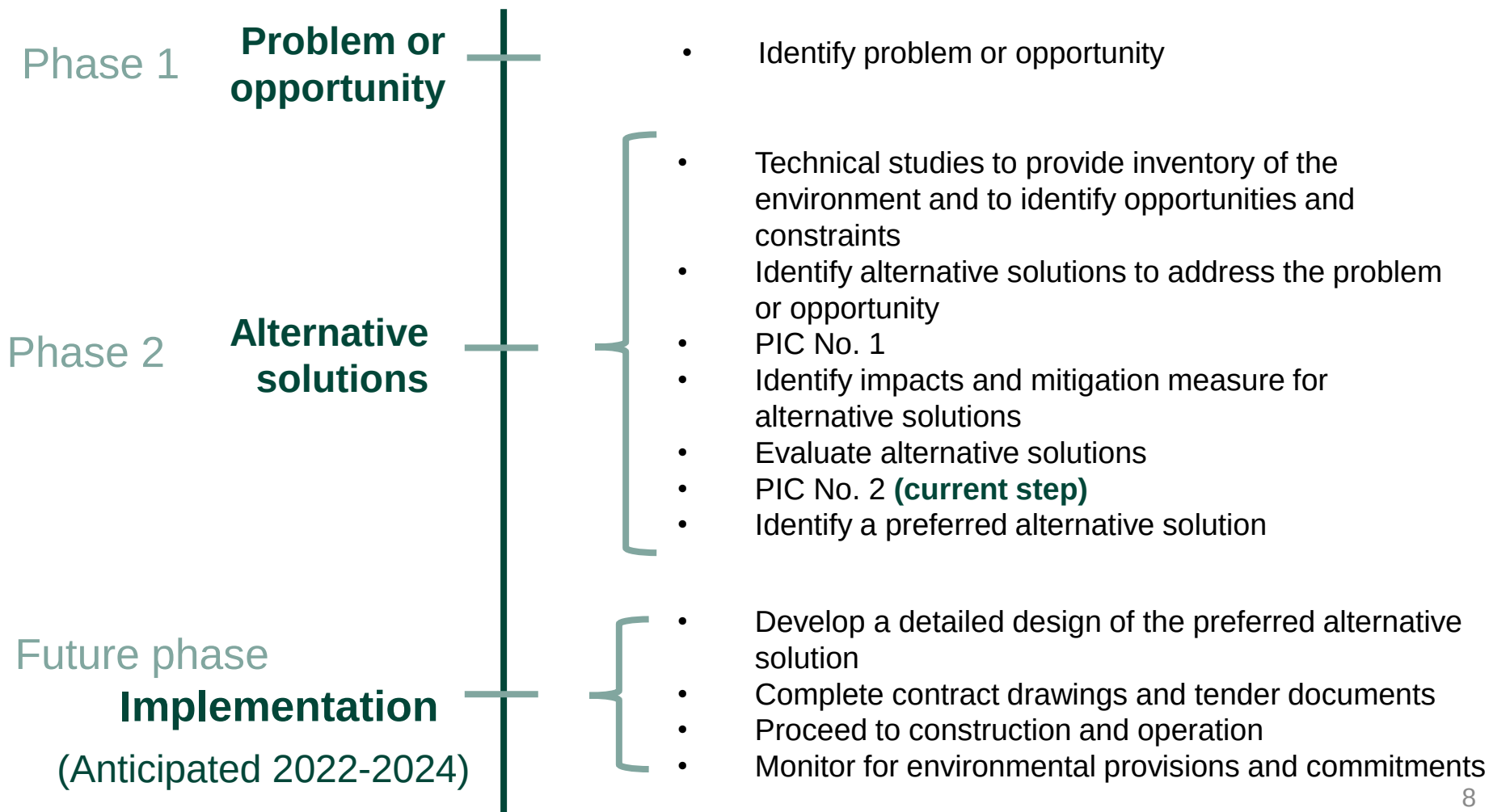
- In April 2019, the City of London declared a climate emergency to deepen its commitment to protecting its economy, ecosystems, and communities from climate change through adaptation and mitigation initiatives.
- The City of London, like other communities, is experiencing more frequent and intense flooding as a result of climate change.
- This environmental assessment seeks to identify a preferred flood protection approach to improve plant asset resilience, enhance treatment capabilities, and improve plant safety.



Image Source: City of London

Municipal Class Environmental Assessment

Schedule B



Consultation

- Consultation is an essential part of the Municipal Environmental Assessment process. We want to ensure that anyone with an interest in the study has the opportunity to provide input as the study proceeds.
- We are engaging the following stakeholders to provide the opportunity to express concerns and preferences:
 - Indigenous community
 - Residents and businesses
 - Government agencies and regulators
- Engagement will provide an opportunity to gather input for consideration in the assessment of preliminary alternative solutions.

