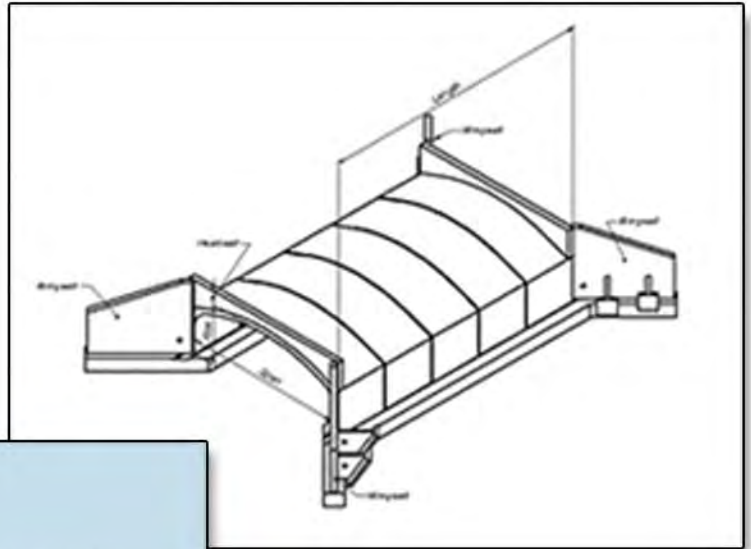


Riverside Drive Pedestrian Crossings Class Environmental Assessment



Job Number: 15-022
Date: April 2016

Executive Summary

In accordance with the approved procedures contained in the Municipal Engineers Association's Municipal Class Environmental Assessment (Class EA), an Environmental Assessment of the Riverside Drive Pedestrian Crossings has been carried out for the City of Windsor. The objective of this project was to evaluate potential alternative solutions for pedestrians crossing Riverside Drive to access Windsor's riverfront near the downtown core, considering the demand for dedicated pedestrian grade separations, the suitability of the proposed location(s), and the design constraints along the Central Riverfront. Preferred locations for improvements were identified, preliminary design concepts were presented, and a cost estimate for the project was prepared.

Two Public Drop-In Centres were held over the course of this Class EA. At each Drop-In Centre, display materials presented the background, analyses, and decision-making process that led to the preferred solution for this undertaking. A questionnaire was distributed to all attendees (and was made available on the project website) in order for the Project Team to obtain feedback on specific issues as well as general project comments from the public.

The objective of the first Drop-In Centre was to present the Project Team's recommendation for a grade-separated pedestrian underpass and the two potential locations along Riverside Drive within the Central Riverfront. After the first Drop-In Centre, the Project Team reviewed the feedback received and completed the environmental inventory assessment for each site. The second Drop-In Centre presented the Preliminary Design Considerations that were ultimately refined to comprise the Preferred Solution for the project.

The ultimate final design of the underpasses and plaza areas is not required to be finalized as part of this Schedule B Environmental Assessment. As part of the EA process, a preferred design was developed to define the set of parameters that should be adhered to during detailed design, should the City of Windsor elect to proceed with construction of the project. The parameters are based on site constraints, environmental considerations and feedback from the public and other stakeholders. The final design of the underpass and plaza areas would be part of a detailed design process, which can commence upon completion of this EA process.

To illustrate how the preferred solution could be translated to each of the site locations, some sketches and images of preliminary designs have been included in this Project File. The sketches and images were presented at the second Drop-In centre as part of the preliminary design considerations, and should not be regarded as final designs for either location. Rather, the images are intended to illustrate the scale of the space, as well as the general number of stairs and ramps required to accommodate the 3.5 metre change in elevation between the underpass floor and the surrounding ground level.

After consideration of all feedback received (Drop-In Centre questionnaires, correspondence received from project stakeholders and the public), as well as discussion with the City and other member of the Project team the following criteria were established as the preferred solution for an underpass at either preferred location.

Underpass Structure:

- 26 metre minimum length (Aquatic Centre Site)
- 25 metre minimum length (Civic Esplanade Site)
- 3 metre interior height / rise (minimum)
- 8 metre to 12 metre wide clear span
- 0.8 metre minimum cover above the structure
- Headwall heights as needed to meet existing grade
- Wingwall dimensions: to be determined during detailed design

South Plaza:

- Accessible ramps
- Seating areas and/or seatwalls
- Railings
- Lighting for security and ambiance
- Landscaping
- Site drainage

A cost estimate was prepared based on the preferred solutions. The estimate was broken down into two sections; the underpass structure itself and the south plaza area. The estimates represent the scope of work required to meet the basic requirements of an underpass as described in this EA. The total estimate to construct an underpass at one of the preferred locations is \$3 million. Should the City of Windsor elect to expand the scale of the underpasses to incorporate additional features or to construct the structures on a grander scale, the cost estimate should be reviewed and revised accordingly.

At this time the Class EA process has been substantially completed and this Project File has been compiled. The Notice of Completion has been published (as of March 24th) and the 30 day review period has now begun. Interested parties have until April 25th, 2016 to submit comments to Landmark Engineers Inc. or the City's Clerk's office. If any concerns cannot be resolved, a person may request that the Minister of the Environment make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order) which addresses individual environmental assessments. If no Part II Orders are received as a result of the Notice, the City of Windsor may proceed at their discretion with the design and construction of the project if desired.

Table of Contents

Section 1:	Project Information and Overview
Section 2:	Public Consultation Process
Section 3:	Environmental Inventory
Section 4:	Preferred Solution and Cost Estimate
Section 5:	Correspondence
Section 6:	Distribution List and Communications Inventory
Section 7:	AMICK Consultants Report
Section 8:	Golder Associates Report
Section 9:	BioLogic Inc. Report

1.0 Project Information and Overview

This section of the Project File presents general project information including a project overview, a summary of the project's background, the problem/opportunity statement and a description of the project file and status. This section also summarizes the relevant background information that was obtained and reviewed as part of the Class EA process.

1.1 Project Overview

In accordance with the approved procedures contained in the Municipal Engineers Association's Municipal Class Environmental Assessment (Class EA), an environmental assessment of the Riverside Drive Pedestrian Crossings has been carried out for the City of Windsor. The objective of this project was to evaluate potential alternative solutions for pedestrian crossing Riverside Drive to access Windsor's riverfront near the downtown core, considering the demand for dedicated pedestrian grade separations, the suitability of the proposed location(s), and the design constraints along the Central Riverfront. Preferred locations for improvements were identified, preliminary design concepts were presented, and a cost estimate for the project was prepared.

1.2 Background

In September of 2000, Windsor City Council adopted the Central Riverfront Implementation Plan (CRIP), which was intended to guide the design of park lands, open space, buildings, circulation networks, and public infrastructure within Windsor's Central Riverfront district for the subsequent 25 years. The original CRIP document included a recommendation to construct grade-separated crossings of Riverside Drive in order to link the Riverfront Park with the neighbourhoods to the south – including one to be located immediately west of the Art Gallery of Windsor, and one in line with the Civic Esplanade between Goyeau Street and McDougall Street.

In July of 2013, Windsor City Council resolved to embark upon a city-wide review of the CRIP document, aimed at:

- obtaining feedback from the general public with regard to the original vision for the long term development of the Riverfront Park; and,
- soliciting input from the public with regard to its priorities for further implementation of the plan.

This review, which included 11 Open House presentations at locations throughout the City, found that a strong majority (72%) of survey respondents agreed that either pedestrian bridges or underpasses crossing Riverside Drive should be considered where warranted by the volume of pedestrians. In order to proceed with the construction of one or more grade separations along the Central Riverfront, the City of Windsor needed to satisfy the requirements of the Ontario Environmental Assessment Act.

Landmark Engineers Inc. was retained by the City of Windsor to carry out the necessary Class Environmental Assessment on September 16th, 2015.

1.3 Problem/Opportunity Statement

At the outset of the Class EA process, the following Problem / Opportunity statement was developed to guide and direct the study:

“This study will: evaluate the merits of constructing of grade-separated crossings along the Central Riverfront to alleviate pedestrian crossing conflicts on Riverside Drive; and, present preliminary design options for the chosen locations.”

1.4 Project File

Since the project is proceeding as a ‘Schedule B’ activity under the Municipal Class Environmental Assessment, the City of Windsor is required to maintain an official Project File that will be made available to the public for review and comment. The balance of this document represents the Project File.

1.5 Project Status

The Class EA process has been substantially completed and this Project File has been compiled. The Notice of Completion has been published and the 30 day review period has begun. Interested parties have 30 calendar days (from the date of Notice) to submit comments. If the concerns cannot be resolved, a person may request that the Minister of the Environment make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order) which addresses individual environmental assessments.

If no Part II Orders are received as a result of the Notice, the City of Windsor may proceed with the design and construction of the project if and when it is desired.

2.0 Public Consultation Process

2.1 Public Drop-In Centre

Two Public Drop-In Centres were held over the course of this Class EA. This section of the Project File contains the reproductions of all of the display panels that were presented at each of the drop-in centres, along with a document that explains the purpose of each slide. These slides present the background, analyses, and decision-making process that led to the preferred solution for this undertaking.

A copy of the questionnaire that was distributed at each open house is included as well as a copy of all of the received (filled out) questionnaires from each drop-in centre.

For convenience, the display materials have been separated into the following sections:

- Drop-In Centre No. 1 – Thursday, October 15, 2015
- Drop-In Centre No. 2 – Wednesday, November 25th, 2015

2.2 Project Website

The display material can also be viewed on the City of Windsor's website (www.windsorEAs.ca). Simply locate the project name (Riverside Drive Pedestrian Crossings Class Environmental Assessment) from the list of projects on the left hand side of the page. The website was maintained and updated throughout the course of the study.

2.3 Notices

The following Notices were sent to key project stakeholders and the public to notify them of the Public Drop-In Centres and provide an opportunity to comment:

- Notice of Intent & Invitation to Comment (Public Drop-In Centre No. 1) – October 2, 2015
- Invitation to Comment (Public Drop-In Centre No. 2) – November 9, 2015
- Notice of Completion – March 18, 2016

The Notices were published in the Windsor Star to inform the public of the Public Drop-In Centre dates, times and locations. A copy of the Notices can be found in Section 5 of the project file.

Riverside Drive Pedestrian Crossings Class Environmental Assessment

Public Drop-In Centre No. 1

Explanation of the Presented Material

Slides 1 to 4 – Introduction/Background/Process

These slides provide background information regarding the Project Team, the project and the Environmental Assessment (EA) process that will be followed.

Slides 5 and 6 – Types of Crossings and Alternatives

Slide 5 presents the different types of crossings that were considered. Slide 6 presents the advantages and disadvantages of the crossing alternatives, with photo examples of each type of crossing.

Slide 7 – CRIP Review Recommendations

This slide presents the recommendations that came out of the Central Riverfront Implementation Plan (CRIP) Review study that was completed in 2013. The strong support that was received for a grade-separated crossing during the CRIP Review prompted this Class Environmental Assessment.

Slide 8 – Grade-Separated Crossings Assessment

This slide presents the advantages and disadvantages of a pedestrian underpass and pedestrian overpass crossing. The assessments led the Project Team to recommend that a pedestrian underpass should be considered over a pedestrian overpass.

Slide 9 – Crossing Locations

This slide illustrates the locations along Riverside Drive that have been previously identified for enhanced crossings.

Slide 10 – Evaluation of Locations

This slide uses a bar graphic to evaluate the suitability of an underpass at various location along Riverside Drive, based on a list of design criteria. The matrix confirms that the two locations identified in the CRIP and CRIP Review are the ideal locations for a pedestrian underpass.

Slide 11 to 13 – Potential Locations

These slides take a closer look at the two sites identified in slide 10. Information pertaining to the sites (as well as the opportunities and constraints) of each site are presented.

Slides 14 to 17 – Environmental Inventory

These slides present the environmental inventory that has been compiled for the two site locations. This information will be updated as the project progresses, and the commissioned studies are completed.

Slide 18 – Cross Sections

This slide presents a cross section of the site for each of the identified underpass locations, highlighting existing utilities and potential conflicts.

Slides 19 to 21 – Underpass and Plaza Image Analysis

These slides present images of different types of underpass crossings, plaza areas and site elements (such as water features, seating areas, and sculptures) that could be incorporated into the preferred solution.

Slide 22 – Possible Solution

This slide presents a preliminary possible solution which incorporates many of the ideas presented in the preceding slides. The solutions will be refined based on feedback obtained from the questionnaires.

Slide 23 – Next Steps

This slide outlines the next steps that will be taken.

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Welcome to the Public Drop-In Centre

- All relevant information regarding this project (including the display material presented today) is available for public review on the City of Windsor's website (www.WindsorEAs.ca) and select 'Riverside Drive Pedestrian Crossings Class Environmental Assessment' from the list on the left hand side of the page.
- Please sign in to record your attendance.
- Please review the display material and provide any comments on the questionnaire provided. You may submit your comments by mail/fax/e-mail or you may place them in the Comment Box.
- All comments for this Drop-In Centre must be received by **November 5th, 2015** to be given consideration in the preferred solution. Contact information for the Project Team is available in the handout provided.
- The Project Team members present will be pleased to discuss any questions you may have.

PROJECT TEAM

This study has been initiated by the City of Windsor. Landmark Engineers Inc. has been retained by the City to serve as the Lead Consultant on the project.

Any comments, questions or suggestions relevant to this study should be directed to the following primary members of the Project Team:



Daniel M. Krutsch, P.Eng.
Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, Ontario, N9C 4E4
Phone: (519) 972-8052
Fax: (519) 972-8644
Email: dkrutsch@landmarkengineers.ca



Paul Mourad, P.Eng.
City of Windsor Public Works
350 City Hall Square West, 4th Floor
Windsor, Ontario, N9A 6S1
Phone: (519) 255-6257 ext.6119
Fax: (519) 255-9847
Email: pmourad@citywindsor.ca



RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Background

In September of 2000, Windsor City Council adopted the Central Riverfront Implementation Plan (CRIP), which was intended to guide the design of park lands, open space, buildings, circulation networks, and public infrastructure within Windsor's Central Riverfront district for the subsequent 25 years. The original CRIP document included a recommendation to construct **grade-separated crossings** of Riverside Drive in order to link the Riverfront Park with the neighbourhoods to the south – including one to be located immediately west of the Art Gallery of Windsor, and one in line with the Civic Esplanade between Goyeau Street and McDougall Street.



In July of 2013, Windsor City Council resolved to embark upon a city-wide review of the CRIP document, aimed at:

- obtaining feedback from the general public with regard to the original vision for the long term development of the Riverfront Park; and,
- soliciting input from the public with regard to its priorities for further implementation of the plan.

This review, which included 11 Open House presentations at locations throughout the City, found that a strong majority (72%) of survey respondents agreed that either pedestrian bridges or underpasses crossing Riverside Drive should be considered where warranted by the volume of pedestrians. In order to proceed with the construction of grade-separated crossings along the Central Riverfront, the City of Windsor will need to satisfy the requirements of the Ontario Environmental Assessment Act.

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Purpose

This Drop-In Centre is intended to:

- Present the Problem / Opportunity Statement for the Project
- Introduce the members of the Project Team
- Present the scope of the Class Environmental Assessment (Class EA) process
- Present the design alternatives that are being considered
- Obtain feedback from local residents and community groups

Problem / Opportunity Statement

“This study will: evaluate the merits of constructing grade-separated crossings along the Central Riverfront to alleviate pedestrian crossing conflicts on Riverside Drive; and, present preliminary design options for the chosen locations.”

Environmental Assessment Process

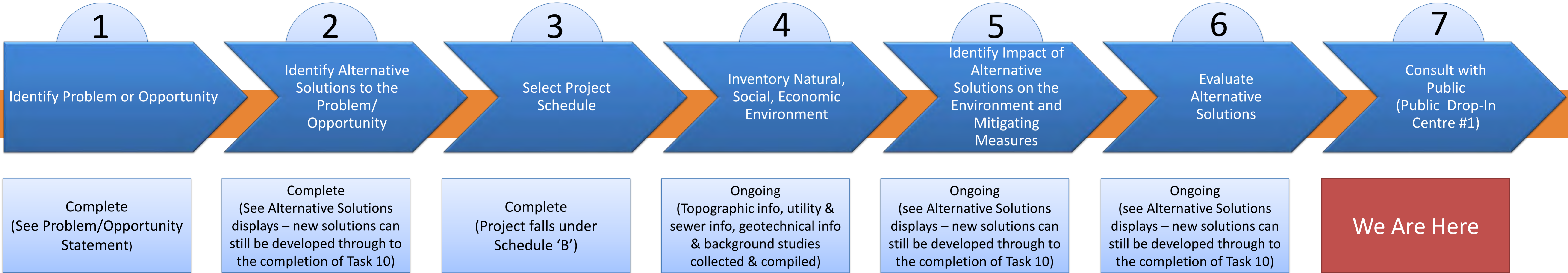
- This project will follow the planning process set out in the Municipal Engineers Association’s *Municipal Class Environmental Assessment (Class EA)*. A copy of this document, which sets out the details of the approved Planning and Design Process for municipal projects (such as this), is on-site and is available for review.
- Since the Riverside Drive Pedestrian Crossings Class Environmental Assessment will be focusing on one element of the original Central Riverfront Implementation Plan (CRIP) master plan, the Project Team has concluded that this project falls under Schedule ‘B’ of the *Municipal Class EA*.
- For ‘Schedule B’ projects, only one point of Public Consultation is required. Because this is a high-profile project, the Project Team has elected to increase the level of public consultation (over and above the minimum requirement), and host **two** of these Public Drop-In Centres.

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

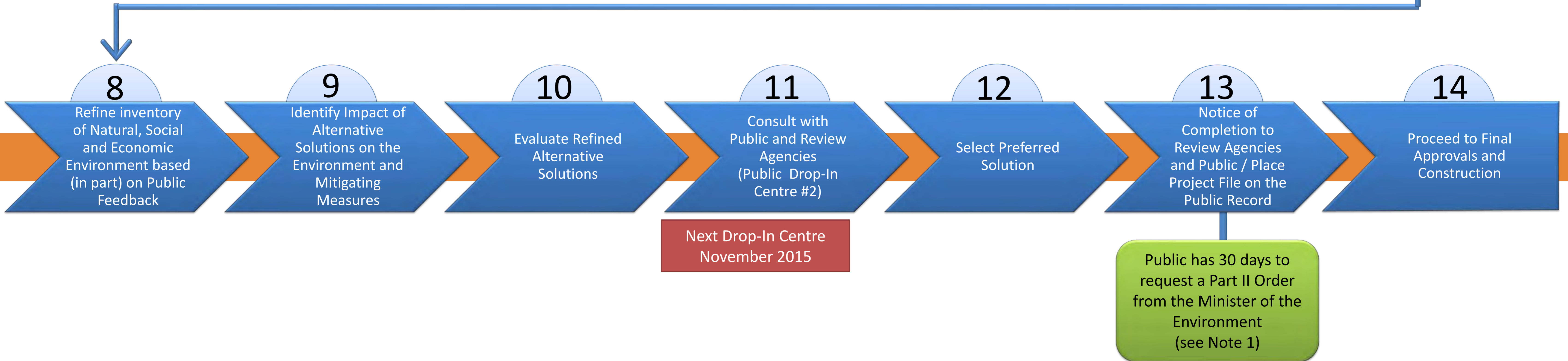
CLASS ENVIRONMENTAL ASSESSMENT

Environmental Assessment Process

Where we have been:



Where we are going:



Note: 1. In accordance with the terms of the Municipal Engineers Association's *Municipal Class EA*, if concerns regarding this project cannot be resolved with the Municipality, any member of the public may request that the Minister of the Environment make an order for the project to comply with Part II of the EA Act - requiring an individual EA (not Class EA).

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

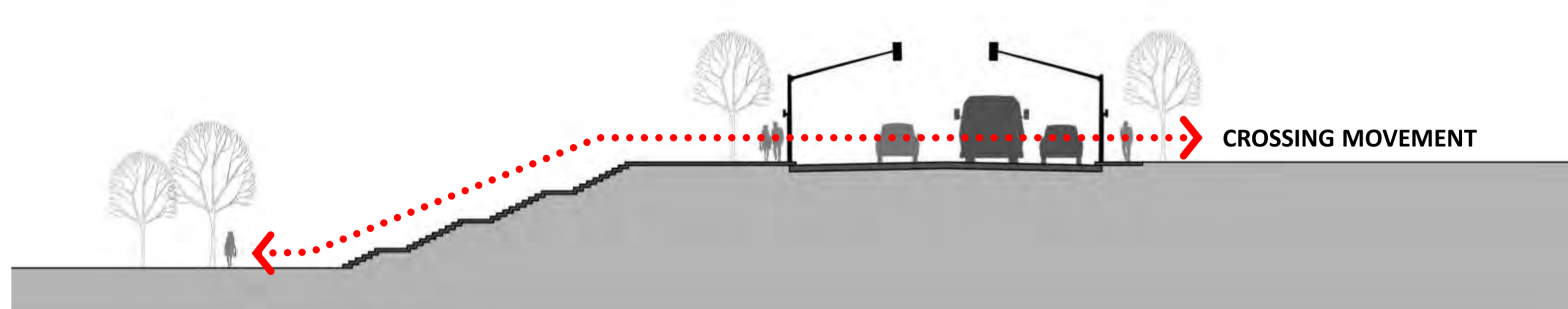
CLASS ENVIRONMENTAL ASSESSMENT

Types of Crossings

The CRIP Study provided for connections at strategic points between the north and south sides of Riverside Drive. Some of the crossings are “at-grade” – a traditional street level crossing. Some are “grade-separated” crossings consisting of either pedestrian bridges or underpasses. At-grade crossings make sense where there is only light pedestrian traffic. However, consideration for grade-separated crossings may be warranted where there are a large number of pedestrians (EXAMPLES: crossing Riverside Drive near the Festival Plaza, the Aquatic Centre, or the University of Windsor).

AT-GRADE CROSSING:

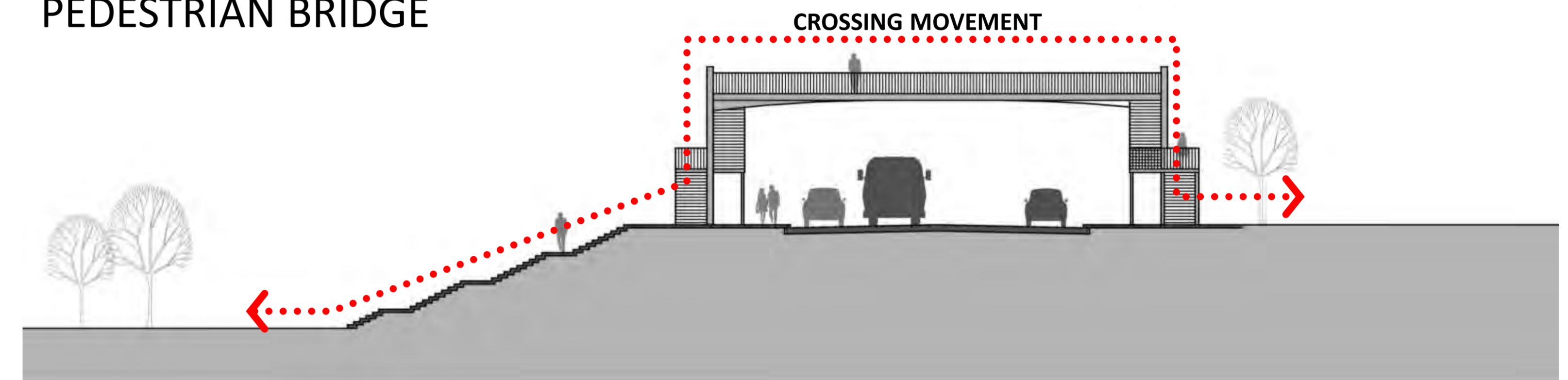
STREET LEVEL



An “At-Grade Crossing” OR “Street Level Crossing” requires crossing the street and going down one level to get to the park which is typically 3 to 4 metres lower than Riverside Drive.

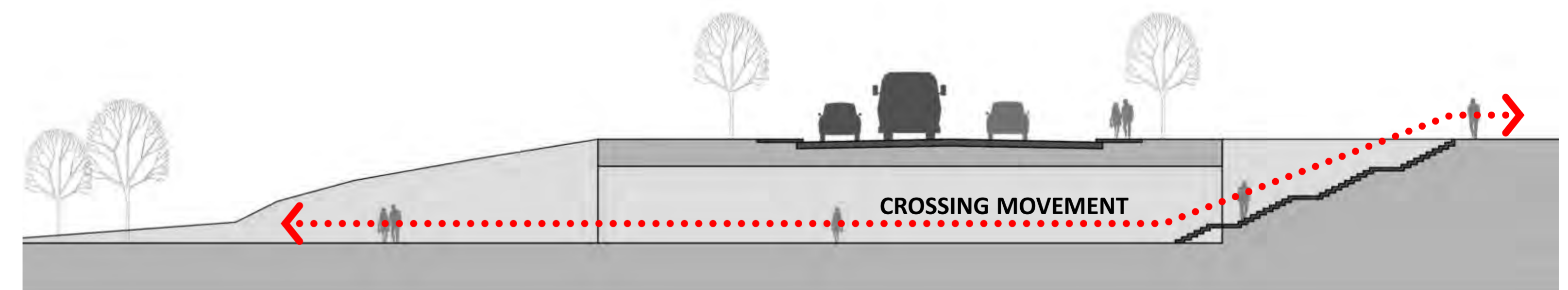
GRADE-SEPARATED CROSSING OPTIONS:

PEDESTRIAN BRIDGE



A pedestrian bridge would require going up a level to the bridge height, crossing the street, going down one level to the street, and then going down a second level to access the Riverfront Park.

PEDESTRIAN UNDERPASS



A pedestrian underpass requires much the same effort as a street level crossing, except that pedestrians would go down one level on the south side of Riverside Drive and then cross under the street at park level.

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Evaluation of Alternatives

DO NOTHING:

Advantages

- No direct cost.
- No disruption to existing infrastructure .
- No additional maintenance needs.

Disadvantages

- Does not remove conflict between vehicular and pedestrian traffic.
- Does not improve connectivity of the riverfront to the neighbourhoods south of Riverside Drive.

ENHANCED AT-GRADE CROSSING:

Advantages

- Signalized intersection adds a level of safety.
- Improved aesthetics.
- Raised pavement and landscaping provide 'traffic calming' effect.
- Minimal maintenance required.

Disadvantages

- Does not remove conflict between pedestrians and vehicular traffic.
- Pedestrians do not always obey the traffic signals.

GRADE-SEPARATED CROSSING:

Advantages

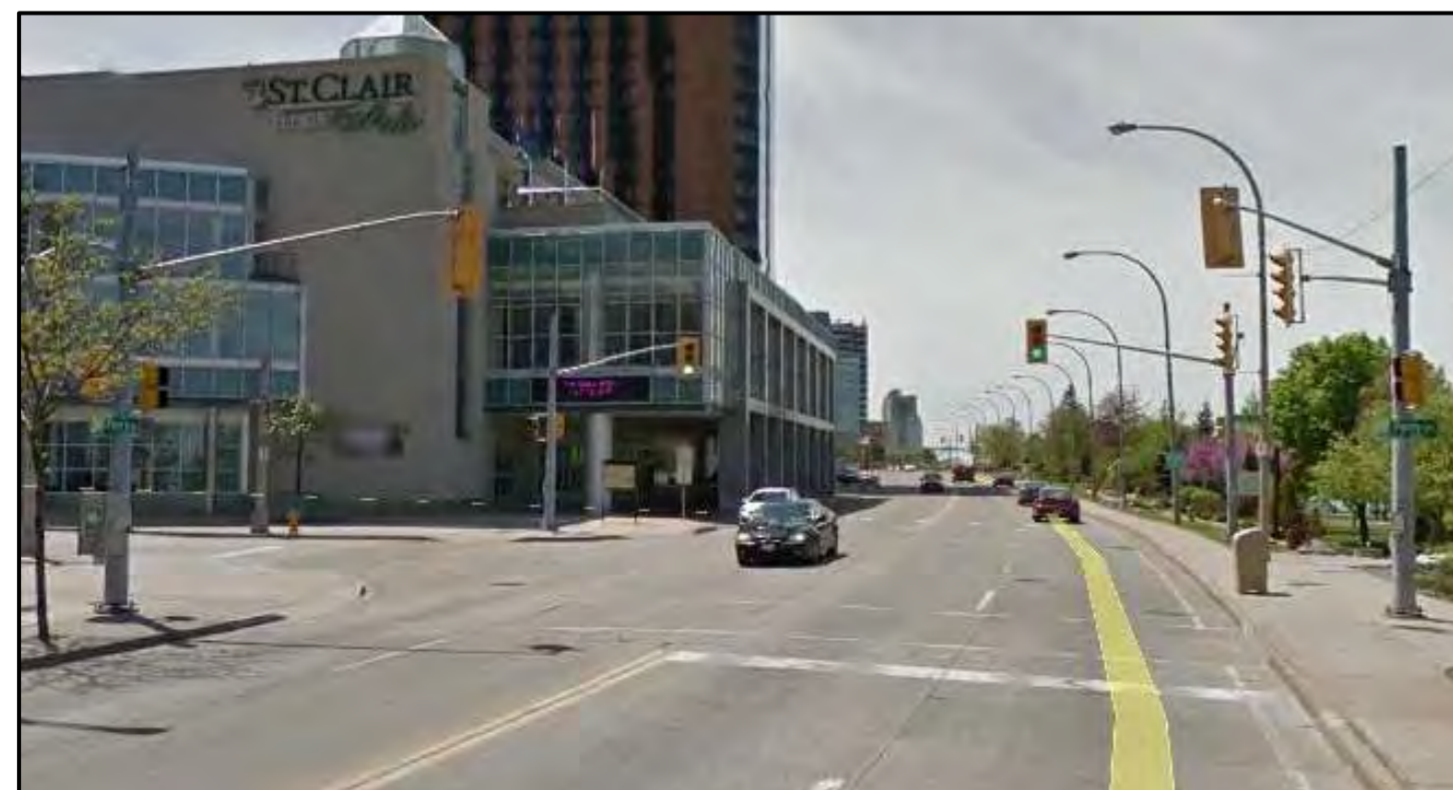
- Removes the conflict of pedestrians and vehicular traffic.
- Improves connectivity of the riverfront to the neighbourhoods south of Riverside Drive.

Disadvantages

- Highest initial capital cost.
- Increased maintenance requirements.

Examples of Crossings

ENHANCED AT-GRADE CROSSINGS:



GRADE-SEPARATED CROSSINGS (PEDESTRIAN BRIDGES AND UNDERPASSES):



RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

CRIP Review Recommendations

The following recommendations were made in the CRIP Review report based on the results of the survey and the comments received from the public:

- That **consideration be given to incorporating improved “at grade” pedestrian crossings** in order to improve pedestrian safety and improve the connection between the riverfront and the area south of Riverside Drive (in keeping with the recommendations already included in the City’s Riverside Drive Vista Improvement Project).
- Where warranted because of pedestrian volume, **consider constructing pedestrian crossings that separate the pedestrian traffic crossing Riverside Drive from the vehicular traffic**. Such locations may include: the area behind the Festival Stage (connecting to the Civic Esplanade), the area north of the Aquatic Centre, and a location near the University of Windsor.
- Where warranted, **consider the use of a pedestrian underpass rather than a pedestrian bridge**. The pedestrian underpass should be of substantial width and should incorporate a high level of lighting and high quality materials. Consideration should be given to providing a gathering place or “plaza” area at each end of the underpass as well, complete with systems for security.
- Give a high priority to the installation of **pedestrian underpasses where warranted by a large volume of potential pedestrians**.

A strong majority (72%) of survey respondents agreed that either pedestrian bridges or underpasses crossing Riverside Drive should be considered where warranted by the volume of pedestrians.

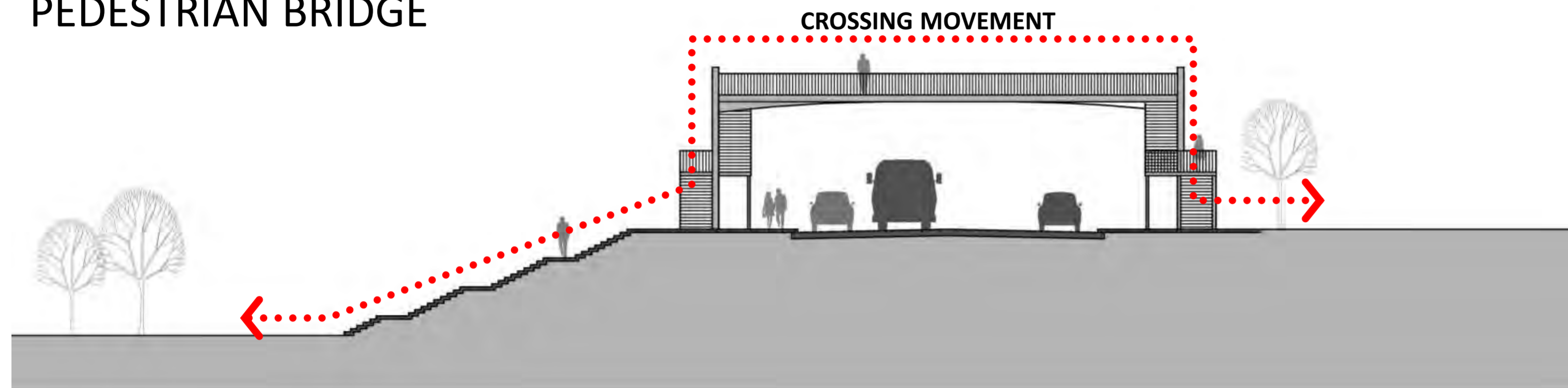
The 2013-2014 CRIP review also specifically noted the area immediately west of the Art Gallery and the extension of the Civic Esplanade (between Goyeau Street and McDougall Street) as prospective locations for a pedestrian grade separation, confirming the recommendations of the original 2000 plan.

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Grade-Separated Crossings – Assessment:

PEDESTRIAN BRIDGE



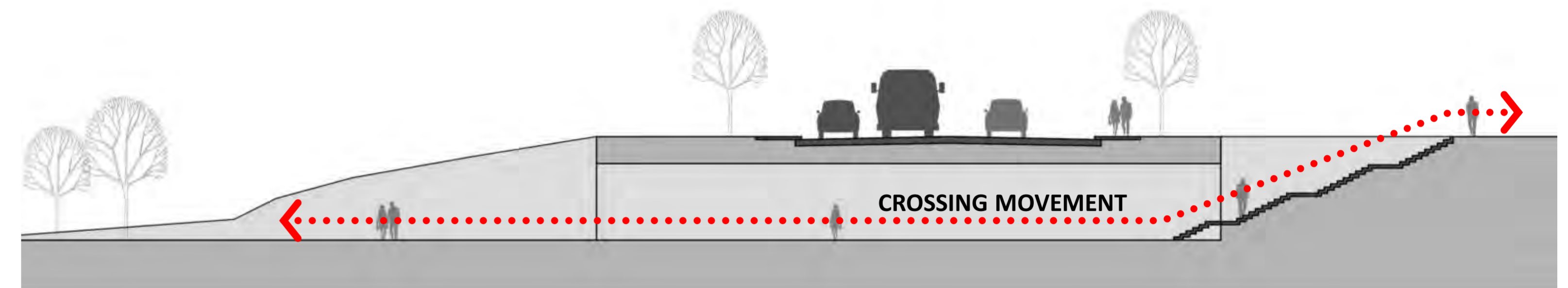
Advantages

- Separates pedestrian traffic from vehicular traffic.
- Improves connectivity of the Riverfront to the neighbourhoods south of Riverside Drive.
- High visibility aids with public safety and deters vandalism.

Disadvantages

- The crossing movement is much greater in length than the at-grade or underpass crossing. Pedestrians must go up one story and then come down two stories to reach the Riverfront Park level.
- More than three times as much ramp length is required for accessibility vs. that of an underpass (minimum 195m of ramp required).
- Ramp space is required on the north side of Riverside Drive which would encroach into limited parkland available along the riverfront.
- Winter maintenance of the stairs and ramps would require clearing by hand (not accessible by mechanical plow).

PEDESTRIAN UNDERPASS



Advantages

- Separates pedestrian traffic from vehicular traffic.
- Improves connectivity of the Riverfront to the neighbourhoods south of Riverside Drive.
- Does not add any additional crossing movements to reach the level of Riverfront Park.
- Ramps for accessibility only required on the south side of Riverside Drive (minimum 60m of ramp required).
- Less winter maintenance (only one ramp and one set of stairs to maintain).

Disadvantages

- Potential lack of visibility for personal safety and vandalism.
 - ❖ MITIGATING MEASURE: Lighting can be added to help visibility at night. The width and orientation of the underpass opening can be designed to maximize visibility from each side.

Preliminary Recommendation

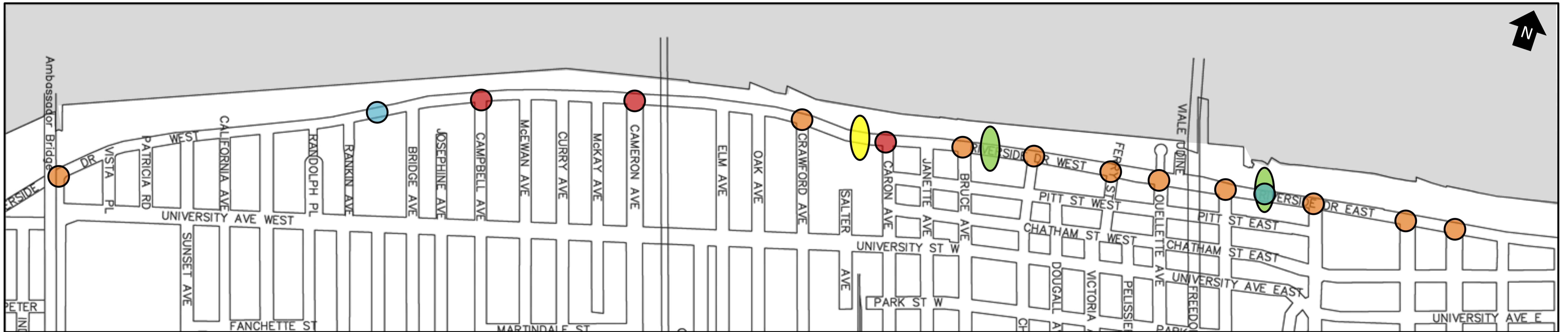
If grade-separated crossings are to be constructed along Riverside Drive within the Central Riverfront, it is our recommendation that they be pedestrian underpasses.

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Crossing Locations

The Riverside Drive Vista Improvement Project (a Municipal Class EA completed in 2007) identified locations for Enhanced At-Grade Pedestrian Crossings along Riverside Drive. The types of crossings include full signalized intersections, mid-block pedestrian signals, and intersection pedestrian signals. The image below illustrates the locations that were identified for each type of crossing, as well as the locations suggested in the Central Riverfront Implementation Plan for grade-separated crossings.



Riverside Drive Vista Improvements Project

- Full Signalized Intersection (Existing)
- Mid-block Pedestrian Signal (Proposed)
- Intersection Pedestrian Signal (Proposed)

Central Riverfront Implementation Plan (CRIP and CRIP Review)

- Pedestrian Grade-Separated (Proposed)
- Pedestrian Grade-Separated (at Former Railway Cut)

Full Signalized Intersection: Traffic signals provided for both Riverside Drive and the cross street.

Intersection Pedestrian Signal: Traffic signals provided for Riverside Drive but not the cross street.

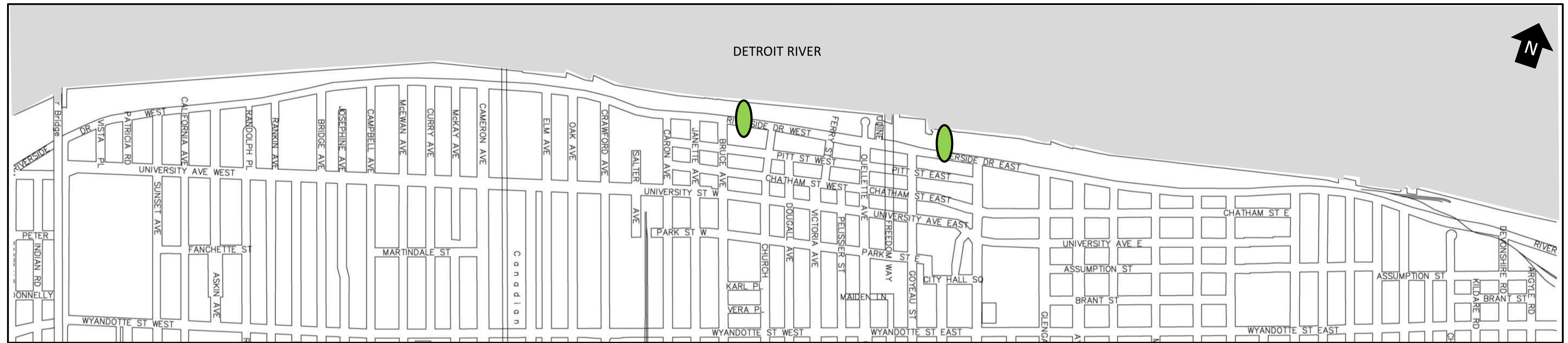
Mid-block Pedestrian Signal: Traffic signals provided along Riverside Drive not at an intersection.

The Enhanced At-Grade Pedestrian Crossings would include a mixture of the following traffic calming features including: raised intersections, coloured intersections, raised crosswalks, textured crosswalks, centre median refuge islands and/or crosswalk pavement markings.

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

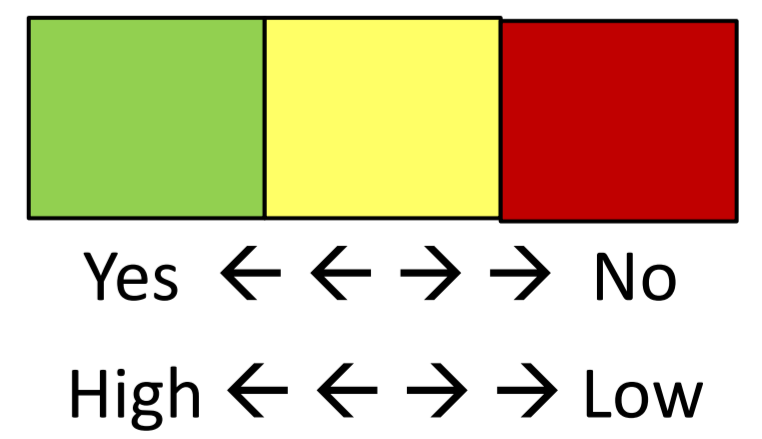
CLASS ENVIRONMENTAL ASSESSMENT

Evaluation to Determine Potential Crossing Locations



LAND AVAILABLE FOR PLAZA ON NORTH SIDE OF RIVERSIDE DRIVE	Green	Red	Green	Yellow	Green	Red	Green	Yellow	Green	Red	Yellow	Green	Red
LAND AVAILABLE FOR PLAZA ON SOUTH SIDE OF RIVERSIDE DRIVE	Green	Red	Yellow	Green	Red	Green	Red	Green	Red	Yellow	Green	Red	Yellow
POTENTIAL PEDESTRIAN CROSSING VOLUMES	Green	Yellow	Red	Red	Red	Green	Green	Green	Green	Red	Red	Green	Red
LOCATIONS IDENTIFIED IN CRIP AND CRIP REVIEW	Red	Red	Red	Red	Red	Green	Red	Red	Red	Red	Red	Red	Red
ELEVATION CHANGE FROM NORTH TO SOUTH (GREATER THAN 3 METERS)	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red
EXISTING GRADE SEPARATIONS	Red	Red	Red	Red	Red	Green	Red	Red	Red	Red	Red	Red	Red
NO MAJOR UTILITY CONFLICTS	Green	Green	Green	Green	Green	Green	Green	Yellow	Red	Red	Red	Red	Red

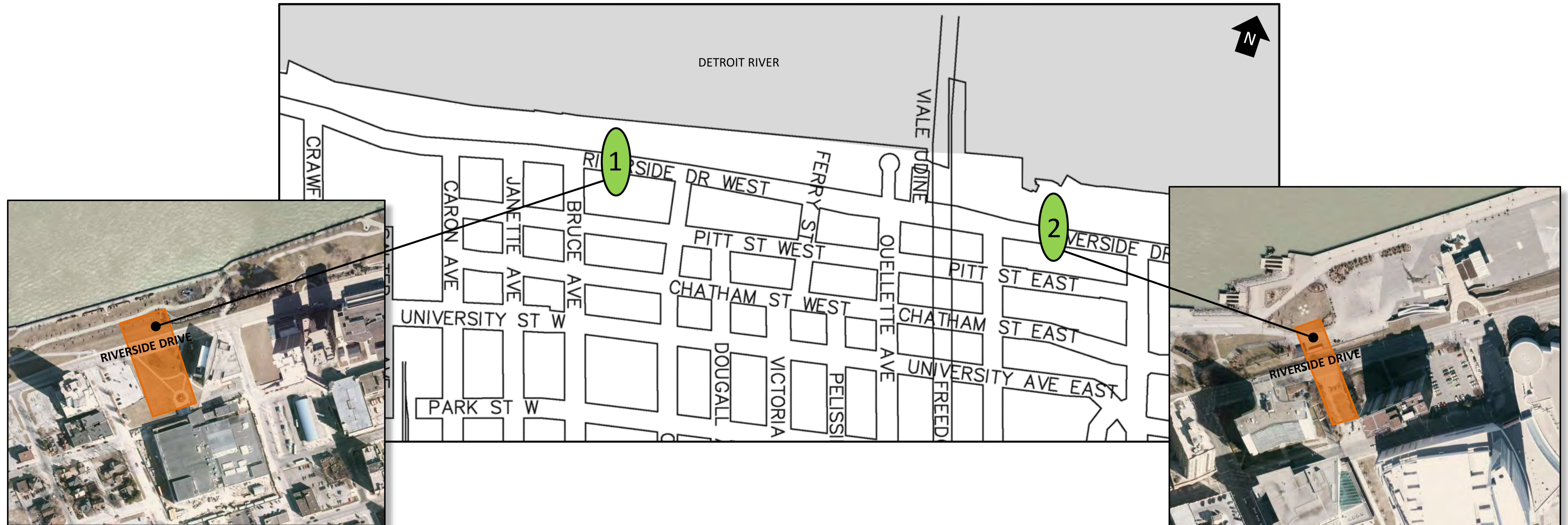
Based on the above matrix, it can be seen that there are **two prime locations** to consider for a pedestrian grade-separation. This confirms that the locations identified in the original CRIP and CRIP Review are the ideal locations to construct a pedestrian grade separated crossing.



RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Potential Locations



Site 1: Aquatic Centre Site (between Bruce Ave. and Church St.)

- This site is in close proximity to the Aquatic Centre and the Art Gallery.
- Located adjacent to the Central Riverfront downtown core.
- Proposed future marina site on the waterfront.
- Private parking located adjacent to the site (south-east corner of Riverside Drive and Bruce Avenue).
- The site is located near the bus station.
- The site is approximately 25 metres wide at it's most narrow section on the south side of Riverside Drive.

Site 2: Civic Esplanade Site (between Goyeau St. and McDougall St.)

- This site is in close proximity to two of the biggest draws to the downtown area; the Casino and the Festival Plaza.
- Located in the Central Riverfront downtown core.
- Parking is located to the west of the site on the riverfront side of Riverside Drive.
- Parking lots are located on the south side of Riverside Drive off Pitt Street.
- The site connects south to City Hall plaza, Charles Clark Square skating rink and passive park areas.
- The site is approximately 25m wide and 60m long (from Riverside Drive to Pitt Street).