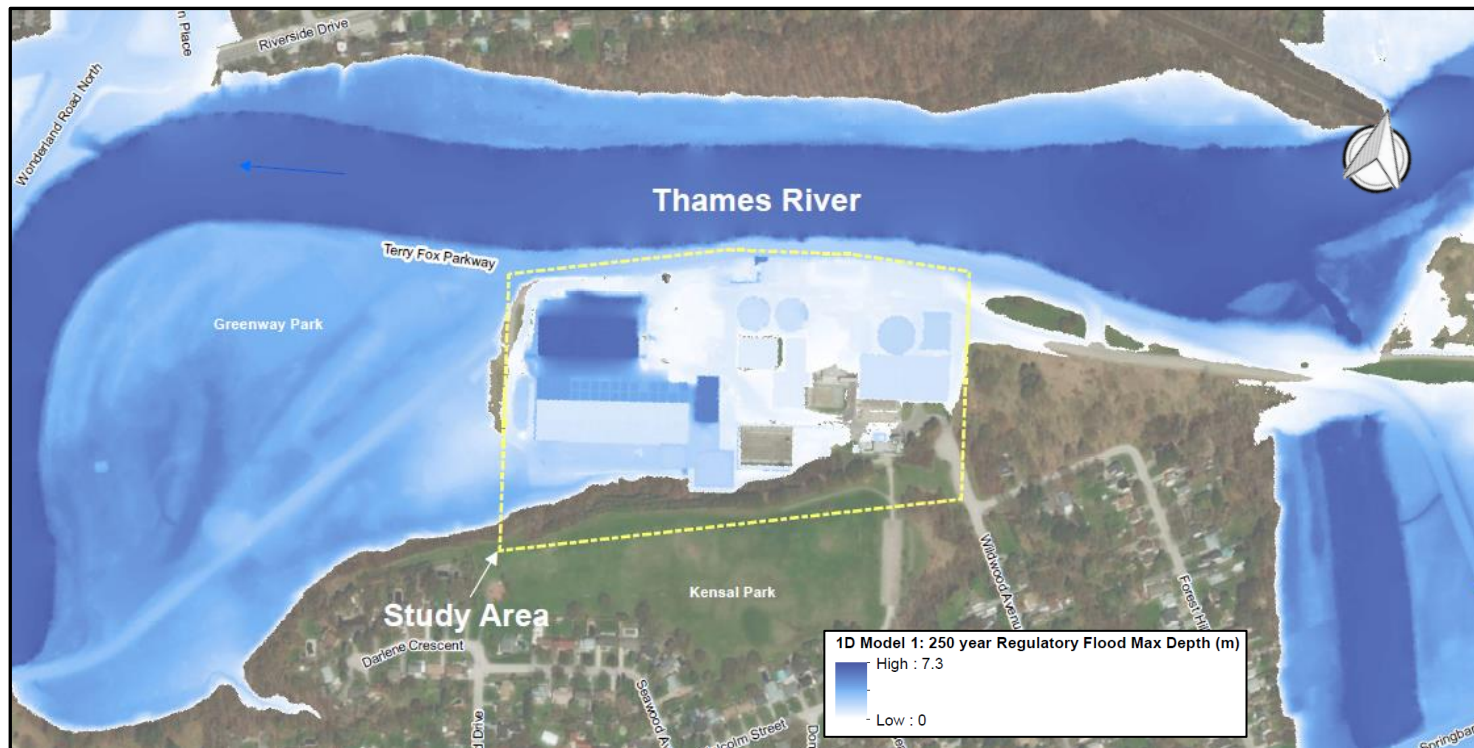


Public Information Centre No. 1 Summary



Existing Flood Risk

- 1:250-year regulatory event flow of 1,900 m³/s
- The typical flood depth is 0.5 m at the plant



Summary

Long-list of flood mitigation approaches	Screening outcome
Site-level flood protection	
Floodwall/berm/dyke	recommended
Channel conveyance	
Channel widening	not recommended
Channel lowering	not recommended
Floodplain improvement	not recommended
Bridge replacement	not recommended
Diversions	
Local flow diversion	not recommended
Storage	
Online storage	not recommended
Operational measures	
Process upgrades and operational modifications	not recommended

Examples of Site-level Flood Protection



Earthen berm/barrier at the Vauxhall Wastewater Treatment Plant (City of London)



Floodwall at the Vauxhall Wastewater Treatment Plant (City of London)



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Alternative Solutions



Alternative Solutions

Option 1 – berm

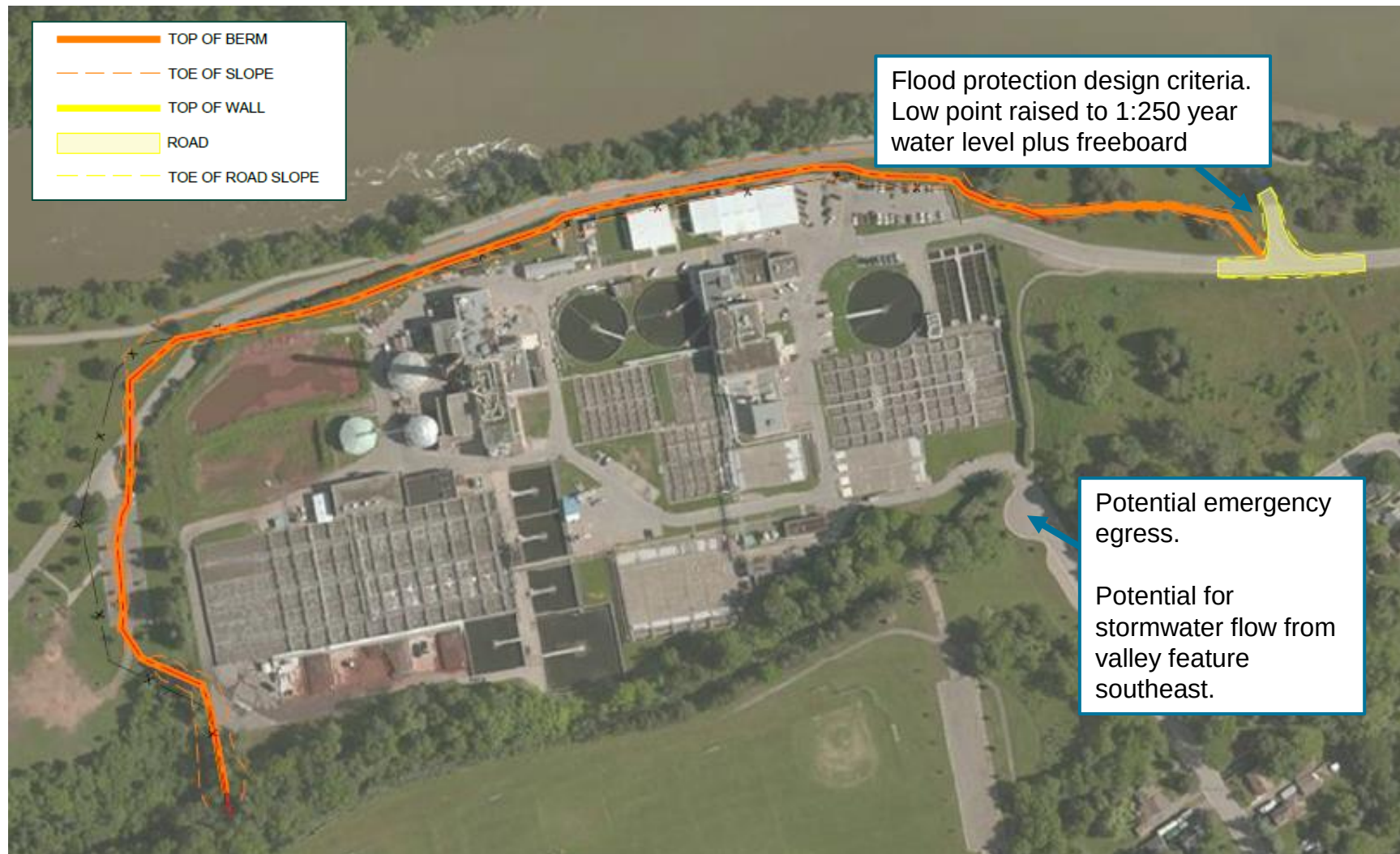
Option 2 – floodwall along trail with west berm

Option 3 – blended floodwall and berm

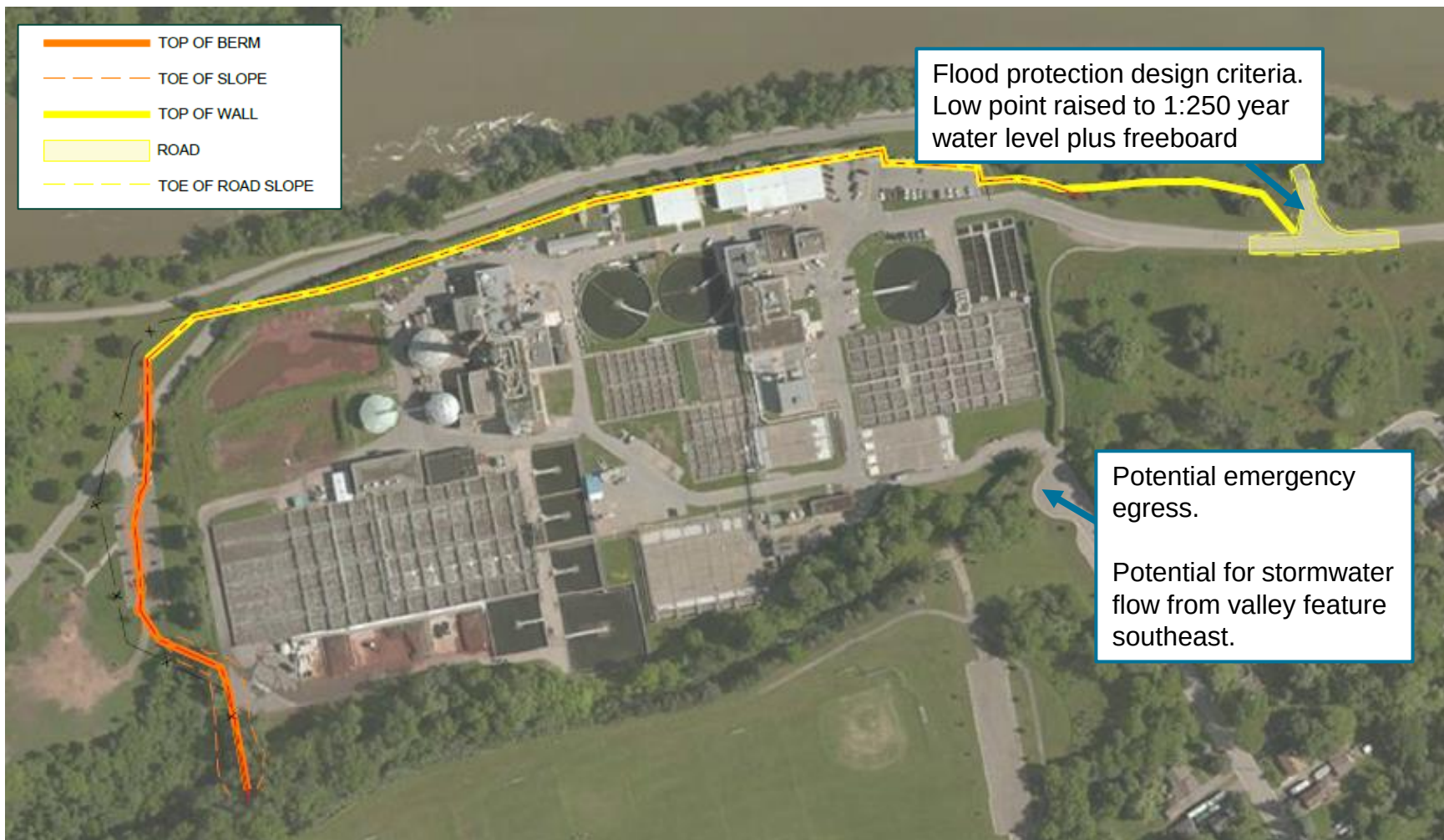
Option 4 – do nothing

Note: A pumping station is incorporated into all three of these alternative solutions (Options 1 to 3). A new effluent pump station is needed to direct treated water into the Thames River when river levels are too high for gravity drainage. This allows the treatment process to continue during rare flooding events, thereby reducing environmental impacts.