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

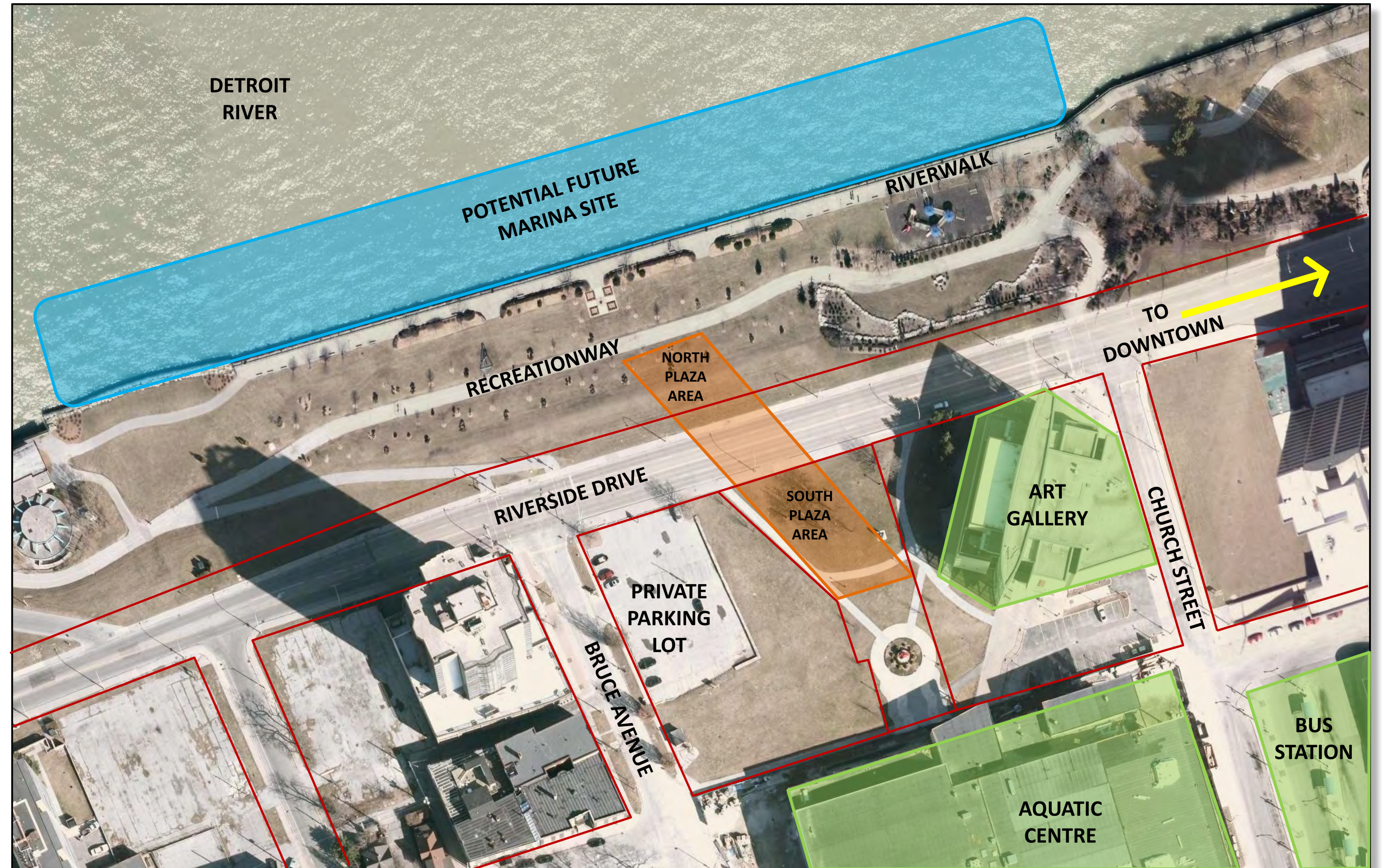
Site 1: Aquatic Centre Location

Opportunities

- Aquatic Centre and Art Gallery located adjacent to the site.
- Bus station located adjacent to south side of the site.
- Proposed future marina site is located on the north side of Riverside Drive at this location.
- Private parking located adjacent to the site (south-east corner of Riverside Drive and Bruce Avenue).

Constraints

- No specific destination on the north side of Riverside Drive until/if the marina is developed.
- Located at the west end of the Central Riverfront (downtown area).
- Possible remnants of a ramp (from the former riverfront hotel) are buried at this location.



RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

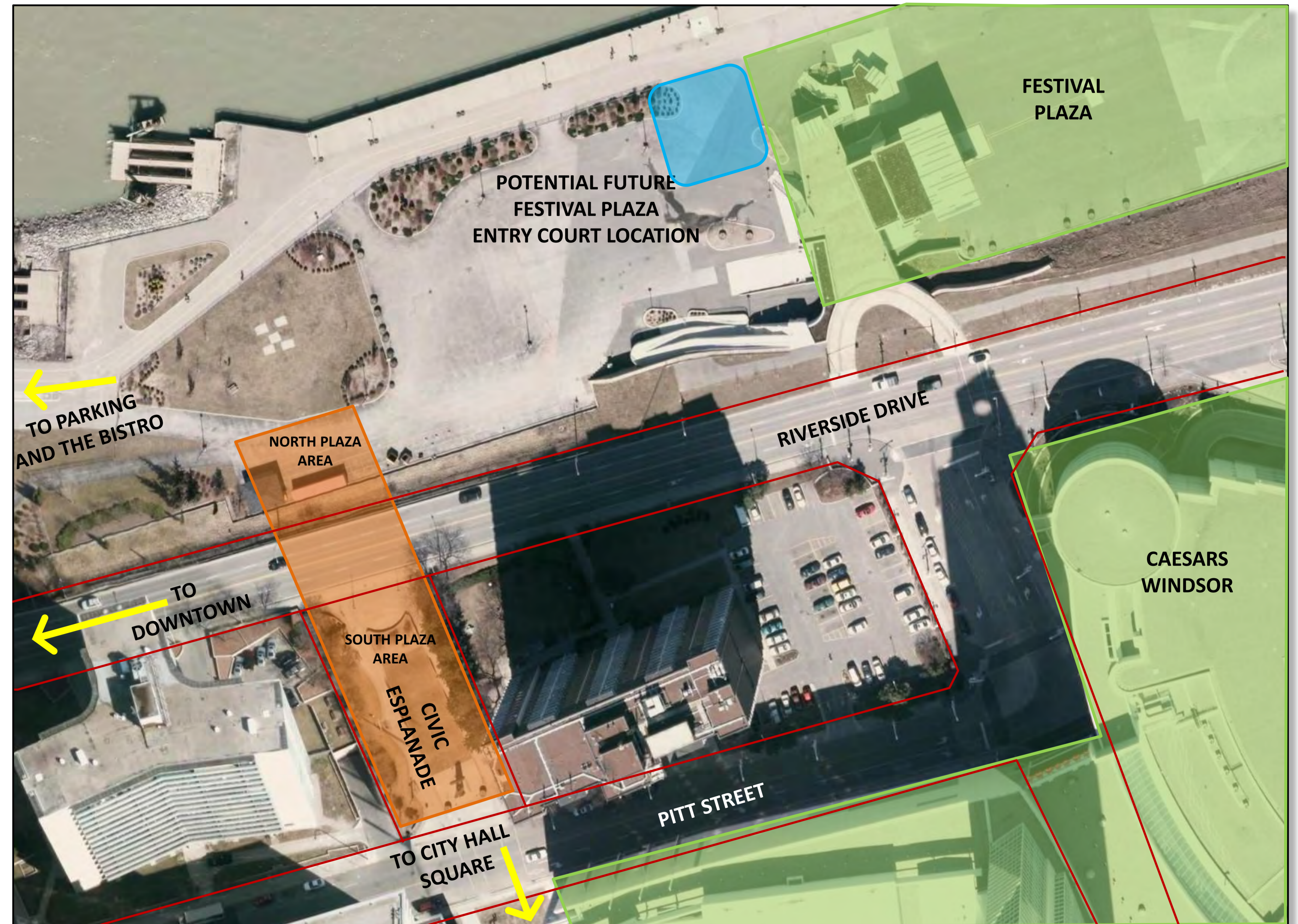
Site 2: Civic Esplanade Location

Opportunities

- Located in the Central Riverfront (downtown area).
- Festival Plaza is adjacent to landing area.
- The Casino is located just east of the site.
- Connects to the Civic Esplanade on the south side of Riverside Drive.
- The Civic Esplanade connects south to Charles Clark Square and City Hall.
- Closest location to downtown area (higher crossing volumes).
- A municipal parking garage is located less than a block from the south side of the site.
- Provide safe crossing adjacent to Festival Plaza where many nighttime events are held.

Constraints

- Narrow space on the south side of Riverside Drive for south plaza.
- North plaza area may conflict with back of house and ramp at Festival Plaza.
- Existing storage structure on north side would have to be removed or relocated.



RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Environmental Inventory and Existing Conditions

The following displays are intended to present the environmental inventory that has been compiled by the Project Team. This inventory documents the existing conditions at the two proposed locations and addresses the following categories:

Physical Environment

- Physical Infrastructure (e.g.: utilities, sewers, etc.)
- Land ownership

Natural Environment

- Terrestrial Habitat
- Species at Risk

Social / Economic Environment

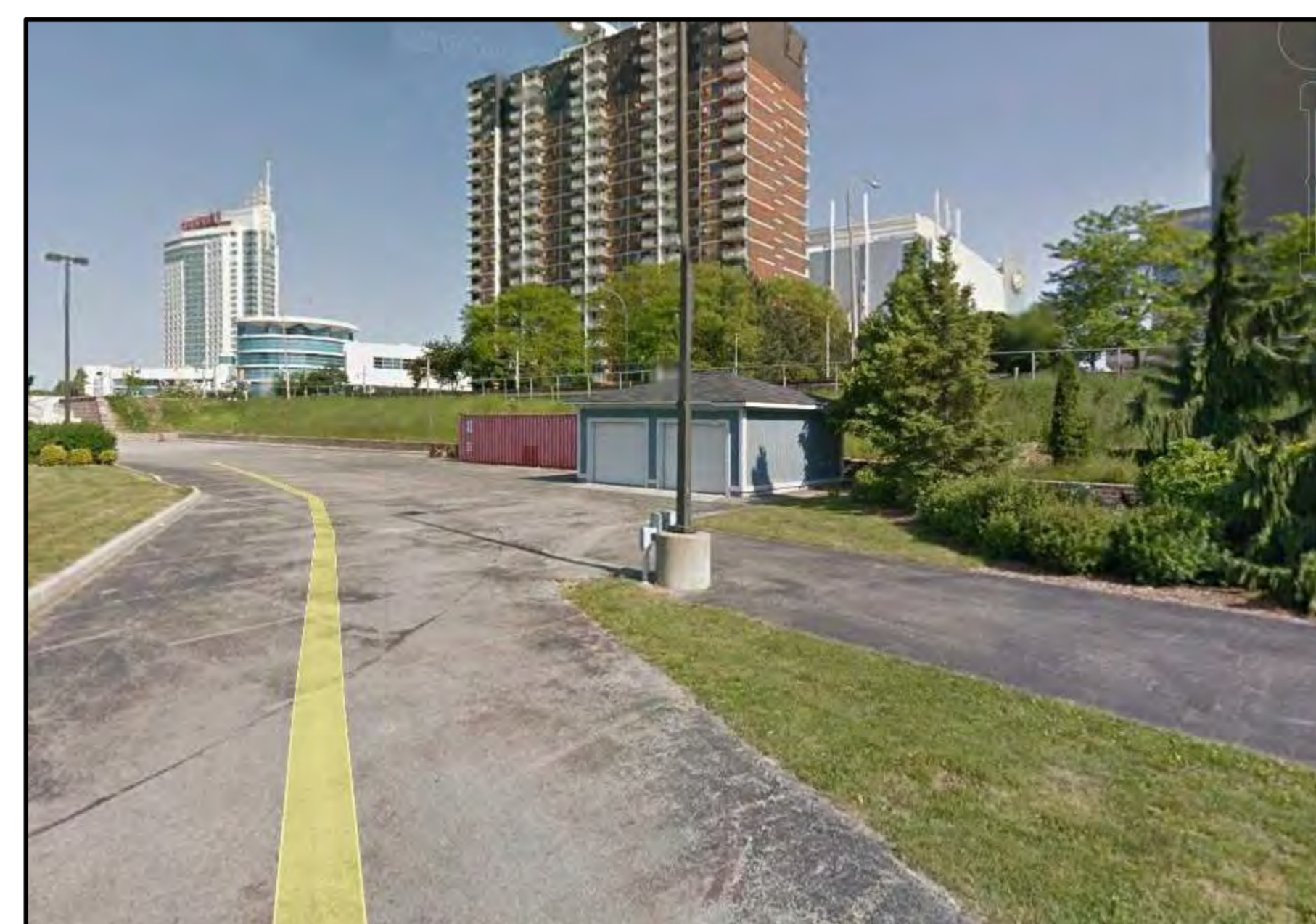
- Adjacent Land Use
- Heritage / Archaeological Resources



Civic Esplanade at Festival Plaza Site



Art Gallery at Aquatic Centre Site



Recreationway looking east toward Festival Plaza



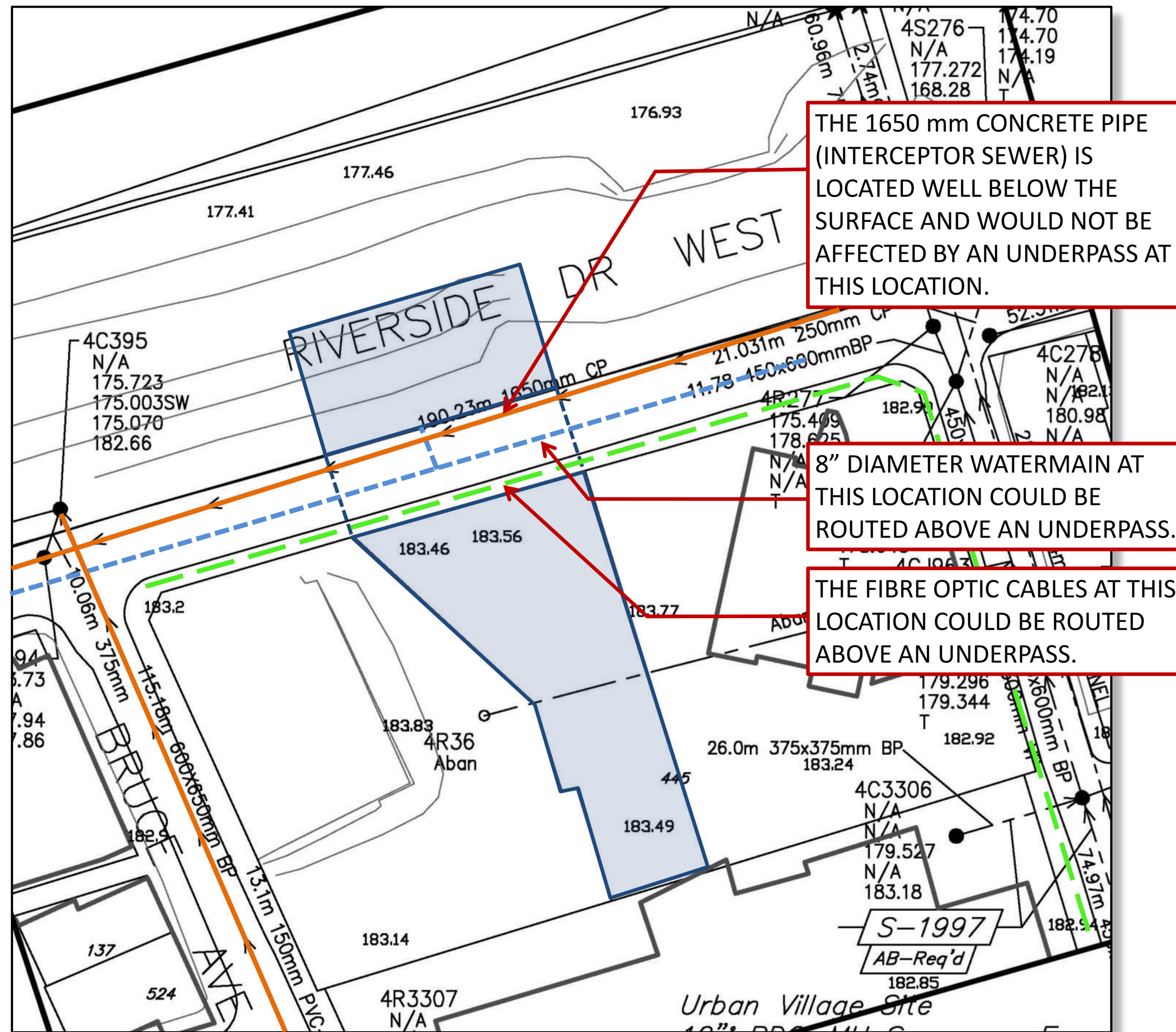
Riverwalk looking south toward the Art Gallery and Aquatic Centre

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

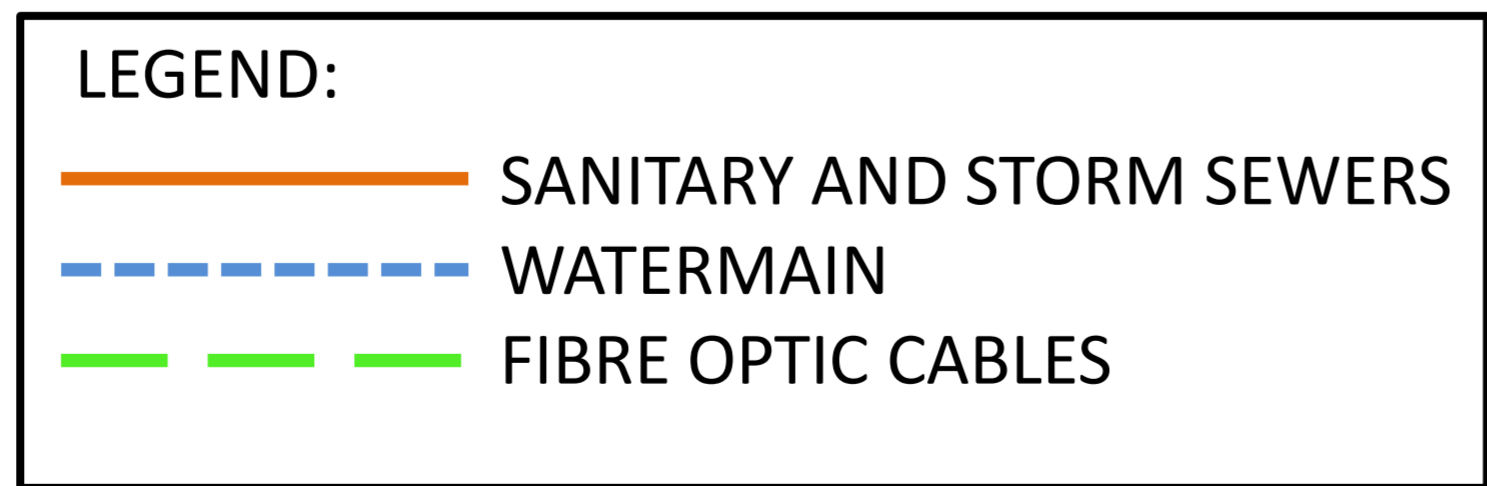
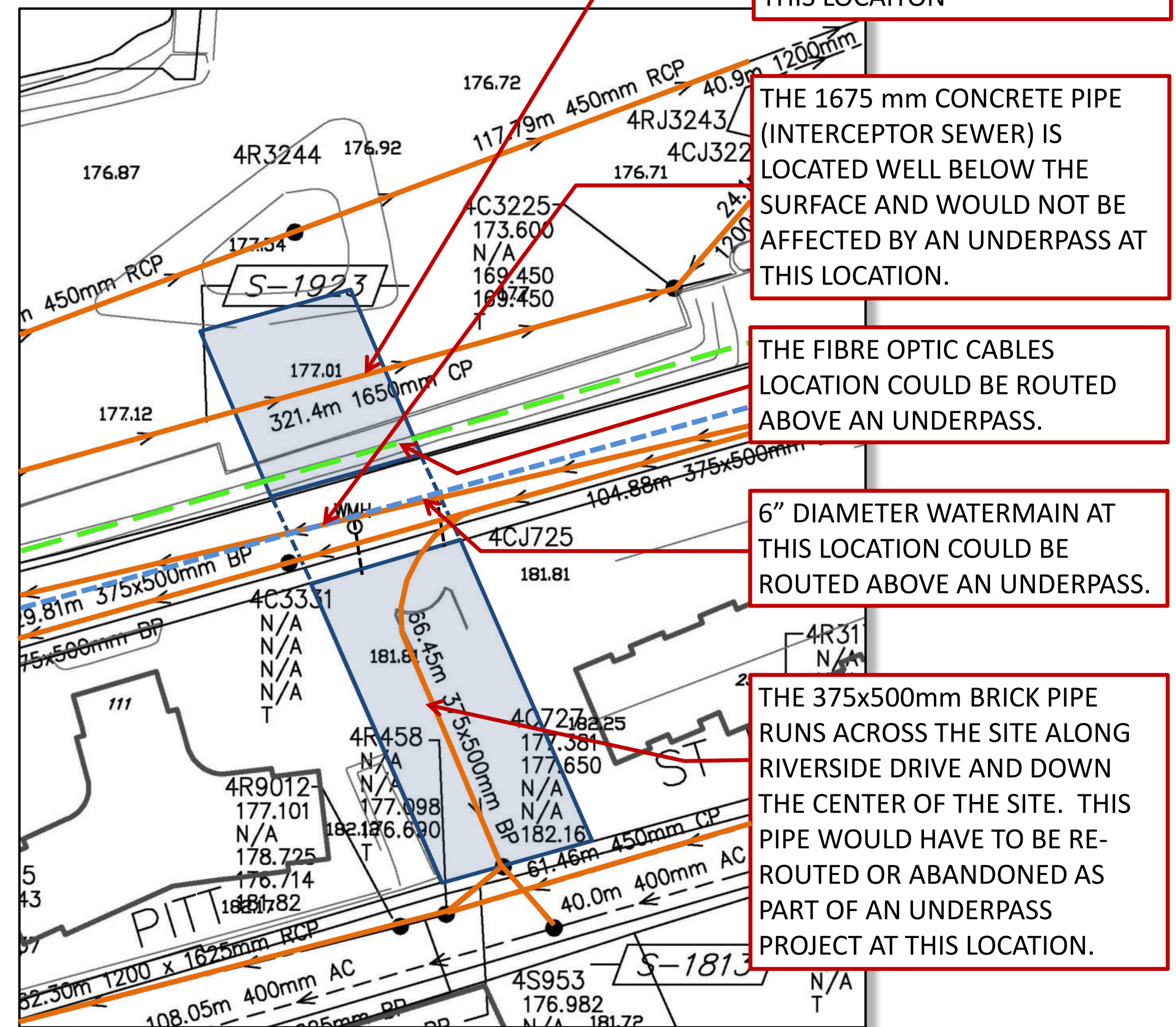
CLASS ENVIRONMENTAL ASSESSMENT

Utility Information

AQUATIC CENTRE LOCATION



CIVIC ESPLANADE LOCATION



- There are no Union Gas lines that would be affected by the construction of an underpass at either location.
- Enwin Utilities power lines, City of Windsor GIS Traffic lines and Bell lines are located within the right-of-way of Riverside Drive at both sites. The location of these utilities will not constrain the design or location of an underpass at either location.

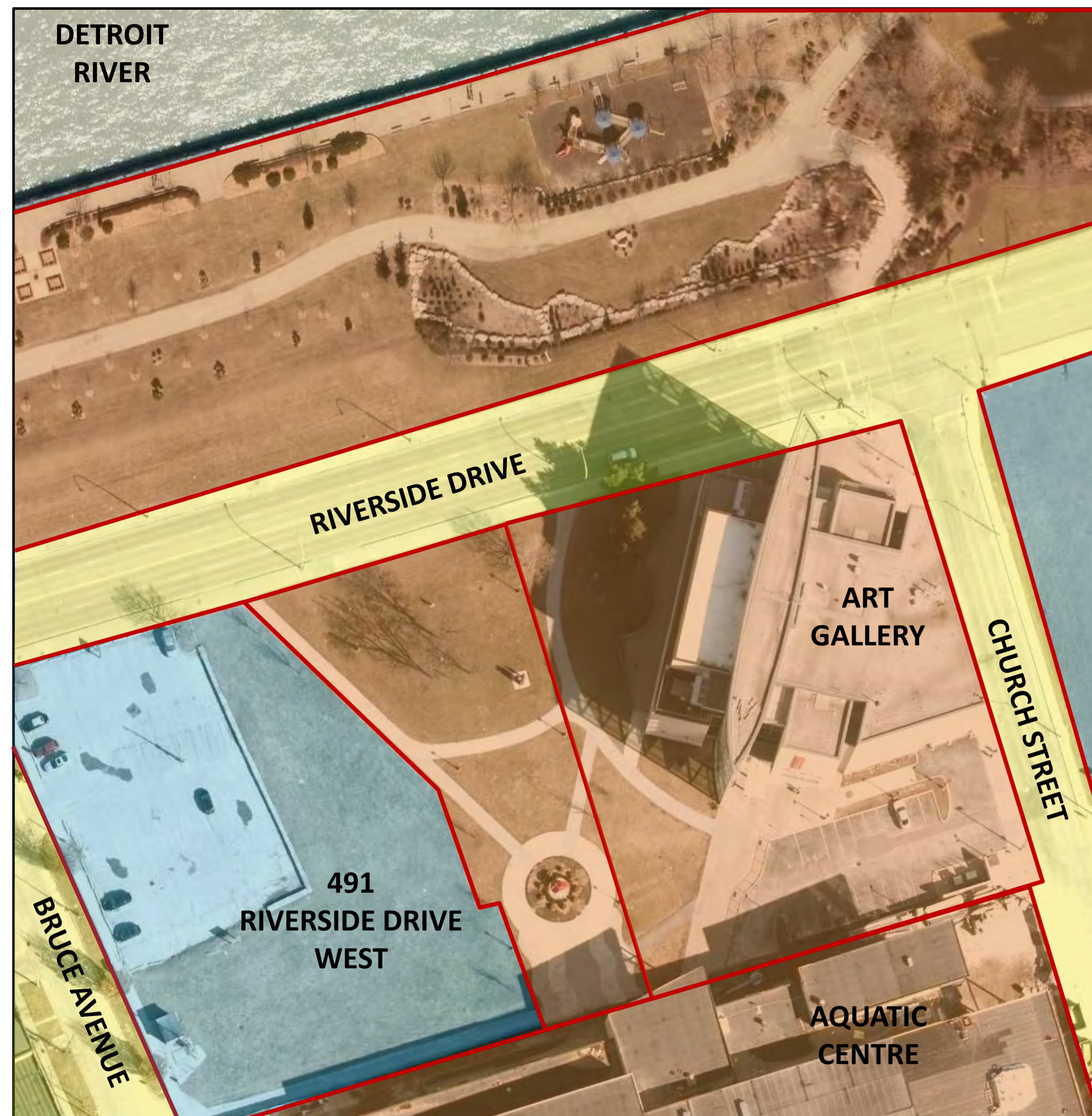


RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

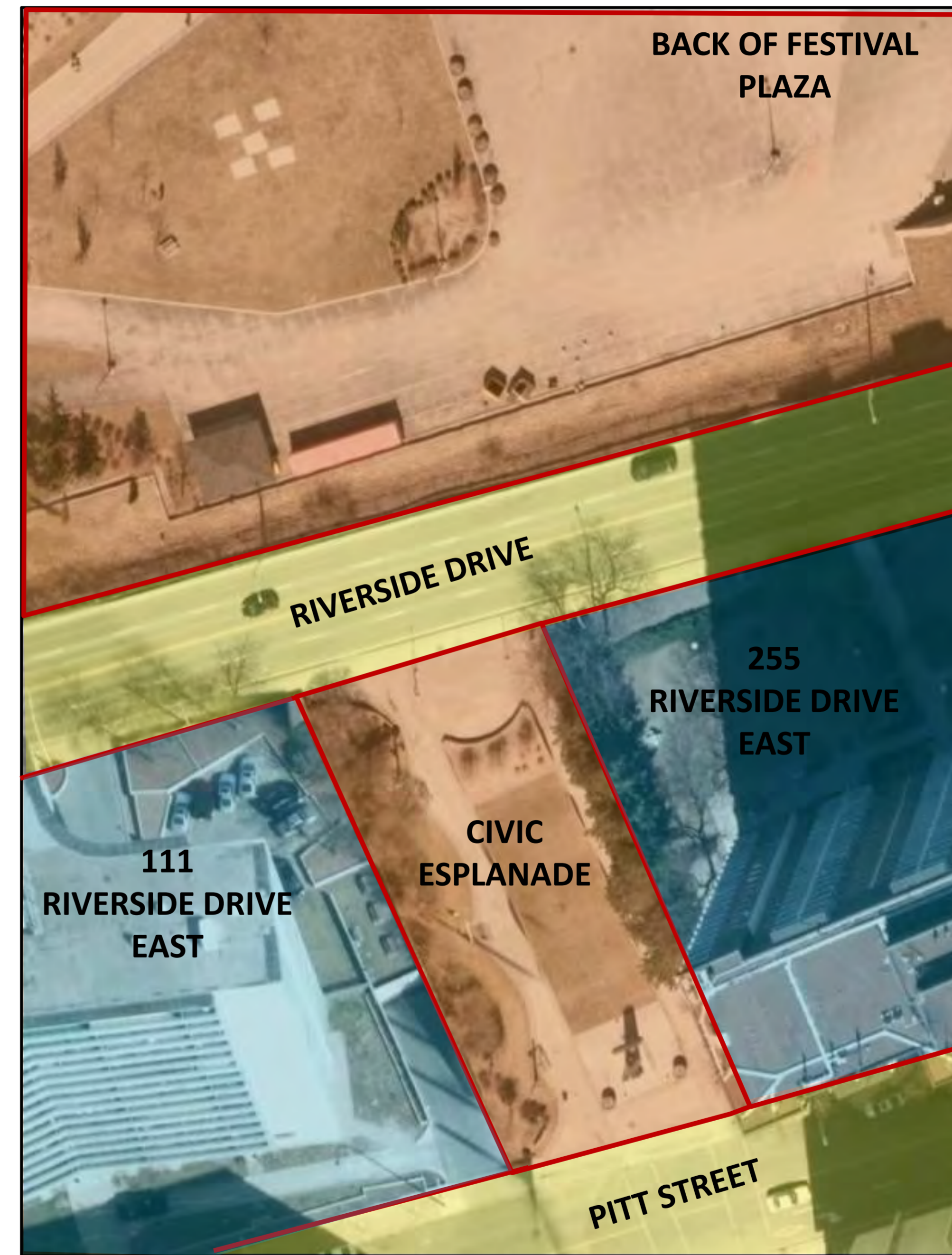
CLASS ENVIRONMENTAL ASSESSMENT

Land Ownership

AQUATIC CENTRE LOCATION



CIVIC ESPLANADE LOCATION



CITY OF WINDSOR OWNED PROPERTY
ROAD RIGHT-OF-WAY
PRIVATELY OWNED LAND

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Archeological Potential

As part of the Environmental Assessment, research was conducted in order to determine the archeological potential of the proposed site locations.

- AMICK Consultants Limited has been engaged to undertake a Stage 1-2 Archeological Assessment of the lands potentially affected by the proposed pedestrian underpass. The site locations will be subject to reconnaissance, photographic documentation and physical assessment.
- We anticipate that the sites will be cleared of any further requirement for archeological fieldwork based on the findings of past studies completed for sites in the vicinity of the proposed site locations.

Heritage Sites

- A Heritage Site is characterized by a property listed on a municipal register or designated under the Ontario Heritage Act or is a federal, provincial or municipal historic landmark or site.
- There are no listed or designated heritage buildings or properties which form a part of the site locations.

Natural Environment

- Biologic Inc. has been engaged to undertake a Natural Heritage Assessment of the land potentially affected by the proposed pedestrian underpass.
- Currently, the study areas provide very limited wildlife habitat. Both sites consist of pavement, mowed lawn areas and some planting beds.
- We do not anticipate there will be any Species at Risk found within the site locations.

Traffic Volumes

Vehicular Traffic

- City of Windsor traffic counts along Riverside Drive within the downtown average 20,000 vehicles per day. (Traffic counts provided by the City of Windsor)
- The planning capacity for Riverside Drive on the four lane section in the downtown is 16,000 vehicles per day. (Riverside Drive Vista Improvements Study ESR, 2007)

Pedestrian Traffic

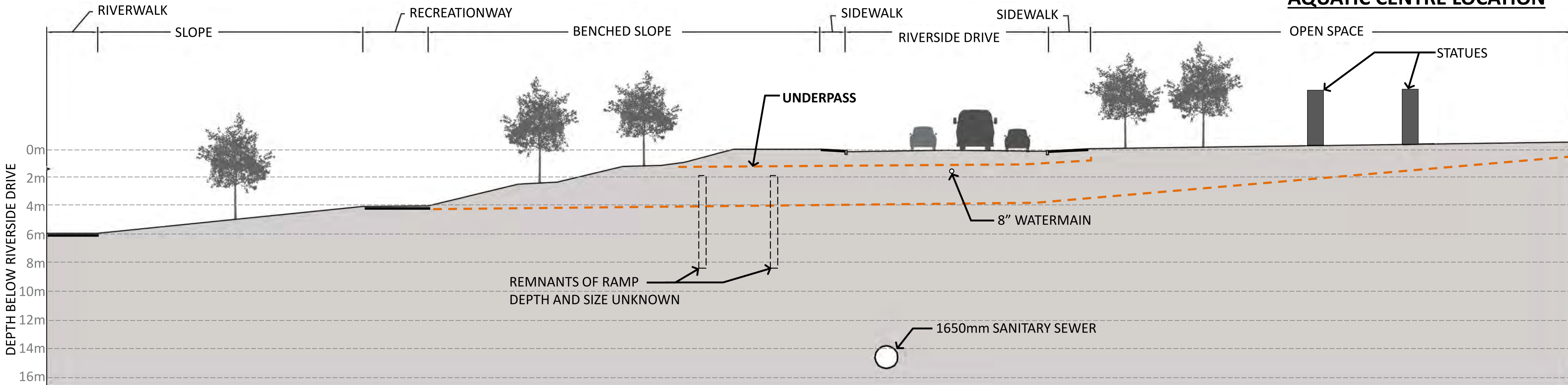
- The Riverfront Festival Plaza receives an average of 170,000 visitors annually and an average of 2,500 to 5,000 visitors daily during events.
- Some events at the Festival Plaza can attract up to 8,000 patrons for a single day event. (Festival Plaza statistics provided by the City of Windsor)

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

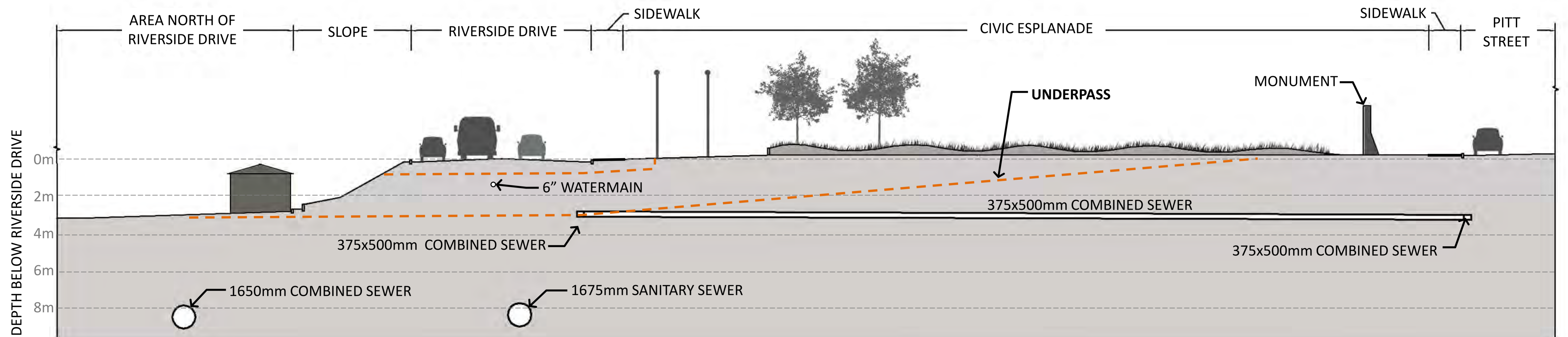
CLASS ENVIRONMENTAL ASSESSMENT

Underpass Elements – Cross Sections

AQUATIC CENTRE LOCATION



CIVIC ESPLANADE LOCATION



--- UNDERPASS SECTION THROUGH SITE (MINIMUM EXTENTS)

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Underpass Structures

The two images below represent the opposite extremes in design for the pedestrian underpass. The first is a minimal tunnel – narrow and basic. The second image illustrates an elaborate underpass with multiple plaza areas, water features and sculpture pieces. Although the second image may have some elements that are desirable, the cost of construction and maintenance would be significantly more substantial. The project team believes that the preferred option should fall somewhere between these two extremes.

Minimum – Basic Tunnel (Penang Lane under McHugh Street)



Maximum – Major Underpass with Plaza Areas (Image courtesy of Architecttura Inc.)



RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Image Analysis: Pedestrian Underpass

The images below are examples of different types of pedestrian underpass crossings. The images illustrate a range in shape, heights and widths and types of materials.

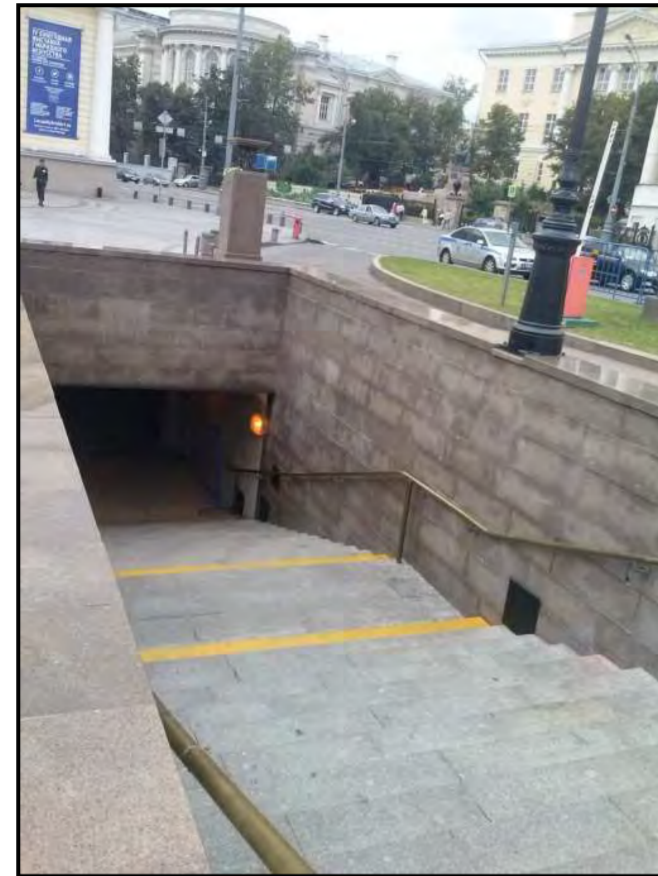


RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Image Analysis: North and South Plazas

The images below are examples of different types of plaza spaces. The images range from plain and utilitarian to elaborate and ornate spaces. Some of the spaces incorporate seating areas, water features, sculptures, planting areas as well as stairs and ramps.



No plaza – stair and ramp only



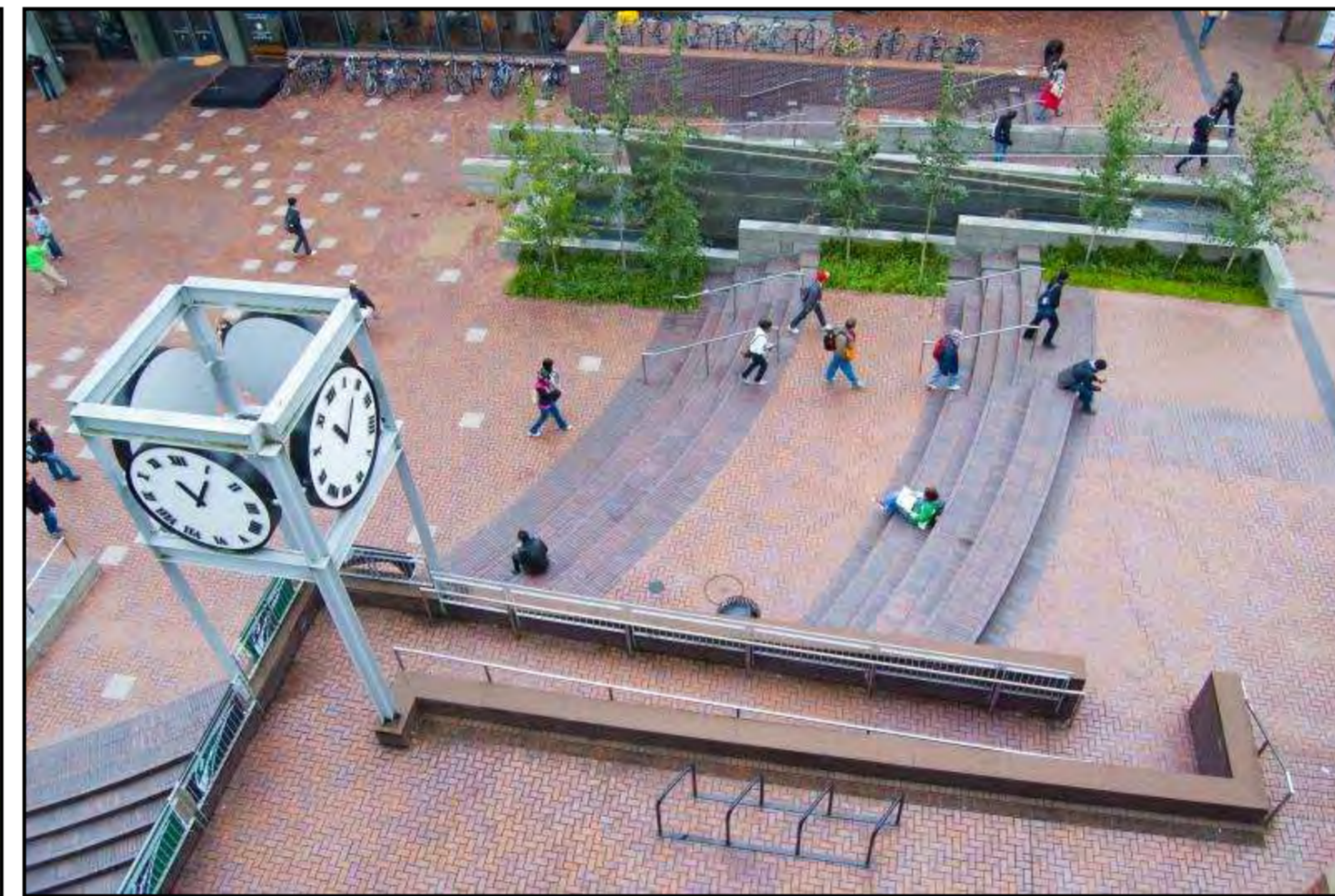
Seatwalls, plantings and large ramps



Seating areas and green space



Small plaza with plantings and seating



Large plaza space with seatwalls



Water feature



Plantings



Small plaza, plantings and seatwalls



Green space, plantings and seatwalls



Linear plaza with green space

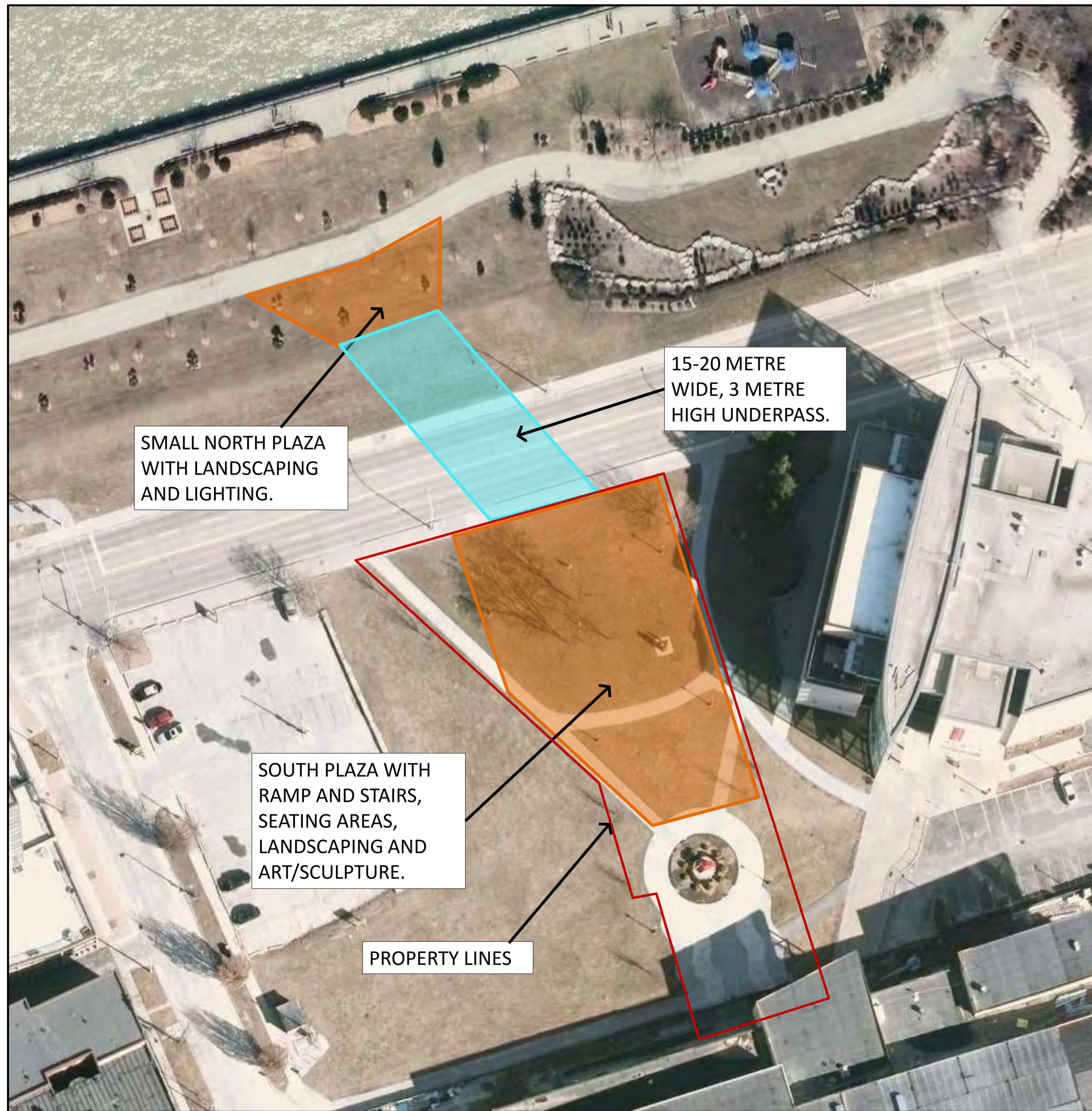


Plaza space with plantings, benches and water feature

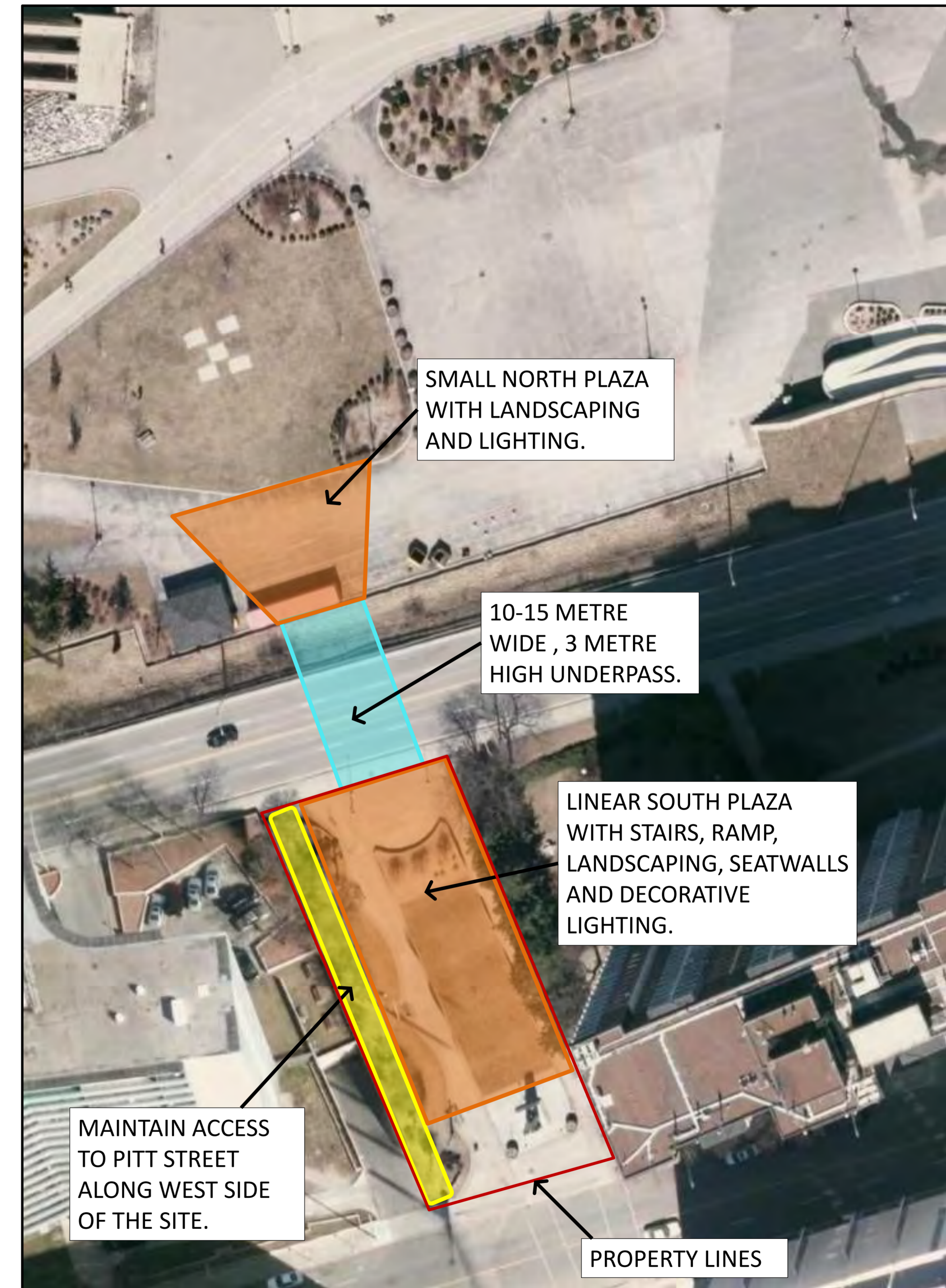
RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Possible Solutions – Pedestrian Underpass



AQUATIC CENTRE LOCATION



CIVIC ESPLANADE LOCATION

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT

Next Steps

- All comments received from today's meeting will be reviewed by the Project Team and used to help define the Preferred Solution.
- A second Public Drop-In Centre will be held in **November 2015** to present the Preferred Solution.
- All comments received from the second meeting will be reviewed and used to help refine the Preferred Solution. The project website will be updated and a Notice will be published, alerting the public that the 30-day public review period has commenced.
- Provided that all outstanding issues are resolved and no Part II Orders are requested, the project may proceed to final approvals and construction.