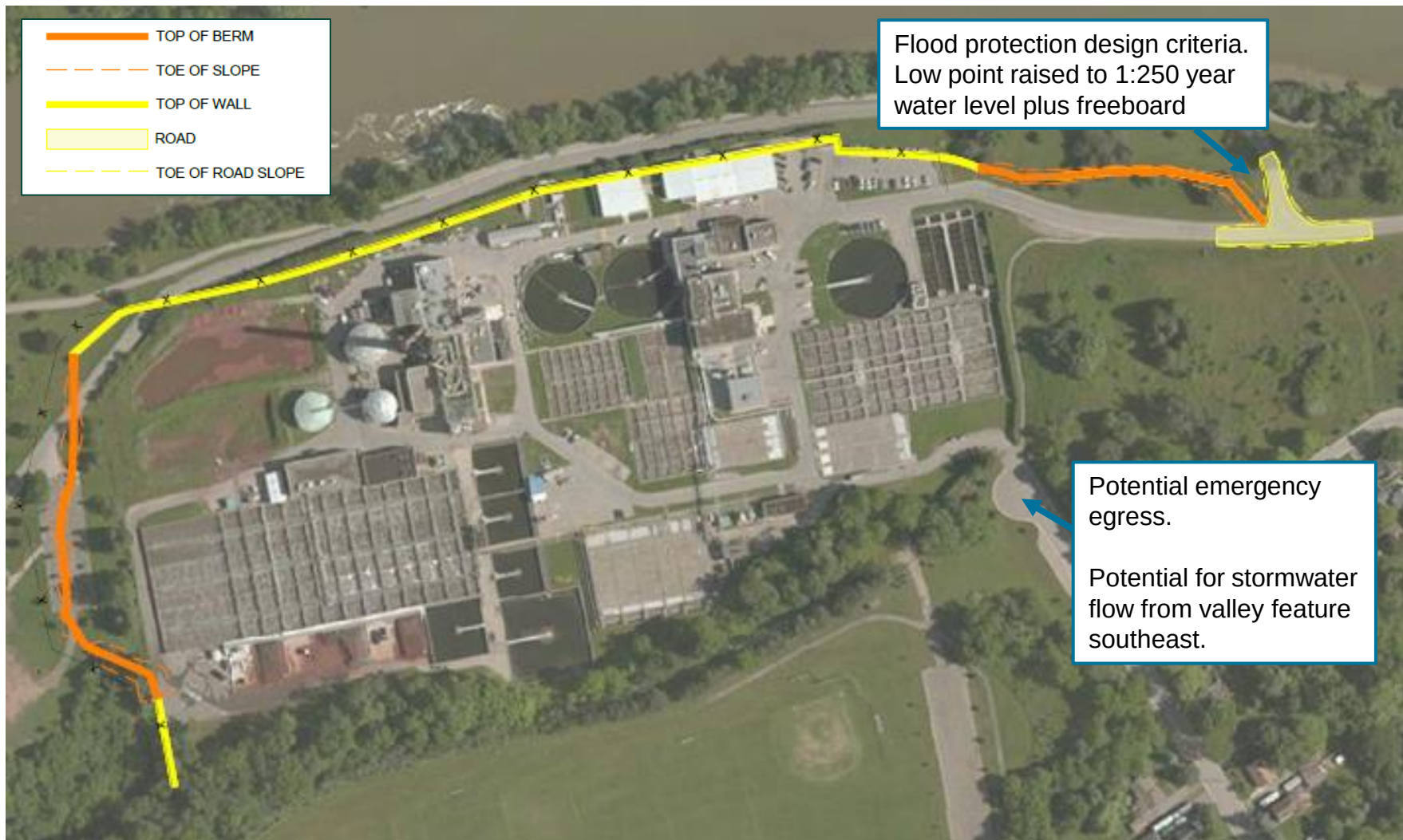
Option 1: Berm



Option 2: Floodwall along Trail with West Berm



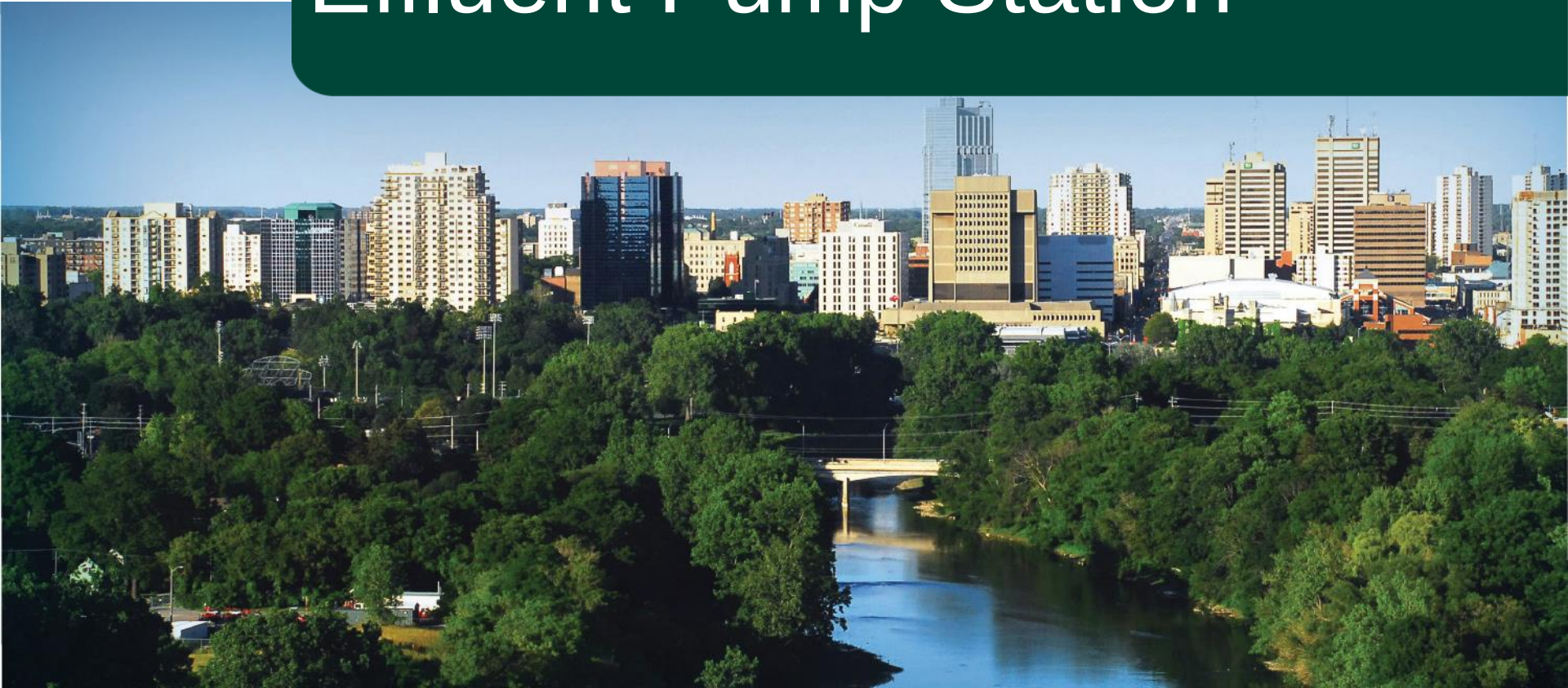
Option 3: Blended Floodwall and Berm





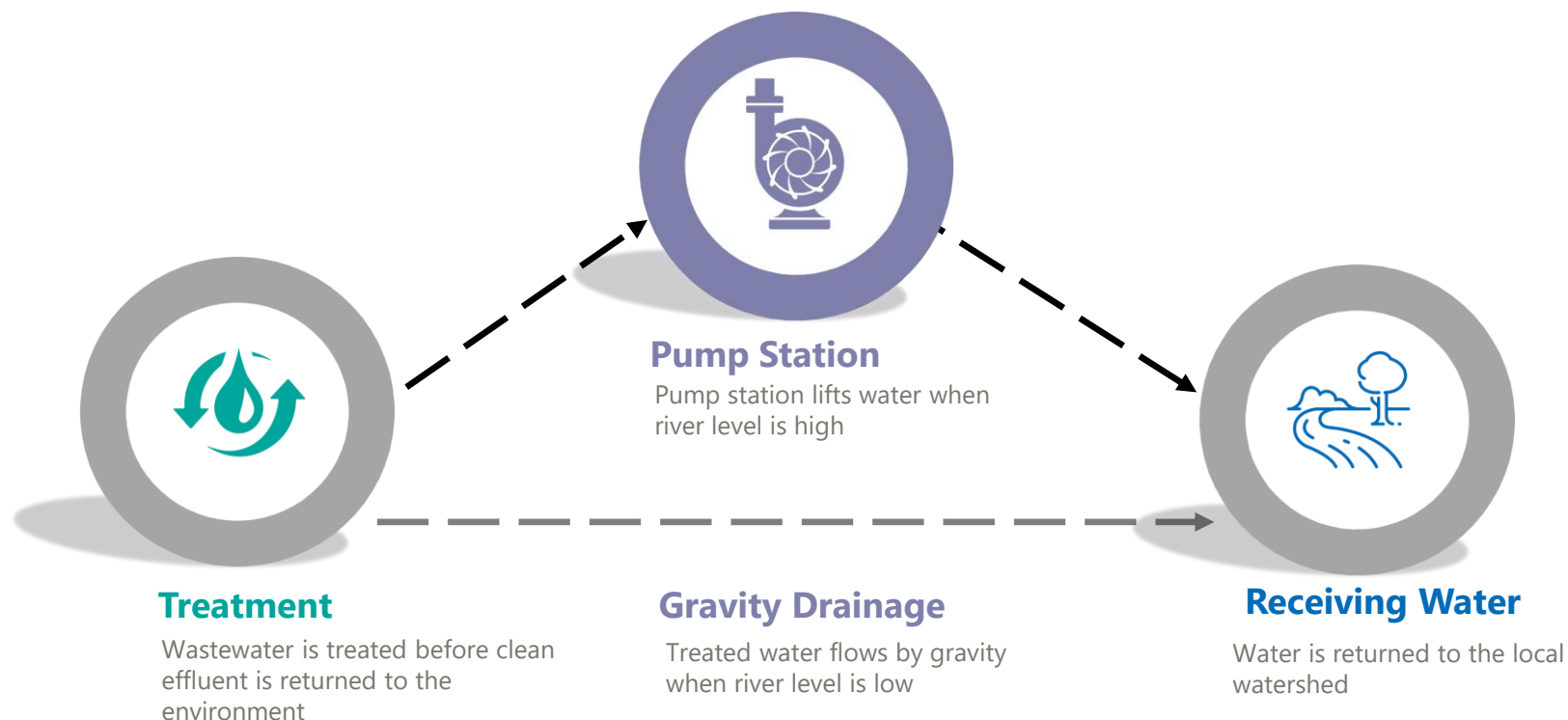
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Effluent Pump Station