We encourage you to fill out a questionnaire so that your issues and concerns can be addressed early in the planning process and to have your comments become part of the public record.

Thank you.

Riverside Drive Pedestrian Crossings Class Environmental Assessment Questionnaire

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4 by November 5th, 2015.

Name (please print): _____

Address: _____

Phone Number: _____

E-mail: _____

- 1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.**

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed to question 7.

- 2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?**

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed to question 7.

- 3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?**

Pedestrian Overpass Pedestrian Underpass Either one Neither one

- 4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).**

Utilitarian Design 1 2 3 4 5 Elaborate Design

- 5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.**

Large plaza areas	Seating areas	Water Features	Plantings
Seatwalls	Sculpture/Art	Small plaza areas	Decorative Lighting
Green space	Other: _____		

**Riverside Drive Pedestrian Crossings
Class Environmental Assessment**


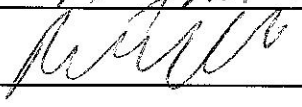
Drop-In Centre No. 1 - Attendance Sheet

October 15, 2015

	Name (Please Print)	Address	Signature
1.	DON ST. DENIS	515 RIVERSIDE UNIT 1608 WINDSOR ONT N9A 7C3	
2	JULES ST. DENIS	" " "	
3	Chris Waterr	Windsor Bicycle [811 Devonline	
4	JOE PASSA	374 OUVETTE, SUITE 802	
5	BARRY HORROBIN	Windsor Police Service	
6	SIMONA SIMION	PLANNING DEPT.	
7	Jill Mac Donald	Planning Dept.	
8	KEVIN KUPROWSKI	311	
9	Mark Lefebvre	1122 Lincoln Rd, Windsor ^{NOV} 2H7	
10.	Kevin Alexander	1760 PARADISE	
11	Cathy Copot Nepszy	WECHU cnepsz@wechu.org	
12	PHIL MARETT	1202 PARKVIEW	
13	Gerald Halon Henderson	Windsor	
14.	DINA MANNA	WINDSOR dhanabhatnagar@	

**Riverside Drive Pedestrian Crossings
Class Environmental Assessment**

**Drop-In Centre No. 1 - Attendance Sheet
October 15, 2015**

Name (Please Print)	Address	Signature
1. Andrew Douie	7112 1266 McDougall	
2. Victoria Townsend	2107 Amy Lynn Park Dr.	V. Townsend
3. Anastasia Timakidis	#402-875 Riverside Dr West. WINDSOR Ont. N9A 7C3	A. Timakidis
4. ROBERT PATYK	1137 401 Cheltone Ave	

Riverside Drive Pedestrian Crossings Class Environmental Assessment Questionnaire

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4 by November 5th, 2015.

Name (please print): Helen Henderson
Address: 880 Bentley Drive
Phone Number: _____
E-mail: cleobunoclave@yahoo.ca

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed to question 7.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed to question 7.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
Green space Other: _____

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No

Yes (please specify) _____

7. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team.

Re: Safety - lighting
- camera
- music

This would be a great addition to the downtown area.

T. G. Smith
H. M. H.

Riverside Drive Pedestrian Crossings Class Environmental Assessment Questionnaire

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4 by November 5th, 2015.

Name (please print): GOLD HENDRICKSON
Address: 880 BARTLETT DR.
Phone Number: —
E-mail: cleo57w@yodaveg.yahoo.ca

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed to question 7.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed to question 7.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
 Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
 Green space Other: _____

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team.

Great idea. This is an opportunity to stitch together downtown Windsor and its riverfront.

Time to think big and get beyond our toxic negativity. Make it attractive as well as functional. Lights and covers are needed.

Riverside Drive Pedestrian Crossings Class Environmental Assessment Questionnaire

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4 by November 5th, 2015.

Name (please print): KEVIN ALEXANDER
 Address: 1760 PARTRINGTON AVE
 Phone Number: 519-~~25~~563-7388
 E-mail: kalexander@city.windsor.ca

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed to question 7.

2. If you agree with the above statement, do you agree that consideration should be given to '~~Pedestrian Overpasses~~' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree *However, I don't Agree with a Pedestrian Overpass.*

Note: If you answered 'Disagree' to question 2, you may proceed to question 7.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
 Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
 Green space Other: *An Animated space where programming should occur and spill into the park areas on both sides.*

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No

Yes (please specify) _____

7. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team.

Regardless, ~~of~~ if we have a grade separation such as an underpass Attention needs to be given to ~~Reverse~~ Pedestrian safety and function along RVS Drive. Lanes should be reduced to 2 lanes with reduced lane widths to slow down traffic at the transition to Devonshire Road.

OPPORTUNITIES SUCH AS NODES AND Centre BLVD'S SHOULD BE USED TO PROVIDE EVERY OPPORTUNITY FOR PEDESTRIANS TO CROSS SAFELY AND THIS WILL ALSO LESSON THE GAP BETWEEN DEVELOPMENT ON THE SOUTH SIDE OF REVERSIBLE DRIVE AND THE RIVERFRONT.

Riverside Drive Pedestrian Crossings Class Environmental Assessment Questionnaire

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4 by November 5th, 2015.

Name (please print): Victoria Townsend
Address: 2107 Army Lynn Park Dr.
Phone Number: 519-890-0752
E-mail: towntsenr @ uwindsor.ca

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed to question 7.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed to question 7.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
 Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
 Green space Other: _____

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team.

The posters and explanations provided by the engineers were very helpful! All of the diagrams ~~and~~, figures, ~~and~~ and photos were very informative!

Thank you! Great presentation!
Looking forward to seeing the final designs!

Riverside Drive Pedestrian Crossings Class Environmental Assessment Questionnaire

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4 by November 5th, 2015.

Name (please print): JANE DENEAN
Address: 3125 MASSER CT
Phone Number: 519 969 3734
E-mail: jane.denean@crio.com

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed to question 7.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed to question 7.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
 Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
 Green space Other: _____

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No

Yes (please specify) _____

7. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team.

- I love this idea. Build it!
- City Council should move forward w/ this
- This should create a great link to the downtown from both sides of the bridge.

Riverside Drive Pedestrian Crossings Class Environmental Assessment Questionnaire

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4 by November 5th, 2015.

Name (please print): Mark Lefebvre
Address: 1122 Lincoln Rd., Windsor Ont N8Y 2H7
Phone Number: (519) 903-4751
E-mail: mark@stiltguy.com

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed to question 7.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed to question 7.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
 Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
 Green space Other: _____

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No

Yes (please specify)

Archaeological (1st Nations) Burial Grounds?

7. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team.

#1 - Cost -- how many millions for this type of infrastructure, especially when years of austerity has led to cuts in human resources to Parks maintenance.

-- spending this money on other enhancements to CRIP before such a major add on.

Riverside Drive Pedestrian Crossings Class Environmental Assessment

Questionnaire

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4 by November 5th, 2015.

Name (please print): DAVID HANNA
 Address: 115 - 1953 CASANA RD. W. N9G2X6
 Phone Number: _____
 E-mail: dhan96@hotmail.com

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree _____ Disagree _____ *AT GRADE FOR NOW, UNDERPASSES IN FUTURE WHEN MONEY AVAILABLE. NOT A PRIORITY RIGHT NOW*
 Note: If you answered 'Disagree' to question 1, you may proceed to question 7.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree _____ Disagree _____ *AT GRADE FOR NOW WITH POTENTIAL FOR UNDERPASS IN FUTURE*
 Note: If you answered 'Disagree' to question 2, you may proceed to question 7.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

*Potentially
Circular*

Agree _____ Disagree _____ *AT GRADE NOW WITH POTENTIAL FOR UNDERPASS IN FUTURE*
 Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 (5) Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

LESS CONCRETE IS BETTER

Large plaza areas Seating areas Water Features Plantings *TREES + OTHER VEGETATION*
 Seatwalls Sculpture/Art Small plaza areas Decorative Lighting (*NOT OVERHALL MINIMAL*)
 Green space Other: _____ *SUBTLE ARTFUL*
MORE TREE IS BETTER



6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No

Yes (please specify)

IF IT ISN'T A LANDMARK 1ST
BASED DECISION, THEN ITS JUST ANOTHER
JACOBA TUNNEL

7. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team.

- THE TWO SITES SELECTED ARE THE BEST CHOICE
BUT ALSO WELL KNOWN PAID TO THE EIA

- THE OTHER MASS OPTION IS RIVERVIEW. A WELL LANDSCAPED
UNDERPASS WOULD BE NICE BUT NOT A PRIORITY RIGHT NOW
BUT TO BE REGULAR TRAFFIC CROSSING AND IN + CONSISTENT
UNDERPASS IN FUTURE



ALSO NEED TO CONSIDER WAY FINDING 'CIRCUIT'
BETWEEN UNDERPASS AS A 'CONNECTING CIRCUIT'
BACK TO THE WATER FRONT THOUGH IT COULD LINK TO THE
OTHER SIDE THROUGH PWT, WITH THE UOEV

ALSO GIVE A RANKING CHANGE RIVERVIEW DR, NOT A PRIORITY NOW
ON PART OF THIS EIA

- MARINA WAS ORIGINAL PROPOSAL FOR THE ACU, PROPOSED UNDERPASS
MAY BE MORE REASONABLE + NECESSARY, HOWEVER A RIVERVIEW
DATA UNDERPASS WOULD SEEM TO CONNECT AT PRESENT COMMUNITY
TRAIL TO THE AQUATIC LEARN + DONATION AS WELL AS CONNECT
AN EXISTING ART + CULTURE TRAIL TO THE NEAR MUSEUM +
EXISTING ART GALLERY, TO DO WITH VARIOUS
WELL COMING AN ART BUT STRENGTHEN WITH
TRAIL AND OTHER ORIGINAL TO CITY SHOW A MUSEUM 1ST
IE, FESTIVAL PLACE IS A HANDSCAPED, HOT NIGHT MARKET - IT NEEDS
A NEAR LANDSCAPED APPROACH W/ SHARP TOWER + SOFT PLANTING
AND PUBLIC ART FLOWERS SHOULD BE THE PRODUCT OF AN

OPTION TO ALL PUBLIC ART COMPETITION

- DIGGING UNDER NEAR CATHEDRAL: CONSIDER PUMP DOWN
COOLING SYSTEM FOR CATHEDRAL / NEAR CITY HALL HVAC SYSTEM

Riverside Drive Pedestrian Crossings Class Environmental Assessment Public Drop-In Centre No. 2

Explanation of the Presented Material

Slides 1 to 4 – Introduction/Background/Process

These slides provide background information regarding the Project Team, the project and the Environmental Assessment (EA) process that will be followed.

Slides 5 and 6 – Types of Crossings and Alternatives

Slide 5 presents the different types of crossings that were considered. Slide 6 presents the advantages and disadvantages of the crossing alternatives, with photo examples of each type of crossing.

Slide 7 – CRIP Review Recommendations

This slide presents the recommendations that came out of the Central Riverfront Implementation Plan (CRIP) Review study that was completed in 2013. The strong support that was received for a grade-separated crossing during the CRIP Review prompted this Class Environmental Assessment.

Slide 8 – Grade-Separated Crossings Assessment

This slide presents the advantages and disadvantages of a pedestrian underpass and pedestrian overpass crossing. The assessments led the Project Team to recommend that a pedestrian underpass should be considered over a pedestrian overpass.

Slide 9 – Crossing Locations

This slide illustrates the locations along Riverside Drive that have been previously identified for enhanced crossings.

Slide 10 – Evaluation of Locations

This slide uses a bar graphic to evaluate the suitability of an underpass at various location along Riverside Drive, based on a list of design criteria. The matrix confirms that the two locations identified in the CRIP and CRIP Review are the ideal locations for a pedestrian underpass.

Slide 11 to 13 – Potential Locations

These slides take a closer look at the two sites identified in slide 10. Information pertaining to the sites (as well as the opportunities and constraints) of each site are presented.

Slides 14 to 19 – Environmental Inventory

These slides present the environmental inventory that has been compiled for the two site locations. This information will be updated as the project progresses, and the commissioned studies are completed.

Slide 20 – Cross Sections

This slide presents a cross section of the site for each of the identified underpass locations, highlighting existing utilities and potential conflicts.

Slides 21 to 23 – Project Scope and Scale

These slides present images of different types of underpass crossings, plaza areas and site elements (such as water features, seating areas, and sculptures) that could be incorporated into the preferred solution.

Slide 24 to 25 – Underpass Dimensions and Structure (Preliminary Design Considerations)

These slides present the preliminary recommendations for the size and construction materials to be used for the underpass structure.

Slide 26 – Safety and Security (Preliminary Design Considerations)

This slide summarizes the features that should be included in the project for safety. The features are based on feedback received from Windsor Police Services.

Slide 27 to 29 – Lighting, Materials and Features (Preliminary Design Considerations)

These slides present the preliminary recommendations for lighting, materials, and the types of features that could be incorporated into the project.

Slide 30 to 31 –South Plaza (Preliminary Design Considerations)

These slides present design options for the plazas on the south side of Riverside Drive. The images illustrate how the spaces could look based on the preliminary design considerations outlined in the previous slides.

Slide 32 – Summary (Preliminary Design Considerations)

This slide provides a summary of the recommendations made in the previous slides as well as a preliminary cost estimate.

Slide 33 – Next Steps

This slide outlines the next steps that will be taken.

Welcome to the Public Drop-In Centre No. 2

- All relevant information regarding this project (including the display material presented today) is available for public review on the City of Windsor's website (www.windsoreas.ca) and select 'Riverside Drive Pedestrian Crossings Class Environmental Assessment' from the list on the left hand side of the page.
- Please sign in to record your attendance.
- Please review the display material and provide any comments on the questionnaire provided. You may submit your comments by mail/fax/e-mail or you may place them in the Comment Box.
- All comments for this Drop-In Centre must be received by **December 11th, 2015** to be given consideration in the preferred solution. Contact information for the Project Team is available in the handout provided.
- The Project Team members present will be pleased to discuss any questions you may have.

PROJECT TEAM

This study has been initiated by the City of Windsor. Landmark Engineers Inc. has been retained by the City to serve as the Lead Consultant on the project.

Any comments, questions or suggestions relevant to this study should be directed to the following primary members of the Project Team:



Daniel M. Krutsch, P.Eng.
Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, Ontario, N9C 4E4
Phone: (519) 972-8052
Fax: (519) 972-8644
Email: dkrutsch@landmarkengineers.ca



Paul Mourad, P.Eng.
City of Windsor Public Works
350 City Hall Square West, 4th Floor
Windsor, Ontario, N9A 6S1
Phone: (519) 255-6257 ext.6119
Fax: (519) 255-9847
Email: pmourad@citywindsor.ca



In September of 2000, Windsor City Council adopted the Central Riverfront Implementation Plan (CRIP), which was intended to guide the design of park lands, open space, buildings, circulation networks, and public infrastructure within Windsor's Central Riverfront district for the subsequent 25 years. The original CRIP document included a recommendation to construct **grade-separated crossings** of Riverside Drive in order to link the Riverfront Park with the neighbourhoods to the south – including one to be located immediately west of the Art Gallery of Windsor, and one in line with the Civic Esplanade between Goyeau Street and McDougall Street.



In July of 2013, Windsor City Council resolved to embark upon a city-wide review of the CRIP document, aimed at:

- obtaining feedback from the general public with regard to the original vision for the long term development of the Riverfront Park; and,
- soliciting input from the public with regard to its priorities for further implementation of the plan.

This review, which included 11 Open House presentations at locations throughout the City, found that a strong majority (72%) of survey respondents agreed that either pedestrian bridges or underpasses crossing Riverside Drive should be considered where warranted by the volume of pedestrians. In order to proceed with the construction of grade-separated crossings along the Central Riverfront, the City of Windsor will need to satisfy the requirements of the Ontario Environmental Assessment Act.

Purpose

This Drop-In Centre is intended to:

- Present the Problem / Opportunity Statement for the Project
- Introduce the members of the Project Team
- Present the scope of the Class Environmental Assessment (Class EA) process
- Present the design alternatives that are being considered
- Obtain feedback from local residents and community groups

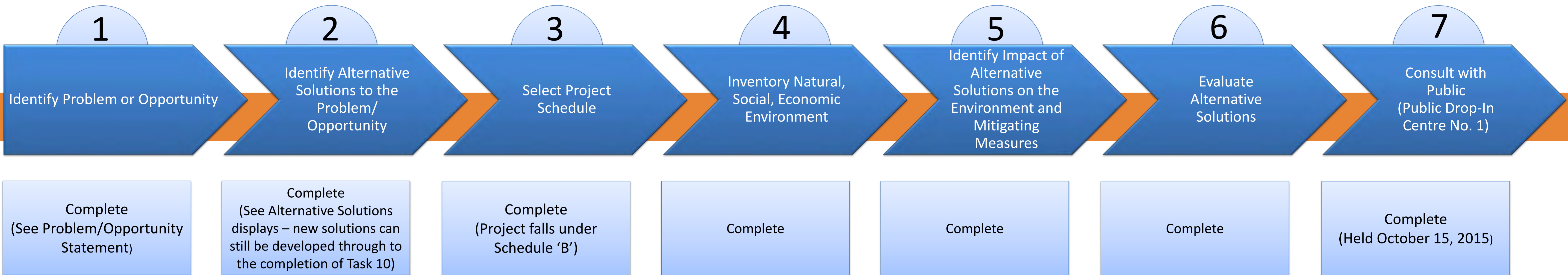
Problem / Opportunity Statement

“This study will: evaluate the merits of constructing grade-separated crossings along the Central Riverfront to alleviate pedestrian crossing conflicts on Riverside Drive; and, present preliminary design options for the chosen locations.”

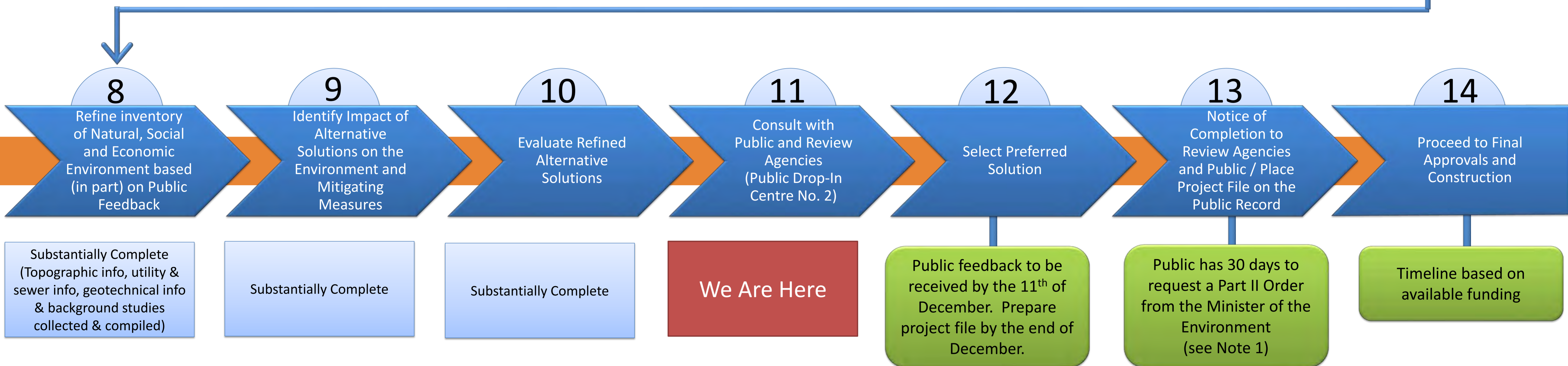
Environmental Assessment Process

- This project will follow the planning process set out in the Municipal Engineers Association’s *Municipal Class Environmental Assessment (Class EA)*. A copy of this document, which sets out the details of the approved Planning and Design Process for municipal projects (such as this), is on-site and is available for review.
- Since the Riverside Drive Pedestrian Crossings Class Environmental Assessment will be focusing on one element of the original Central Riverfront Implementation Plan (CRIP) master plan, the Project Team has concluded that this project falls under Schedule ‘B’ of the *Municipal Class EA*.
- For ‘Schedule B’ projects, only one point of Public Consultation is required. Because this is a high-profile project, the Project Team has elected to increase the level of public consultation (over and above the minimum requirement), and host **two** of these Public Drop-In Centres.

Where we have been:



Where we are going:

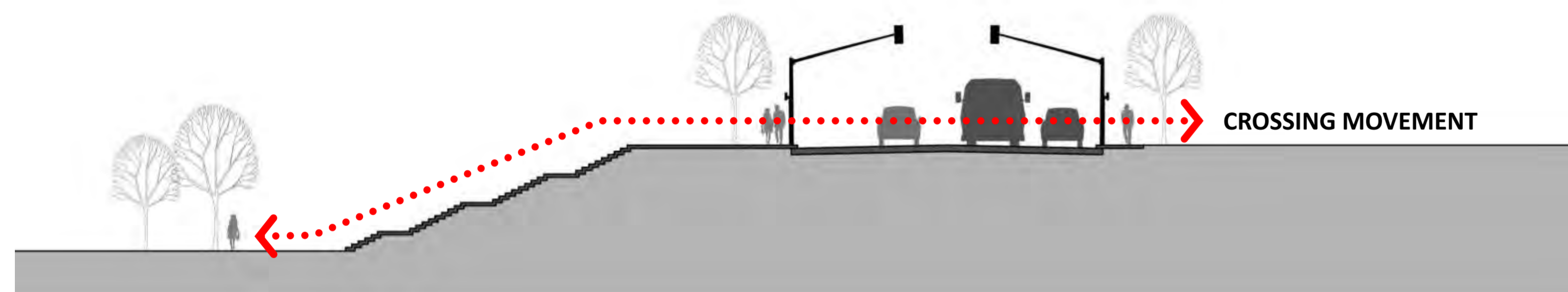


Note: 1. In accordance with the terms of the Municipal Engineers Association's *Municipal Class EA*, if concerns regarding this project cannot be resolved with the Municipality, any member of the public may request that the Minister of the Environment make an order for the project to comply with Part II of the EA Act - requiring an individual EA (not Class EA).

The CRIP Study provided for connections at strategic points between the north and south sides of Riverside Drive. Some of the crossings are “at-grade” – a traditional street level crossing. Some are “grade-separated” crossings consisting of either pedestrian bridges or underpasses. At-grade crossings make sense where there is only light pedestrian traffic. However, consideration for grade-separated crossings may be warranted where there are a large number of pedestrians (EXAMPLES: crossing Riverside Drive near the Festival Plaza, the Aquatic Centre, or the University of Windsor).

AT-GRADE CROSSING:

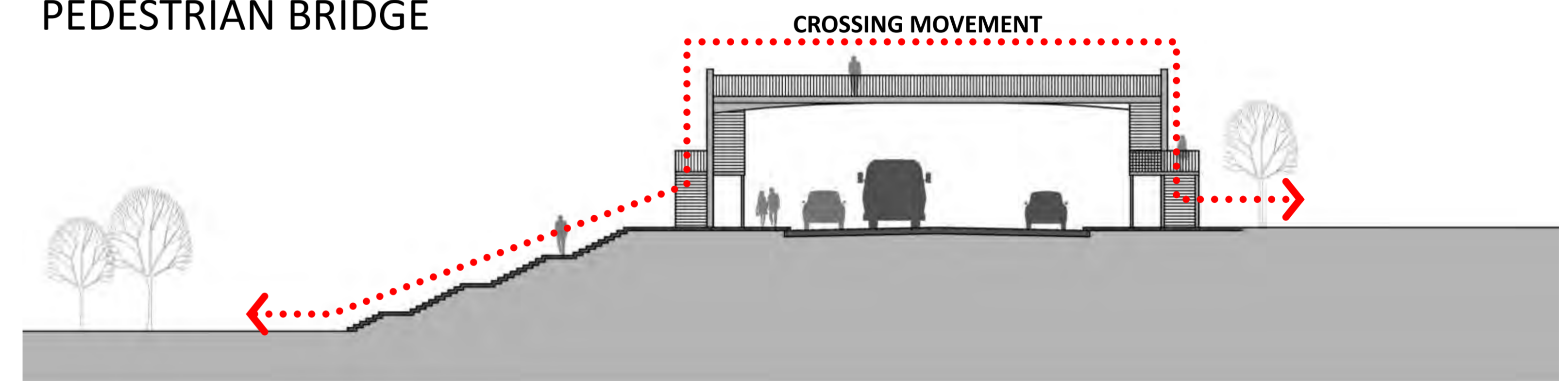
STREET LEVEL



An “At-Grade Crossing” OR “Street Level Crossing” requires crossing the street and going down one level to get to the park which is typically 3 to 4 metres lower than Riverside Drive.

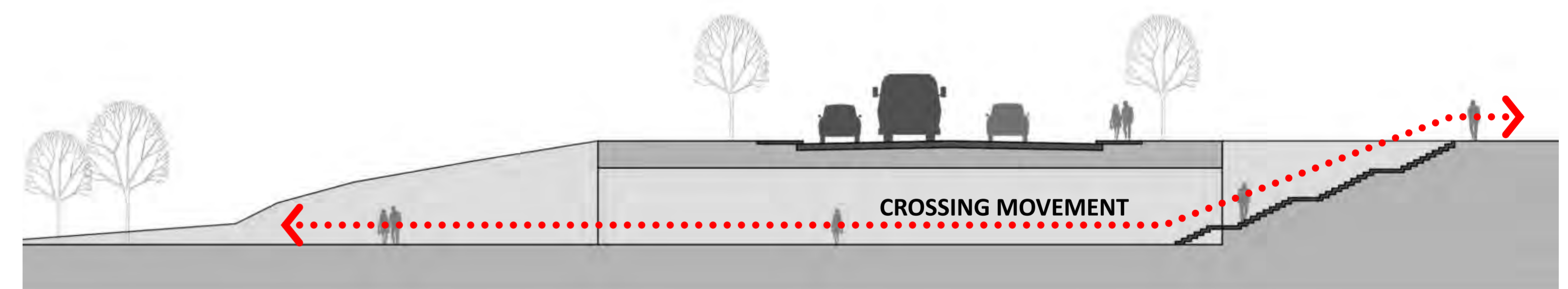
GRADE-SEPARATED CROSSING OPTIONS:

PEDESTRIAN BRIDGE



A pedestrian bridge would require going up a level to the bridge height, crossing the street, going down one level to the street, and then going down a second level to access the Riverfront Park.

PEDESTRIAN UNDERPASS



A pedestrian underpass requires much the same effort as a street level crossing, except that pedestrians would go down one level on the south side of Riverside Drive and then cross under the street at park level.

DO NOTHING:

Advantages

- No direct cost.
- No disruption to existing infrastructure .
- No additional maintenance needs.

Disadvantages

- Does not remove conflict between vehicular and pedestrian traffic.
- Does not improve connectivity of the riverfront to the neighbourhoods south of Riverside Drive.

ENHANCED AT-GRADE CROSSING:

Advantages

- Signalized intersection adds a level of safety.
- Improved aesthetics.
- Raised pavement and landscaping provide ‘traffic calming’ effect.
- Minimal maintenance required.

Disadvantages

- Does not remove conflict between pedestrians and vehicular traffic.
- Pedestrians do not always obey the traffic signals.

GRADE-SEPARATED CROSSING:

Advantages

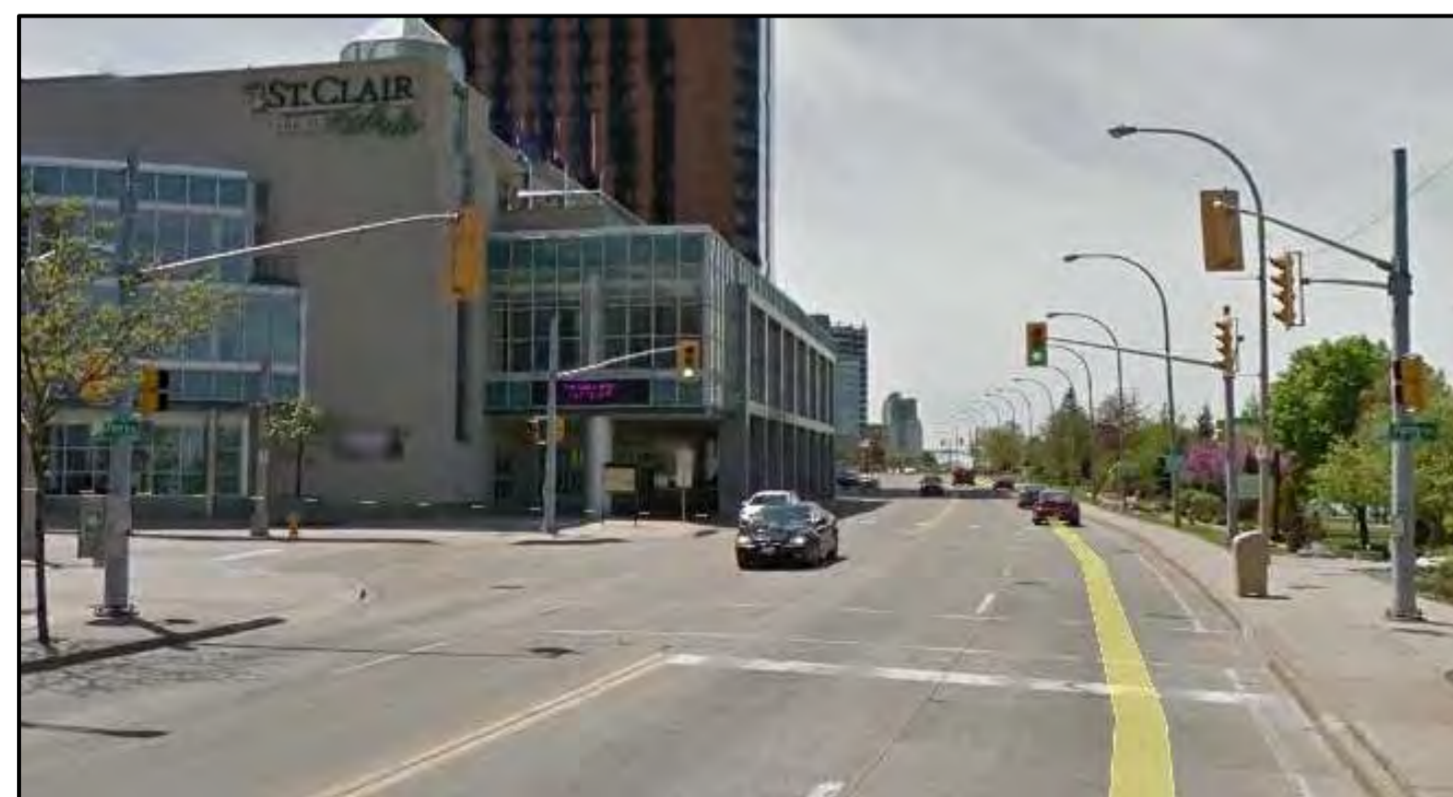
- Removes the conflict of pedestrians and vehicular traffic.
- Improves connectivity of the riverfront to the neighbourhoods south of Riverside Drive.

Disadvantages

- Highest initial capital cost.
- Increased maintenance requirements.

Examples of Crossings

ENHANCED AT-GRADE CROSSINGS:



GRADE-SEPARATED CROSSINGS (PEDESTRIAN BRIDGES AND UNDERPASSES):



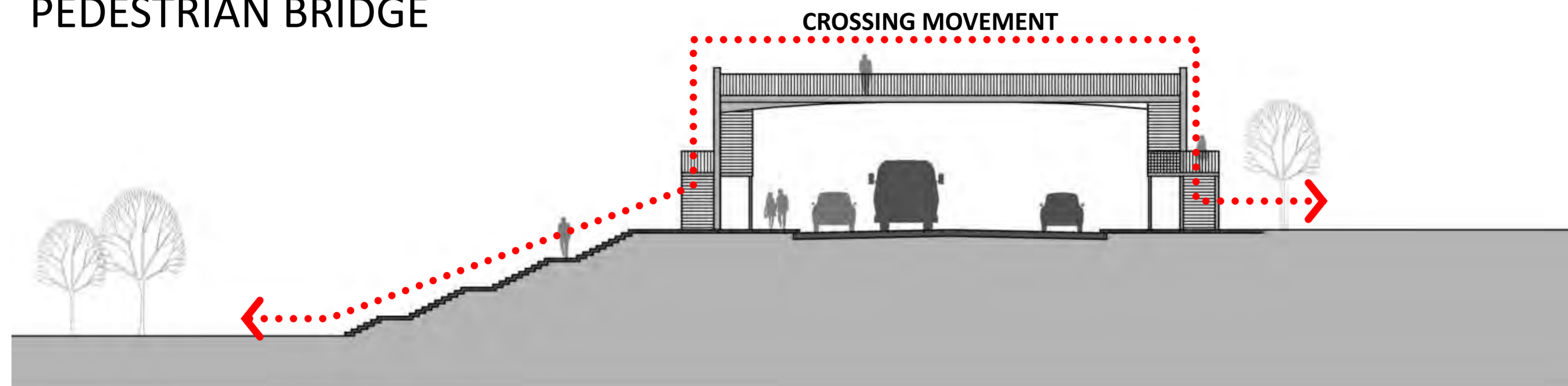
The following recommendations were made in the CRIP Review report based on the results of the survey and the comments received from the public:

- That **consideration be given to incorporating improved “at grade” pedestrian crossings** in order to improve pedestrian safety and improve the connection between the riverfront and the area south of Riverside Drive (in keeping with the recommendations already included in the City’s Riverside Drive Vista Improvement Project).
- Where warranted because of pedestrian volume, **consider constructing pedestrian crossings that separate the pedestrian traffic crossing Riverside Drive from the vehicular traffic.** Such locations may include: the area behind the Festival Stage (connecting to the Civic Esplanade), the area north of the Aquatic Centre, and a location near the University of Windsor.
- Where warranted, **consider the use of a pedestrian underpass rather than a pedestrian bridge.** The pedestrian underpass should be of substantial width and should incorporate a high level of lighting and high quality materials. Consideration should be given to providing a gathering place or “plaza” area at each end of the underpass as well, complete with systems for security.
- Give a high priority to the installation of **pedestrian underpasses where warranted by a large volume of potential pedestrians.**

A strong majority (72%) of survey respondents agreed that either pedestrian bridges or underpasses crossing Riverside Drive should be considered where warranted by the volume of pedestrians.

The 2013-2014 CRIP review also specifically noted the area immediately west of the Art Gallery and the extension of the Civic Esplanade (between Goyeau Street and McDougall Street) as prospective locations for a pedestrian grade separation, confirming the recommendations of the original 2000 plan.

PEDESTRIAN BRIDGE



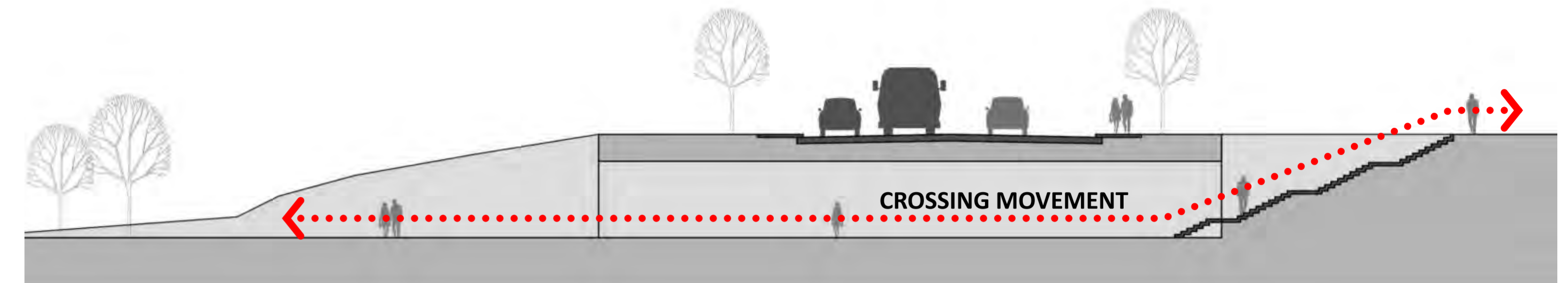
Advantages

- Separates pedestrian traffic from vehicular traffic.
- Improves connectivity of the Riverfront to the neighbourhoods south of Riverside Drive.
- High visibility aids with public safety and deters vandalism.

Disadvantages

- The crossing movement is much greater in length than the at-grade or underpass crossing. Pedestrians must go up one story and then come down two stories to reach the Riverfront Park level.
- More than three times as much ramp length is required for accessibility vs. that of an underpass (minimum 195m of ramp required).
- Ramp space is required on the north side of Riverside Drive which would encroach into limited parkland available along the riverfront.
- Winter maintenance of the stairs and ramps would require clearing by hand (not accessible by mechanical plow).

PEDESTRIAN UNDERPASS



Advantages

- Separates pedestrian traffic from vehicular traffic.
- Improves connectivity of the Riverfront to the neighbourhoods south of Riverside Drive.
- Does not add any additional crossing movements to reach the level of Riverfront Park.
- Ramps for accessibility only required on the south side of Riverside Drive (minimum 60m of ramp required).
- Less winter maintenance (only one ramp and one set of stairs to maintain).

Disadvantages

- Potential lack of visibility for personal safety and vandalism.
 - ❖ MITIGATING MEASURE: Lighting can be added to help visibility at night. The width and orientation of the underpass opening can be designed to maximize visibility from each side.

Preliminary Recommendation

If grade-separated crossings are to be constructed along Riverside Drive within the Central Riverfront, it is our recommendation that they be pedestrian underpasses.

The Riverside Drive Vista Improvement Project (a Municipal Class EA completed in 2007) identified locations for Enhanced At-Grade Pedestrian Crossings along Riverside Drive. The types of crossings include full signalized intersections, mid-block pedestrian signals, and intersection pedestrian signals. The image below illustrates the locations that were identified for each type of crossing, as well as the locations suggested in the Central Riverfront Implementation Plan for grade-separated crossings.



Riverside Drive Vista Improvements Project

- Full Signalized Intersection (Existing)
- Mid-block Pedestrian Signal (Proposed)
- Intersection Pedestrian Signal (Proposed)

Central Riverfront Implementation Plan (CRIP and CRIP Review)

- Pedestrian Grade-Separated (Proposed)
- Pedestrian Grade-Separated (at Former Railway Cut)

Full Signalized Intersection: Traffic signals provided for both Riverside Drive and the cross street.

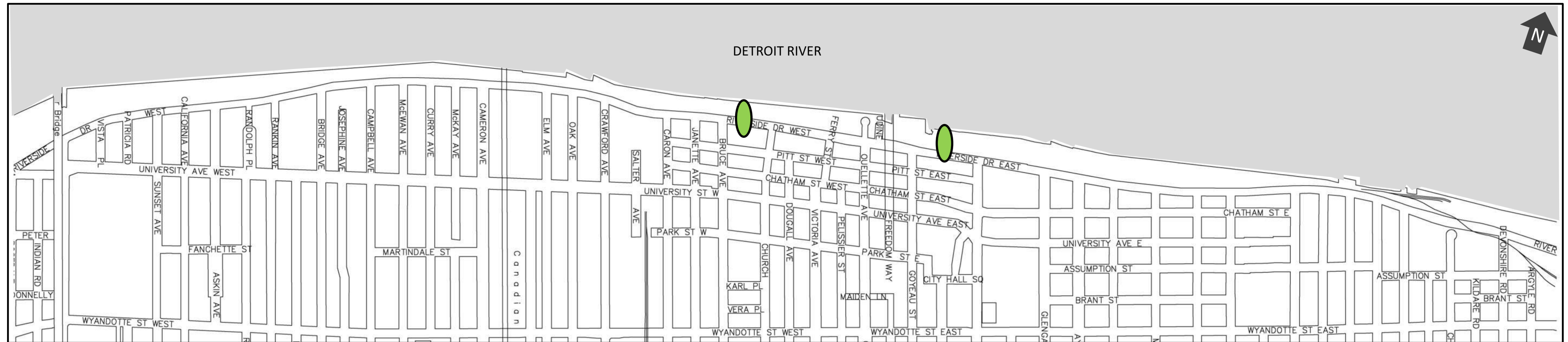
Intersection Pedestrian Signal: Traffic signals provided for Riverside Drive but not the cross street.

Mid-block Pedestrian Signal: Traffic signals provided along Riverside Drive not at an intersection.

The Enhanced At-Grade Pedestrian Crossings would include a mixture of the following traffic calming features including: raised intersections, coloured intersections, raised crosswalks, textured crosswalks, centre median refuge islands and/or crosswalk pavement markings.

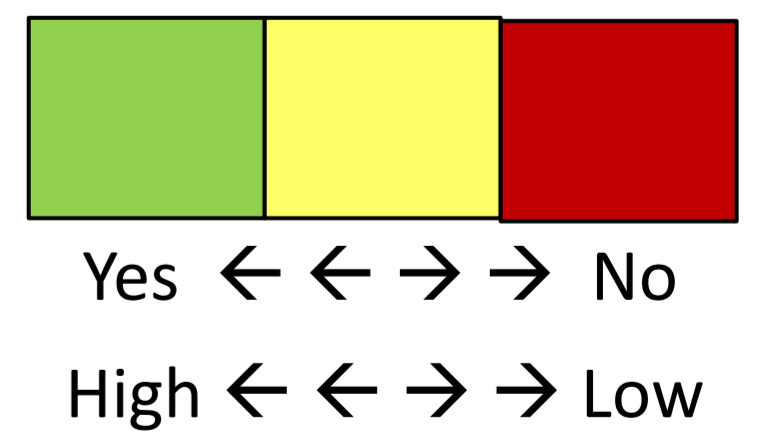
Evaluation to Determine Potential

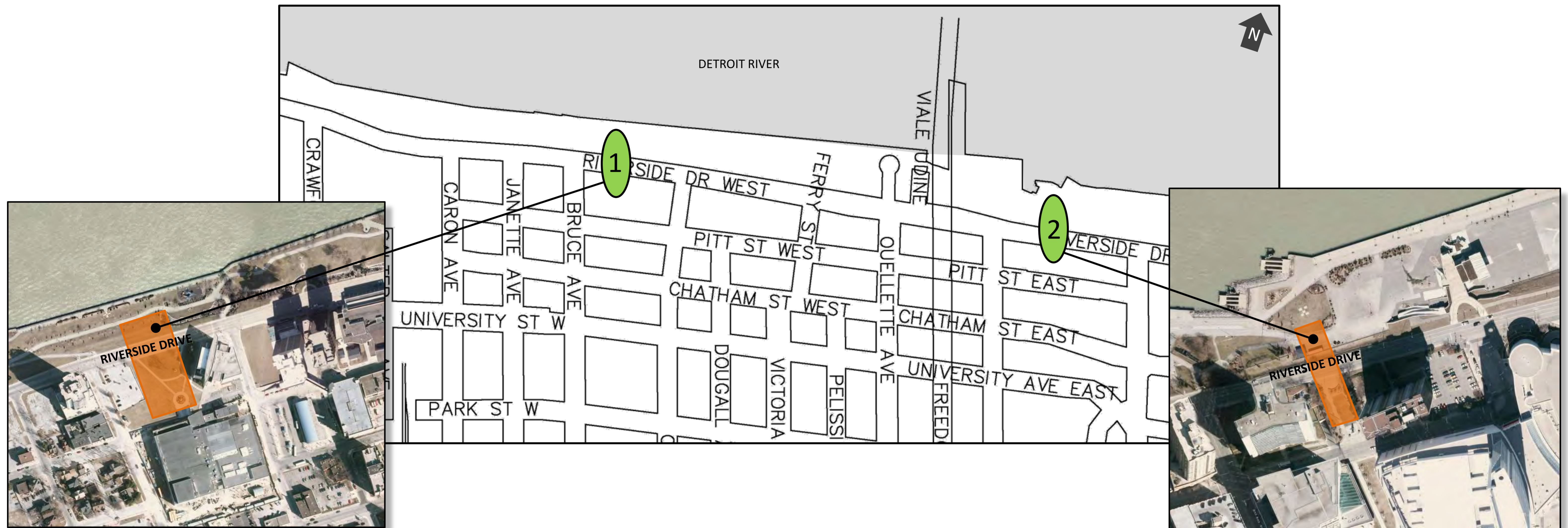
Crossing Location



LAND AVAILABLE FOR PLAZA ON NORTH SIDE OF RIVERSIDE DRIVE	Green	Red	Green	Yellow	Green	Red	Green	Red	Yellow	Green	Red	Yellow	Green	Red
LAND AVAILABLE FOR PLAZA ON SOUTH SIDE OF RIVERSIDE DRIVE	Green	Red	Red	Yellow	Red	Green	Red	Green	Red	Red	Red	Yellow	Red	Red
POTENTIAL PEDESTRIAN CROSSING VOLUMES	Green	Yellow	Red	Red	Red	Green	Green	Green	Green	Red	Red	Red	Red	Red
LOCATIONS IDENTIFIED IN CRIP AND CRIP REVIEW	Red	Red	Red	Red	Red	Green	Green	Green	Green	Red	Red	Red	Red	Red
ELEVATION CHANGE FROM NORTH TO SOUTH (GREATER THAN 3 METERS)	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red
EXISTING GRADE SEPARATIONS	Red	Red	Red	Red	Red	Green	Red	Red	Red	Red	Red	Red	Red	Red
NO MAJOR UTILITY CONFLICTS	Green	Green	Green	Green	Green	Green	Green	Green	Yellow	Red	Red	Red	Red	Red

Based on the above matrix, it can be seen that there are **two prime locations** to consider for a pedestrian grade-separation. This confirms that the locations identified in the original CRIP and CRIP Review are the ideal locations to construct a pedestrian grade separated crossing.





Site 1: Aquatic Centre Site (between Bruce Ave. and Church St.)

- This site is in close proximity to the Aquatic Centre and the Art Gallery.
- Located adjacent to the Central Riverfront downtown core.
- Proposed future marina site on the waterfront.
- Private parking located adjacent to the site (south-east corner of Riverside Drive and Bruce Avenue).
- The site is located near the bus station.
- The site is approximately 25 metres wide at its most narrow section on the south side of Riverside Drive.

Site 2: Civic Esplanade Site (between Goyeau St. and McDougall St.)

- This site is in close proximity to two of the biggest draws to the downtown area; the Casino and the Festival Plaza.
- Located in the Central Riverfront downtown core.
- Parking is located to the west of the site on the riverfront side of Riverside Drive.
- Parking lots are located on the south side of Riverside Drive off Pitt Street.
- The site connects south to City Hall plaza, Charles Clark Square skating rink and passive park areas.
- The site is approximately 25m wide and 60m long (from Riverside Drive to Pitt Street).

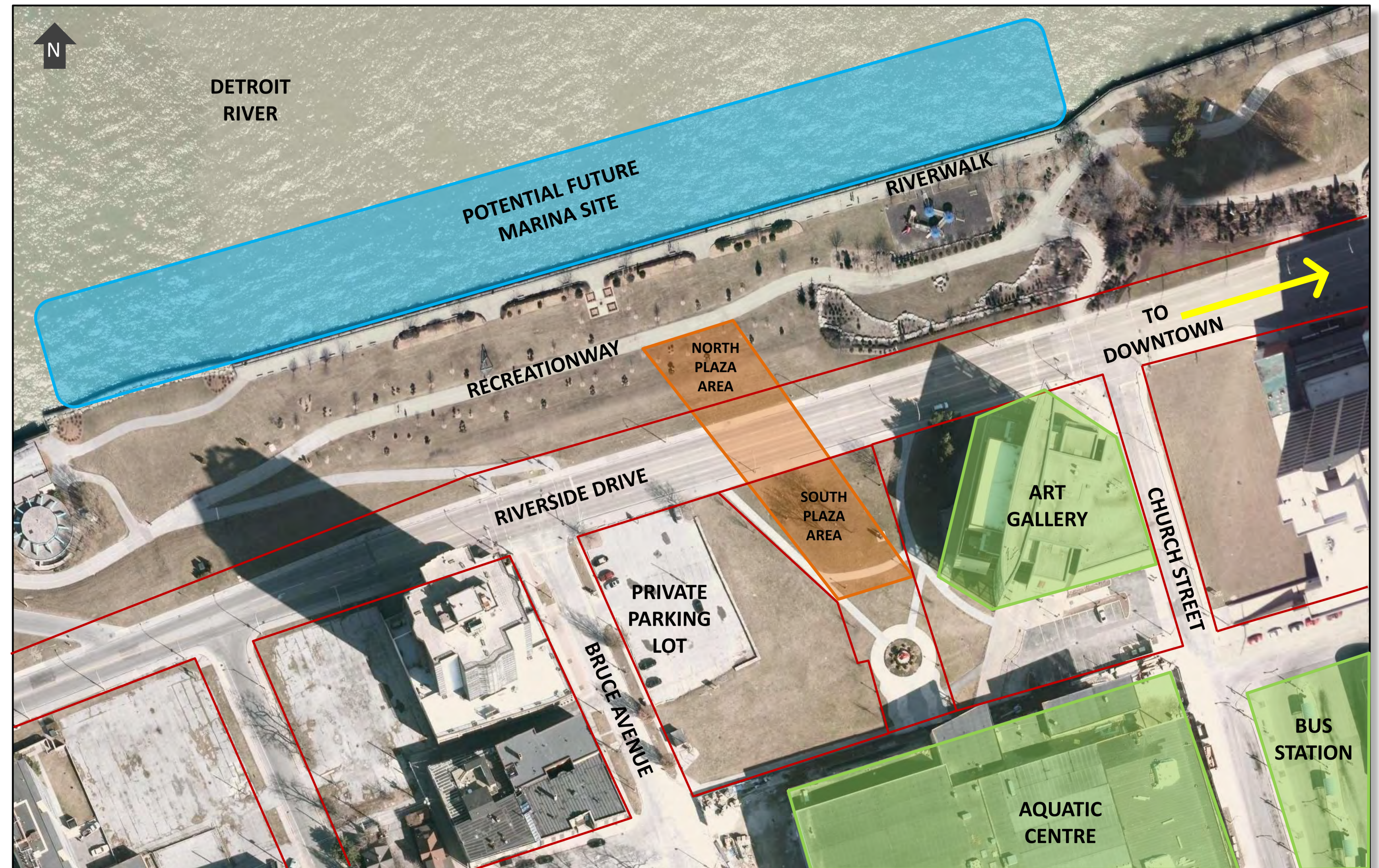
Site 1: Aquatic Centre Location

Opportunities

- Aquatic Centre and Art Gallery located adjacent to the site.
- Bus station located adjacent to south side of the site.
- Proposed future marina site is located on the north side of Riverside Drive at this location.

Constraints

- No specific destination on the north side of Riverside Drive until/if the marina is developed.
- Located at the west end of the Central Riverfront (downtown area).
- Possible remnants of a ramp (from the former riverfront hotel) are buried at this location.
- Lack of public parking in the vicinity of the site.



- PROPERTY LINES
- SITE 1 LOCATION

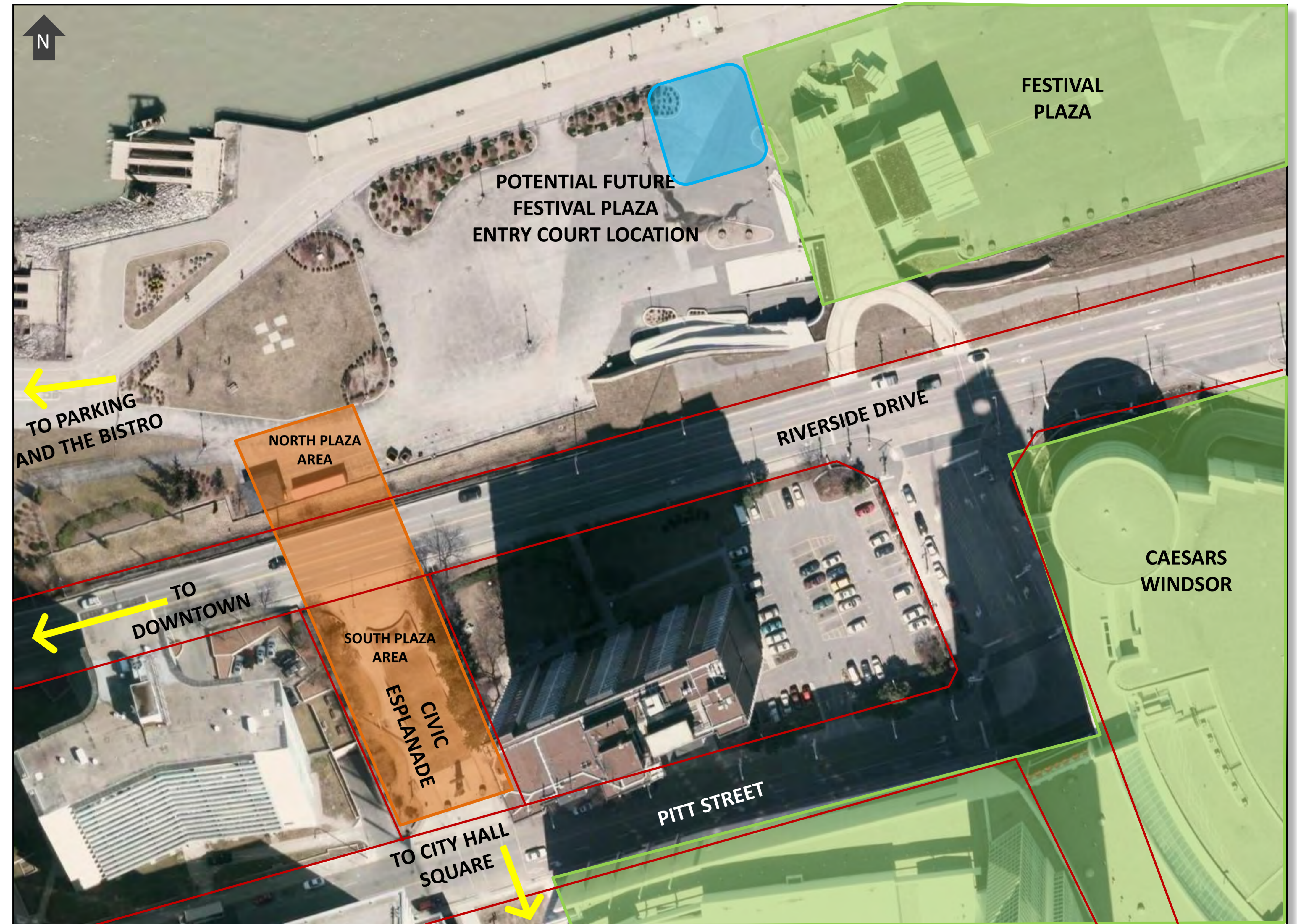
Site 2: Civic Esplanade Location

Opportunities

- Located in the Central Riverfront (downtown area).
- Festival Plaza is adjacent to landing area.
- The Casino is located just east of the site.
- Connects to the Civic Esplanade on the south side of Riverside Drive.
- The Civic Esplanade connects south to Charles Clark Square and City Hall.
- Closest location to downtown area (higher crossing volumes).
- A municipal parking garage is located less than a block from the south side of the site.
- Provide safe crossing adjacent to Festival Plaza where many nighttime events are held.

Constraints

- Narrow space on the south side of Riverside Drive for south plaza.
- North plaza area may conflict with back of house and ramp at Festival Plaza.
- Existing storage structure on north side would have to be removed or relocated.



- PROPERTY LINES
- SITE 2 LOCATION

Existing Conditions

What environmental considerations could potentially impact the project?

The following displays are intended to present the environmental inventory that has been compiled by the Project Team. This inventory documents the existing conditions at the two proposed locations and addresses the following categories:

Physical Environment

- Physical Infrastructure (e.g.: utilities, sewers, etc.)
- Land ownership

Natural Environment

- Terrestrial Habitat
- Species at Risk

Social / Economic Environment

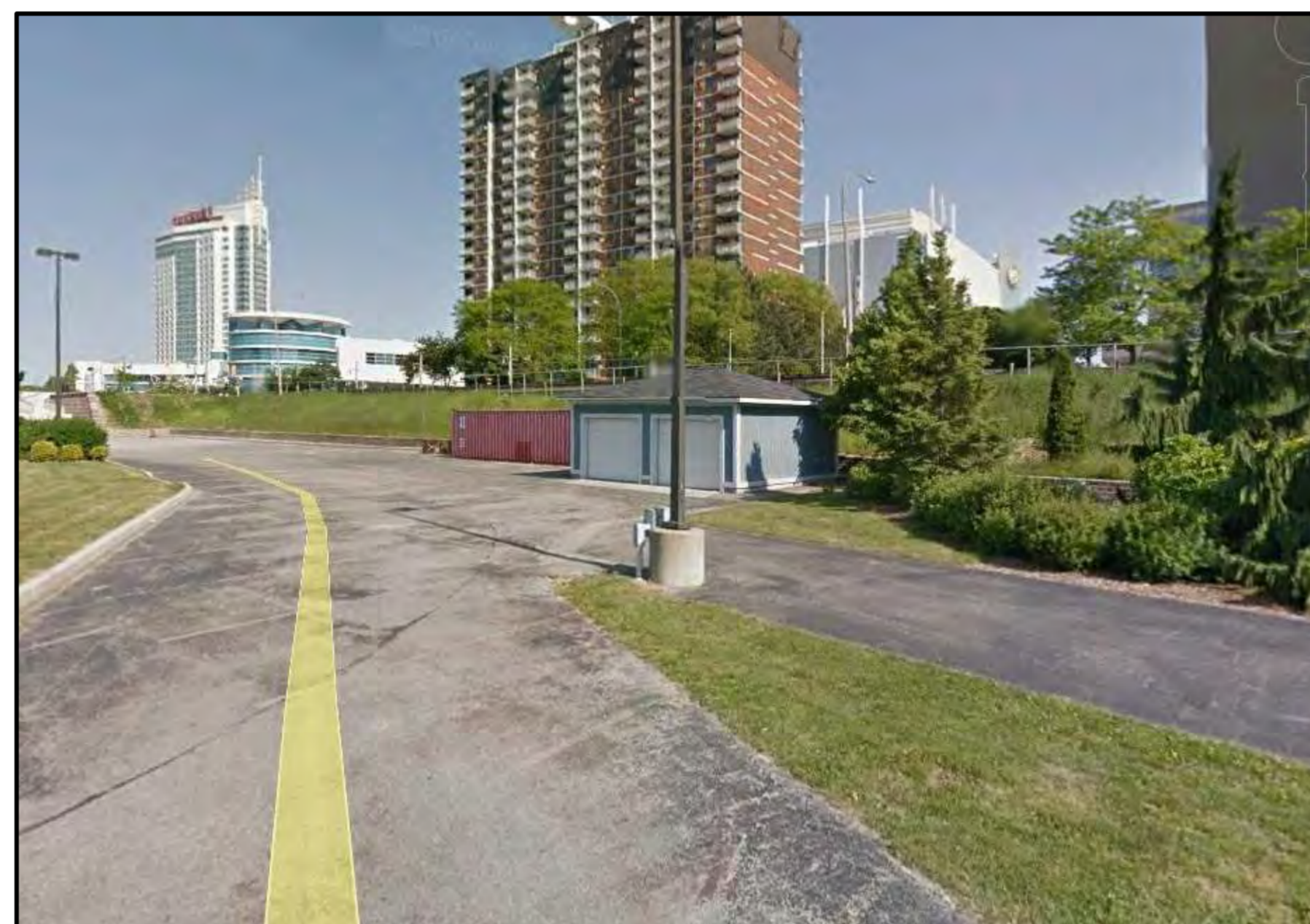
- Adjacent Land Use
- Heritage / Archaeological Resources



Civic Esplanade at Festival Plaza Site



Art Gallery at Aquatic Centre Site

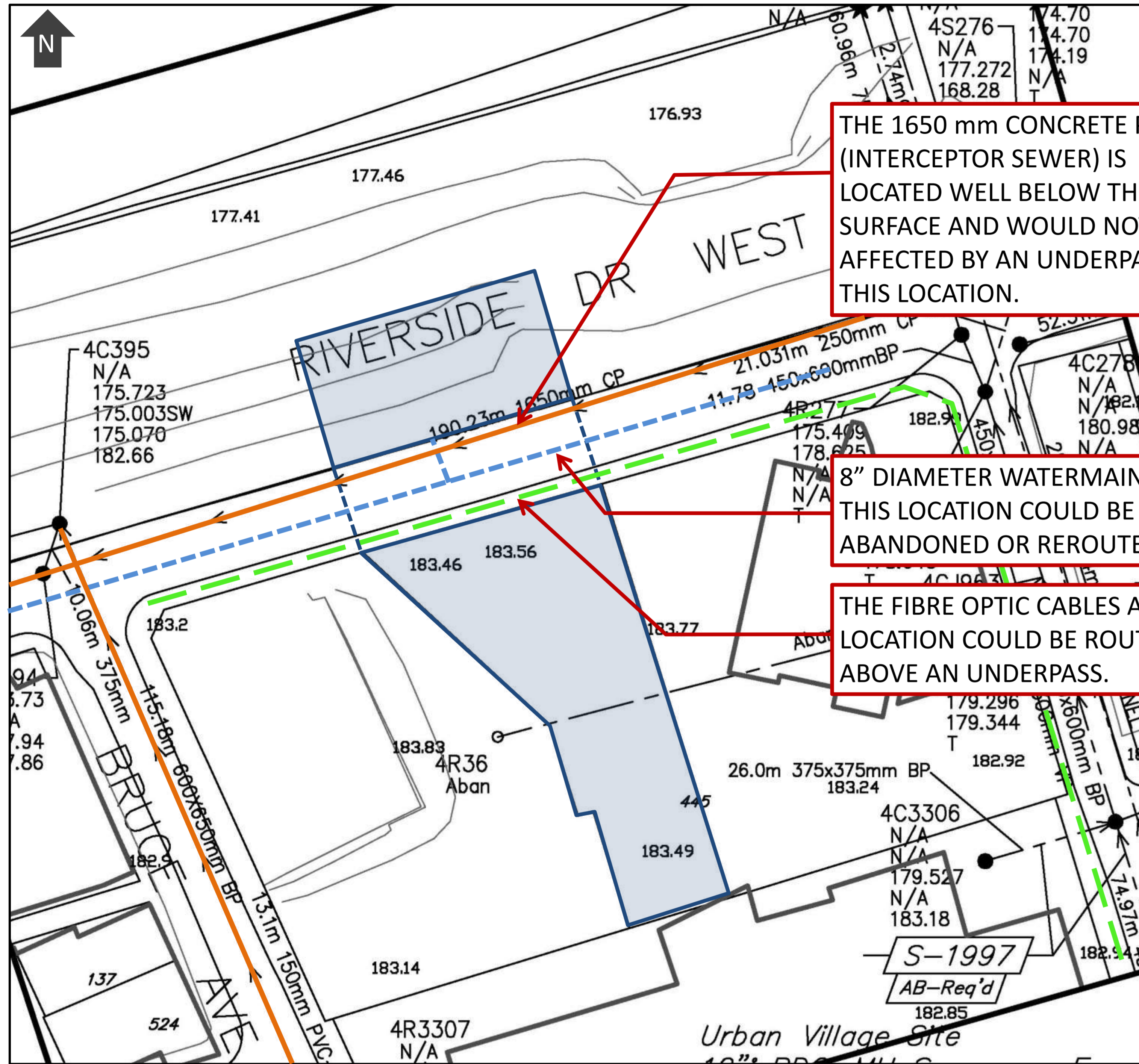


Recreationway looking east toward Festival Plaza

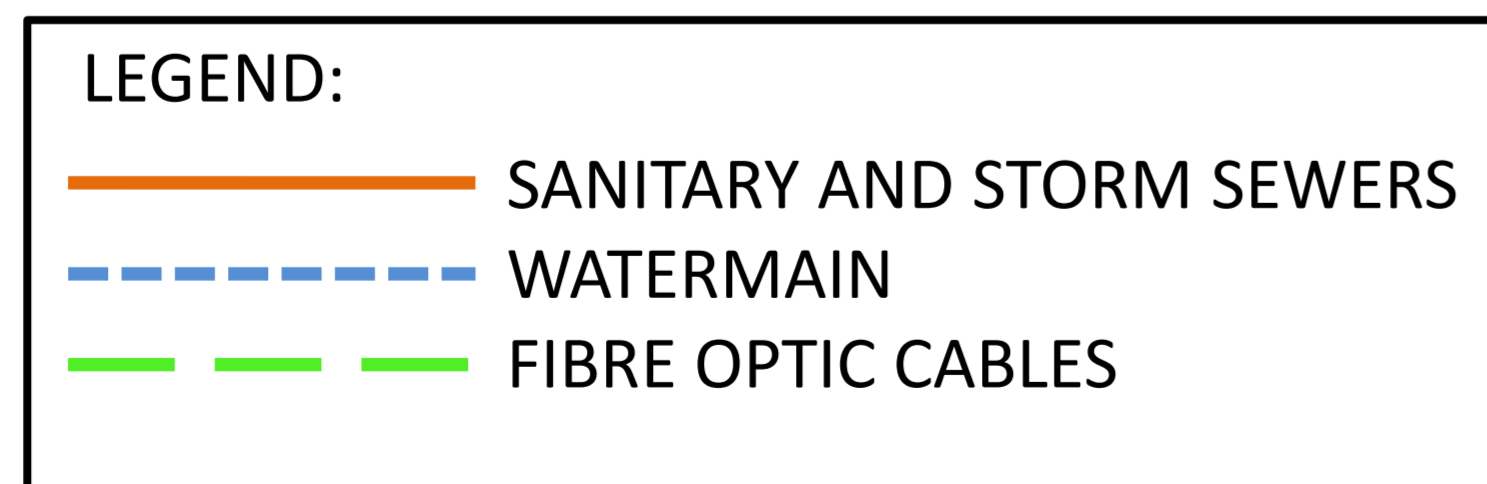
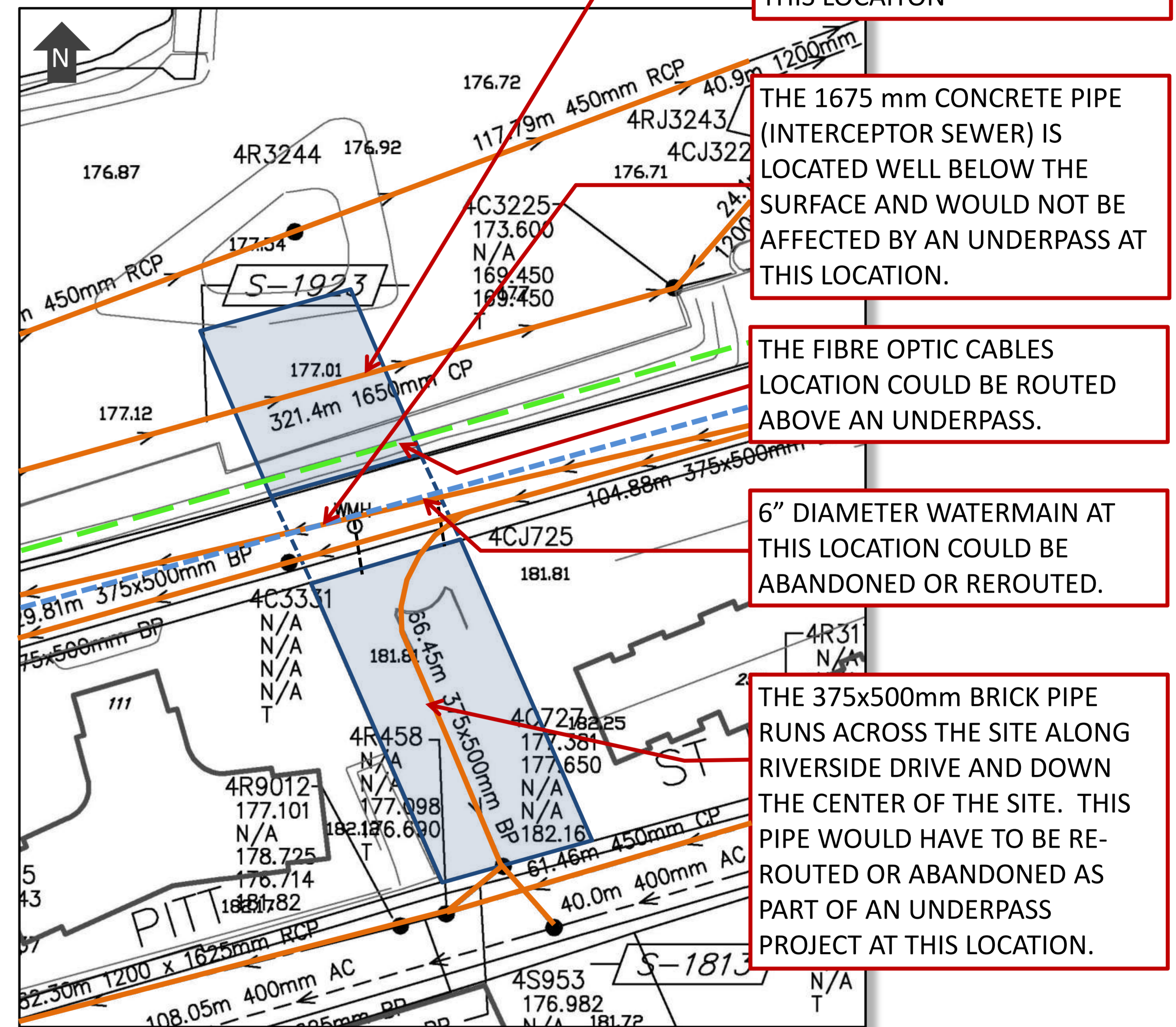


Riverwalk looking south toward the Art Gallery and Aquatic Centre

AQUATIC CENTRE LOCATION

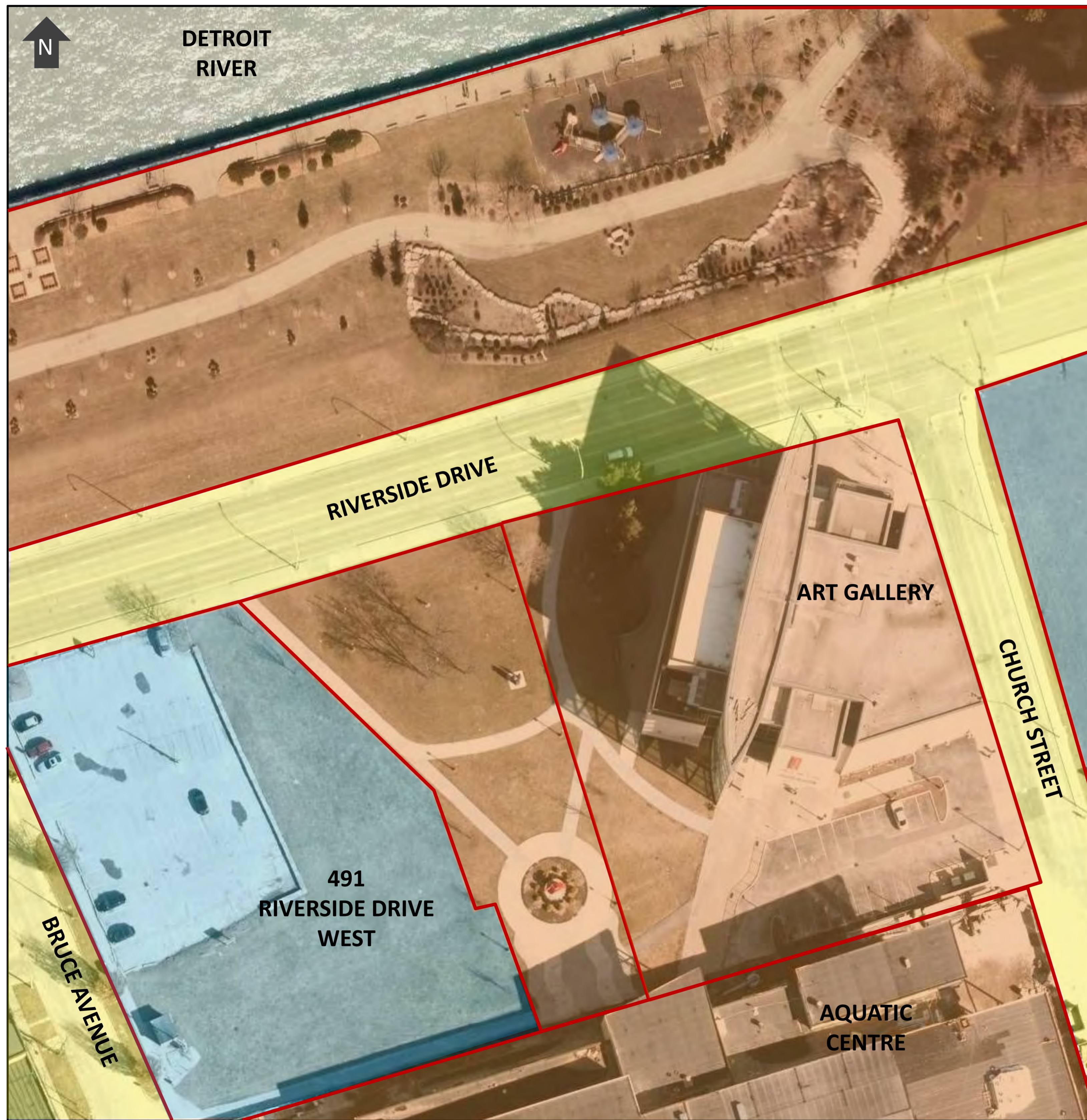


CIVIC ESPLANADE LOCATION

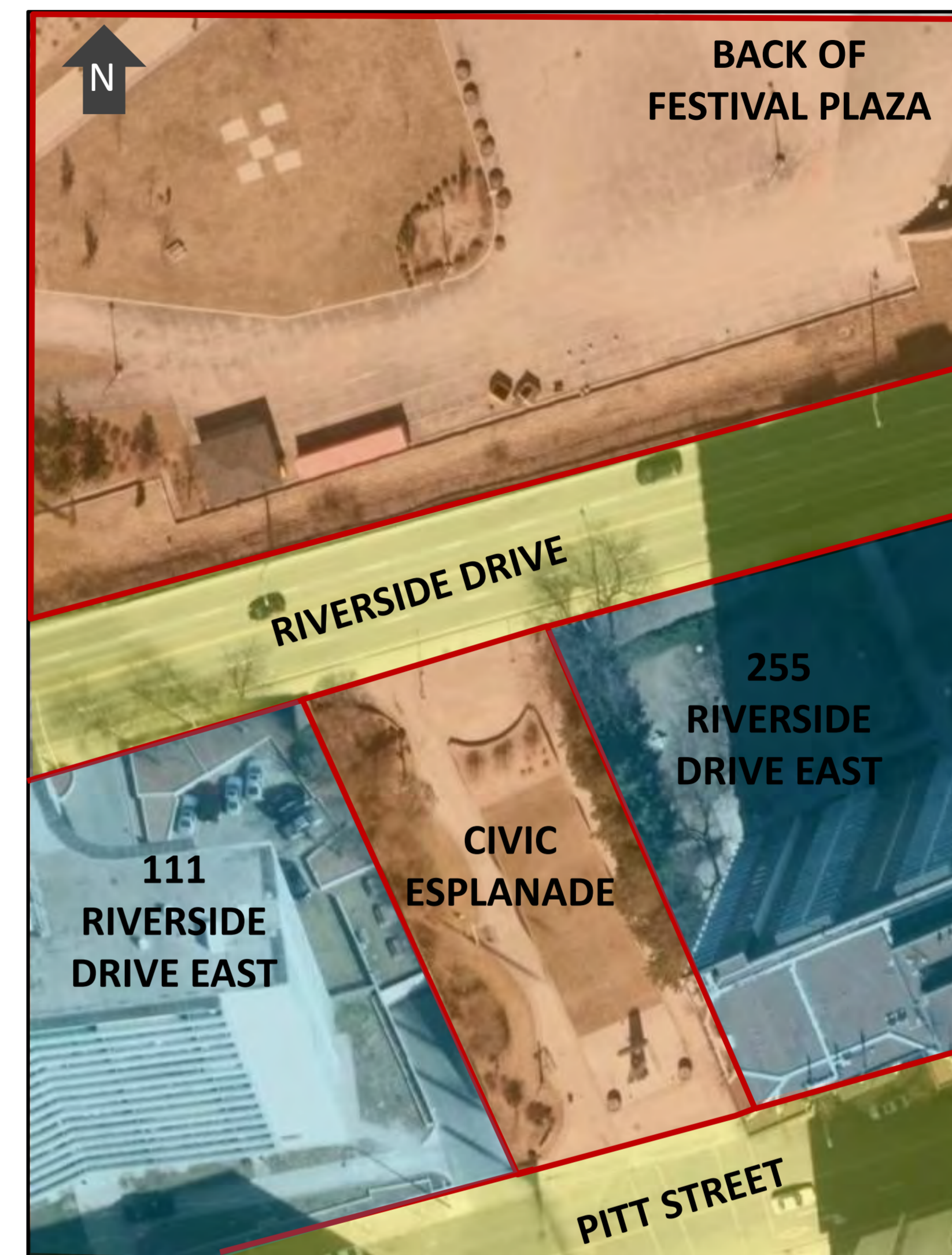


- There are no Union Gas lines that would be affected by the construction of an underpass at either location.
- Enwin Utilities power lines, City of Windsor GIS Traffic lines and Bell lines are located within the right-of-way of Riverside Drive at both sites. The location of these utilities will not constrain the design or location of an underpass at either location.

AQUATIC CENTRE LOCATION



CIVIC ESPLANADE LOCATION



LEGEND:

CITY OF WINDSOR OWNED PROPERTY
ROAD RIGHT-OF-WAY
PRIVATELY OWNED LAND

Natural and Social Environments

Archeological Potential

As part of the Environmental Inventory process, research was conducted to determine the archeological potential of the proposed site locations.

- AMICK Consultants Limited has been engaged to undertake a Stage 1-2 Archeological Assessment of the lands potentially affected by the proposed pedestrian underpass. The site locations will be subject to reconnaissance, photographic documentation and physical assessment.
- During the assessment, AMICK confirmed that the areas are disturbed. Due to the historic location of the study areas, however, they are recommending monitoring during grading and excavation work.

Heritage Sites

- A Heritage Site is characterized by a property listed on a municipal register or designated under the Ontario Heritage Act. It could also be a federal, provincial or municipal historic landmark or site.
- There are no listed or designated heritage buildings or properties on either of the sites under consideration for construction of a pedestrian underpass.

Natural Environment

- Biologic Inc. has been engaged to undertake a Natural Heritage Assessment of the land potentially affected by the proposed pedestrian underpass.
- Currently, the study areas provide very limited wildlife habitat. Both sites consist of pavement, mowed lawn areas and some planting beds.
- There has been no evidence uncovered to date that would suggest that any Species at Risk are likely to be found within the site locations.

Geotechnical Investigation

Golder Associates was retained to conduct a preliminary investigation into the soil conditions at each site.

Site 1 (Aquatic Centre Site) – Native soils within the site are firm to very stiff silty clay. Some fill was encountered along the west side of the site and north of Riverside Drive. Groundwater levels were measured at approximately 2m below ground surface.

Site 2 (Civic Esplanade Site) – Native soils within the site are stiff to very stiff silty clay. Fill was encountered along the north side of Riverside Drive. Groundwater levels were measured at approximately 3.5m below ground surface.

Vehicular Traffic

- City of Windsor traffic counts within the downtown along Riverside Drive average approximately 20,000 vehicles per day. (Traffic counts provided by the City of Windsor)
- The planning capacity for Riverside Drive on the four lane section in the downtown is 16,000 vehicles per day. (Riverside Drive Vista Improvements Study ESR, 2007)

Vehicular Accident Data:

- Between January 2009 to December 2013 (5 years) there were 54 collisions at intersections along Riverside Drive between Bruce Avenue and McDougall Street.
- Between January 2009 to December 2013 (5 years) there were 4 midblock collisions between Goyeau Street and McDougall Street, and 1 midblock collision between Church Street and Bruce Avenue.
- All of the collisions resulted in either property damage and/or minor injuries. None of the accidents were fatalities.
- The majority of the accident occurred during the day when conditions were clear and dry.
(Collision data provided by the City of Windsor)

Pedestrian Traffic

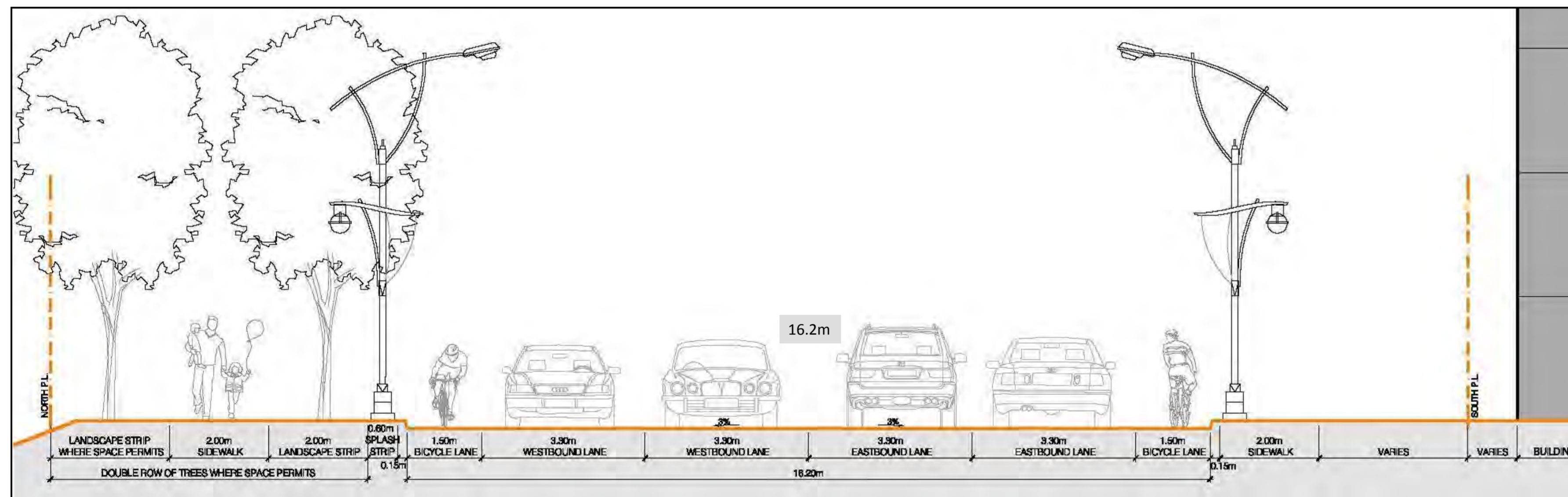
- The Riverfront Festival Plaza receives an average of 170,000 visitors annually and an average of 2,500 to 5,000 visitors daily during events.
- Some events at the Festival Plaza can attract up to 8,000 patrons for a single day event.
(Festival Plaza statistics provided by the City of Windsor)

Pedestrian Crossing Data:

- Crossing counts at intersections along Riverside Drive are consistently higher as you approach downtown, with Ouellette Avenue and Goyeau Street having the highest crossing volumes between Bruce Avenue and Glengarry Avenue. (Crossing data provided by the City of Windsor)
- Within the downtown core pedestrian movement is primarily north/south, concentrated along Ouellette Avenue. (Downtown Transportation Strategy, 2015)

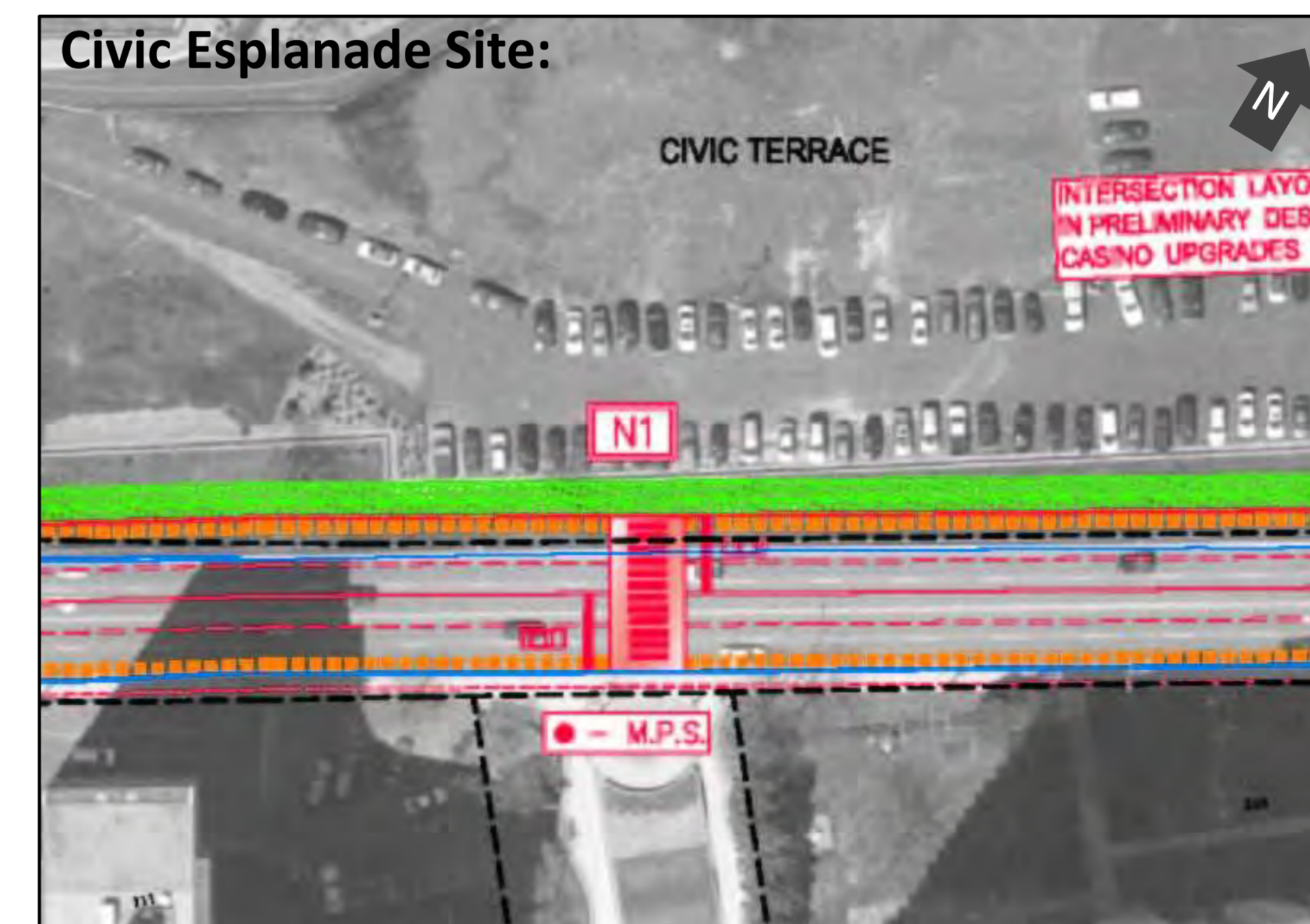
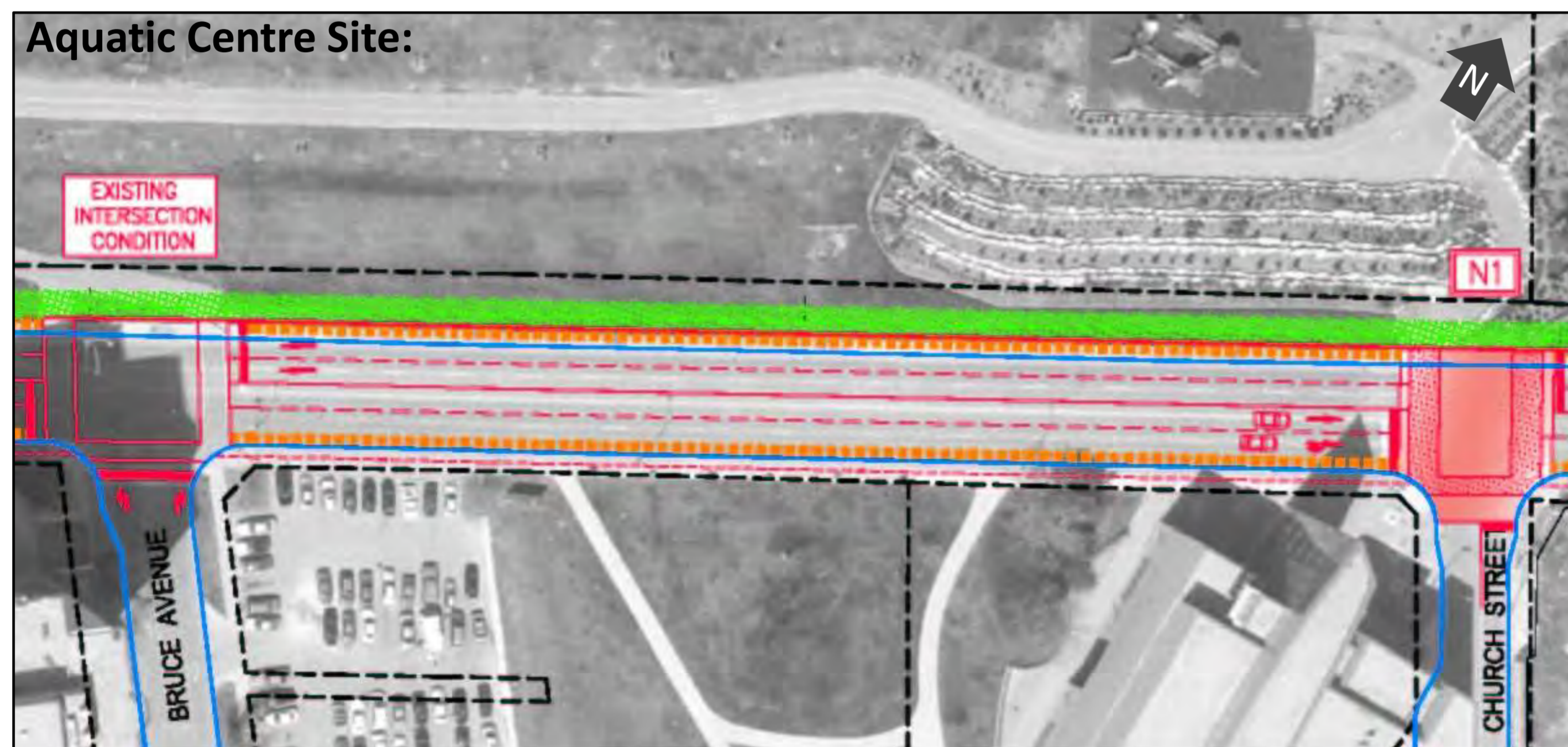
How does this project integrate with the long-term plan for Riverside Drive?

The Riverside Drive Vista Improvements Project not only identified crossing locations along Riverside Drive (see Crossing Locations panel) but also proposed new cross sections for the Riverside Drive right-of-way. The approved cross section for Riverside Drive through the downtown area is shown below. The pavement would be widened to accommodate two bike lanes and maintain four traffic lanes. The cross section also incorporates a 2.6m wide buffer/landscaped area adjacent to the north curb and a 2m wide sidewalk (which is consistent with the Pedestrian Promenade in the CRIP report). As illustrated in the plans below, the additional land required to construct the new cross sections will be achieved by maintaining the existing south edge of pavement and encroaching into the parkland to the north of Riverside Drive.



The existing Riverside Drive width (from face-of-curb to face-of-curb) is 14m along the Aquatic Centre site and 13m along the Civic Esplanade site. Adding two bike lanes would require widening the paved surface to 16.2m wide.

The length of the proposed underpass(es) should account for the “future” Riverside Drive cross section.