Effluent Pump Station

- New effluent pump station is needed to lift treated water into the Thames River when river levels are too high for gravity drainage



Effluent Pump Station

- Located within existing treatment plant property where all treated effluent and stormwater pipes currently gravity drain.
- Equipment with shorter asset life will be sized to 512 MLD to ensure flows to the pump station can be conveyed within their lifespan.
- Pumping station structure and channels with long asset life will be sized for 600 MLD for ultimate WWTP.



Proposed location of new Greenway WWTP Effluent Pump Station
(Image Source: City of London)

Effluent Pump Station Location

- Limited land area available for pump station
- Opportunity to incorporate concrete wall of pump station into site floodwall/berm



Proposed location of new Greenway WWTP Effluent Pump Station
(Image Source: City of London ArcGIS mapping)



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Impact Assessment

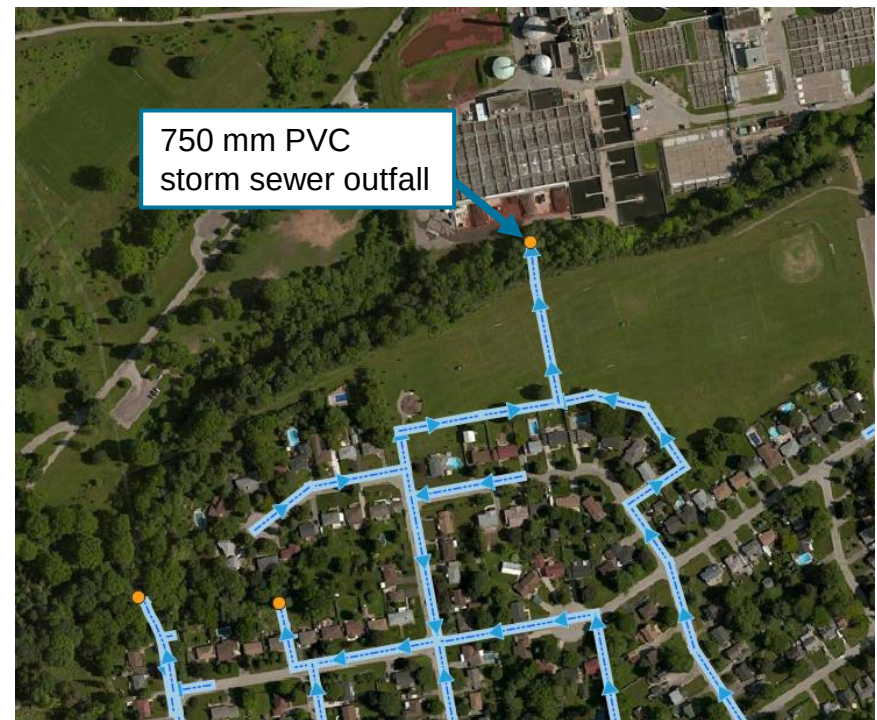


Floodplain Impact Assessment

- Previous hydraulic work as presented in PIC No. 1 indicates that protection of the WWTP from the river has no negative effect on upstream flood levels.
- Floodplain storage volume displaced due to implementation of the proposed flood protection been determined to be acceptable in terms of its potential downstream effects.

Localized Drainage Considerations

- Existing storm sewer outfall will need to be considered within each of the alternative solutions.
- Modifications may be required to ensure the flows from the existing storm sewer outlet do not enter the WWTP.
- Available area along the south side of WWTP is constrained, requiring localized drainage solutions to be well integrated.