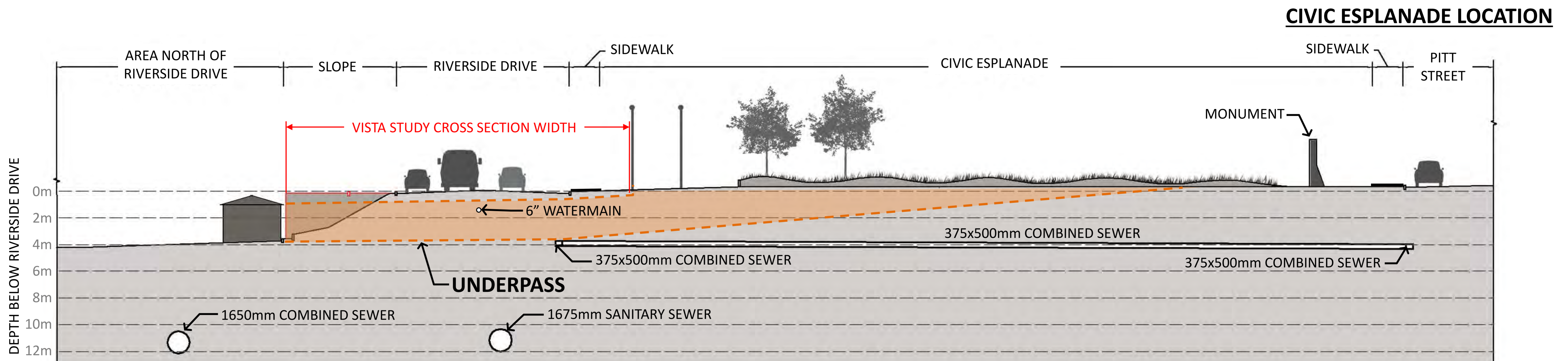
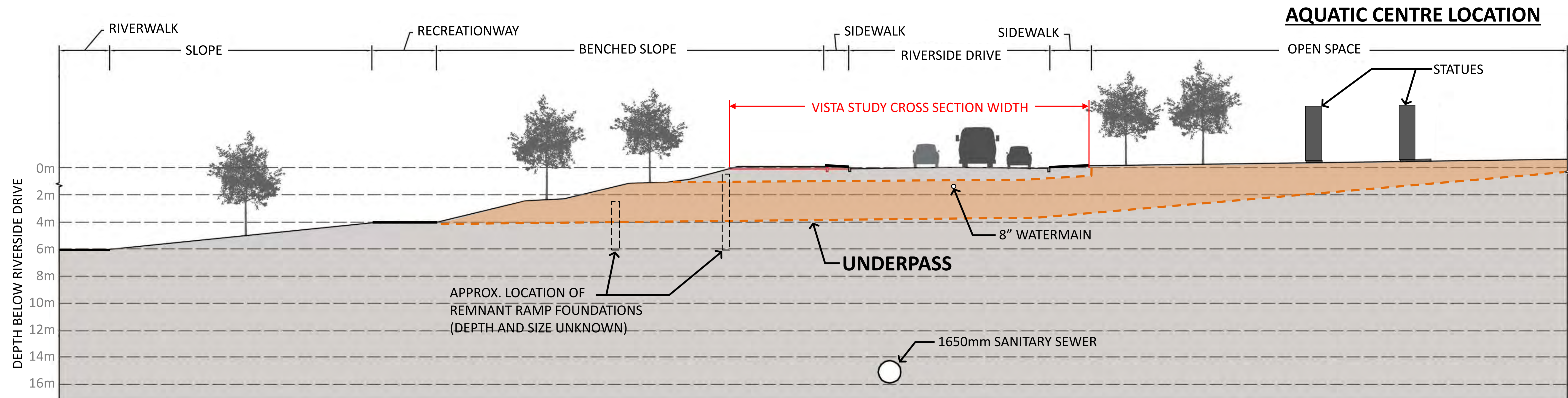



Legend	
---	EXISTING PROPERTY LINE
---	EXISTING EDGE OF PAVEMENT
---	EXISTING SIDEWALK TO REMAIN OR RECONSTRUCTED
---	EXISTING BIKE LANE TO REMAIN OR RECONSTRUCTED
---	NEW EDGE OF PAVEMENT
---	NEW BIKE LANE
---	NEW SIDEWALK
---	NEW PEDESTRIAN PROMENADE
---	NEW RAISED OR COLORED SURFACE TREATMENT
---	NEW MARKED CROSSWALK
---	NEW CONCRETE OR UNIT PAVEMENT CROSSWALK
●	INTERSECTION PEDESTRIAN SIGNAL
●	MID BLOCK PEDESTRIAN SIGNAL
N1	NODE 1 - REFER TO DETAILS
○	POTENTIAL TREE IMPACTED
---	NEW LANDSCAPED CENTRE MEDIAN

Note: All images on this slide were taken directly from the Riverside Drive Vista Improvements Project document.

Environmental Inventory

Existing Cross Sections



 UNDERPASS SECTION THROUGH SITE (MINIMUM EXTENTS)

Underpass Structures

How simple or elaborate of a design would be most appropriate?

The two images below represent the opposite extremes in design for the pedestrian underpass. The first is a minimal tunnel – narrow and basic. The second image illustrates an elaborate underpass with multiple plaza areas, water features and sculpture pieces. Although the second image may have some elements that are desirable, the cost of construction and maintenance would be significantly more substantial. The project team believes that the preferred option should fall somewhere between these two extremes.

Minimum – Basic Tunnel (Penang Lane under McHugh Street)



Maximum– Major Underpass with Plaza Areas (Image courtesy of Architecttura Inc.)



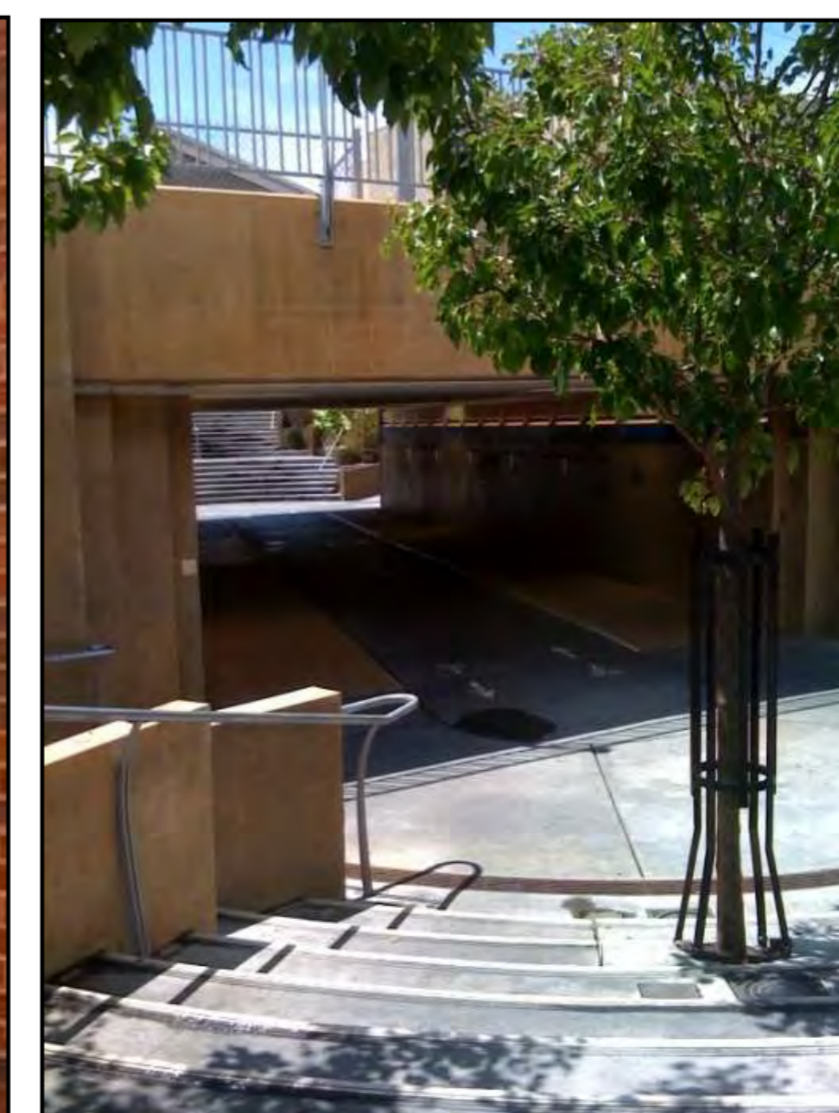
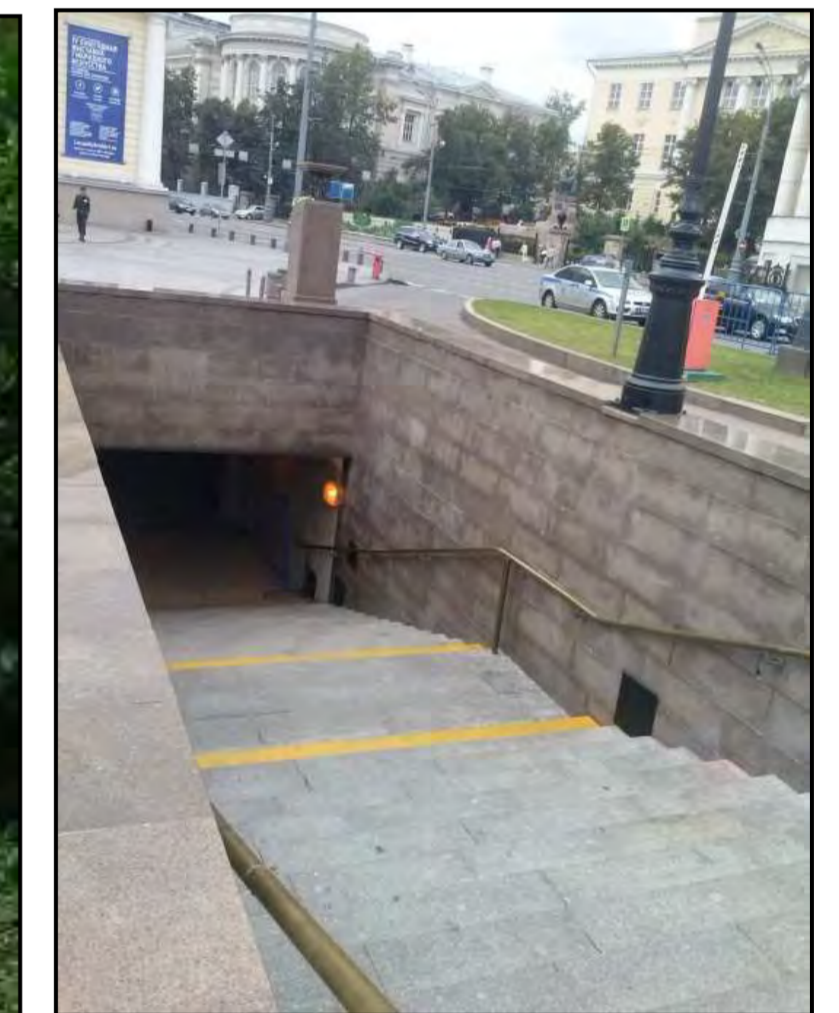
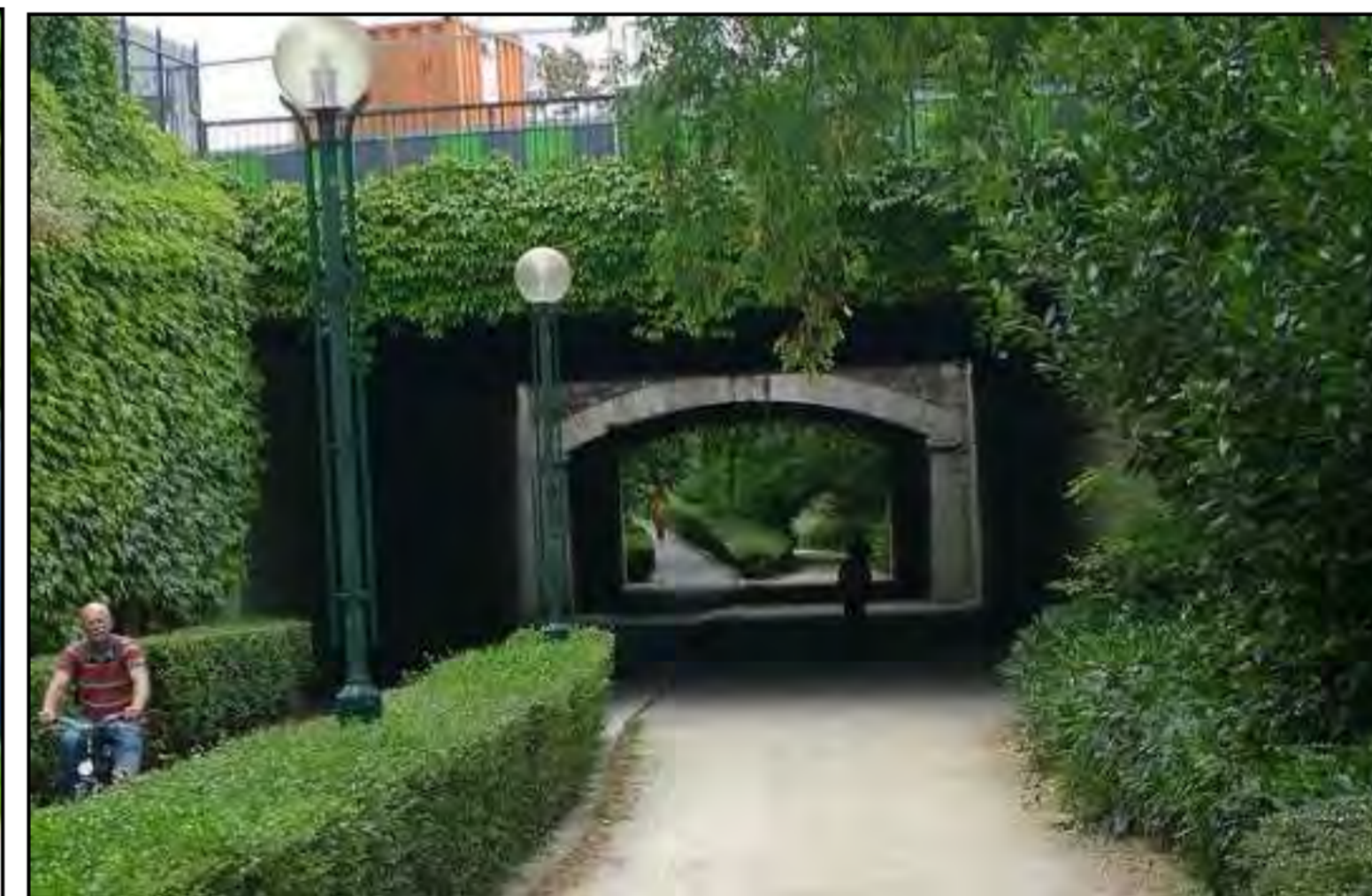
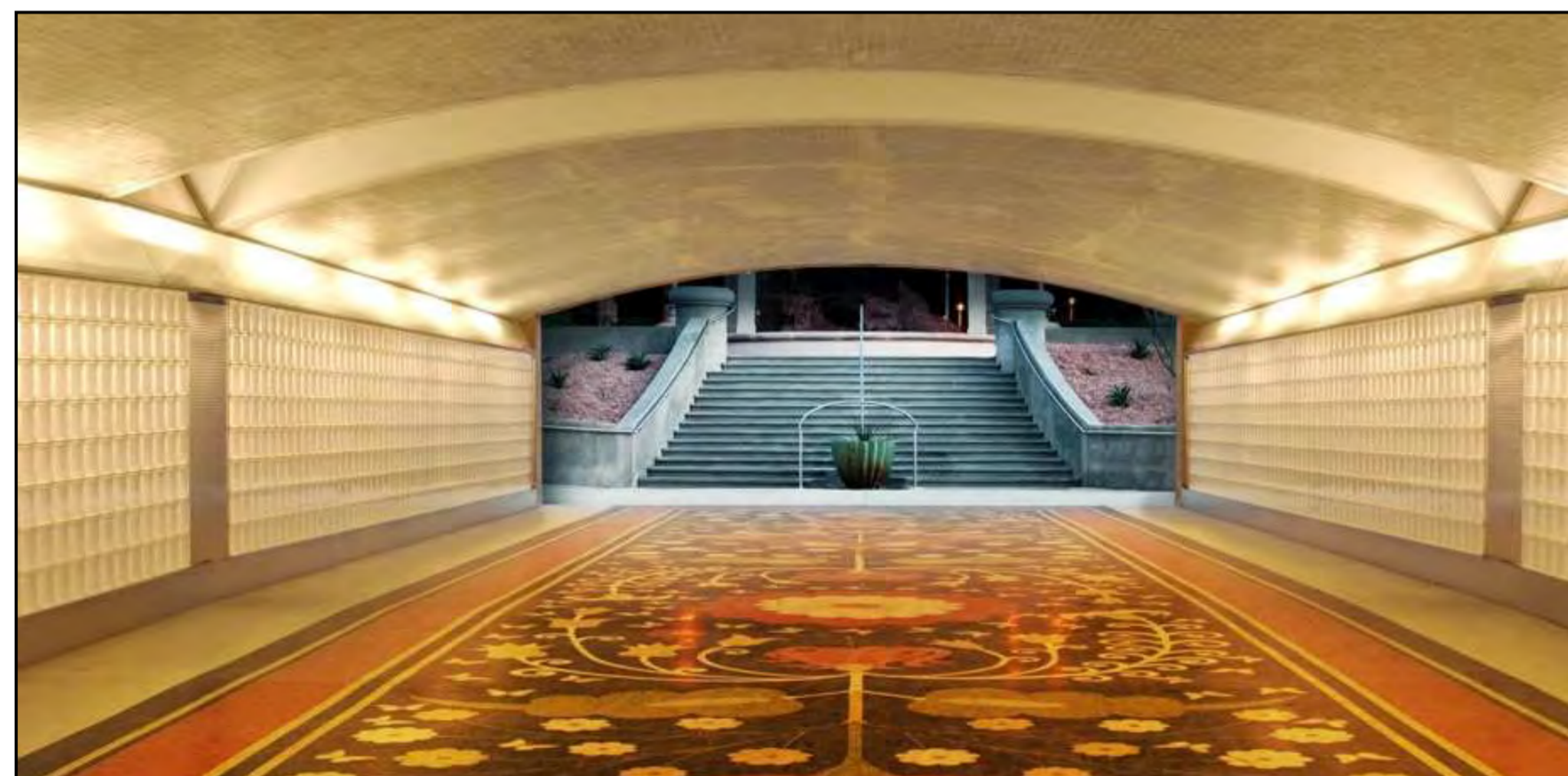
Recommendation:

After reviewing the feedback received from the first Drop-In Centre, it was decided that the design should have many of the elements of the Maximum option above – but with a smaller scale of underpass.

Project Scope and Scale

Image Analysis – Underpass Examples

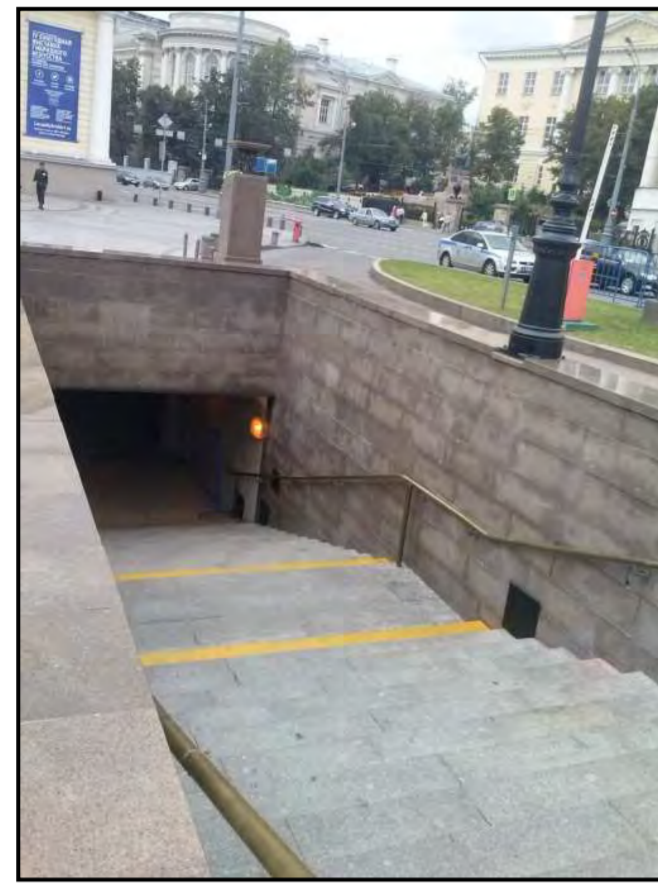
The images below are examples of different types of pedestrian underpass crossings. The images illustrate a range in shape, heights and widths and types of materials.



Project Scope and Scale

Image Analysis – Plaza Examples

The images below are examples of different types of plaza spaces that could be created on each end of the underpass. The images range from plain and utilitarian to elaborate and ornate spaces. Some of the spaces incorporate seating areas, water features, sculptures, planting areas as well as stairs and ramps.



No plaza – stair and ramp only



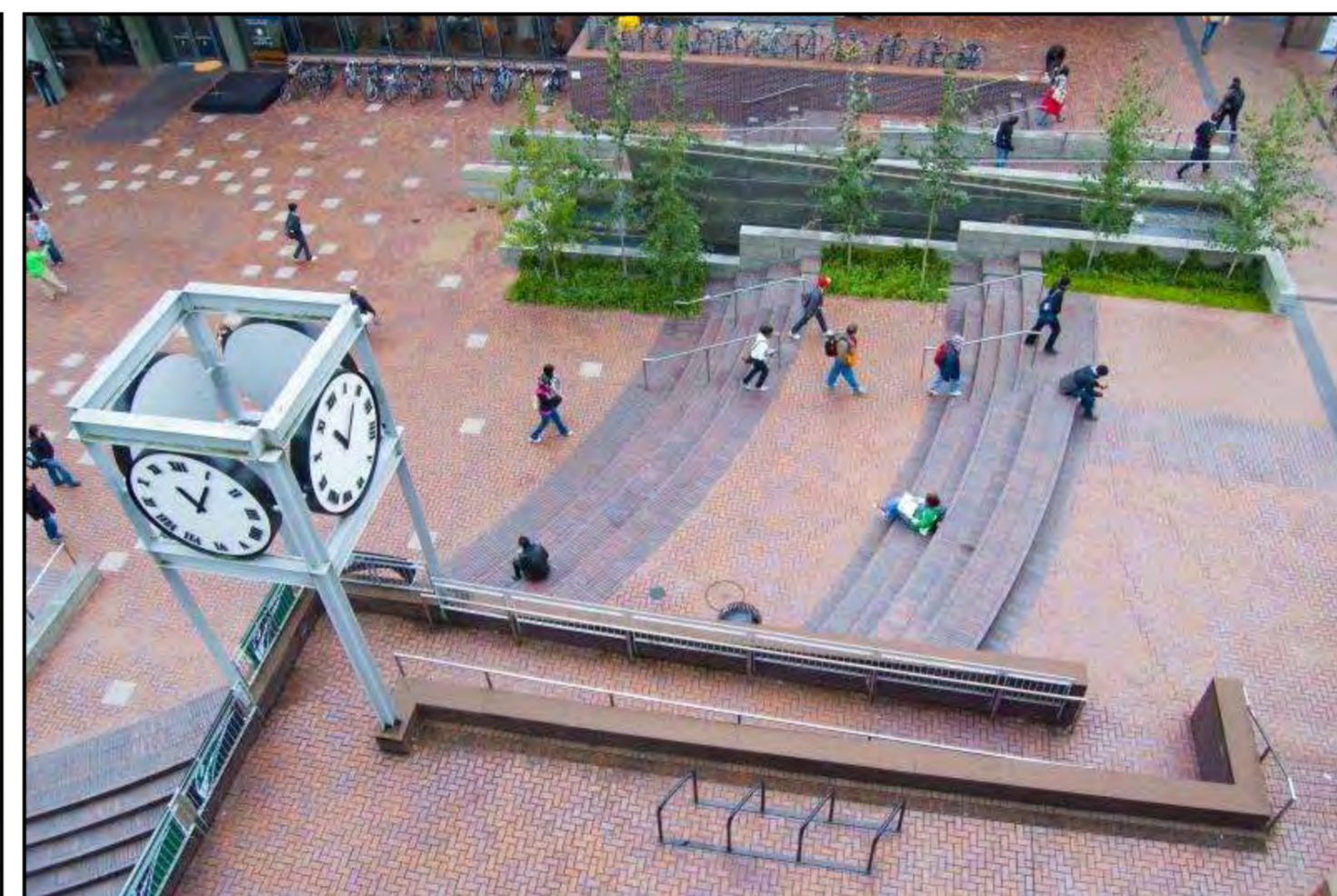
Seatwalls, plantings and large ramps



Seating areas and green space



Small plaza with plantings and seating



Large plaza space with seatwalls



Water feature



Plantings



Small plaza, plantings and seatwalls



Green space, plantings and seatwalls



Linear plaza with green space



Plaza space with plantings, benches and water feature

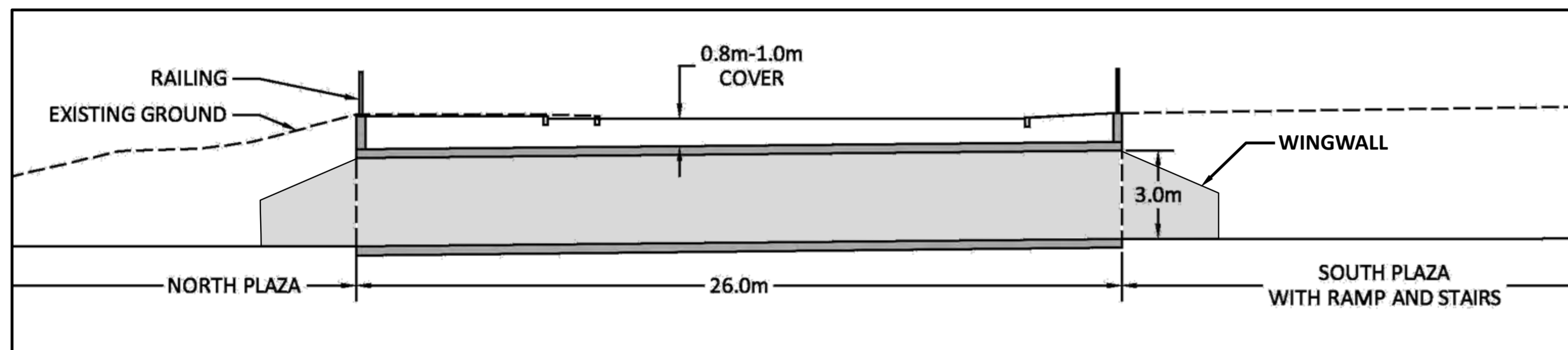
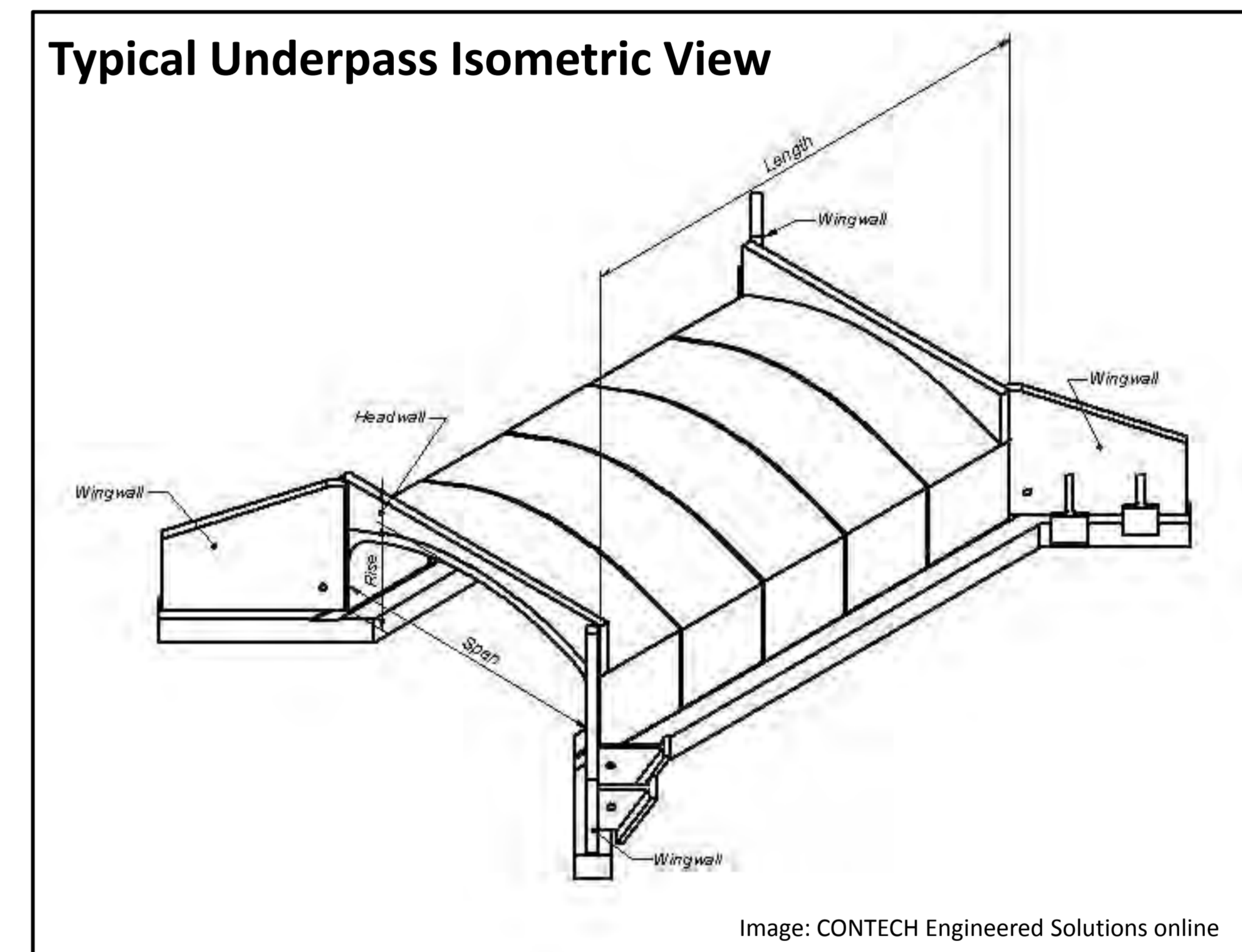
Underpass Dimensions

How big (long, wide) would the underpass be?

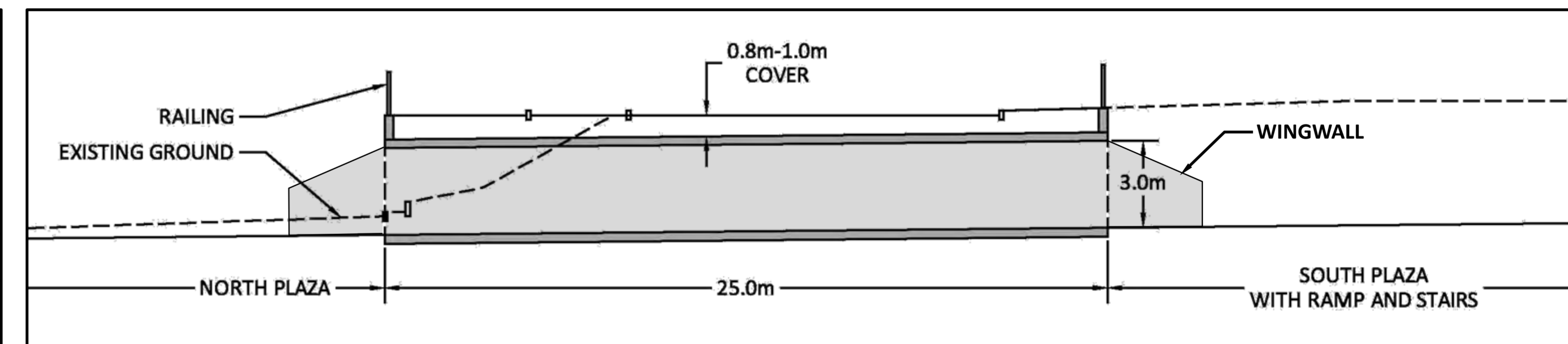
The following cross sections are taken through the centre of the proposed underpass structures at each site. The cross sections take into consideration the future widening of Riverside Drive (to 16.2m) and the addition of a Pedestrian Promenade (4.6m) on the north side of Riverside Drive as previously approved in the Riverside Drive Vista Improvements Project. Based on these cross sections, the minimum required underpass length was determined to be approximately **26 metres at the Aquatic Centre site** and **25 metres at the Civic Esplanade site**.

Preliminary Design Parameters:

- 26 metre minimum length (Aquatic Centre Site)
- 25 metre minimum length (Civic Esplanade Site)
- 3 metre interior rise (minimum)
- 8 metre to 12 metre wide span
- 0.8 metre minimum cover above the structure
- Headwall heights as needed to meet existing grade
- Wingwall dimensions: to be determined during detailed design stages



Aquatic Centre Site (Cross Section through Riverside Drive - looking east)



Civic Esplanade Site (Cross Section through Riverside Drive - looking east)

Underpass Structure Options

How would the underpass be built?

Precast or Cast-In-Place Concrete Structure



Opportunities:

- Precast pieces can be manufactured off-site and quickly installed, which would reduce the duration of construction and associated road closures.
- Concrete finish is aesthetically pleasing and can be enhanced easily and efficiently.
- Many cross section variations are available.
- Concrete structures generally have better durability / longevity than steel structures.

Constraints:

- Concrete structure options are typically more expensive than steel structures.
- Cast-In-Place option would require longer construction time.

Pre-Fabricated Steel Structure



Opportunities:

- Typically less expensive than concrete options.
- Pre-Fabricated pieces can be quickly installed which would reduce the duration of construction and associated road closures.

Constraints:

- The corrugated steel finish would require more enhancement (cladding, etc.) to improve aesthetics, which would add cost.
- Steel structures of the scale that is required are not available in many cross section shapes.

Recommendation:

We recommend the Precast concrete option. This option provides the best balance of function, aesthetics, short construction time and cost.

Safety and Site Security

How would safety and security issues be addressed?

Windsor Police Services supports the construction of a functional pedestrian tunnel (underpass) in the downtown area to safely connect pedestrians to/from the riverfront and lands to the south of Riverside Drive.

Summary of Police Services comments regarding design and safety:

- Commercial grade anti-graffiti clear resin is recommended for the side walls of the underpass to aid in clean up if vandalism occurs.
- Maximization of natural surveillance is key. This can be accomplished by limiting the enclosed length and flaring the approaches on each side.
- The largest single design element that will influence safety is lighting. LED lighting is preferred because it produces a cleaner, brighter luminosity that enhances visibility. The combination of street lighting and pedestrian lighting should be examined carefully.
- Seating, planters, and bicycle parking rings in the vicinity will increase positive activity which allows the space to retain safe usage over longer periods of the day – and deters the unlawful users.

Provide lighting to create inviting spaces

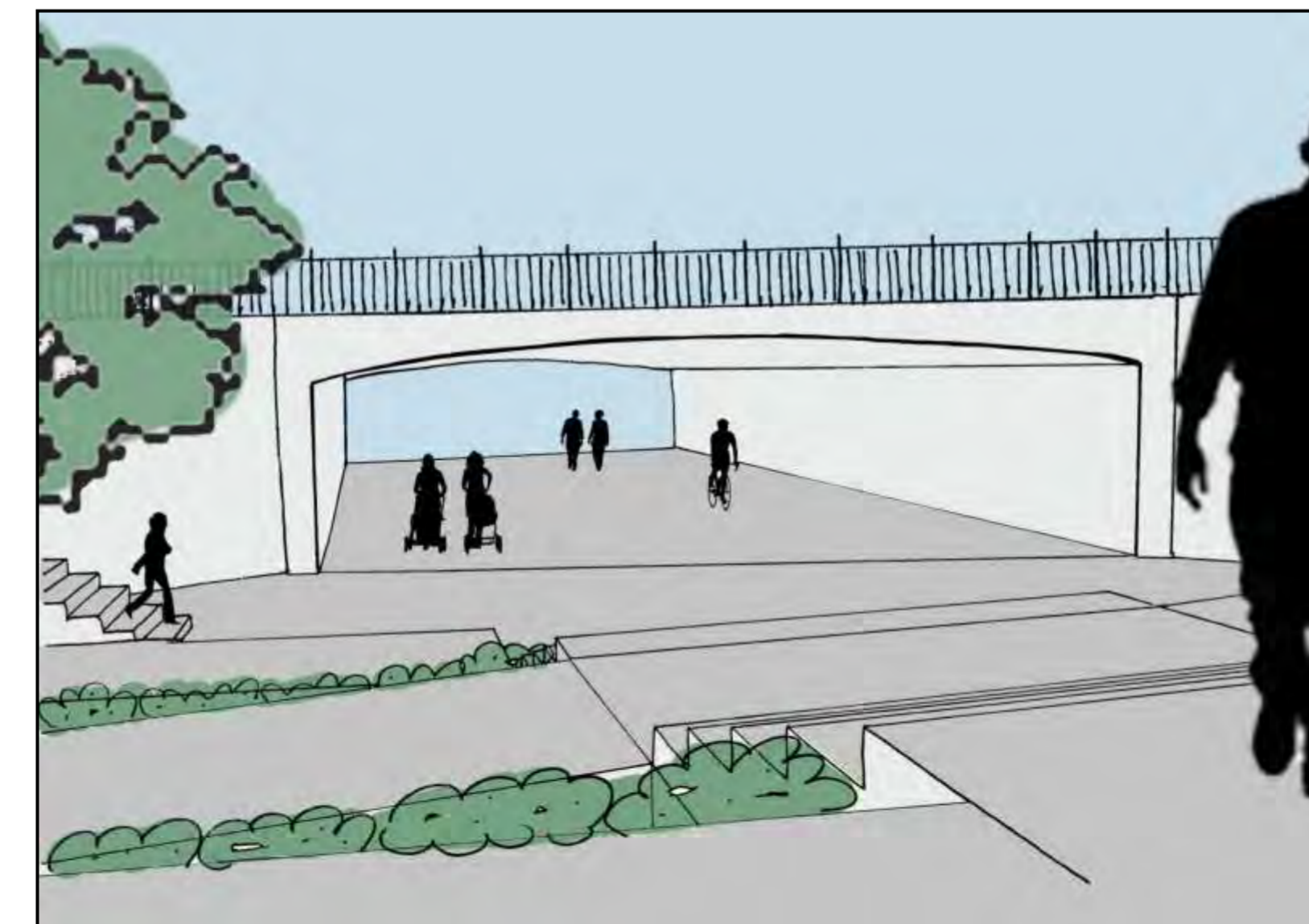


Create a space that promotes lawful use



Example: Seating, flared openings and natural surveillance (gradual stairs, proper lighting and small scale landscaping elements)

Clear sight lines through the underpass



Surveillance



How could the underpass and plaza areas be illuminated?

Underpass Lighting

The underpass should be lit to the same level as the plaza areas on either side. The lighting should be bright enough to maintain sight lines through the underpass at all times of the day. The lighting can be incorporated into the walls and ceiling of the space as shown below.



Decorative lighting



Lighting built into walls and ceilings are less susceptible to vandalism



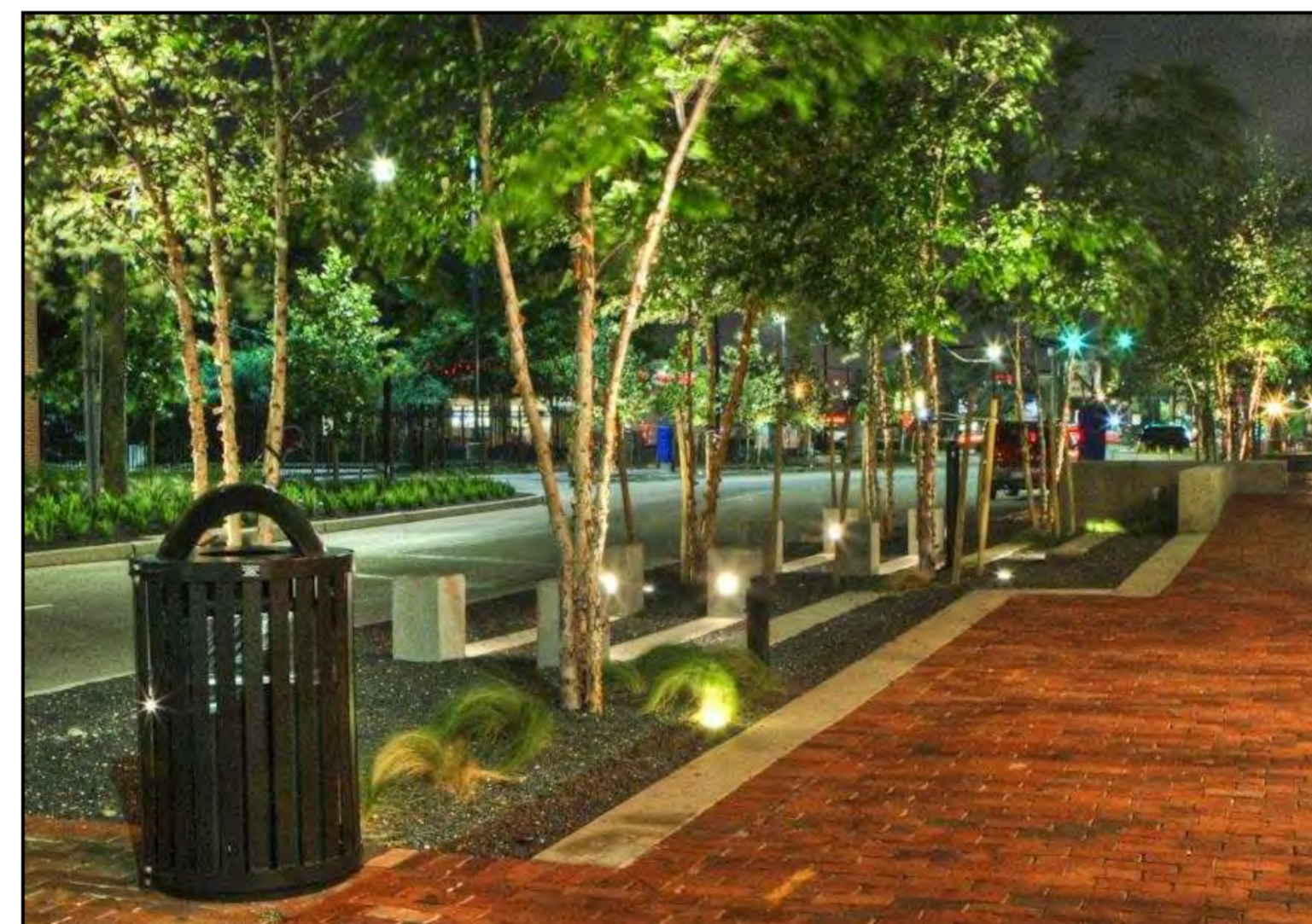
Coloured lighting

Plaza Lighting

Different types of lighting should be used through the space for safety and ambiance. Below are a few examples of how lighting can be used in different ways.



Lighting built into the ground



Tree uplights



Light poles and integrated seat lighting



Lightpoles to illuminate a large area

Construction Material Options

What types of construction materials should be used?

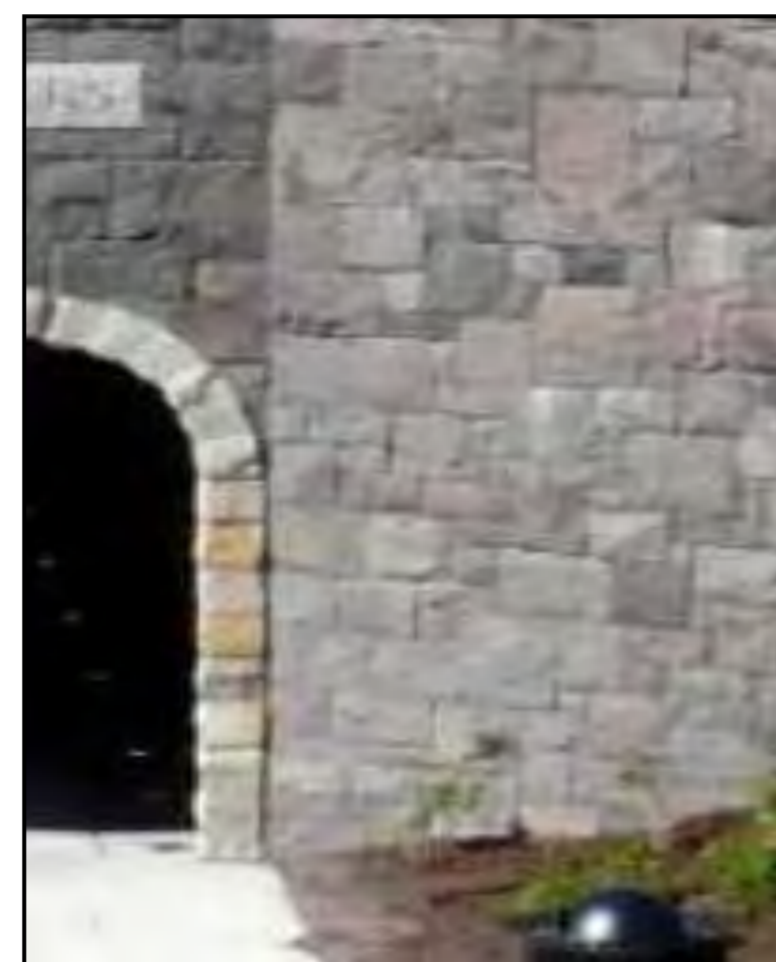
Wall Finish Options



Brick



Concrete



Stone



Glass block



Redi-Rock retaining walls

Redi-Rock retaining walls have been used throughout Windsor (e.g., Dougall Avenue underpass at the E. C. Row Expressway, Riverfront Park). Brick and Stone create more of a traditional feel. Concrete and glass block are more modern looking finishes.

Flatwork / Pavement Options



Coloured Concrete



Exposed Aggregate



Stamped Concrete



Asphalt

A mix of different materials, colours and textures would create interest and delineate spaces within the site.

Preliminary Recommendations:

Concrete and Redi-Rock retaining walls

- Concrete can be painted or enhanced aesthetically.
- Redi-Rock products are used throughout Windsor.
- Redi-Rock products are easy to install and can be re-used or re-configured if needed in the future.
- Low maintenance with anti-graffiti coating applied.
- Durable materials.

Coloured Concrete and Exposed Aggregate

- Aesthetically pleasing finishes.
- Durable materials.
- Low maintenance.

Possible Features

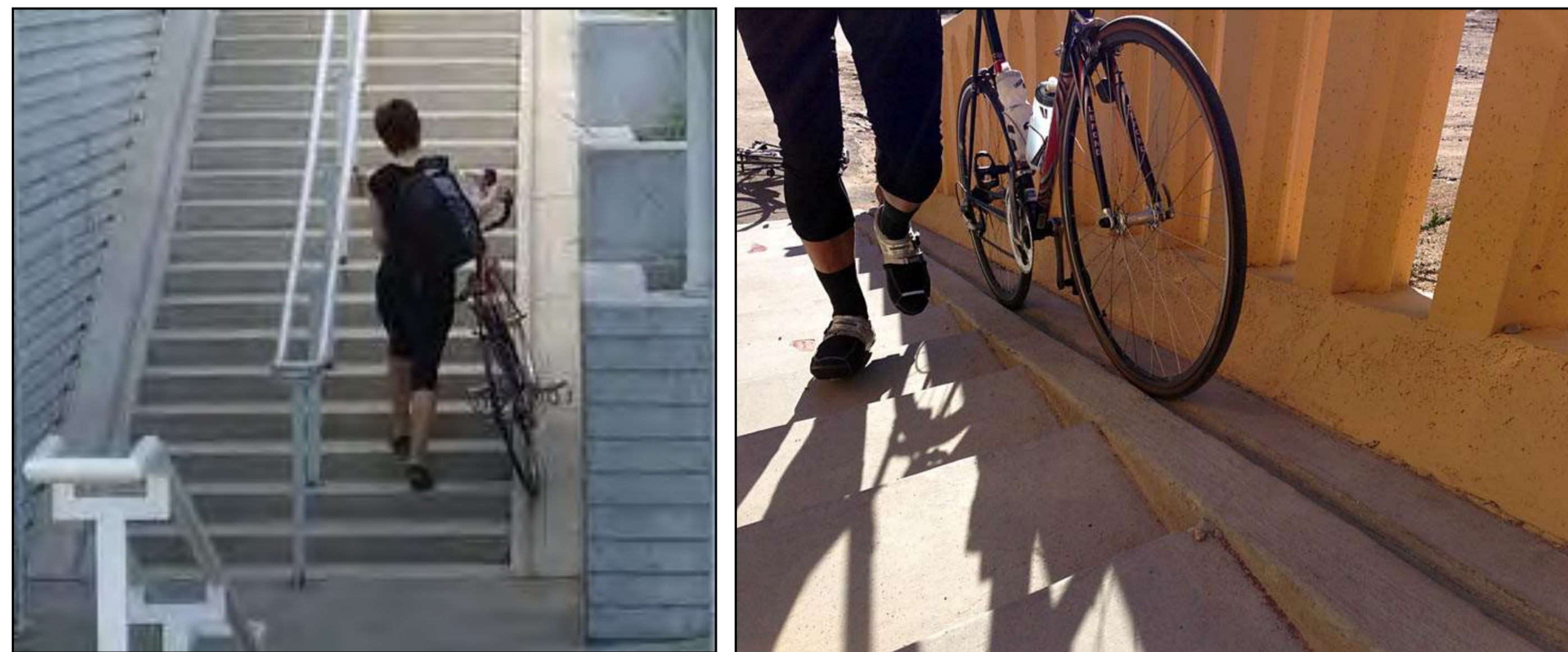
What type of features should be incorporated into the project?

Skylights



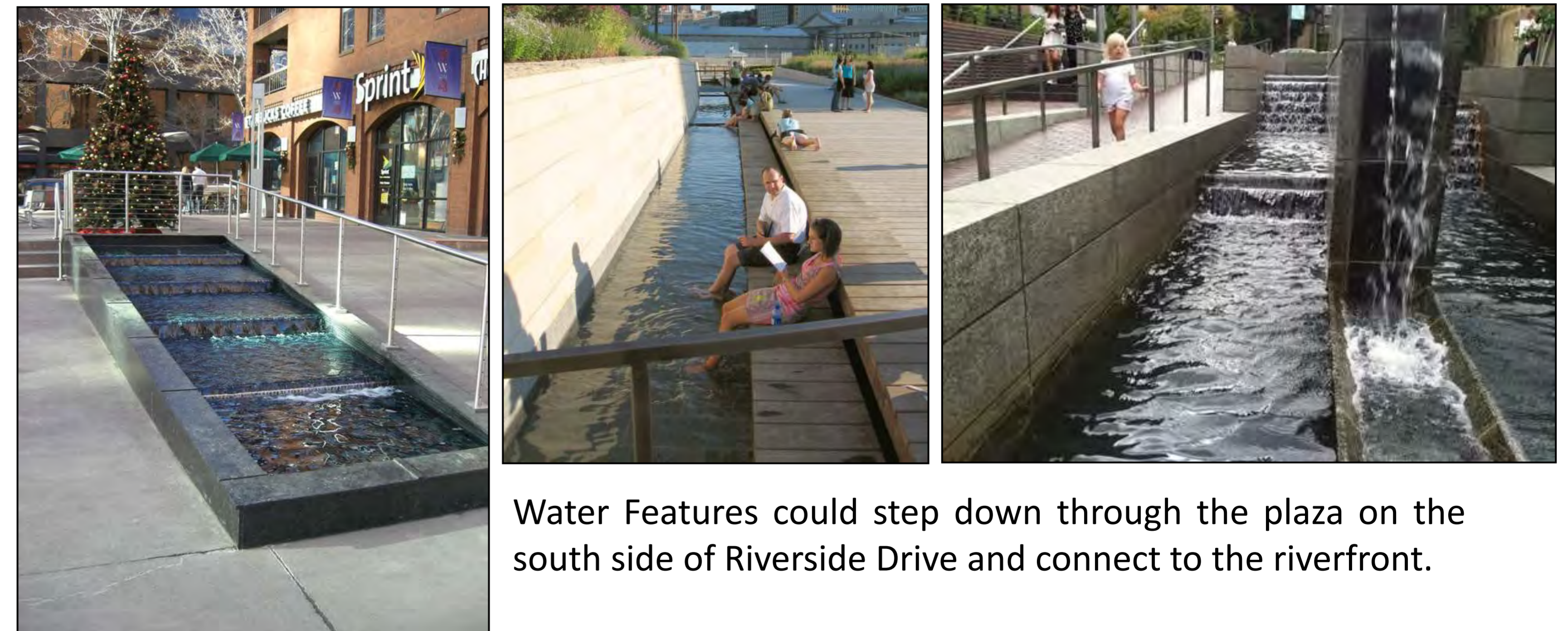
A skylight along the centre of the underpass span may require widening of Riverside Drive by an additional 1.5-2m (over and above the planned future roadway cross-section) in order to accommodate a skylight and the appropriate barriers for traffic. Another option would be to incorporate a skylight within the proposed 2.6m buffer strip along the north curb of Riverside.

Bike Channel



Bicycle stair channels help cyclists easily walk their bike up or down the stairs.

Water Feature



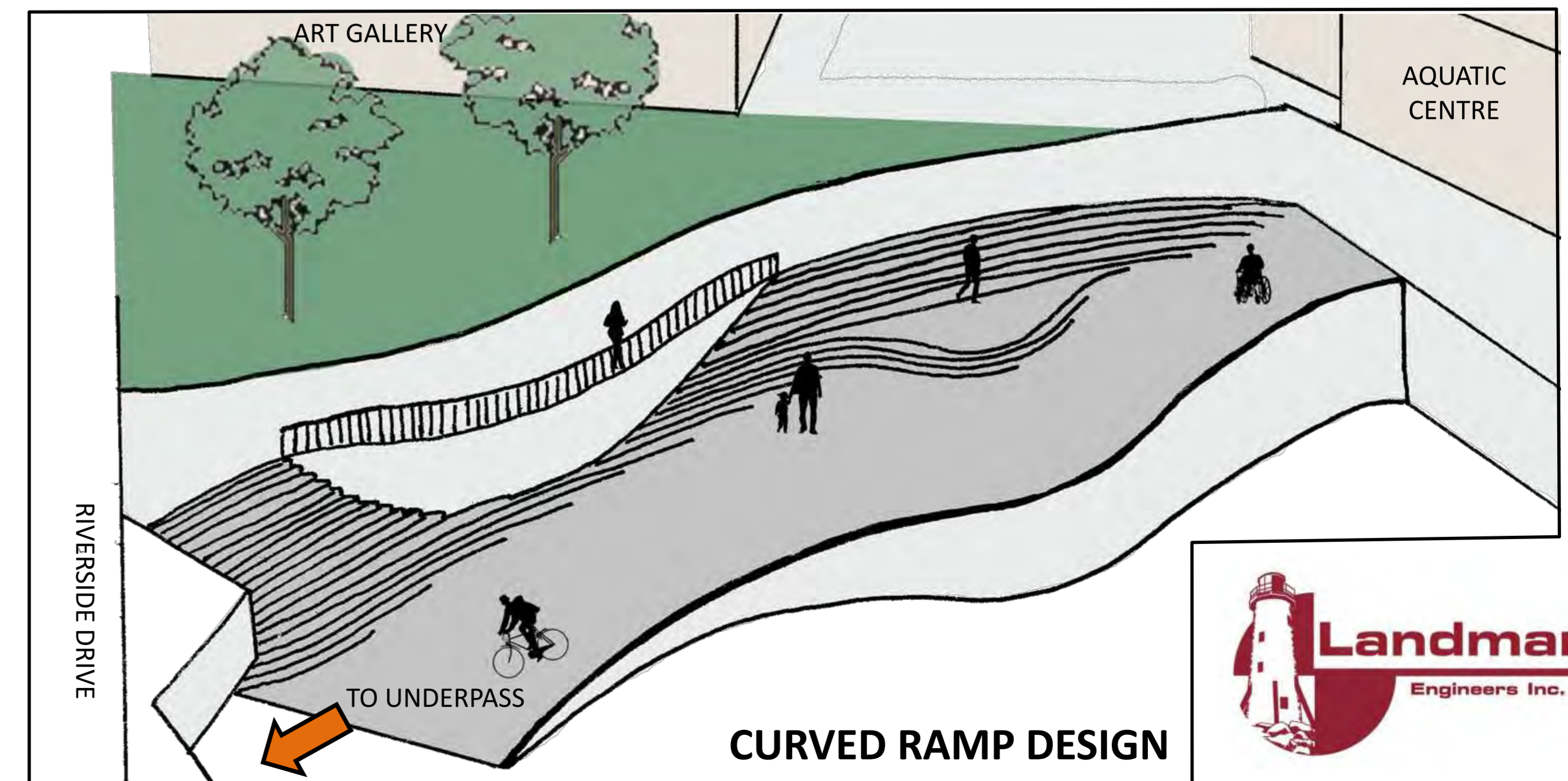
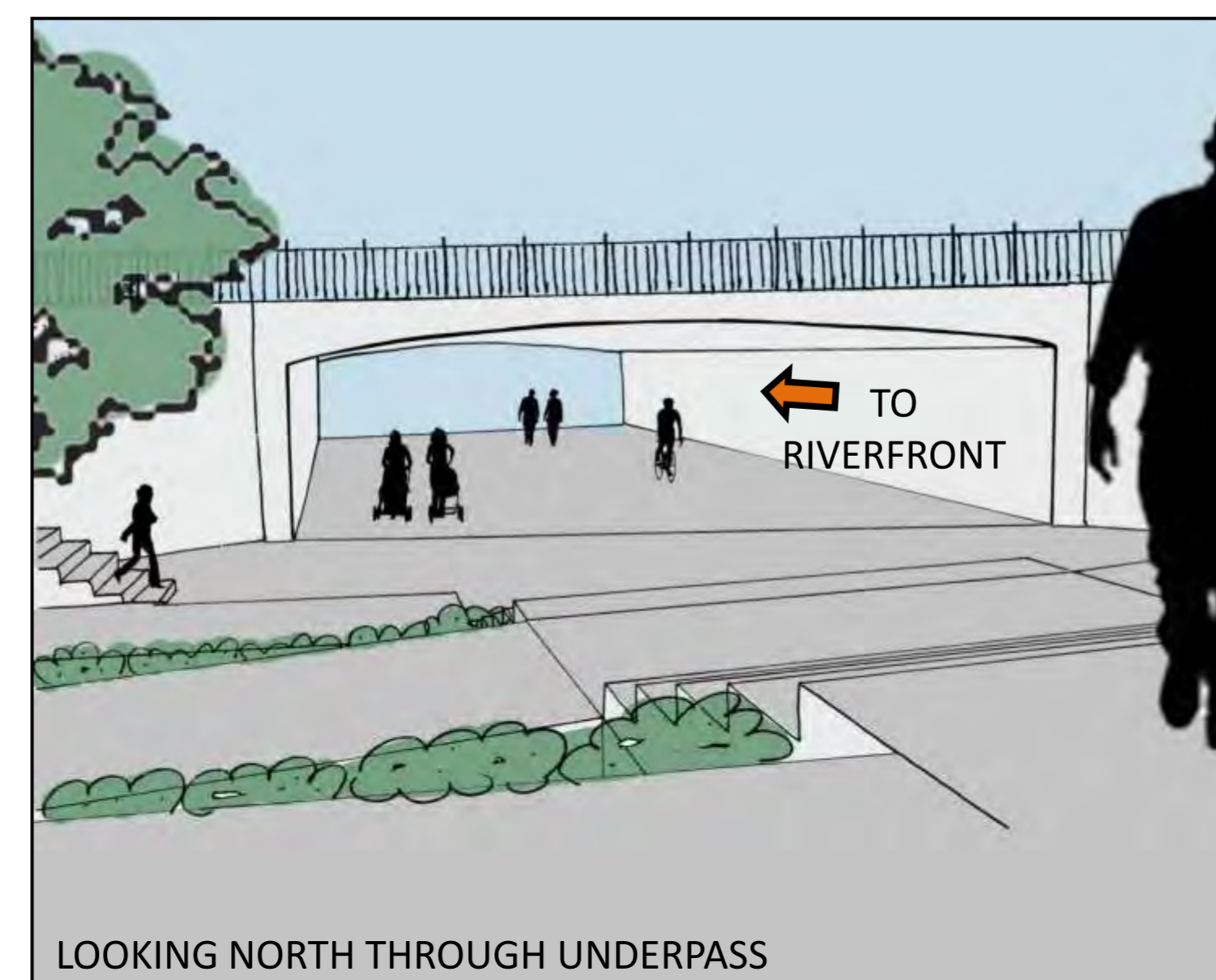
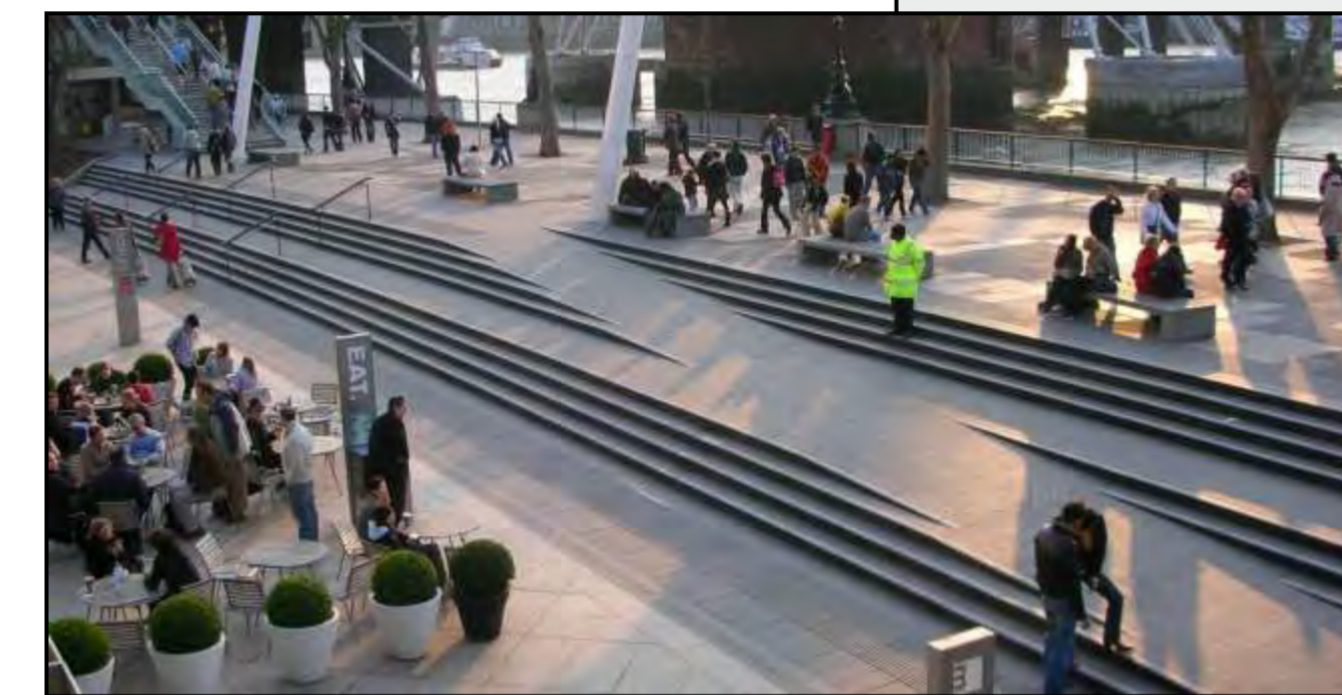
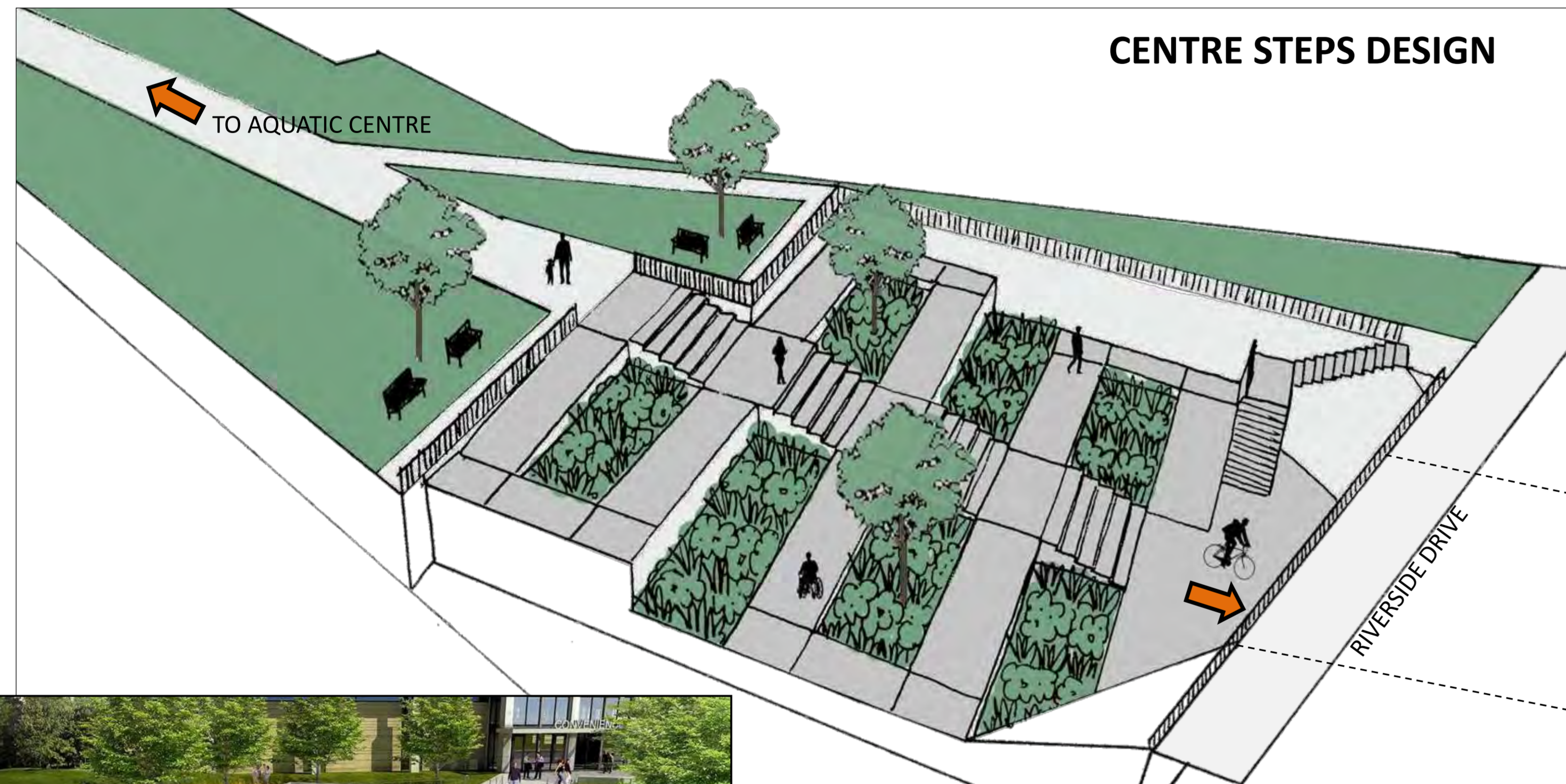
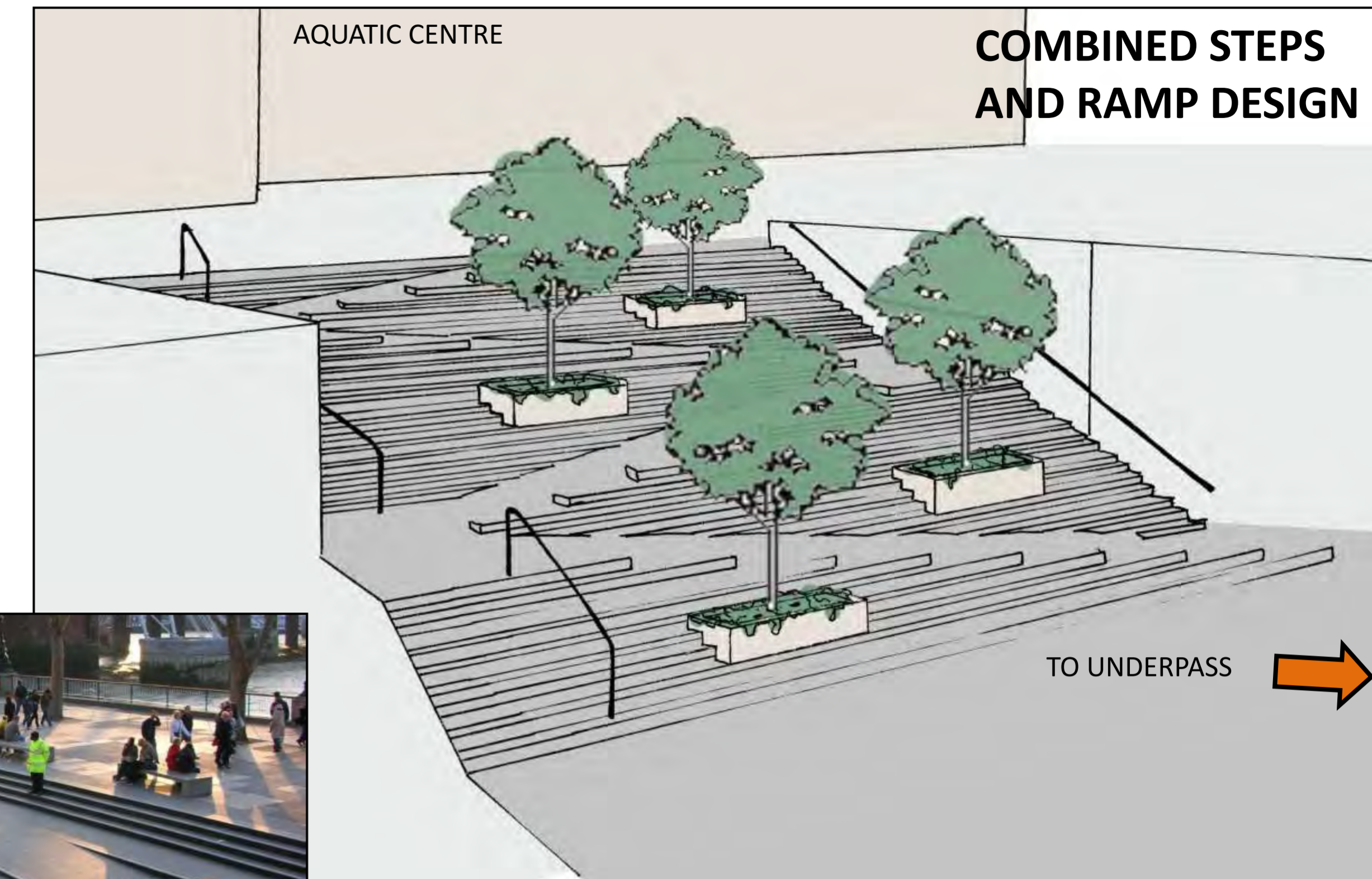
Water Features could step down through the plaza on the south side of Riverside Drive and connect to the riverfront.

Preliminary Design Considerations – South Plaza

Aquatic Centre Site

The final design of the plaza areas are not required to be finalized through the EA process. The final design of the underpass and plaza areas would be part of a detailed design process, which can commence once the EA has been completed. The purpose of the EA process is to define a set of parameters that should be met during detailed design. The parameters are based on site constraints, environmental considerations and feedback from the public.

The following images represent design options for the plaza areas on the south side of Riverside Drive at the entrance to the underpass. The images are intended to illustrate the scale of the space as well as the amount of ramps and stairs required to accommodate the 3.5 metre change in elevation between the underpass floor and the surrounding ground.

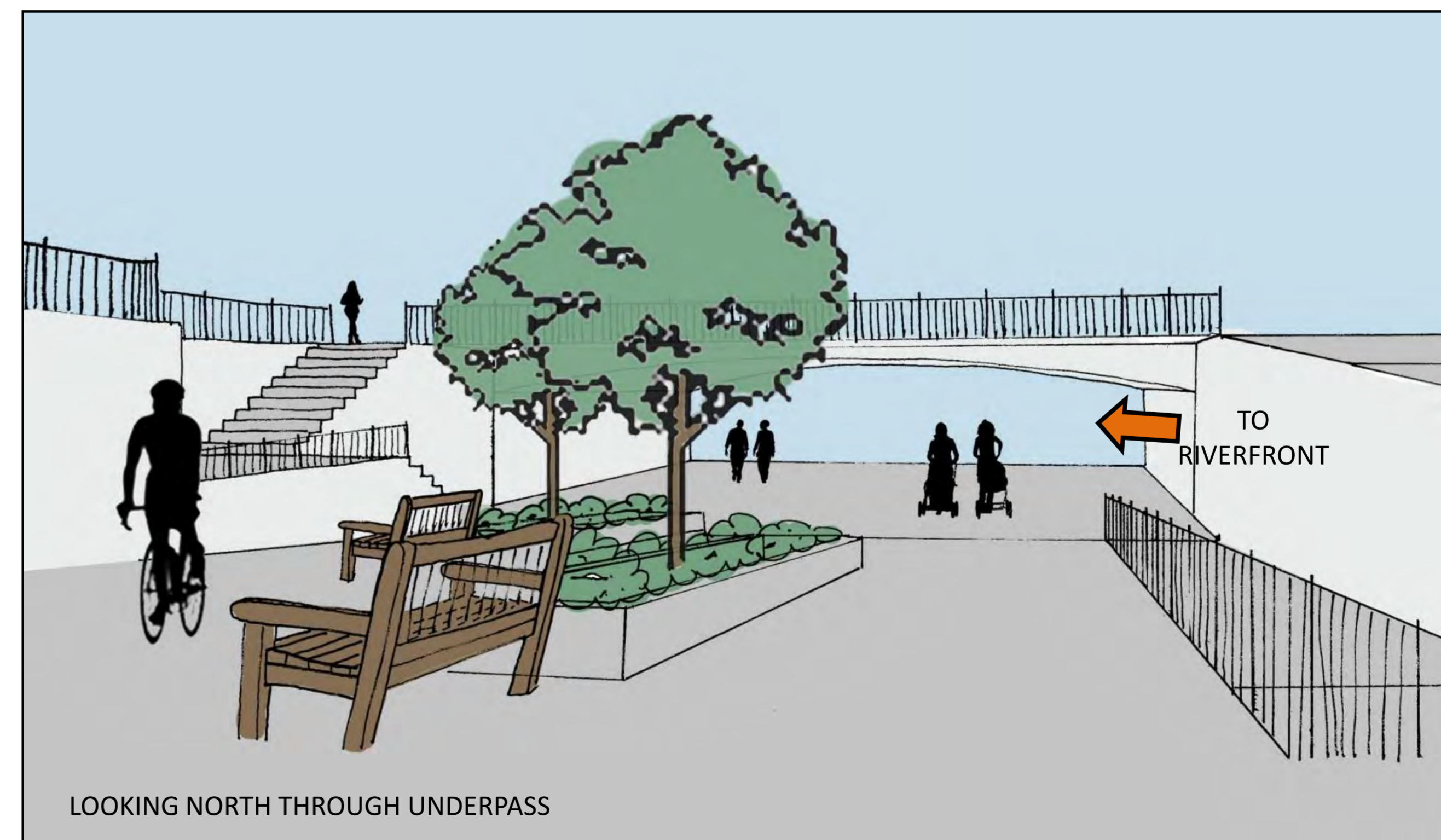
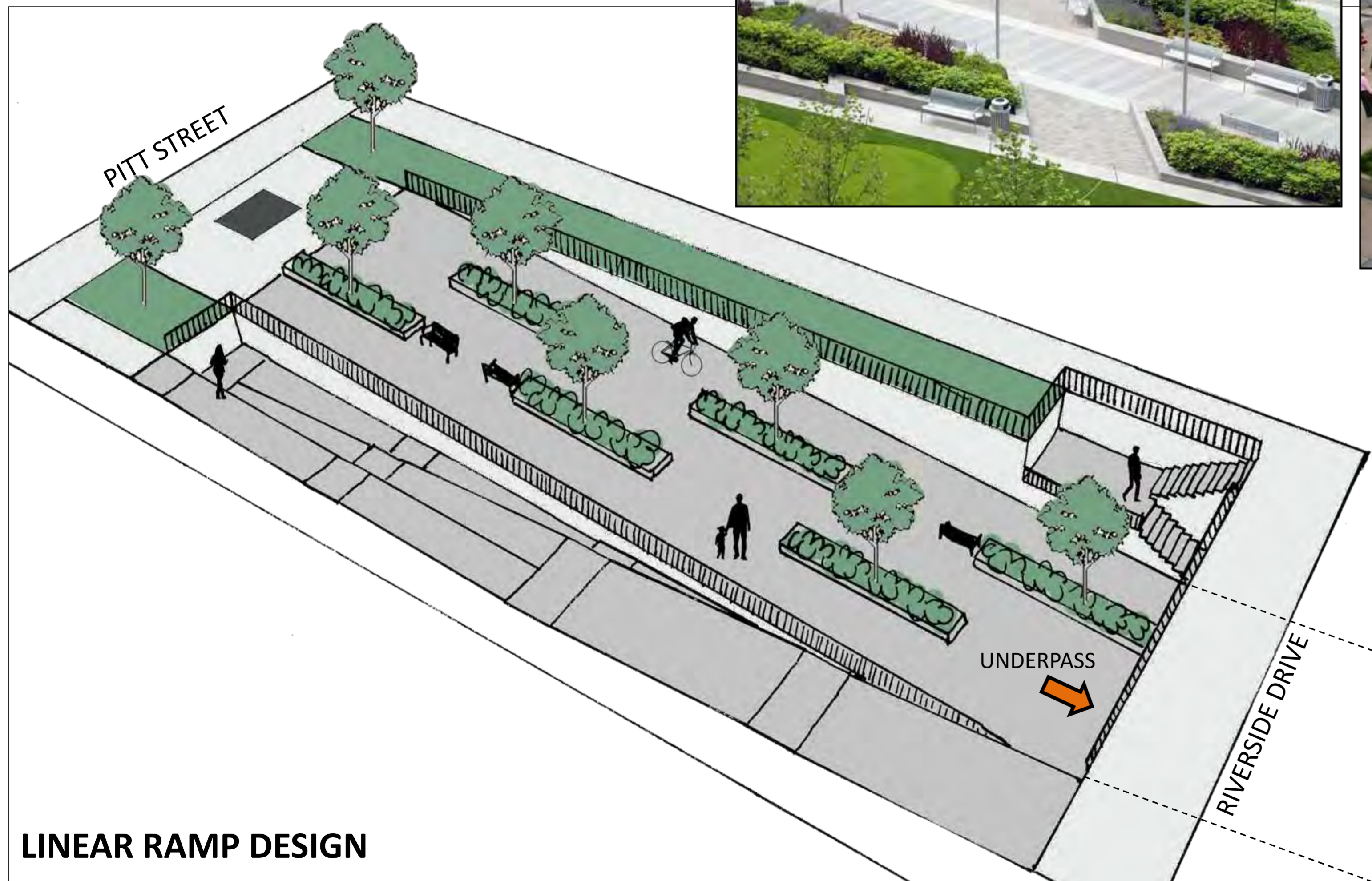


Preliminary Design Considerations – South Plaza

Civic Esplanade Site

Preliminary Design Parameters for the South Plaza

- Provide accessible ramps
- Incorporate seating areas and/or seatwalls
- Design lighting for security and ambiance.
- Provide landscaping.
- Select materials that are durable and easy to maintain.
- Consider snow removal during final design.
- Provide local drainage.



The following lists provide a summary of all of the recommendations from the previous panels. These items form the Preliminary Recommended Solutions.

Underpass Structure Dimensions:

- 26 metre minimum length (Aquatic Centre Site)
- 25 metre minimum length (Civic Esplanade Site)
- 3 metre interior height / rise (minimum)
- 8 metre to 12 metre wide clear span
- 0.8 metre minimum cover above the structure
- Headwall heights as needed to meet existing grade
- Wingwall dimensions: to be determined during detailed design

Preliminary Cost Estimate for the Underpass is \$1.5 million

South Plaza Elements:

- Accessible ramps
- Seating areas and/or seatwalls
- Railings
- Lighting for security and ambiance
- Landscaping
- Site drainage

Preliminary Cost Estimate for the South Plaza is \$1.0 million

North Plaza Elements:

- Site elements and landscaping to integrate with Riverfront Park

Maintenance Considerations:

- Consider snow removal during final design
- Anti-graffiti coating on the walls within the underpass
- Select durable materials

Material Recommendations:

- Pre-cast concrete structure
- Concrete and Redi-Rock retaining walls
- Coloured concrete and exposed aggregate pavement

Safety Considerations:

- LED Lighting through the underpass and plaza areas
- Surveillance cameras
- Maintain clear site lines though the underpass

Possible Site Features / Enhancements:

- Skylights
- Water features
- Bicycle channels
- Art and Sculpture

- All comments received from today's meeting will be reviewed by the Project Team and used to help refine the Preliminary Recommended Solutions.
- A final description of the Preferred Solutions will be prepared and included in the Project File and on the Project Website for public review. A Notice will be published, alerting the public that the 30-day public period has commenced.
- Provided that all outstanding issues are resolved and no Part II Orders are requested, the project may proceed to final approvals and construction.

**We encourage you to fill out a questionnaire so that your issues and concerns can be addressed early in the planning process and to have your comments become part of the public record.
Thank you.**

Riverside Drive Pedestrian Crossings Class Environmental Assessment Questionnaire #2

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON, N9C 4E4 by December 11th, 2015.

Name (please print): _____

Address: _____

E-mail: _____

Note: The first 6 questions are repeated from the first Drop-In Centre questionnaire.

- 1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.**

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed directly to question 13.

- 2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?**

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed directly to question 13.

- 3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?**

Pedestrian Overpass Pedestrian Underpass Either one Neither one

- 4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).**

Utilitarian Design 1 2 3 4 5 Elaborate Design

- 5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.**

Large plaza areas	Seating areas	Water Features	Plantings
Seatwalls	Sculpture/Art	Small plaza areas	Decorative Lighting
Green space	Other: _____		

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Do you agree with the preliminary recommended size of the underpass? (8-12m wide span)

Agree Too Large Too small

8. How important do you consider the aesthetics of the underpass and the plaza spaces to the success of the project?

Not Important 1 2 3 4 5 Very Important

9. Please rate the following features in terms of importance from 1 to 5, where 1 is not important and 5 is very important.

Lighting	1	2	3	4	5
Skylight	1	2	3	4	5
Water Feature	1	2	3	4	5
Bike Accessibility	1	2	3	4	5
Seating Areas	1	2	3	4	5
Landscaping	1	2	3	4	5
Art/Sculpture	1	2	3	4	5

10. Should the underpass be a simple throughway/passage or should it provide opportunities for users to meet and congregate?

Throughway/passage only Opportunities to congregate

11. Do you agree with the scale and function of the plaza areas presented in the preliminary design options?

Agree Disagree

12. Of the two sites identified, which would you like to see completed first?

Aquatic Centre Site Civic Esplanade Site

Riverside Drive Pedestrian Crossings Class Environmental Assessment

Drop-In Centre No. 2 - Attendance Sheet

November 25, 2015 (AFTERNOON)

9



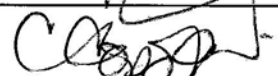


Name (Please Print)	Address	Signature
Iris Hette	515 Riverside Dr	Iris Hette
Douglas J. Hette	" "	D J H
Adam C. Cumb	178 Janette Ave	Adam Cumb
Wm. RANKINE	2074 ARRAS AVE WINDSOR	Wm. Rankine
France Kachelle-Tunk	CoW - Engineering	France Kachelle-Tunk
JOE PASSA	379 OQUETTE ST W 202	Joe Passa
E SANTIN	111 RIVERSIDE DR E	E Santin
Aseel Alshawkari	120 Caron Ave.	A. Alshawkari
Anastasia Timakis	#402-515 Riverside Dr Windsor N9A 7G3 West	A. Timakis

Riverside Drive Pedestrian Crossings Class Environmental Assessment

Drop-In Centre No. 2 - Attendance Sheet

November 25, 2015 (EVENING)

6

Name (Please Print)	Address	Signature
W. BUCHOLTZ	#1704-515 RVSD. DR. W	W. Bucholtz
K. JOHRING	BICYCLING WHITEE	
P. COLLINS	1005-515 RIVERSIDE DR. W.	
C Copot-Nepsy	Wetzel	
D Lem	1207 515	
DAVID HANNA	dhan9@hctmail.ca	



Riverside Drive Pedestrian Crossings Class Environmental Assessment

Questionnaire #2

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON, N9C 4E4 by December 11th, 2015.

Name (please print): Donald Leung
Address: 1707 - 515 Riverside Dr.
E-mail: donald@icloud.com

Note: The first 6 questions are repeated from the first Drop-In Centre questionnaire.

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed directly to question 13.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed directly to question 13.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

<input type="checkbox"/> Large plaza areas	<input type="checkbox"/> Seating areas	<input type="checkbox"/> Water Features	<input type="checkbox"/> Plantings
<input type="checkbox"/> Seatwalls	<input type="checkbox"/> Sculpture/Art	<input type="checkbox"/> Small plaza areas	<input type="checkbox"/> Decorative Lighting
<input type="checkbox"/> Green space	Other: _____		

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Do you agree with the preliminary recommended size of the underpass? (8-12m wide span)

Agree Too Large Too small

8. How important do you consider the aesthetics of the underpass and the plaza spaces to the success of the project?

Not Important 1 2 3 4 5 Very Important

9. Please rate the following features in terms of importance from 1 to 5, where 1 is not important and 5 is very important.

Lighting	1	2	3	4	5
Skylight	1	2	3	4	5
Water Feature	1	2	3	4	5
Bike Accessibility	1	2	3	4	5
Seating Areas	1	2	3	4	5
Landscaping	1	2	3	4	5
Art/Sculpture	1	2	3	4	5

10. Should the underpass be a simple throughway/passage or should it provide opportunities for users to meet and congregate?

Throughway/passage only Opportunities to congregate

11. Do you agree with the scale and function of the plaza areas presented in the preliminary design options?

Agree Disagree

12. Of the two sites identified, which would you like to see completed first?

Aquatic Centre Site Civic Esplanade Site

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

13. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team. (Please print)

A traffic light suffices for now.

I like the idea.

An underpass for the future would be nice.

Riverside Drive Pedestrian Crossings Class Environmental Assessment Questionnaire #2

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON, N9C 4E4 by December 11th, 2015.

Name (please print): PAUL COLLINS
Address: 1005-515 RIVERSIDE DR. W.
E-mail: _____

Note: The first 6 questions are repeated from the first Drop-In Centre questionnaire.

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed directly to question 13.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed directly to question 13.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
Green space Other: _____

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Do you agree with the preliminary recommended size of the underpass? (8-12m wide span)

Agree Too Large Too small

8. How important do you consider the aesthetics of the underpass and the plaza spaces to the success of the project?

Not Important 1 2 3 4 5 Very Important

9. Please rate the following features in terms of importance from 1 to 5, where 1 is not important and 5 is very important.

Lighting	1	2	3	4	5
Skylight	1	2	3	4	5
Water Feature	1	2	3	4	5
Bike Accessibility	1	2	3	4	5
Seating Areas	1	2	3	4	5
Landscaping	1	2	3	4	5
Art/Sculpture	1	2	3	4	5

10. Should the underpass be a simple throughway/passage or should it provide opportunities for users to meet and congregate?

Throughway/passage only Opportunities to congregate

11. Do you agree with the scale and function of the plaza areas presented in the preliminary design options?

Agree Disagree

12. Of the two sites identified, which would you like to see completed first?

Aquatic Centre Site Civic Esplanade Site

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

13. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team. (Please print)

A below grade crossing makes the most sense at the Casino Plaza site.

I know you have to integrate ramps for accessibility but expect to draw a lot of skateboarders.

Don't worry too much about snow removal. When it's cold & snowy riverfront park use drops dramatically.

Enhanced crossings should include grade level solutions, i.e. traffic lights that keep speed levels down for cars. A slower speed limit would be nice. How about 40 km/h?

Providing better, safer accessibility to the Riverfront park can be done without spending MILLIONS OF DOLLARS.

Just slow traffic down & tell people to plan on taking more time to drive wherever they going.

Sincerely,
Paul Collins

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON, N9C 4E4 by December 11th, 2015.

Name (please print): Hamid Tabti'
Address: 2302 Randolph Ave
E-mail: tabti7@gmail.com

Note: The first 6 questions are repeated from the first Drop-In Centre questionnaire.

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed directly to question 13.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed directly to question 13.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
Seatwalls Sculpture/Art Small plaza areas Decorative Lighting

Green space Other: _____

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Do you agree with the preliminary recommended size of the underpass? (8-12m wide span)

Agree Too Large Too small

8. How important do you consider the aesthetics of the underpass and the plaza spaces to the success of the project?

Not Important 1 2 3 4 5 Very Important

9. Please rate the following features in terms of importance from 1 to 5, where 1 is not important and 5 is very important.

Lighting	1	2	3	<u>4</u>	5
Skylight	1	2	3	<u>4</u>	5
Water Feature	1	2	3	4	<u>5</u>
Bike Accessibility	1	2	3	<u>4</u>	5
Seating Areas	1	2	<u>3</u>	4	5
Landscaping	1	2	<u>3</u>	4	5
Art/Sculpture	1	2	<u>3</u>	4	5

10. Should the underpass be a simple throughway/passage or should it provide opportunities for users to meet and congregate?

Throughway/passage only

Opportunities to congregate

11. Do you agree with the scale and function of the plaza areas presented in the preliminary design options?

Agree Disagree

12. Of the two sites identified, which would you like to see completed first?

Aquatic Centre Site

Civic Esplanade Site

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

13. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team. (Please print)

Riverside Drive Pedestrian Crossings Class Environmental Assessment

Questionnaire #2

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON, N9C 4E4 by December 11th, 2015.

Name (please print): Adam Mitchell
Address: 1496 Giles Blvd E
E-mail: mitchell-adam@hotmail.com

Note: The first 6 questions are repeated from the first Drop-In Centre questionnaire.

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed directly to question 13.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed directly to question 13.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
 Green space Other: Street art

Riverside Drive Pedestrian Crossings Class Environmental Assessment

Questionnaire #2

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Do you agree with the preliminary recommended size of the underpass? (8-12m wide span)

Agree Too Large Too small

8. How important do you consider the aesthetics of the underpass and the plaza spaces to the success of the project?

Not Important 1 2 3 4 5 Very Important

9. Please rate the following features in terms of importance from 1 to 5, where 1 is not important and 5 is very important.

Lighting	1	2	3	<input checked="" type="radio"/> 4	5
Skylight	1	2	3	<input checked="" type="radio"/> 4	5
Water Feature	<input checked="" type="radio"/> 1	2	3	4	5
Bike Accessibility	1	2	3	4	<input checked="" type="radio"/> 5
Seating Areas	1	<input checked="" type="radio"/> 2	3	4	5
Landscaping	1	2	3	<input checked="" type="radio"/> 4	5
Art/Sculpture	1	2	3	<input checked="" type="radio"/> 4	5

10. Should the underpass be a simple throughway/passage or should it provide opportunities for users to meet and congregate?

Throughway/passage only ? Opportunities to congregate

11. Do you agree with the scale and function of the plaza areas presented in the preliminary design options?

Agree ? Disagree

12. Of the two sites identified, which would you like to see completed first?

Aquatic Centre Site Civic Esplanade Site

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

13. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team. (Please print)

- Underpasses can get sketchy quick.
But I think it is a good idea.
Decorating with street art (possibly
constantly changes/evolving/new street
art) might keep unwanted graffiti
away.

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON, N9C 4E4 by December 11th, 2015.

Name (please print): WILLIAM BUCHOLTZ
Address: #1704-515 RVSD DR. W.
E-mail: willieboy yoga@hotmail.com

Note: The first 6 questions are repeated from the first Drop-In Centre questionnaire.

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed directly to question 13.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed directly to question 13.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
Green space Other: CLOCK TOWER

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Do you agree with the preliminary recommended size of the underpass? (8-12m wide span)

Agree Too Large Too small

8. How important do you consider the aesthetics of the underpass and the plaza spaces to the success of the project?

Not Important 1 2 3 4 5 Very Important

9. Please rate the following features in terms of importance from 1 to 5, where 1 is not important and 5 is very important.

Lighting	1	2	3	4	<u>5</u>
Skylight	1	2	<u>3</u>	4	5
Water Feature	<u>1</u>	2	3	4	5
Bike Accessibility	1	2	3	4	<u>5</u>
Seating Areas	1	2	3	4	<u>5</u>
Landscaping	1	2	3	4	<u>5</u>
Art/Sculpture	<u>1</u>	2	3	4	5

10. Should the underpass be a simple throughway/passage or should it provide opportunities for users to meet and congregate?

Throughway/passage only Opportunities to congregate

11. Do you agree with the scale and function of the plaza areas presented in the preliminary design options?

Agree Disagree

12. Of the two sites identified, which would you like to see completed first?

Aquatic Centre Site Civic Esplanade Site

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

13. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team. (Please print)

- MAKE IT ~~BE~~ SKATEBOARD ~~UN~~ UNFRIENDLY.
Those users tend to congregate,
make noise and annoy people.

They would ride down seat walls.

- Not too much green space, as
dogs and geese would soil it.

Riverside Drive Pedestrian Crossings Class Environmental Assessment

Questionnaire #2

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON, N9C 4E4 by December 11th, 2015.

Name (please print): Mike McWha
 Address: 296 HALL AVE
 E-mail: mike@hotmail.com

Note: The first 6 questions are repeated from the first Drop-In Centre questionnaire.

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed directly to question 13.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed directly to question 13.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
 Seat walls Sculpture/Art Small plaza areas Decorative Lighting
 Green space Other: _____

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Do you agree with the preliminary recommended size of the underpass? (8-12m wide span)

Agree Too Large Too small

8. How important do you consider the aesthetics of the underpass and the plaza spaces to the success of the project?

Not Important 1 2 3 4 5 Very Important

9. Please rate the following features in terms of importance from 1 to 5, where 1 is not important and 5 is very important.

Lighting	1	2	3	4	<input checked="" type="radio"/> 5
Skylight	1	2	<input checked="" type="radio"/> 3	4	5
Water Feature	1	2	3	4	<input checked="" type="radio"/> 5
Bike Accessibility	1	2	3	4	<input checked="" type="radio"/> 5
Seating Areas	1	<input checked="" type="radio"/> 2	3	4	5
Landscaping	1	2	3	4	<input checked="" type="radio"/> 5
Art/Sculpture	<input checked="" type="radio"/> 1	2	3	4	5

10. Should the underpass be a simple throughway/passage or should it provide opportunities for users to meet and congregate?

Throughway/passage only Opportunities to congregate

11. Do you agree with the scale and function of the plaza areas presented in the preliminary design options?

Agree Disagree

12. Of the two sites identified, which would you like to see completed first?

Aquatic Centre Site Civic Esplanade Site

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON, N9C 4E4 by December 11th, 2015.

Name (please print): Aseel Alshawakni
Address: 120 Carbon Ave
E-mail: aseel.canada@hotmail.com

Note: The first 6 questions are repeated from the first Drop-In Centre questionnaire.

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed directly to question 13.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed directly to question 13.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
 Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
 Green space Other: _____

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Do you agree with the preliminary recommended size of the underpass? (8-12m wide span)

Agree Too Large Too small

8. How important do you consider the aesthetics of the underpass and the plaza spaces to the success of the project?

Not Important 1 2 3 4 5 Very Important

9. Please rate the following features in terms of importance from 1 to 5, where 1 is not important and 5 is very important.

Lighting	1	2	3	4	<u>5</u>
Skylight	1	2	3	4	<u>5</u>
Water Feature	1	2	3	4	<u>5</u>
Bike Accessibility	1	2	3	4	<u>5</u>
Seating Areas	1	2	3	4	<u>5</u>
Landscaping	1	2	3	4	<u>5</u>
Art/Sculpture	1	2	3	4	<u>5</u>

10. Should the underpass be a simple throughway/passage or should it provide opportunities for users to meet and congregate?

Throughway/passage only Opportunities to congregate

11. Do you agree with the scale and function of the plaza areas presented in the preliminary design options?

Agree Disagree

12. Of the two sites identified, which would you like to see completed first?

Aquatic Centre Site Civic Esplanade Site

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

13. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team. (Please print)

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON, N9C 4E4 by December 11th, 2015.

Name (please print): WILLIAM RANKINE
Address: 2074 ARRAS AVE
E-mail: SANKRANKIE@HOTMAIL.COM

Note: The first 6 questions are repeated from the first Drop-In Centre questionnaire.