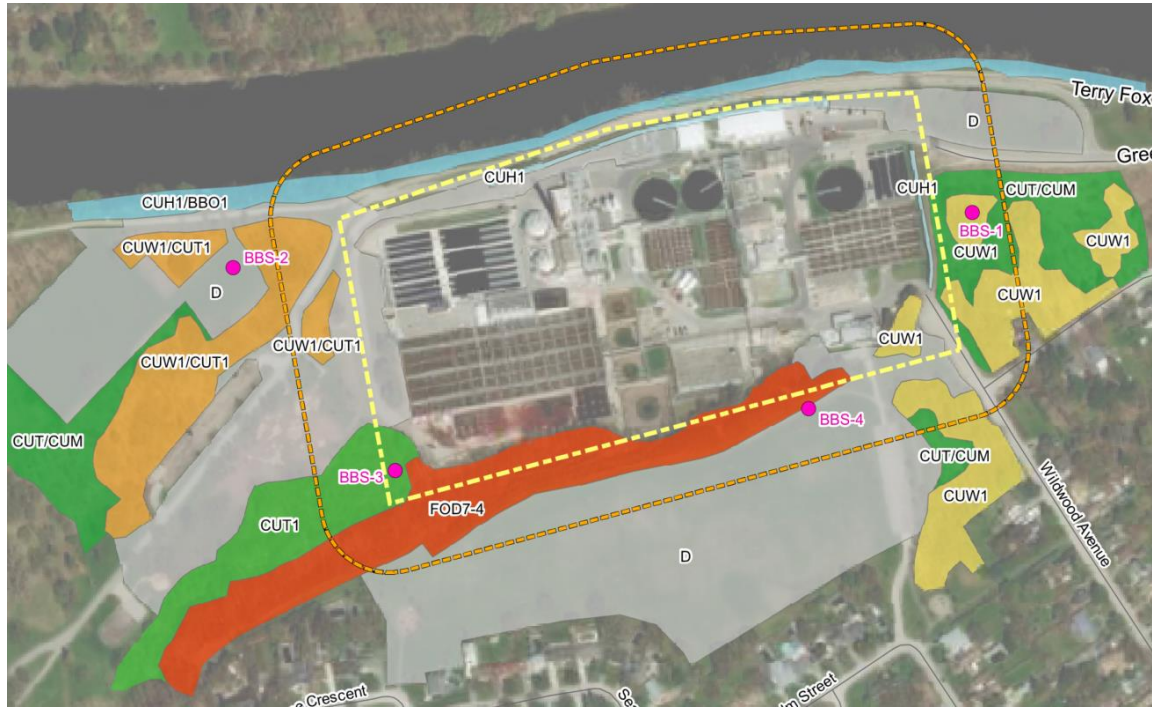
Environmental Impact Study

Key Natural Heritage Features

- Significant Valleylands (Thames River Corridor)
- Fish and Fish Habitat (Thames River Corridor)
- Candidate Significant Wildlife Habitat
- Potential and Confirmed Species at Risk

This study was completed in accordance with the City's guidelines for the preparation and review of Environmental Impact Studies.

Environmental Impact Study



● Breeding Bird Survey Point

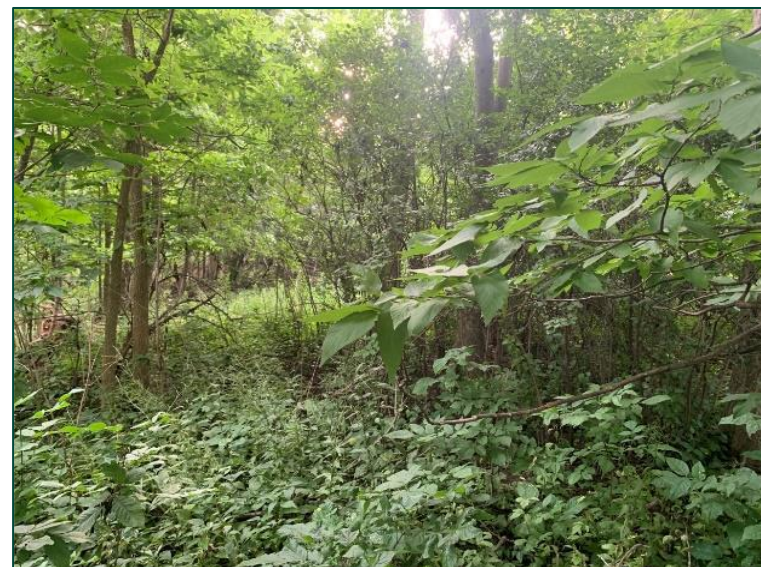
ELC Code | Description

- CUH1 | White Cedar Mineral Cultural Hedgerow
- CUH1/BBO1 | Mineral Cultural Hedgerow/Mineral Open Beach
- CUT/CUM | Mineral Cultural Thicket/Mineral Cultural Woodland
- CUT1 | Buckthorn Mineral Cultural Thicket
- CUW1 | Mineral Cultural Woodland
- CUW1/CUT1 | Mineral Cultural Woodland/Mineral Cultural Thicket
- D | Open/Disturbed
- FOD7-4 | Fresh-Moist Black Walnut Lowland Deciduous Forest

Environmental Impact Study

Impacts

- Direct Habitat Impacts
habitat loss through integration of site-level flood protection with south-western ravine slope
- Potential indirect impacts
 - Construction impacts offsite
 - Spills, erosion, and sedimentation
 - Damages to edge trees
 - Changes to moisture regime
 - Changes to structure and composition of vegetation communities (introduction of invasive species)
 - Habitat disturbance
 - Injury or incidental loss of wildlife



Grounds near the WWTP (ARA 2021)

Environmental Impact Study

Mitigation Strategies

- Respecting vegetation removal timing windows
- Following Construction Best Management Practices
- Isolating construction areas and inputting strategies to avoid incidental take
- Preventing terrestrial disturbances through identifying setbacks and restricting construction activity areas
- Developing an erosion and sediment control plan



Grounds near the WWTP (ARA 2021)

Stage 1 Archaeology Assessment

- The majority of the study area was established as either having no archaeological potential (due to prior disturbance or steep slopes) or previously assessed
- In future phases, additional studies will be required if disturbance is required in areas of “archaeological potential”.

(Archaeological Research Associates 2021)



Area of Archaeological Potential near the plant (ARA 2021)



Evaluation of Conceptual Alternative Solutions



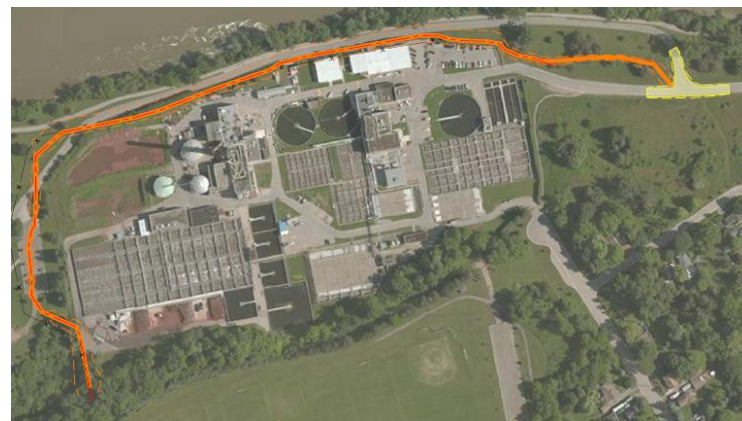
Evaluation Criteria

Technical	Economic	Environment	Social
• Level of flood protection • Construction approaches • Climate change resiliency • Wastewater treatment plant operations	• Capital costs*	• Ecology • Archaeology	• Policy Considerations • Public Input • Public land-use the (e.g., recreational) • Public safety

* The effluent pump station is common to all options. The cost of this pump station is shown separately to provide an indication of overall project costs.