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed directly to question 13.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed directly to question 13.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
Green space Other: _____

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Do you agree with the preliminary recommended size of the underpass? (8-12m wide span)

Agree Too Large Too small

8. How important do you consider the aesthetics of the underpass and the plaza spaces to the success of the project?

Not Important 1 2 3 4 5 Very Important

9. Please rate the following features in terms of importance from 1 to 5, where 1 is not important and 5 is very important.

Lighting	1	2	3	4	5
Skylight	1	2	3	4	5
Water Feature	1	2	3	4	5
Bike Accessibility	1	2	3	4	5
Seating Areas	1	2	3	4	5
Landscaping	1	2	3	4	5
Art/Sculpture	1	2	3	4	5

10. Should the underpass be a simple throughway/passage or should it provide opportunities for users to meet and congregate?

Throughway/passage only Opportunities to congregate

11. Do you agree with the scale and function of the plaza areas presented in the preliminary design options?

Agree Disagree

12. Of the two sites identified, which would you like to see completed first?

Aquatic Centre Site Civic Esplanade Site

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

13. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team. (Please print)

- OR LESS
- USE 5.0 MILLION DOLLARS^{OR LESS} TO CONSTRUCT A NEW PATHWAY ON DOUGALL AVE GOING INTO SOUTH WINDSOR. THIS WOULD BE USED BY PEDESTRIANS & BICYCLES.
 - AN IDEAL LOCATION WOULD BE ON THE TOP, TO CROSS THE OLD TRACKS SIMILAR TO THE CROSSING IN OPTIMIST PARK AT PARCENT AVE.

Riverside Drive Pedestrian Crossings Class Environmental Assessment

Questionnaire #2

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON, N9C 4E4 by December 11th, 2015.

Name (please print): Adam Crumb
Address: 170 Janette Avenue
E-mail: N/A

Note: The first 6 questions are repeated from the first Drop-In Centre questionnaire.

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed directly to question 13.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed directly to question 13.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
Green space Other: _____

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Do you agree with the preliminary recommended size of the underpass? (8-12m wide span)

Agree Too Large Too small

8. How important do you consider the aesthetics of the underpass and the plaza spaces to the success of the project?

Not Important 1 2 3 4 5 Very Important

9. Please rate the following features in terms of importance from 1 to 5, where 1 is not important and 5 is very important.

Lighting	1	2	3	4	<u>5</u>
Skylight	1	2	<u>3</u>	4	5
Water Feature	1	2	<u>3</u>	4	5
Bike Accessibility	1	<u>2</u>	3	4	5
Seating Areas	1	2	<u>3</u>	4	5
Landscaping	1	2	<u>3</u>	4	5
Art/Sculpture	1	2	<u>3</u>	4	5

10. Should the underpass be a simple throughway/passage or should it provide opportunities for users to meet and congregate?

Throughway/passage only Opportunities to congregate

11. Do you agree with the scale and function of the plaza areas presented in the preliminary design options?

Agree Disagree

12. Of the two sites identified, which would you like to see completed first?

Aquatic Centre Site Civic Esplanade Site

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

13. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team. (Please print)

Not having to deal with traffic on Riverside Drive would be a very good thing. It has been a long time since the Riverfront has had new developments. It is long overdue. If it is done right, it could be a big boost for downtown Windsor.

Riverside Drive Pedestrian Crossings Class Environmental Assessment

Questionnaire #2

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON, N9C 4E4 by December 11th, 2015.

Name (please print): DAVID HANNA
 Address: SUITE 115, 1453 CABANA W. WINDSOR, ONT N9B 2C3
 E-mail: dhan96@hotmail.com

Note: The first 6 questions are repeated from the first Drop-In Centre questionnaire.

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree AT SOME FUTURE DATE WHEN THERE'S \$

Note: If you answered 'Disagree' to question 1, you may proceed directly to question 13.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed directly to question 13.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass ONLY AT A FUTURE DATE WHEN THERE IS \$
 Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
 Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
 Green space Other: ECO ART PUBLIC ART COMPETITION OPEN TO ANYONE

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) GREEN UNDERPASS
LESS CONCRETE + PAVEMENT

7. Do you agree with the preliminary recommended size of the underpass? (8-12m wide span)

Agree 12m Too Large Too small 24-30

8. How important do you consider the aesthetics of the underpass and the plaza spaces to the success of the project?

Not Important 1 2 3 4 5 Very Important

9. Please rate the following features in terms of importance from 1 to 5, where 1 is not important and 5 is very important.

Lighting	1	2	3	4	<u>5</u>
Skylight	1	2	3	<u>4</u>	5
Water Feature	1	2	3	<u>4</u>	5
Bike Accessibility	1	2	3	4	<u>5</u>
Seating Areas	1	2	3	4	<u>5</u>
Landscaping	1	2	3	4	<u>5</u>
Art/Sculpture	1	2	3	4	<u>5</u>

10. Should the underpass be a simple throughway/passage or should it provide opportunities for users to meet and congregate?

Throughway/passage only Opportunities to congregate

11. Do you agree with the scale and function of the plaza areas presented in the preliminary design options?

Agree Disagree

12. Of the two sites identified, which would you like to see completed first?

Aquatic Centre Site Civic Esplanade Site

Riverside Drive Pedestrian Crossings Class Environmental Assessment

Questionnaire #2

- SCULPTURE
- ART TRAIL CONNECTOR
- RESTAURANT
- RECREATION
- AGW + MUSEUM
- AQUATIC CENTRE
- DURBIN
- CASINO

13. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team. (Please print)

DO NOT BUILD AN OVERPASS

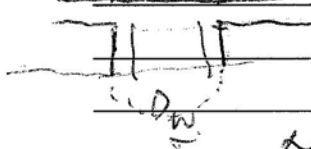
GET THE RIGHT LOCATION JUST TOO EXPENSIVE RIGHT NOW

CONSIDER A CROSSWALK AS A TEMPORARY MEASURE THAT COULD BE DONE RIGHT AWAY

- LONG RANGE VISION OF 2 UNDERPASSES AS MONEY CAN BUILD UP OVER YEARS UNTIL ENOUGH TO DO IT ANTHON ENICKON "STAMPS" DESIGN GREAT BUT APPROPRIATE DESIGN IDEA CREDIT NECESSARY POSSIBLE COPYRIGHT INFRINGEMENT

- LANDSCAPING (SOFT, PERMEABLE) IS KEY DESIGN FEATURES THAT WILL DETERMINE HOW WELL IT WILL GET USED

A B A-B DUAL UNDERPASSES ALLOW FOR A GREAT COMMUTER / REC CIRCUIT INTO DWT, WHICH IS WHAT DWT BUSINESS NEED



SHADE TABLES IMPORTANT IN ANY PLAZA, MINIMIZE LANDSCAPE - GLASS BLOCK SKYLIGHT IN MIDDLE OR EURN RAISED OPEN ROOFTOP LANGUAGE BIKE LOCK UPS

ART + SCULPTURE, ECO ART "OPEN" PUBLIC ART COMPETITION CONCRETE NOT METAL TUNNEL

GREEN WALL ON TUNNEL ENTRANCES, BENCHES SITE SPECIFIC UNIQUE DESIGN W/ A TREMOR IF WATER FEATURE, USE ROAD WATER CLEARING

PLANTS IN AN AESTHETIC, FUNCTIONAL DESIGN (PUBLIC ART)

- LOOK FOR PRIVATE SPONSOR (BUT NO SIGNS)

"STEAM WATER" FEATURES, TEXTURE / COLOUR CONC TEMPLATE W/ ARTS FOR 'MOZAIC ART' SHADE TABLES ESSENTIAL

NON-DIVIDED TUNNEL W/ BIKE LANES

EURN CONSISTEN WOOD OR SIMILAR WOOD BOARDWALK

3.0 Environmental Inventory & Review of Background Information

This section of the Project File summarizes the environmental inventory that was compiled for the two preferred locations throughout the course of the study.

3.1 Physical Environment

Utilities

The following utilities were contacted to provide locations within the vicinity of the two preferred locations:

- Bell Canada
- Enwin Utilities (Hydro and Water)
- Union Gas
- City of Windsor Public Works

A spreadsheet has been included in this section of the project file which details the location and impacts of each utility at both of the preferred locations. A copy of the slide which illustrates the utility locations is also included in this section.

Land Ownership

At the two preferred locations, the land to the north and south of Riverside Drive is owned by the City of Windsor. A copy of the slide presented at the Public Drop-In Centre that depicts the land ownership has also been provided in this section for reference.

3.2 Natural Environment

Geotechnical Investigation

Golder Associates was retained to conduct a preliminary investigation into the soil conditions at each site. A copy of the geotechnical investigation can be found in Section 8 of the project file.

Conclusions and Recommendations:

- A site specific geotechnical investigation should be carried out during detailed design.
- Temporary cut excavations should be maintained at inclinations of 1 horizontal to 1 vertical or property designed braced/supported excavation could be used to limit extent of excavations.
- The fill materials and clay would be considered to be Type 3 soils.
- Surface water should be directions away from the excavations.
- The excavated materials would not be suitable for backfill material. Granular A or B is suggested.
- Filtered longitudinal drains should be provided in the backfill at the invert level and be connected to a positive gravity outlet.
- Consider weep holes in the structure wall to reduce hydrostatic pressures.

Natural Heritage

BioLogic Inc. was retained undertake a Natural Heritage assessment of land potentially affected by the proposed pedestrian underpass. A copy of the report can be found in Section 9 of the project file.

Habitat Assessment Summary:

- The site is maintained regularly and no natural heritage features are present. No Species-at-Risk (SAR) not habitat for SAR listed by National Heritage Information Centre were found on site.

Tree Risk Assessment Summary:

- The trees at Site 1 are mostly young ornamental trees and the species do not warrant special consideration for preservation. If the site is developed, it is recommended that future landscaping should aim to replace the removed trees. The replacement trees should be of the largest available containerized stock.
- The trees within the hedgerows at Site 2 were found to be of less-than-desirable species. If this site is developed, there will be opportunity to plant replacement trees. It is recommended that the replacement trees should be of the largest available containerized stock.

3.3 Social/Economic Environment

Archaeological Potential

A stage 1-2 Archeological Assessment of the lands potentially affected by the proposed pedestrian underpass was undertaken by AMICK Consultants Limited. A copy of AMICK's report can be found in Section 7 of the project file.

Conclusions and Recommendations:

- As a result of the property Assessment of both sites, no archaeological resources were encountered.
- No further archaeological assessment of the sites are warranted.
- The Provincial interest in archaeological resources with respect to the proposed undertaking has been addressed.
- The proposed undertaking in clear of any archaeological concern.

Built Heritage

There are no listed or designated heritage buildings or properties on either of the sites under consideration for construction of a pedestrian underpass.

Vehicular Traffic

City of Windsor traffic counts within the downtown along Riverside Drive average approximately 20,000 vehicles per day. (Traffic counts provided by the City of Windsor)

The planning capacity for Riverside Drive on the four lane section in the downtown is 16,000 vehicles per day. (Riverside Drive Vista Improvements Study ESR, 2007)

Vehicular Accident Data:

- Between January 2009 to December 2013 (5 years) there were 54 collisions at intersections along Riverside Drive between Bruce Avenue and McDougall Street.
- Between January 2009 to December 2013 (5 years) there were 4 midblock collisions between Goyeau Street and McDougall Street, and 1 midblock collision between Church Street and Bruce Avenue.
- All of the collisions resulted in either property damage and/or minor injuries. None of the accidents were fatalities.
- The majority of the accident occurred during the day when conditions were clear and dry.

(Collision data provided by the City of Windsor)

Pedestrian Traffic

The Riverfront Festival Plaza receives an average of 170,000 visitors annually and an average of 2,500 to 5,000 visitors daily during events.

Some events at the Festival Plaza can attract up to 8,000 patrons for a single day event. (Festival Plaza statistics provided by the City of Windsor)

Pedestrian Crossing Data:

- Crossing counts at intersections along Riverside Drive are consistently higher as you approach downtown, with Ouellette Avenue and Goyeau Street having the highest crossing volumes between Bruce Avenue and Glengarry Avenue. (Crossing data provided by the City of Windsor)
- Within the downtown core pedestrian movement is primarily north/south, concentrated along Ouellette Avenue. (Downtown Transportation Strategy, 2015)

3.4 Review of Prior Studies

The following studies were reviewed to help provide context for this undertaking:

Bicycle Use Master Plan (BUMP) - 2001

The BUMP was reviewed to ensure any proposed improvements would coordinate with the existing plan. The proposed pedestrian underpass would not have an effect on the planned bike routes. The underpass would also be designed so that cyclists could connect from the south side of Riverside Drive to the Riverfront trail.

Riverside Drive Vista Improvements Study - 2007

Relevant sections of the Vista study were reviewed. The types and locations for approved at-grade crossings were identified in the display material presented at both public Drop-In Centres. As well, the

approved cross section for Riverside Drive was taken into consideration when determining the minimum length of underpass required. A summary of the information from the Vista study can be found on the slides presented at the second public drop-in centre. (See section 2, Drop-In Centre # 2, Slides 9, 19 and 20).

Downtown Windsor Transportation Strategy (Ongoing)

Relevant sections of the Transportation study were reviewed. Although this study has not yet been finalized, information presented at the public information centres was provided by the City of Windsor for review.

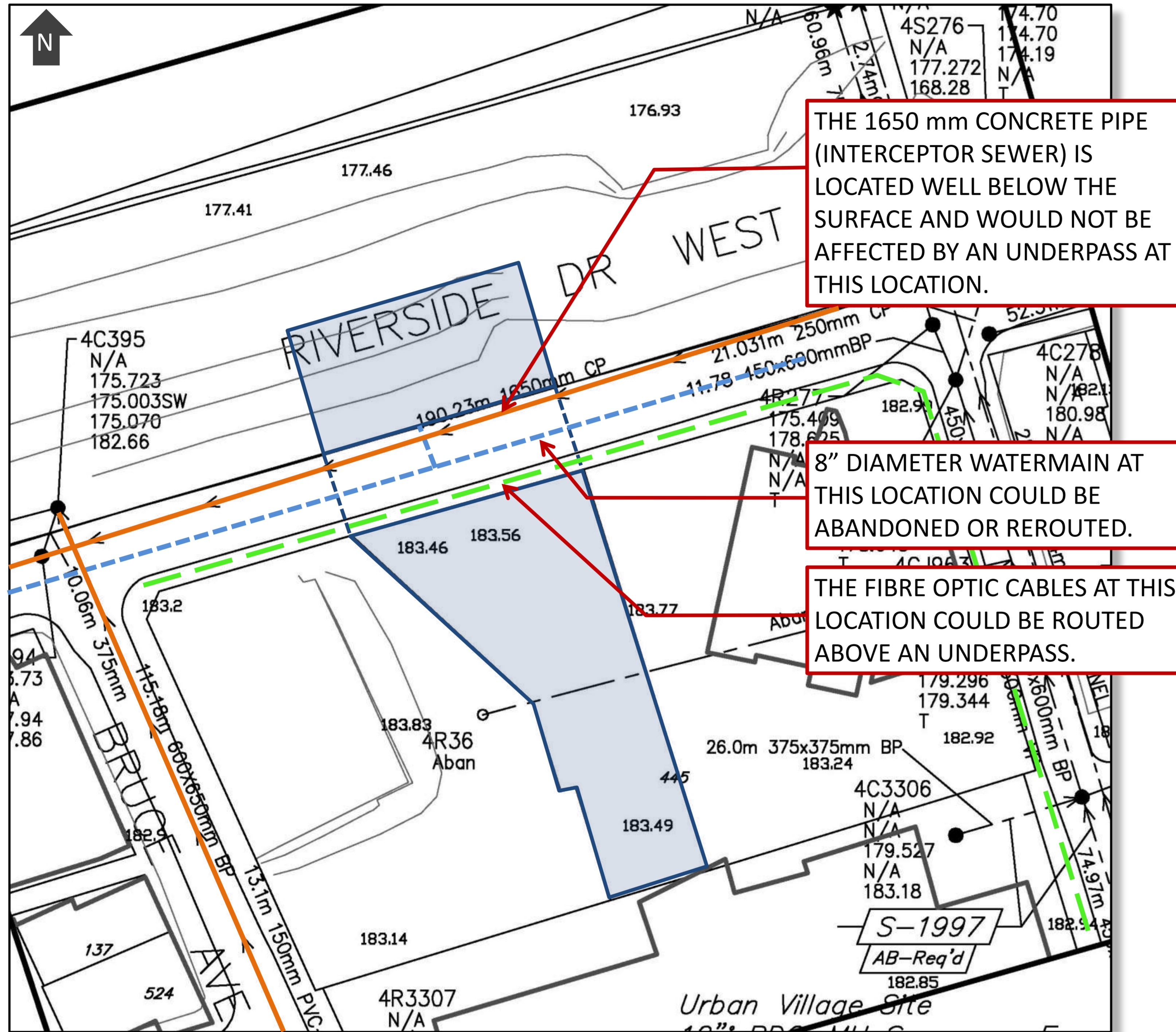
Utility Information Summary

Below is a summary of each utility within the vicinity of the two sites and how they may be impacted by the construction of a pedestrian underpass. The amendment required refers to how the utility may be altered to accommodate a potential underpass. Site 1 refers to the Aquatic Centre location and Site 2 refers to the Civic Esplanade location.

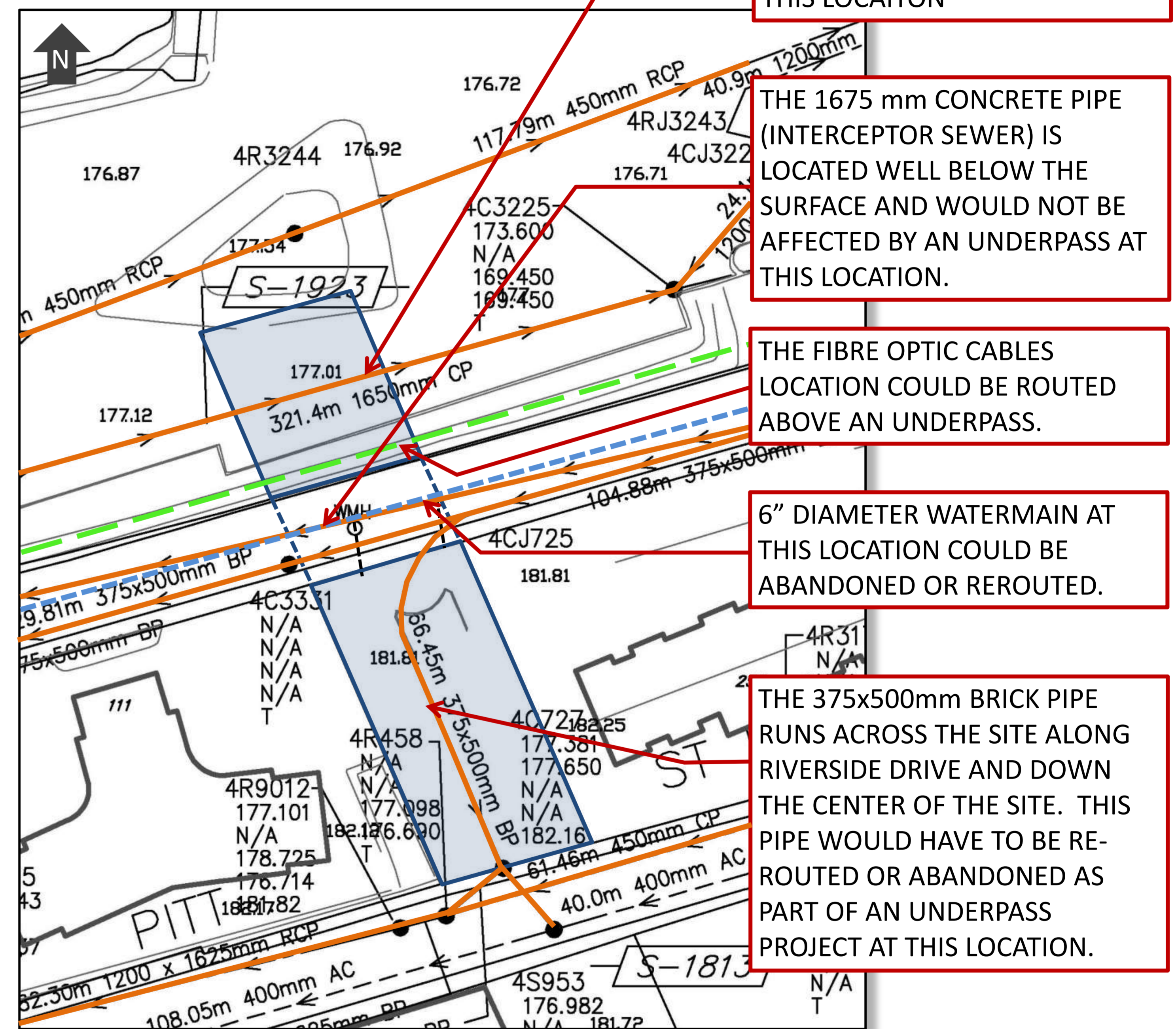
Utility Name	Site	Location	Amendment Required
Bell Canada	Site 1	Buried cable lines are located within the Riverside Drive right of way along the site.	The lines will have to be re-routed during construction but would not constrain the design of a potential underpass at this location.
	Site 2	Buried cable lines are located within the Riverside Drive right of way within the vicinity of the site.	The lines will have to be re-routed during construction but would not constrain the design of a potential underpass at this location.
Union Gas	Site 1	There are no gas lines within the vicinity of the site.	No action required.
	Site 2	There are no gas lines within the vicinity of the site.	No action required.
Enwin Utilities - Hydro	Site 1	There are buried hydro lines that run along Riverside Drive crossing the proposed site.	The lines would have to be taken into consideration during the design of the underpass at this location. Possible solutions would be to re-route the lines above or below the underpass as required. Overhead hydro would only be affected during construction.
	Site 2	There are buried hydro lines that run along Riverside Drive crossing the proposed site.	The lines would have to be taken into consideration during the design of the underpass at this location. Possible solutions would be to re-route the lines above or below the underpass as required. Overhead hydro would only be affected during construction.

Enwin Utilities - Water	Site 1	There is a watermain located along Riverside Drive that would be affected by the proposed underpass.	Enwin has indicated that the existing watermain may be abandoned along Riverside Drive between Bruce Avenue and Church Street. See attached correspondence and drawings for more information.
	Site 2	There is a watermain located along Riverside Drive that would be affected by the proposed underpass.	Enwin has indicated that the existing watermain may be abandoned along Riverside Drive between Bruce Avenue and Church Street. See attached correspondence and drawings for more information.
City of Windsor Public Works - Sanitary and Storm Sewers	Site 1	There are no storm or sanitary sewers that would required to be relocated for a proposed underpass at this location.	No action required.
	Site 2	A brick pipe combined sewer runs across the site along Riverside Drive and also extends south down the centre of the site.	The brick pipe would have to be re-routed or abandoned as part of an underpass project at this location. A CCTV inspection of this sewer should be carried out as part of the final design process to confirm the condition of the pipe and the presence of any private connections.
City of Windsor Public Works - GIS Traffic	Site 1	Fibre optic cables are located within the right of way the south side of Riverside Drive.	The fibre optic cables could be routed above an underpass at this location.
	Site 2	Fibre optic cables are located within the right of way the south side of Riverside Drive.	The fibre optic cables could be routed above an underpass at this location.

AQUATIC CENTRE LOCATION



CIVIC ESPLANADE LOCATION

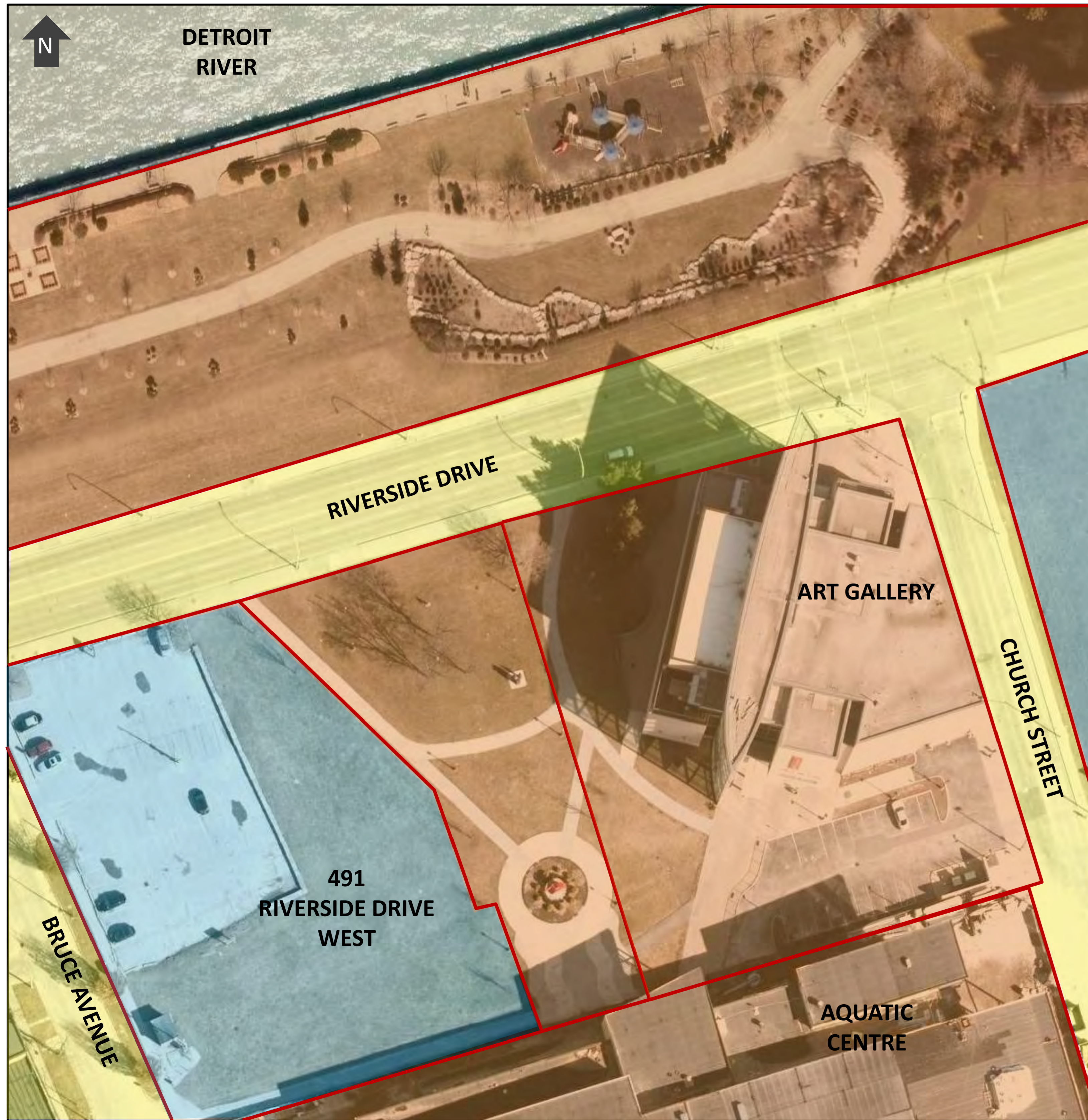


LEGEND:

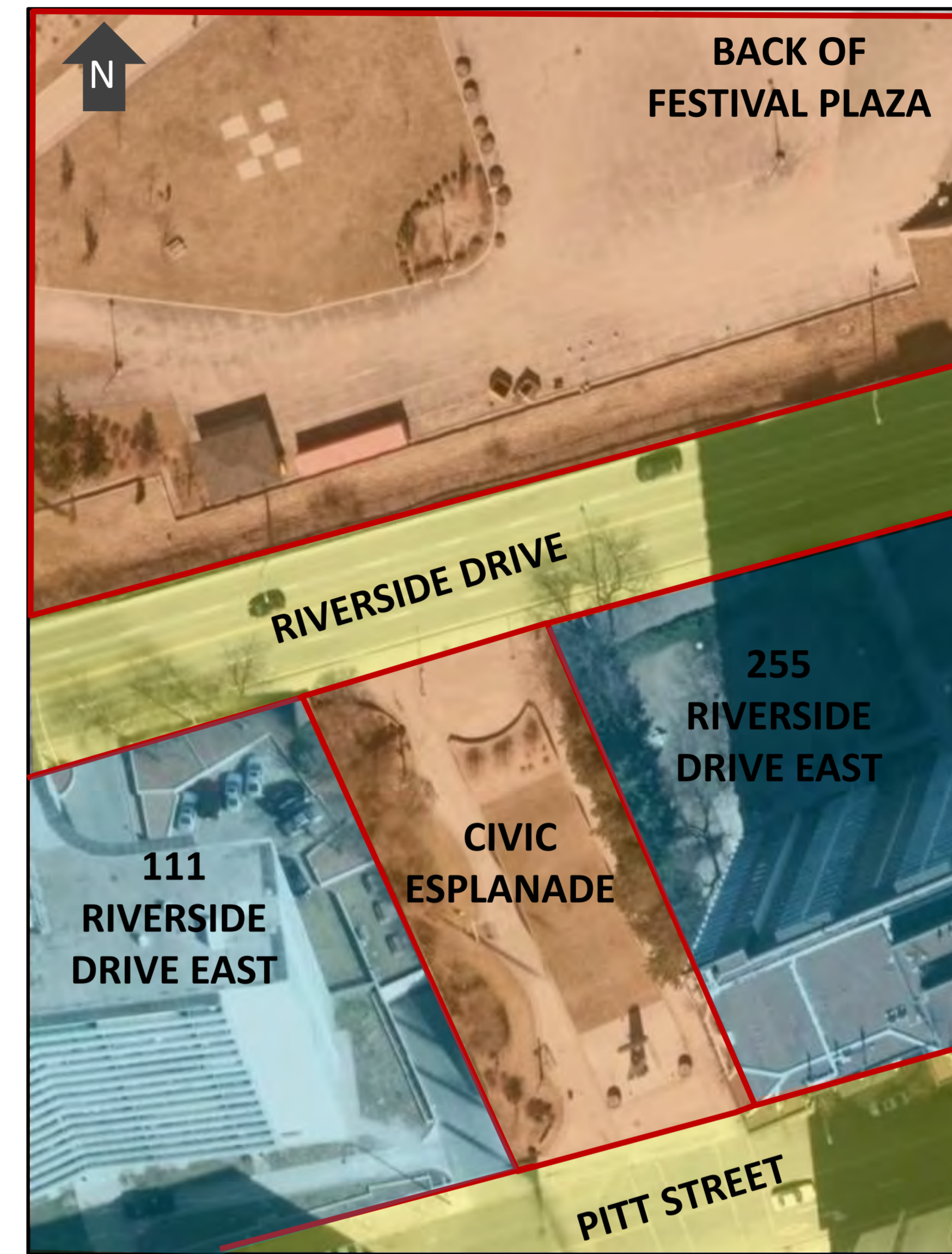
- SANITARY AND STORM SEWERS
- - - WATERMAIN
- - - FIBRE OPTIC CABLES

- There are no Union Gas lines that would be affected by the construction of an underpass at either location.
- Enwin Utilities power lines, City of Windsor GIS Traffic lines and Bell lines are located within the right-of-way of Riverside Drive at both sites. The location of these utilities will not constrain the design or location of an underpass at either location.

AQUATIC CENTRE LOCATION



CIVIC ESPLANADE LOCATION



LEGEND:

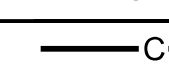


CITY OF WINDSOR OWNED PROPERTY
ROAD RIGHT-OF-WAY
PRIVATELY OWNED LAND

PLEASE NOTE:
THIS DRAWING IS FOR MARKUP ONLY - NOT FOR PERMIT TO PROCEED
CONSTRUCTION. BELL CANADA PLANT LOCATION IS APPROXIMATE.

BELL CANADA
Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
PH: 416-226-6329

This plan or drawing is the property of Bell Canada and the
copyright of which is owned by Bell Canada. This plan or
drawing may not be copied or used by others, without the
written consent of Bell Canada, which may be withheld at
Bell Canada's discretion.

Bell Canada Legend Info

-  Existing Conduit
-  Existing Buried Cable
-  Existing Manhole

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

Maintain clearance of 0.6m

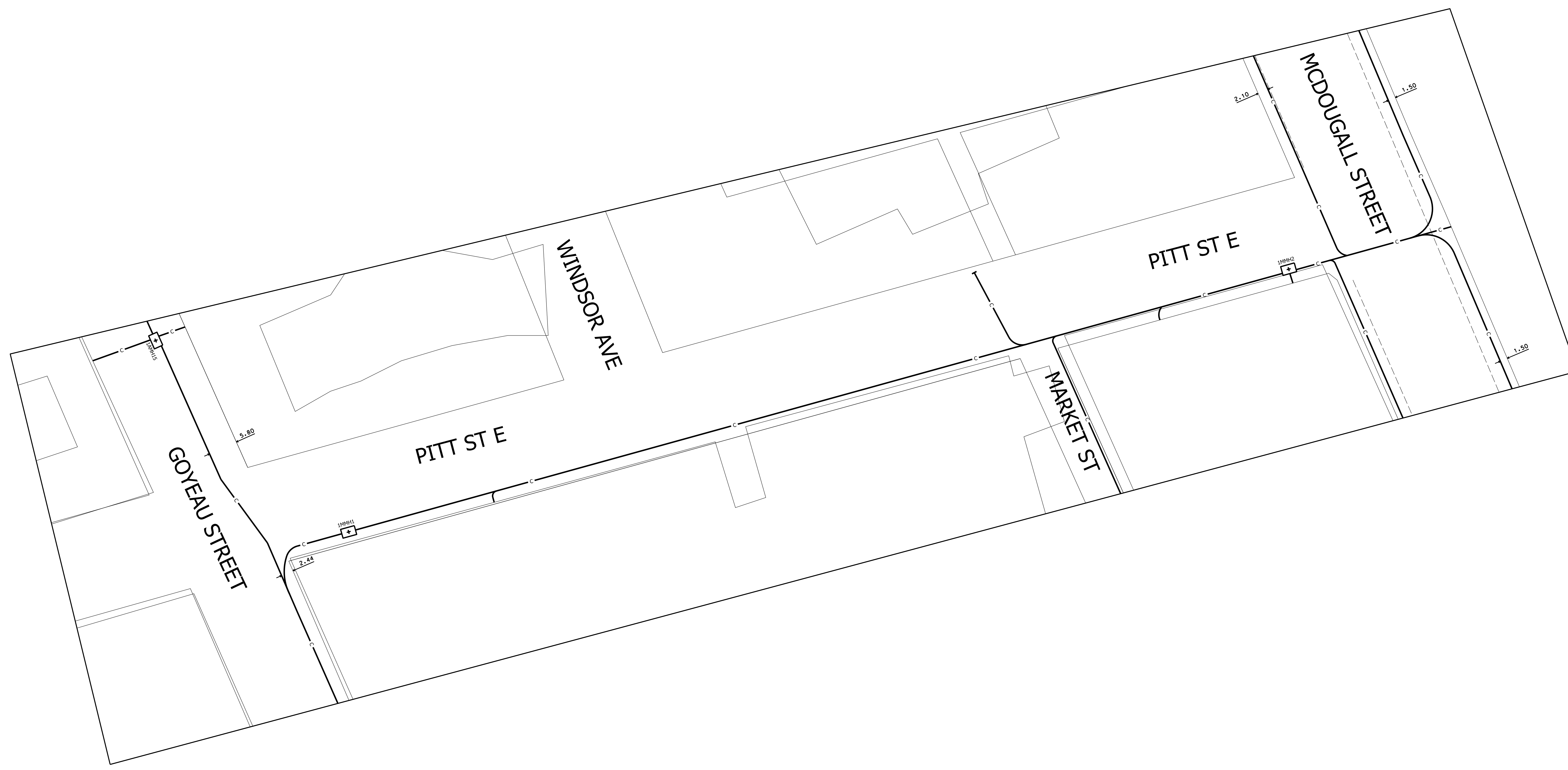
If further details required
You must acquire Locates or Test Pits

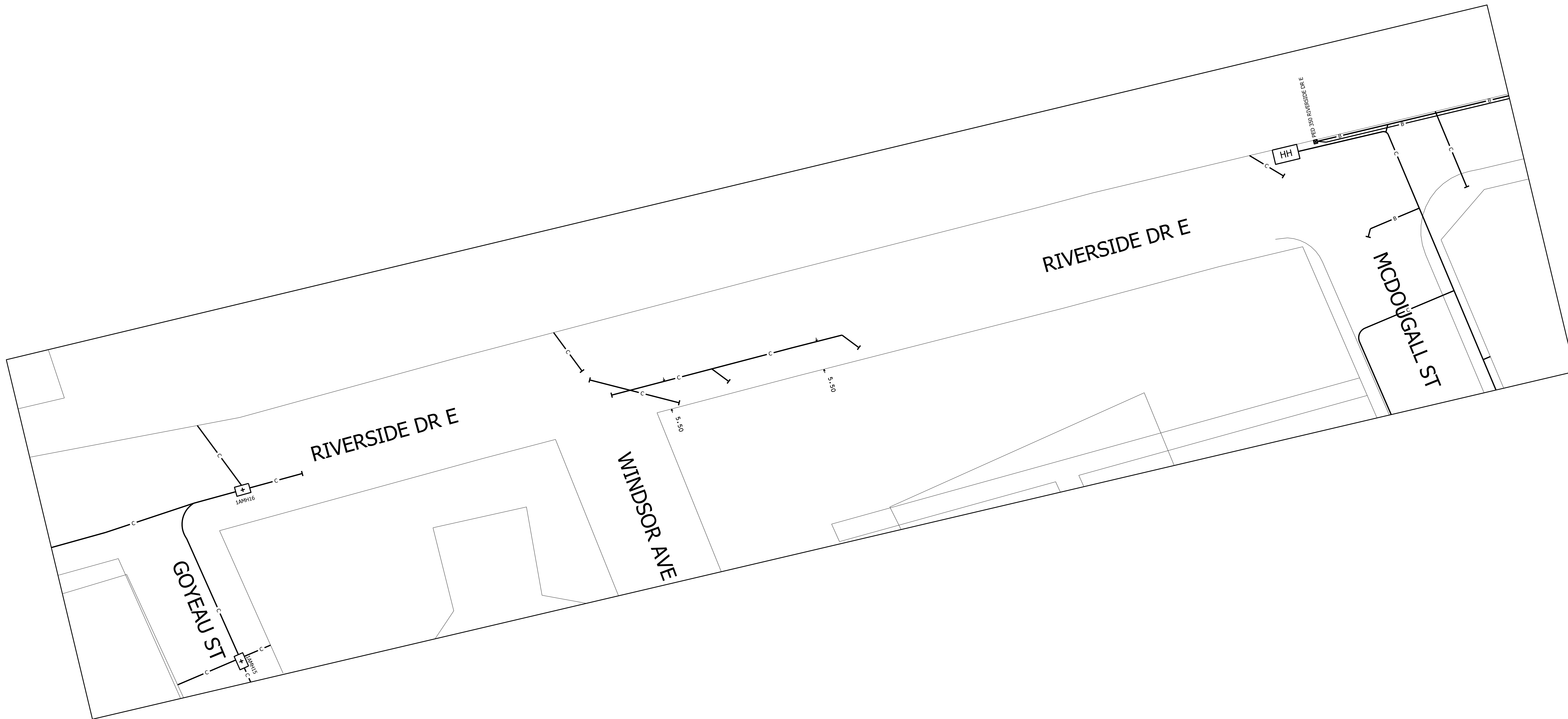


Dwg # - 1

Mark Up # - 51784

Designer - Evan Burke





PLEASE NOTE:
THIS DRAWING IS FOR MARKUP ONLY - NOT FOR PERMIT TO PROCEED
CONSTRUCTION. BELL CANADA PLANT LOCATION IS APPROXIMATE.

BELL CANADA
Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
Ph. 416-296-6929

This plan or drawing is the property of Bell Canada and the copyright of which is owned by Bell Canada. This plan or drawing may not be copied or used by others without the written consent of Bell Canada, which may be withheld at Bell Canada's discretion.

Bell Canada Legend Info

C	Existing Conduit
B	Existing Buried Cable
+	Existing Manhole
HH	Existing Handhole
⊗	Existing Pedestal

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

Maintain clearance of 0.6m

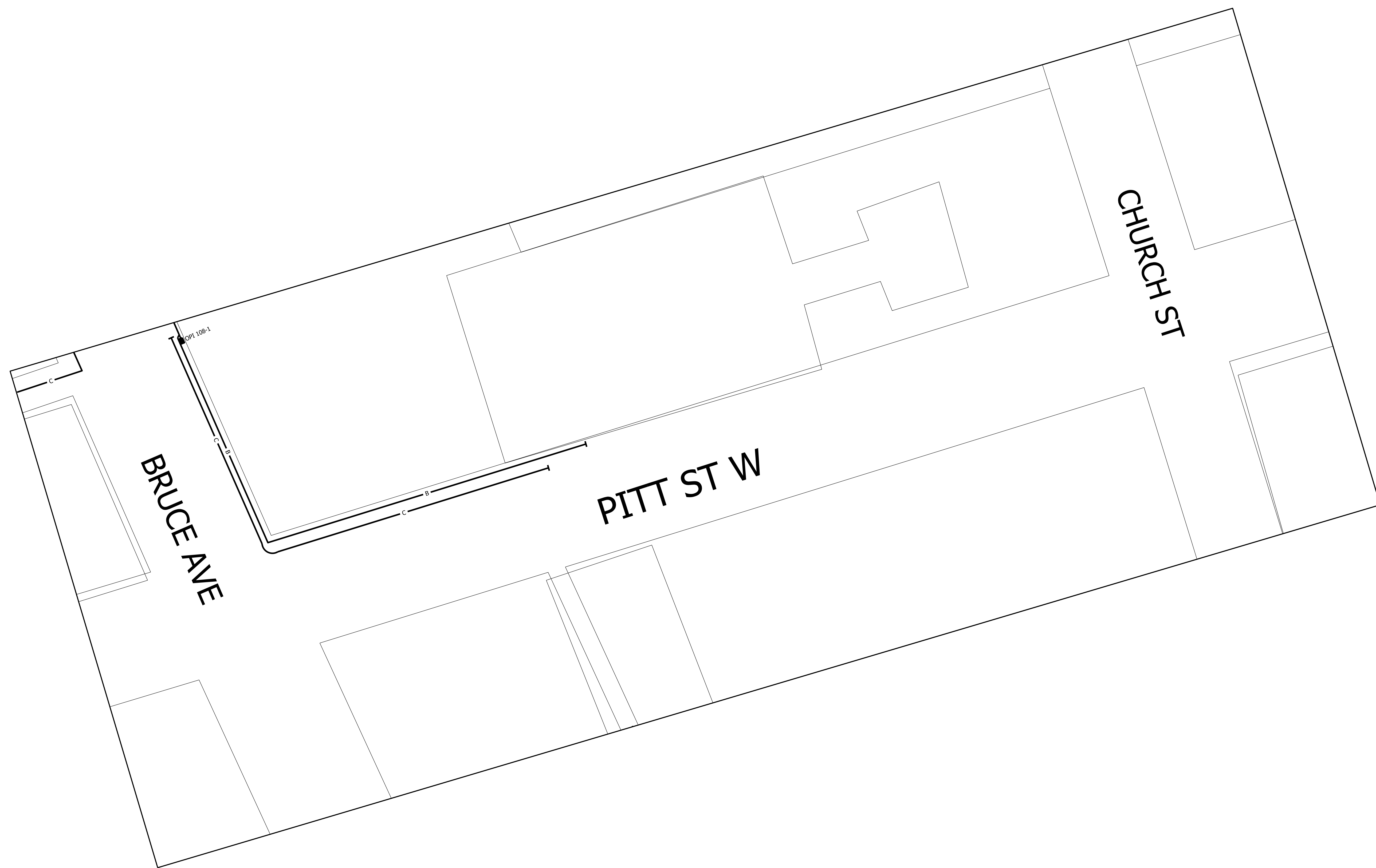
If further details required
You must acquire Locates or Test Pits



Dwg # - 1

Mark Up # - 51785

Designer - JOSE FACHINETTI



PLEASE NOTE:
 THIS DRAWING IS FOR MARKUP ONLY - NOT FOR PERMIT TO PROCEED
 CONSTRUCTION. BELL CANADA PLANT LOCATION IS APPROXIMATE.

BELL CANADA

Municipal Operations Department
 Floor 5 Blue, 100 Borough Drive
 Scarborough, Ontario, M1P 4W2
 Ph. 416-296-6929

This plan or drawing is the property of Bell Canada and the
 copyright of which is owned by Bell Canada. This plan or
 drawing may not be copied or used by others without the
 written consent of Bell Canada, which may be withheld at
 Bell Canada's discretion.

Bell Canada Legend Info

- Existing Conduit
- Existing Buried Cable
- Existing Interface

CALL FOR LOCATES
 1-800-400-2255

HAND DIG
 if within 1m of Bell plant

HAND DIG
 when crossing Bell plant

Maintain clearance of 0.6m

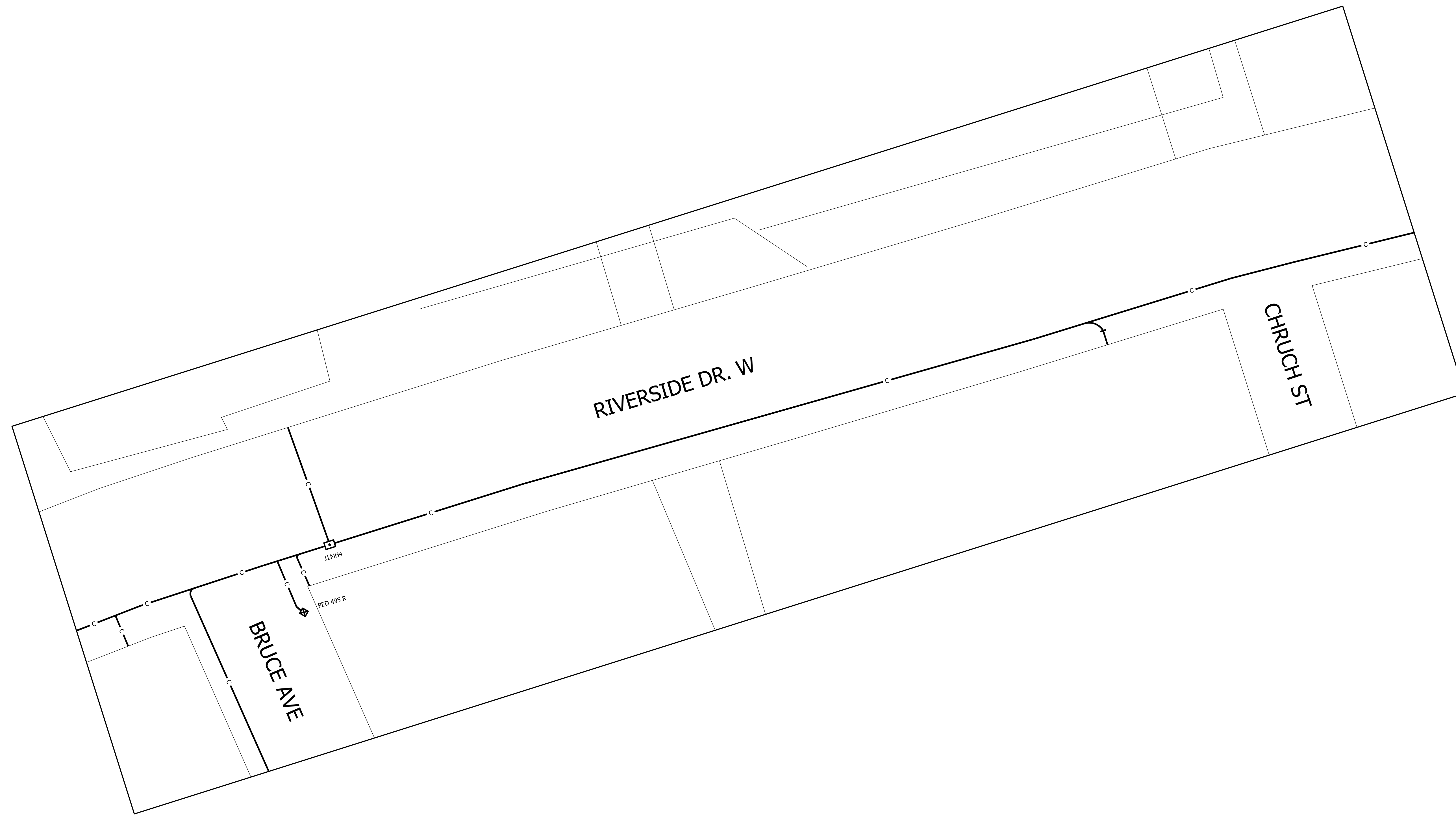
If further details required
 You must acquire Locates or Test Pits



Dwg # - 1

Mark Up # - 51786

Designer - Evan Burke



PLEASE NOTE:
THIS DRAWING IS FOR MARKUP ONLY - NOT FOR PERMIT TO PROCEED
CONSTRUCTION. BELL CANADA PLANT LOCATION IS APPROXIMATE.