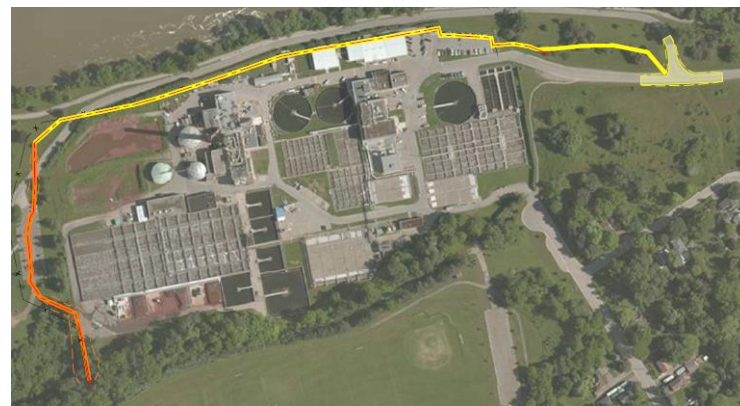
Option 1: Berm

Technical	Economic	Environment	Social
• Robust, passive flood protection • Substantial impact to existing infrastructure	• \$4.0M for the berm and raised roadway • \$10.5M for the pump station	• Approx. direct impacts: • 260 m² meadow • 550 m² woodland • 1,160 m² hedgerow • Moderate indirect impact potential without mitigation • No archaeology conflicts expected	• Substantial disruptive impacts to adjacent park infrastructure • Passive protection of critical infrastructure • Emergency ingress/egress maintained



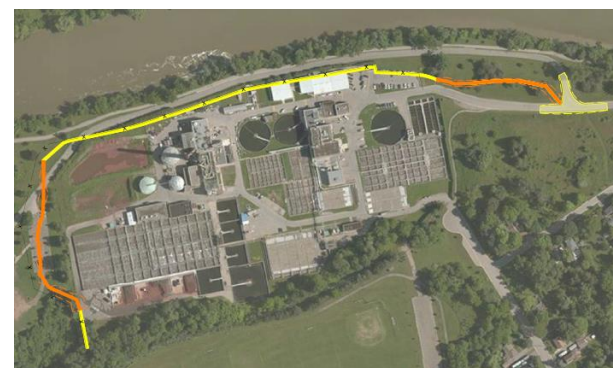
Option 2: Floodwall along Trail with West Berm

Technical	Economic	Environment	Social
• Robust, passive flood protection • Minor conflicts with existing infrastructure	• \$5.6M for the floodwall, berm, and raised roadway • \$10.5M for the pump station	• Approx. direct impacts: • 260 m² meadow • 550 m² woodland • 10 m² hedgerow • Moderate indirect impact potential without mitigation • No archaeology conflicts expected	• Floodwall may impact park aesthetic • Passive protection of critical infrastructure • Emergency ingress/egress maintained



Option 3: Blended Floodwall and Berm

Technical	Economic	Environment	Social
- Robust, passive flood protection - Minor conflicts with existing infrastructure	\$5.9M for the floodwall, berm, and raised roadway \$10.5M for the pump station	- Approx. direct impacts: 110 m² meadow 140 m² woodland 10 m² hedgerow - Moderate indirect impact potential without mitigation - No archaeology conflicts expected	- Floodwall may impact park aesthetic - Passive protection of critical infrastructure - Emergency ingress/egress maintained



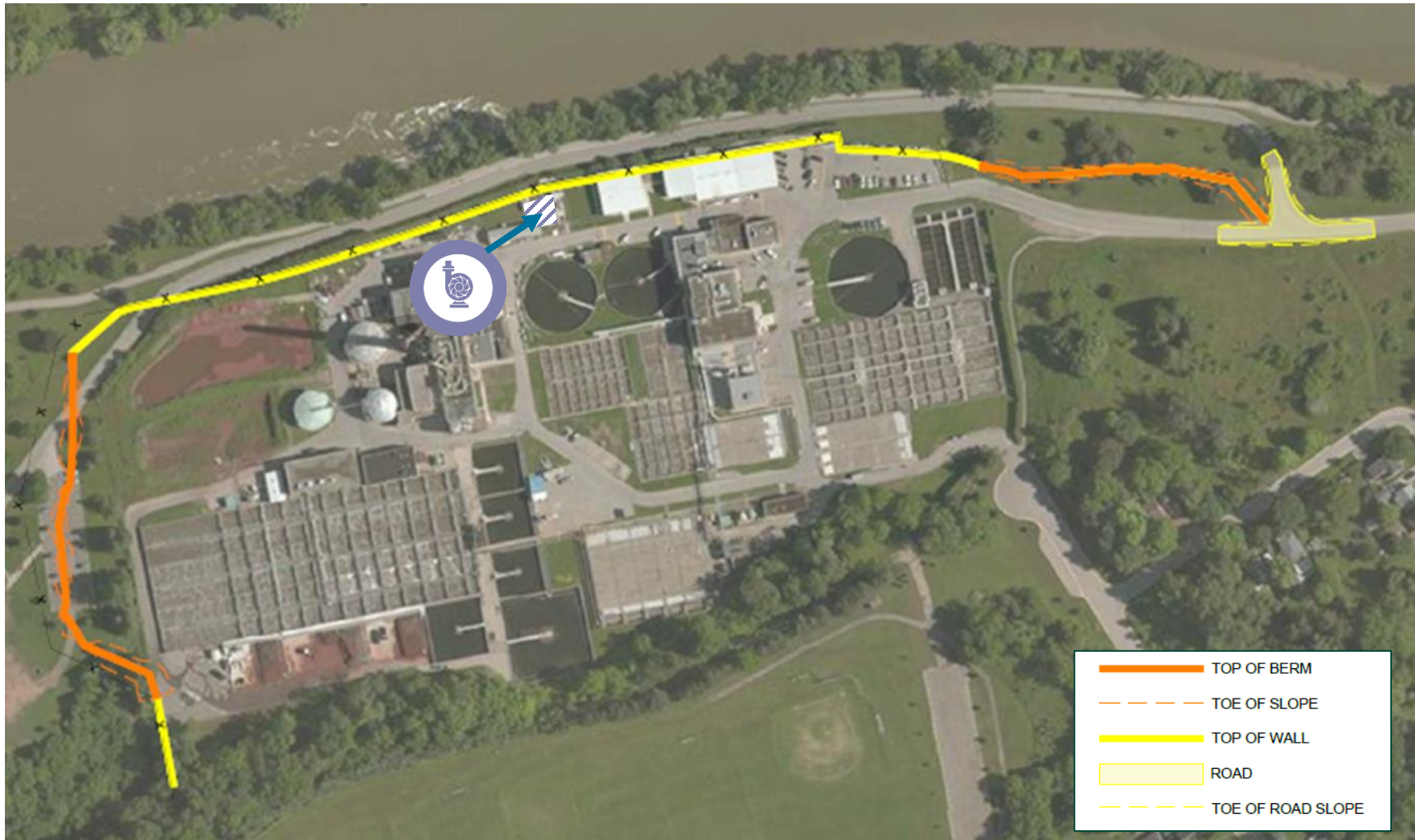
Overall Evaluation

Berm Options	Technical	Economic	Environment	Social
Option 1 – Berm	Low Not feasible, berm footprint conflicts with existing infrastructure Fully passive	High \$4.0M for berm, roadway \$10.5M for pump station	High Approx. 1,950 m ² direct habitat loss Indirect impacts	High Substantial impacts to public lands, including roadway to park
Option 2 – Floodwall along Trail with West Berm	High Feasible & practical Fully passive	High \$5.6M for floodwall, berm, & roadway \$10.5M for pump station	Medium Approx. 800 m ² direct habitat loss Indirect impacts	Low Minimal disturbance High safety
Option 3 – Blended Floodwall and Berm	High Feasible & practical Fully passive More adaptable to site conditions	High \$5.9M for floodwall, berm, & roadway \$10.5M for pump station	Low Approx. 250 m ² direct habitat loss Indirect impacts	Low Minimal disturbance Better aesthetics High safety
Option 4 – Do Nothing	Low No resiliency provided	High Potential flood damage costs	Medium No direct impacts, Flood risk not addressed	High Worker safety, plant operation, & infrastructure risk not addressed

Preliminary Preferred Solution

- **Option 1**, berm, provides adequate flood protection, however, the northern perimeter of the WWTP cannot accommodate a berm footprint and shifting the berm north of the existing WWTP perimeter is not a good option as it may destabilize the adjacent banks of the Thames River.
- **Option 2**, floodwall along trail with west berm, is viable, however, is comparative in cost to Option 3 and has higher direct environmental impacts than Option 3.
- **Option 3**, blended floodwall and berm, is the preliminary preferred solution as it is a feasible, practical, and adaptable site-level flood protection strategy. It allows for better aesthetics and also has the least environmental impact.
- **Option 4**, do nothing, does not address flood protection of the WWTP, address climate resiliency, or provide any meaningful alternative to maintaining critical infrastructure during a regulatory flood event.

Preliminary Preferred Solution (Option 3) – Design Considerations





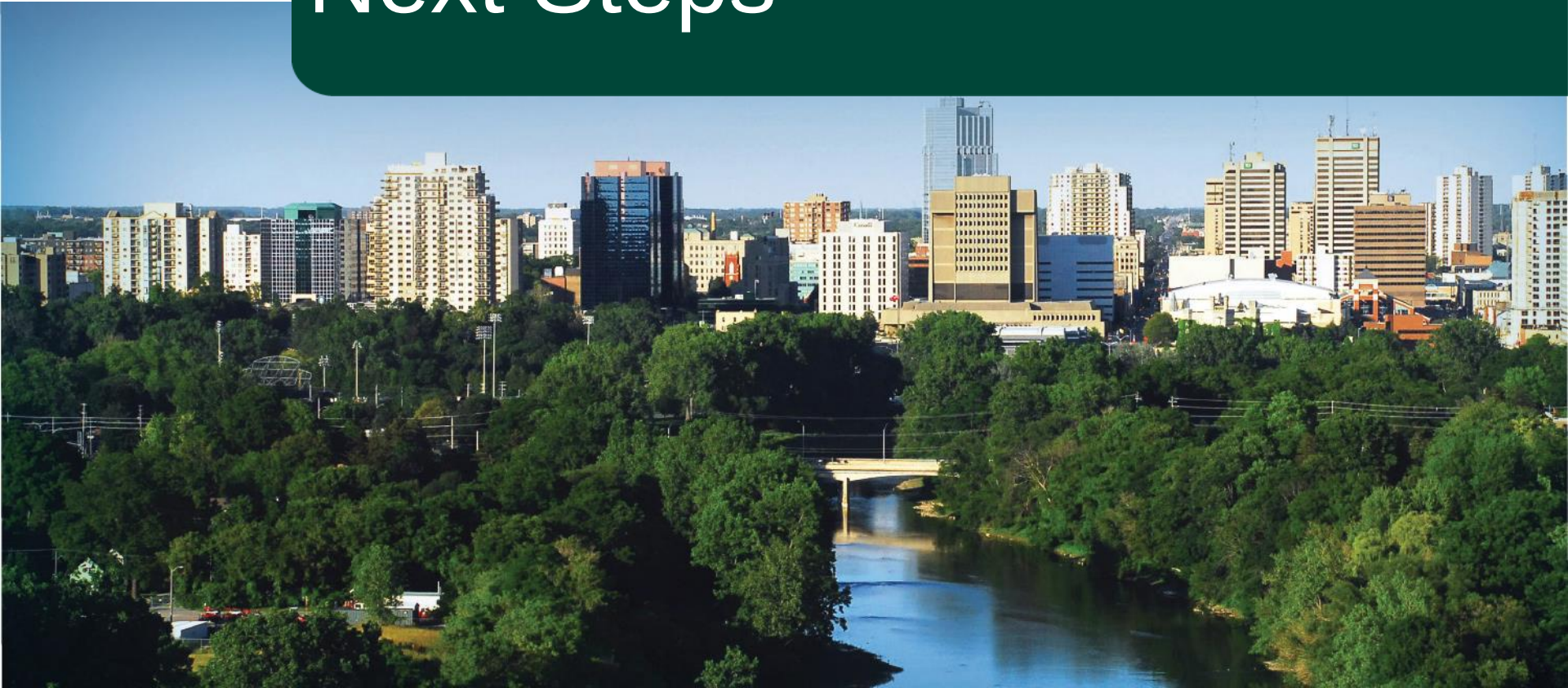
Preliminary Preferred Solution (Option 3) – Design Considerations

- The preliminary preferred solution is a blended floodwall and berm with a new effluent pump station. This option also includes a requirement for raised roadway to the east.
- Further details for the preferred solution will be developed through subsequent preliminary and detailed design.
- Localized transitions will be applied between berm and vertical floodwall treatments to best suit environmental and physical constraints. Sheet-pile floodwall will accommodate and integrate with existing and new WWTP infrastructure. Earthen berm will be used where it can be accommodated without unacceptable infrastructure impact.
- The existing 600 mm dia. forcemain from the Berkshire Pumping Station entering the site from the west and traversing close to the north property boundary will require consideration in floodwall and berm design and accommodation.
- Stormwater management strategies must be considered in future plans, including accommodation of an external area draining towards the WWTP from the south.
- Environmental mitigation strategies recommended in the Environmental Impact Study will be addressed in future design.



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Next Steps



Next Steps

Next Steps in the environmental assessment process include:

1. Incorporate input from the public, First Nations, agencies, and stakeholders
2. Confirm preferred solution
3. Distribute Notice of Completion
4. Finalize EA project report and make available for 30-day review period

Reminder

- Please complete the project survey/questionnaire, available on the *Get Involved* webpage (listed below) and email mmckillop@london.ca and sbraun@matrix-solutions.com.

<https://getinvolved.london.ca/greenway-climate-change>
- If possible, please provide input related to the Public Information Centre No. 2 by **March 25, 2022**.



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Questions