BELL CANADA
Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
Ph. 416-296-6929

This plan or drawing is the property of Bell Canada and the
copyright of which is owned by Bell Canada. This plan or
drawing may not be copied or used by others without the
written consent of Bell Canada, which may be withheld at
Bell Canada's discretion.

Bell Canada Legend Info

— C — Existing Conduit
— B — Existing Buried Cable
+ Existing Manhole
X Existing Pedestal

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

Maintain clearance of 0.6m

If further details required
You must acquire Locates or Test Pits

telecom
design
MEMBER OF
TELUS GROUP
200 YORK STREET, SUITE 200
SCARBOROUGH, ONTARIO M1V 2G9
TEL: (416) 497-1212
FAX: (416) 497-1200

Dwg # - 1

Mark Up # - 51787

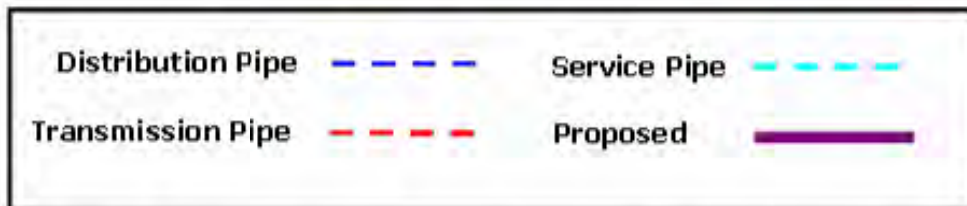
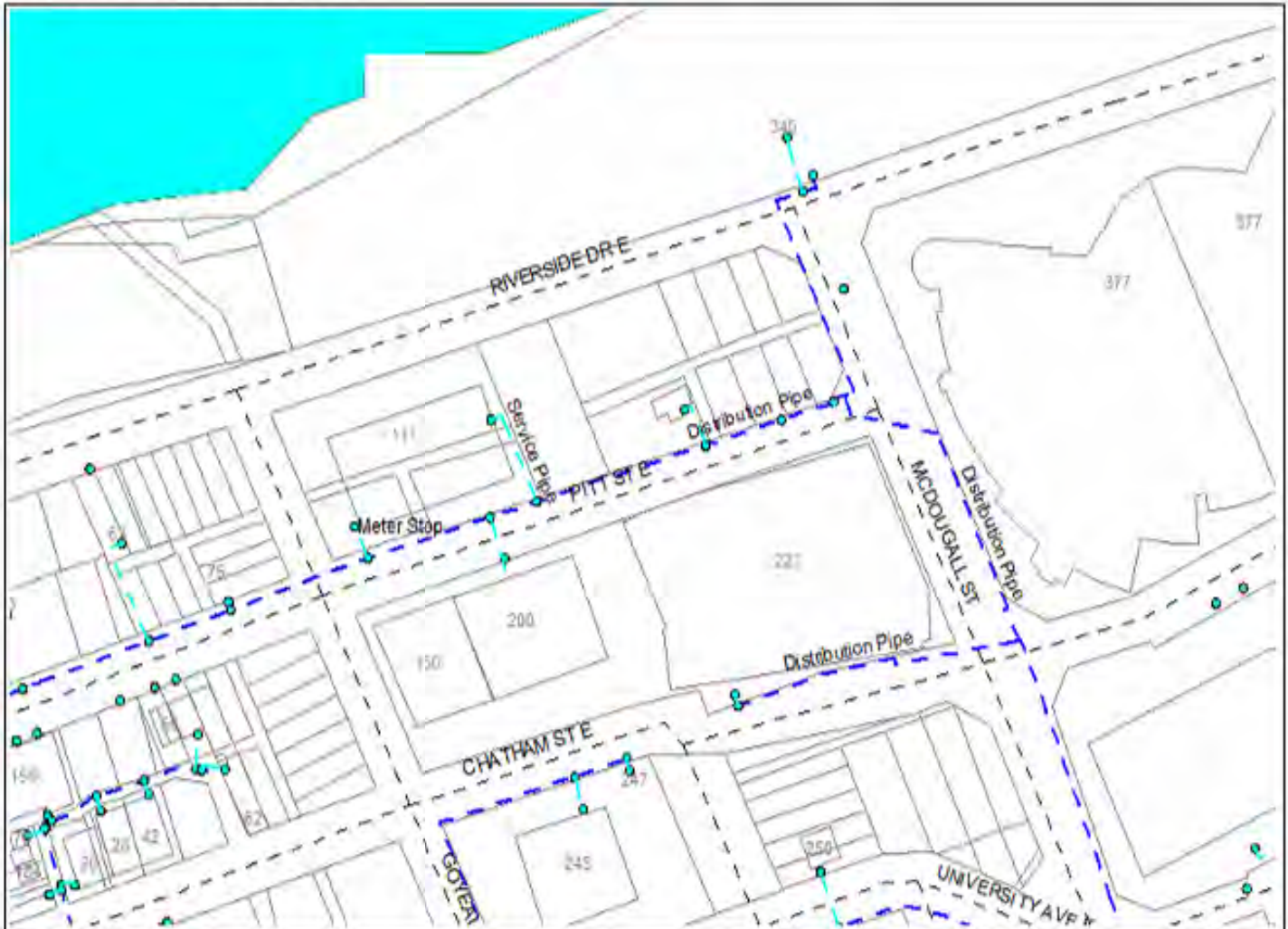
Designer - Evan Burke

Planning Request: 2015377445



Issued on: 09/09/2015 14:08:54

This sketch is provided "as is" without any warranty of any kind, express or implied, including but not limited to warranties as to the accuracy, completeness, merchantability or fitness for any purpose, arising by law or by statute. You agree and acknowledge that this sketch must not be used as a tool to locate underground infrastructure for the purposes of excavation.



This sketch is not to scale. Please call Ontario OneCall at 1-800-400-2255 at least one week prior to excavation to obtain a physical locate.

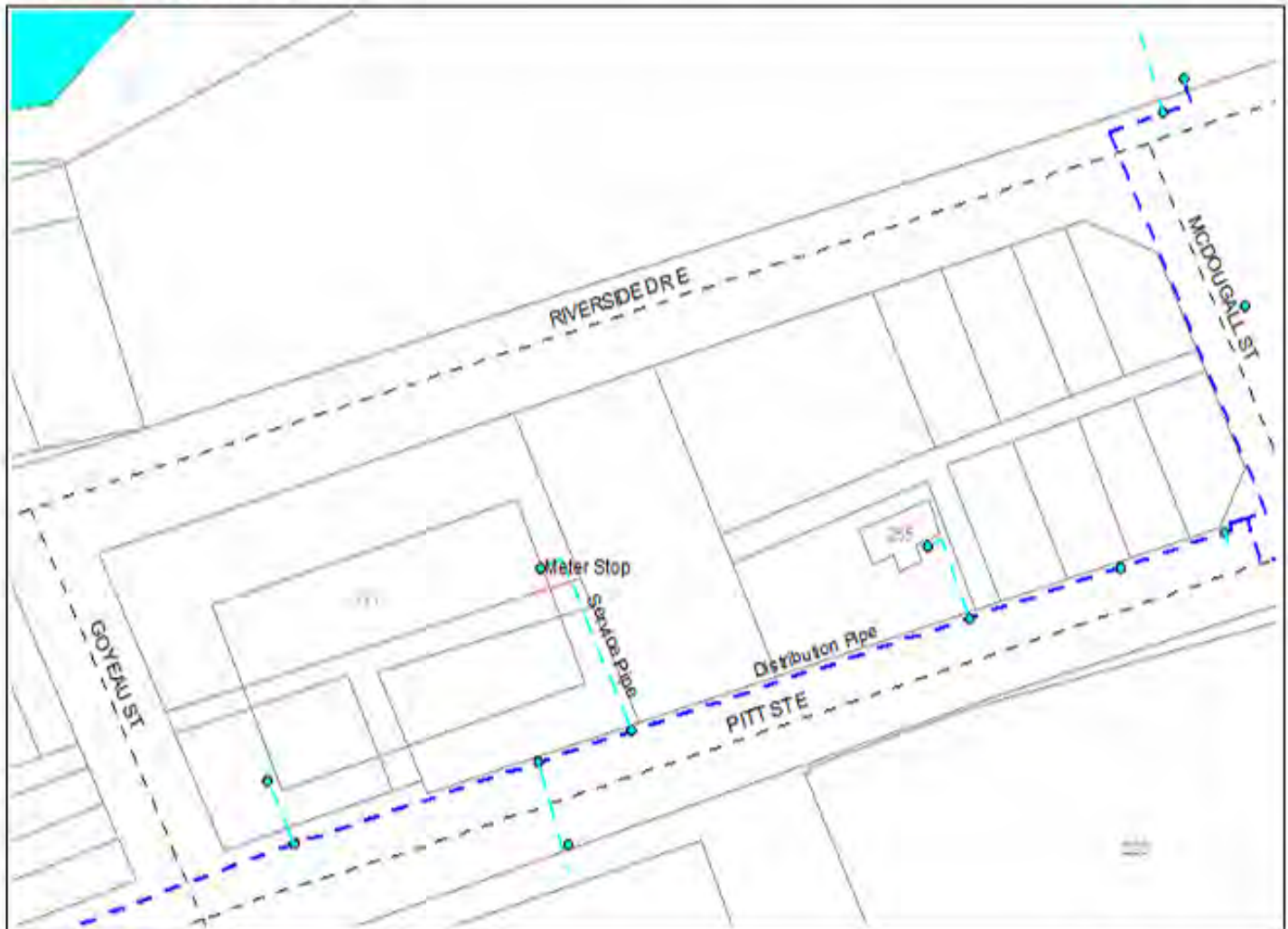
ANYTIME

Planning Request: 2015377460



Issued on: 09/09/2015 14:10:17

This sketch is provided "as is" without any warranty of any kind, express or implied, including but not limited to warranties as to the accuracy, completeness, merchantability or fitness for any purpose, arising by law or by statute. You agree and acknowledge that this sketch must not be used as a tool to locate underground infrastructure for the purposes of excavation.



Distribution Pipe		Service Pipe	
Transmission Pipe		Proposed	

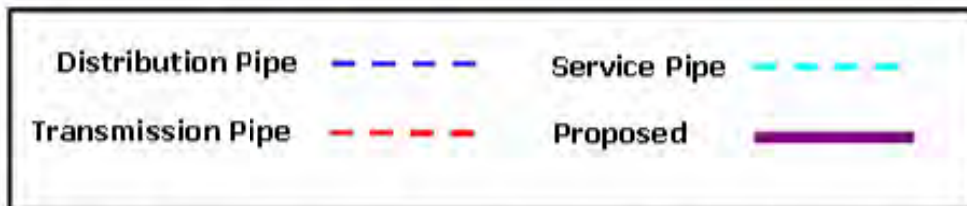
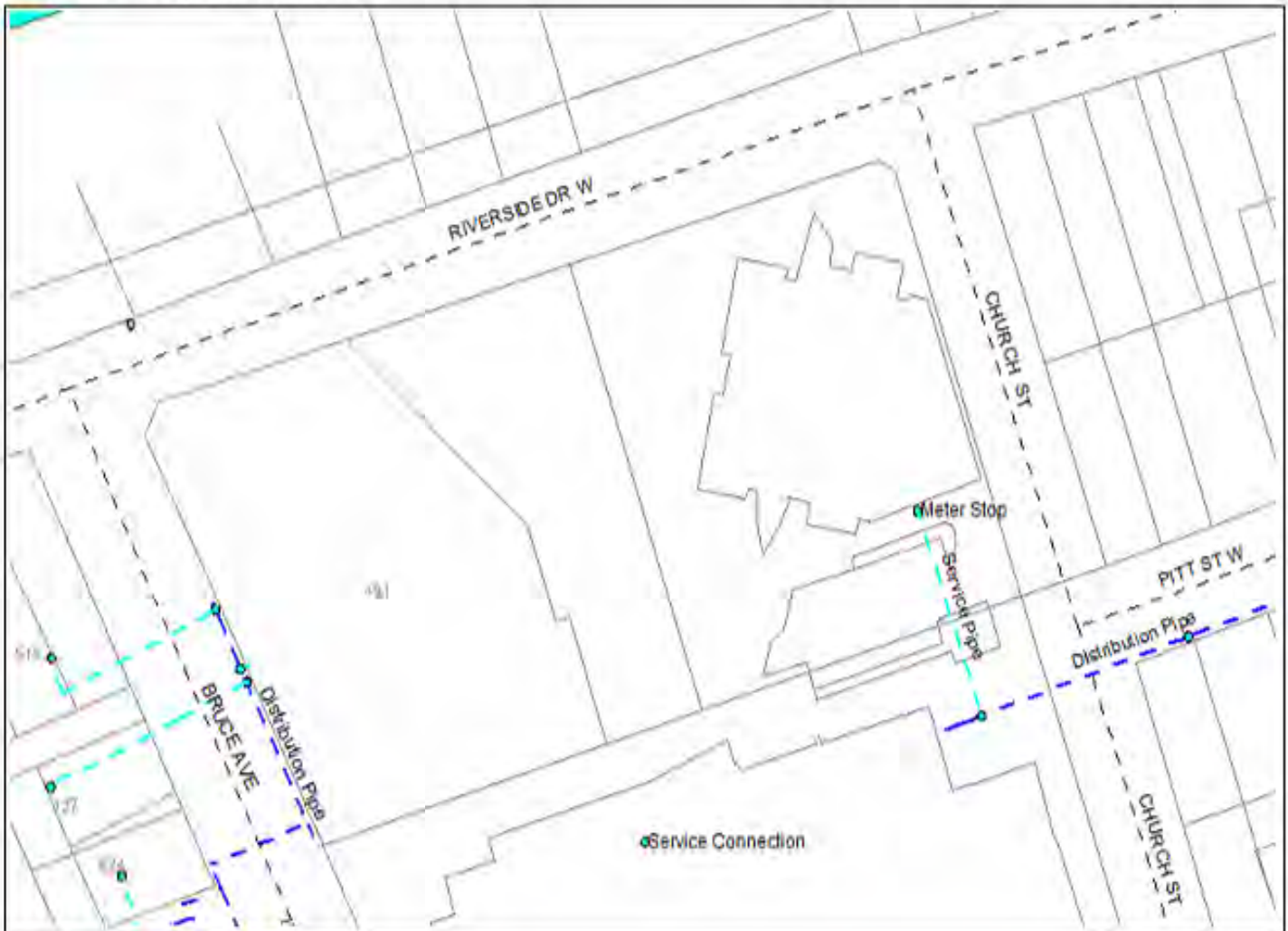
This sketch is not to scale. Please call Ontario OneCall at 1-800-400-2255 at least one week prior to excavation to obtain a physical locate.

Planning Request: 2015377487



Issued on: 09/09/2015 14:11:45

This sketch is provided "as is" without any warranty of any kind, express or implied, including but not limited to warranties as to the accuracy, completeness, merchantability or fitness for any purpose, arising by law or by statute. You agree and acknowledge that this sketch must not be used as a tool to locate underground infrastructure for the purposes of excavation.



This sketch is not to scale. Please call Ontario OneCall at 1-800-400-2255 at least one week prior to excavation to obtain a physical locate.

Planning Request: 2015377487



Issued on: 09/09/2015 14:12:37

This sketch is provided "as is" without any warranty of any kind, express or implied, including but not limited to warranties as to the accuracy, completeness, merchantability or fitness for any purpose, arising by law or by statute. You agree and acknowledge that this sketch must not be used as a tool to locate underground infrastructure for the purposes of excavation.



Distribution Pipe		Service Pipe	
Transmission Pipe		Proposed	

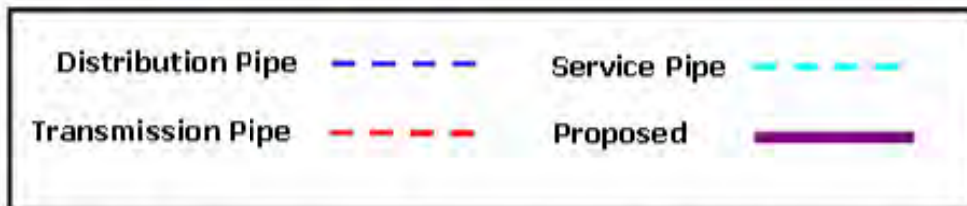
This sketch is not to scale. Please call Ontario OneCall at 1-800-400-2255 at least one week prior to excavation to obtain a physical locate.

Planning Request: 2015377507



Issued on: 09/09/2015 14:14:02

This sketch is provided "as is" without any warranty of any kind, express or implied, including but not limited to warranties as to the accuracy, completeness, merchantability or fitness for any purpose, arising by law or by statute. You agree and acknowledge that this sketch must not be used as a tool to locate underground infrastructure for the purposes of excavation.



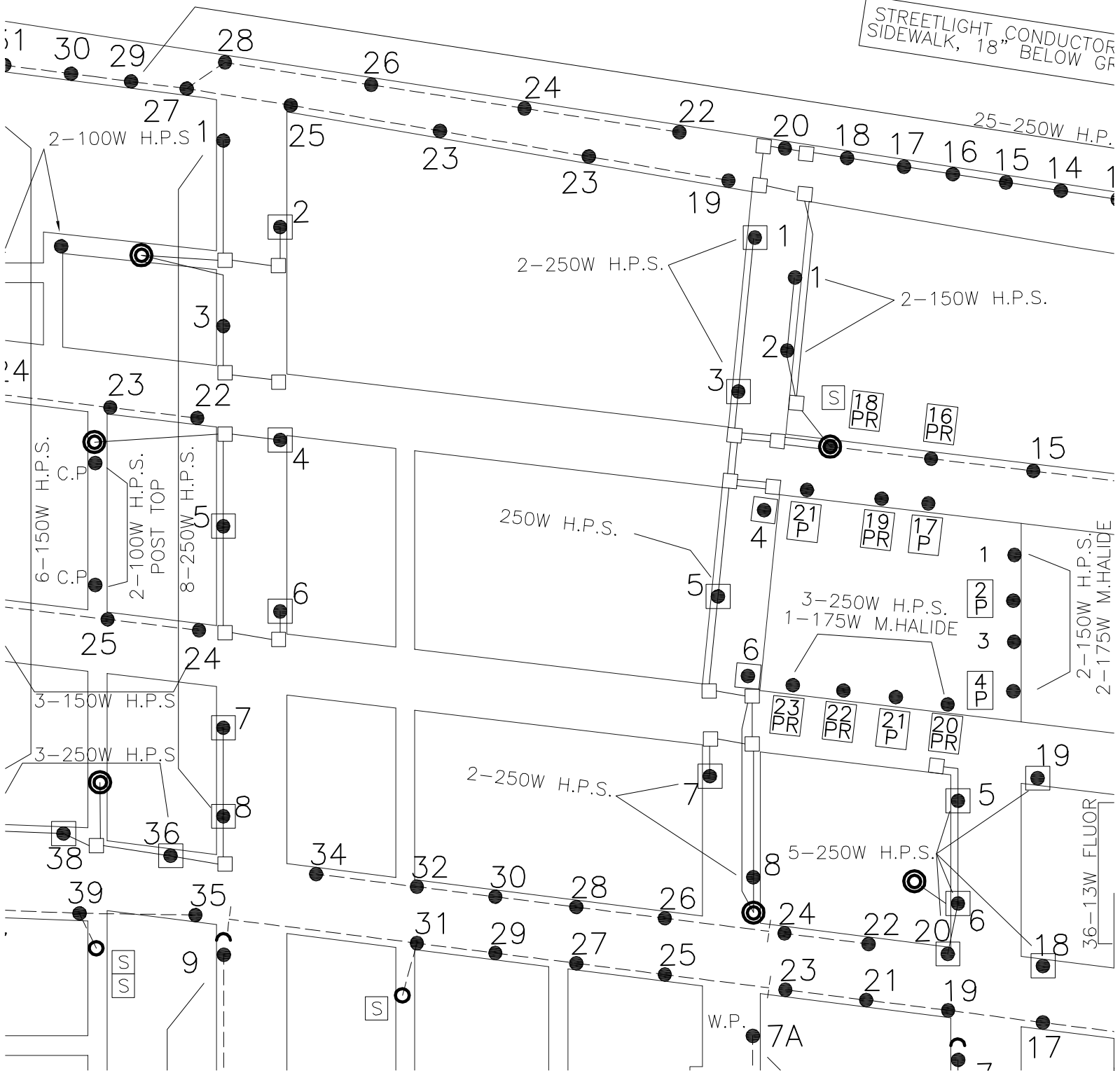
This sketch is not to scale. Please call Ontario OneCall at 1-800-400-2255 at least one week prior to excavation to obtain a physical locate.

BRUCE

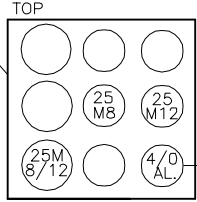
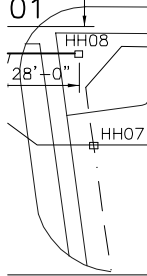
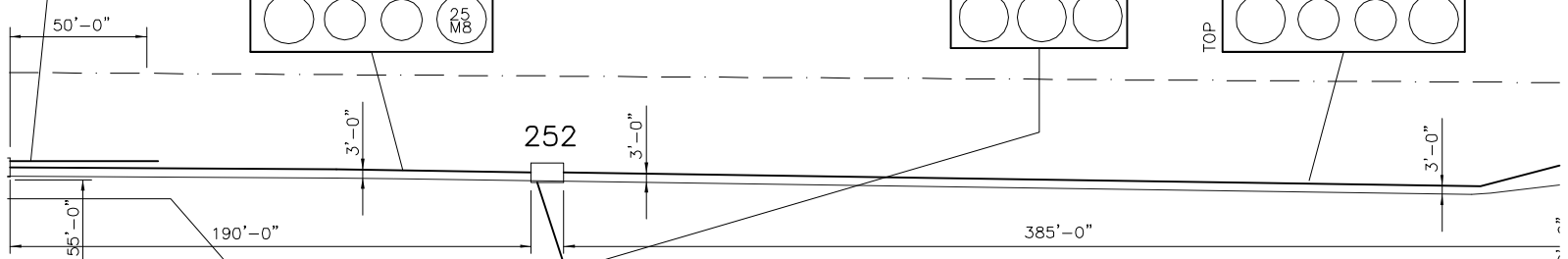
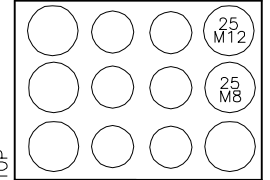
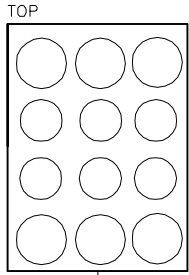
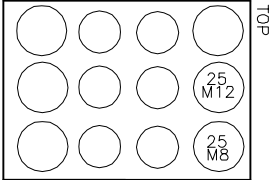
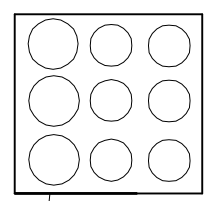
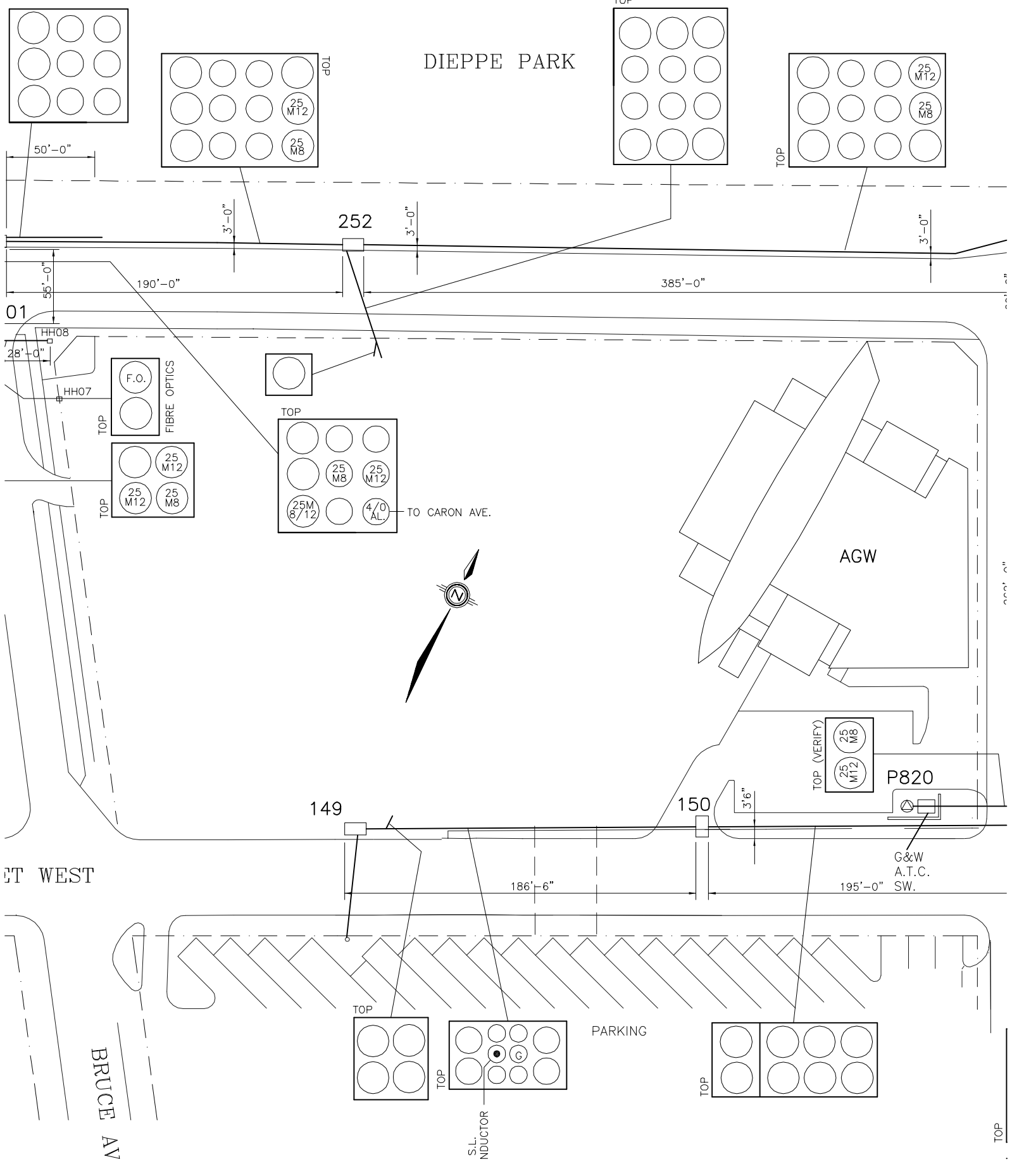
CHURCH

DOUGALL

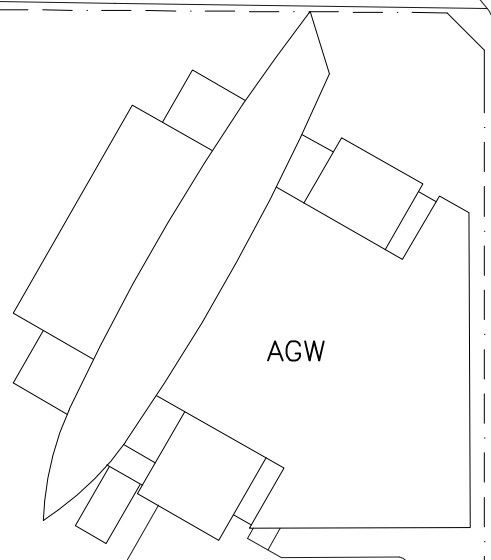
STREETLIGHT CONDUCTOR
SIDEWALK, 18" BELOW GF



DIEPPE PARK



TO CARON AVE.



P820

G&W A.T.C. SW.

ET WEST

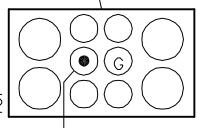
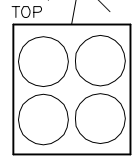
149

150

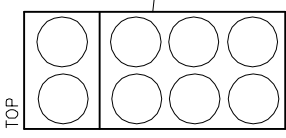
186'-6"

195'-0"

BRUCE AV



PARKING



TOP

RIVERSIDE DRIVE EAST

MCDUGALL A

CHATHAM STREET

PITT STREET

UNIVERSITY AVE. EAST

GOYEAU STREET

COUNTY COURTS

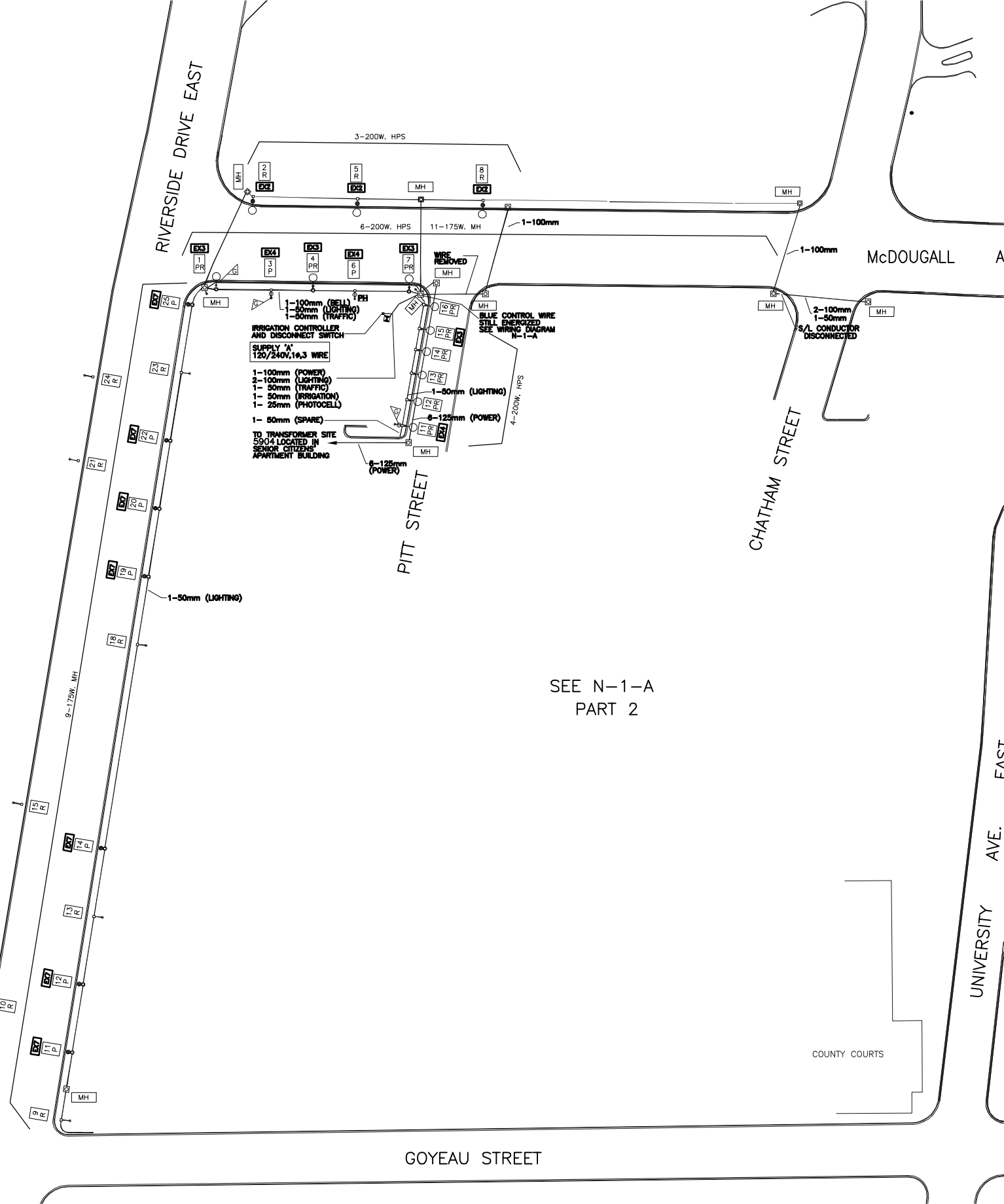
SEE N-1-A
PART 2

IRRIIGATION CONTROLLER
AND DISCONNECT SWITCH

SUPPLY 'A'
120/240V, 1Ø, 3 WIRE

- 1-100mm (POWER)
- 2-100mm (LIGHTING)
- 1-50mm (TRAFFIC)
- 1-50mm (IRRIGATION)
- 1-25mm (PHOTOCELL)
- 1-50mm (SPARE)

TO TRANSFORMER SITE
5904 LOCATED IN
SENIOR CITIZENS'
APARTMENT BUILDING



Liz Michaud

From: Bruce J Ogg <bogg@enwin.com>
Sent: Friday, November 13, 2015 1:39 PM
To: Liz Michaud
Subject: RE: Riverside Drive Pedestrian Underpass Environmental Assessment

Hi Liz,

We would have to see where they are located on the watermains before making a decision. Our best option is to abandon those watermains because we cannot go over the under pass because even with insulation there is not enough cover to avoid them from freezing. We could always relocate the services they had to where the watermain is not abandoned since they would have to relocate them anyway if the underpass is in the way.

Thank you,

Bruce J. Ogg
Water Project Review Officer
Enwin Utilities Ltd.
Email: bogg@enwin.com
Fax: 519-251-7316
Office: 519-251-7300 Ext. 220

From: "Liz Michaud" <lmichaud@landmarkengineers.ca>
To: "'Bruce J Ogg'" <bogg@enwin.com>
Date: 11/13/2015 10:15 AM
Subject: RE: Riverside Drive Pedestrian Underpass Environmental Assessment

Bruce,

I have someone from the City looking into this matter. It looks as though there may be a few lines going into the parks/privately owned lands. If this is the case and we are required to maintain that service, what would you recommend?

Thank you,

Liz Michaud
Landmark Engineers Inc.
p (519) 972-8052

From: Bruce J Ogg [<mailto:bogg@enwin.com>]
Sent: Wednesday, November 11, 2015 4:02 PM
To: Liz Michaud
Subject: Re: Riverside Drive Pedestrian Underpass Environmental Assessment

Hi Liz,

You will need to confirm with the city that they do not have any water services that come off of our watermains going to

their parks that are needed but we would be fine with those watermains being abandoned.
I have attached drawings to show location of abandonments.

Thank you,

Bruce J. Ogg
Water Project Review Officer
Enwin Utilities Ltd.
Email: bogg@enwin.com
Fax: 519-251-7316
Office: 519-251-7300 Ext. 220

From: "Liz Michaud" <lmichaud@landmarkengineers.ca>
To: <bogg@enwin.com>
Date: 11/11/2015 10:25 AM
Subject: Riverside Drive Pedestrian Underpass Environmental Assessment

Bruce,

The City of Windsor has retained us to investigate the potential for a pedestrian underpass along Riverside Drive. Attached are some images of the two possible site locations as well as a cross section through each site.

The information we received from 1call shows watermain running under the centre of Riverside drive at both locations. We do not have the current depth of the existing watermain but we have shown them about 5' below grade in the cross section.

Our initial plan would be to move the watermain up to the 1m space above the underpass and provide insulation as required. Would this be an acceptable solution? At this time we are not doing any detailed design but we would like to include all design criteria into the report for next steps. If this plan is not acceptable, I would appreciate your feedback and possible alternative solutions you may have.

If you have any questions please don't hesitate to call and discuss. Thank you in advance for your help with this matter.

Liz Michaud

Landmark Engineers Inc.

2280 Ambassador Drive

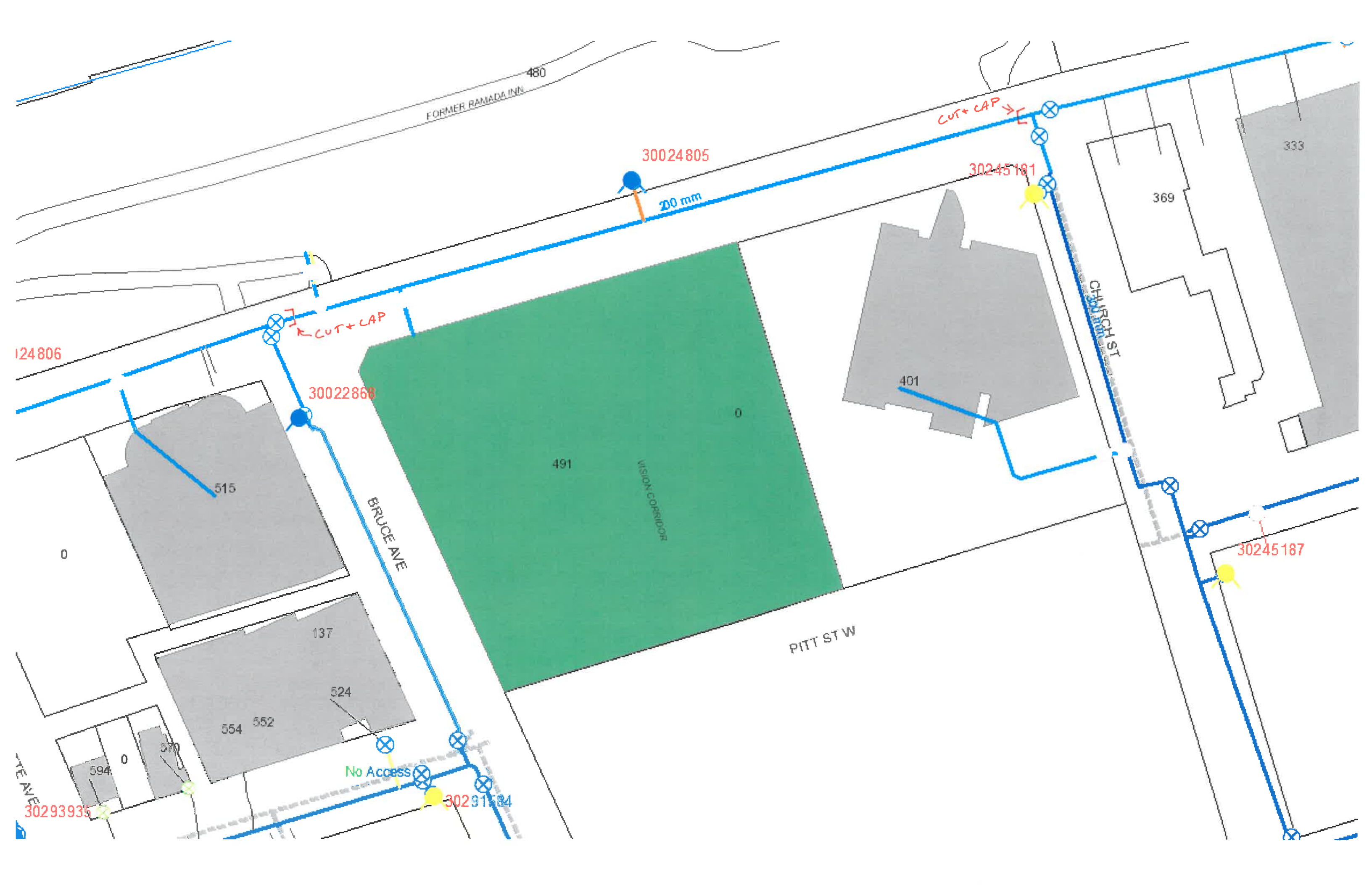
Windsor, ON, N9C 4E4

p (519) 972-8052

f (519) 972-8644

e-mail: lmichaud@landmarkengineers.ca

[attachment "15-022 Images for Enwin.pdf" deleted by Bruce J Ogg/EWU/Windsor]



FORMER RAMADA INN
480

30024805
20 mm

CUT + CAP →

30245181

369

333

CHURCH ST

124806

CUT + CAP ←

30022868

401

491

VISION CORRIDOR

BRUCE AVE

PITT ST W

137

524

554

552

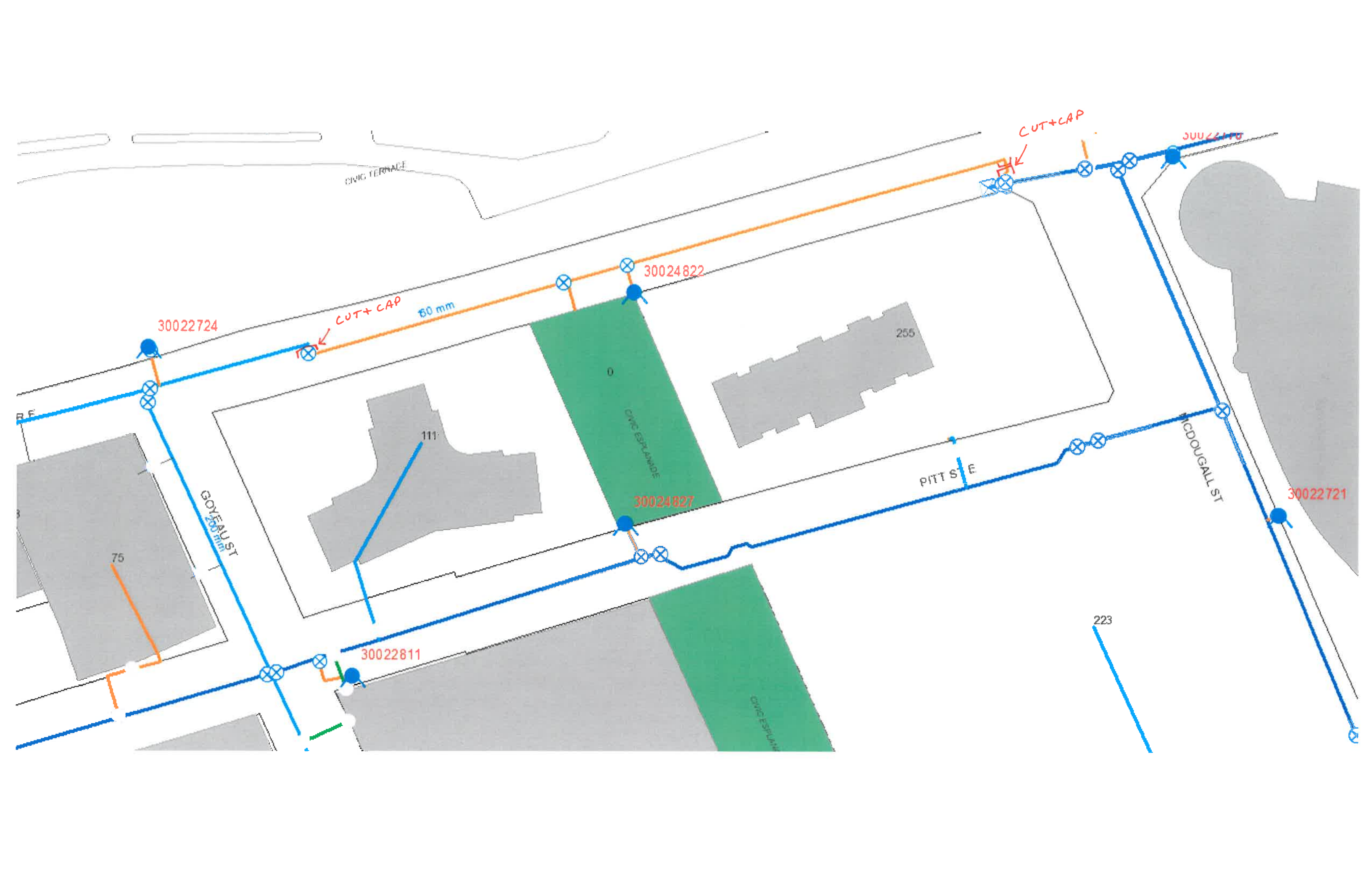
594

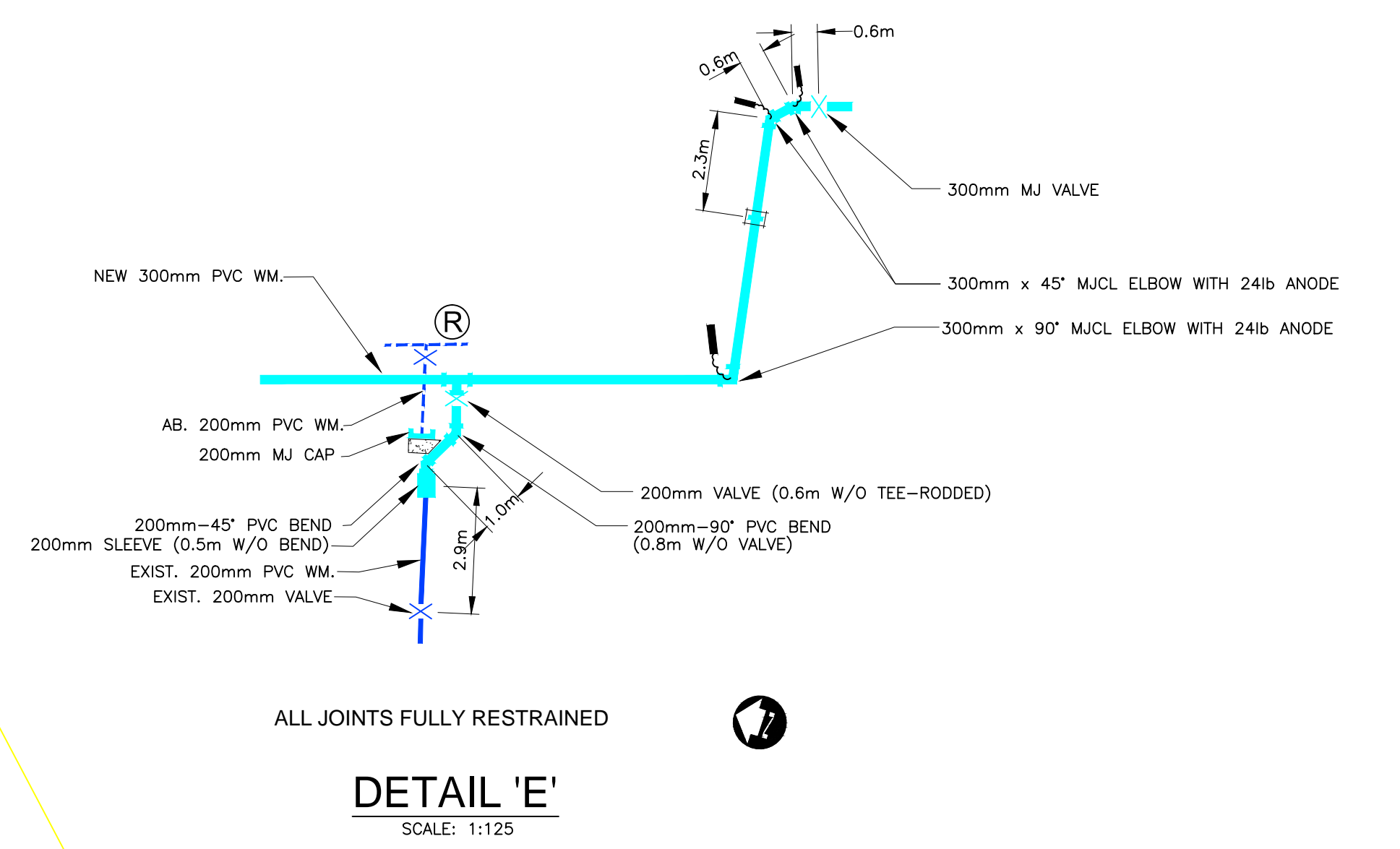
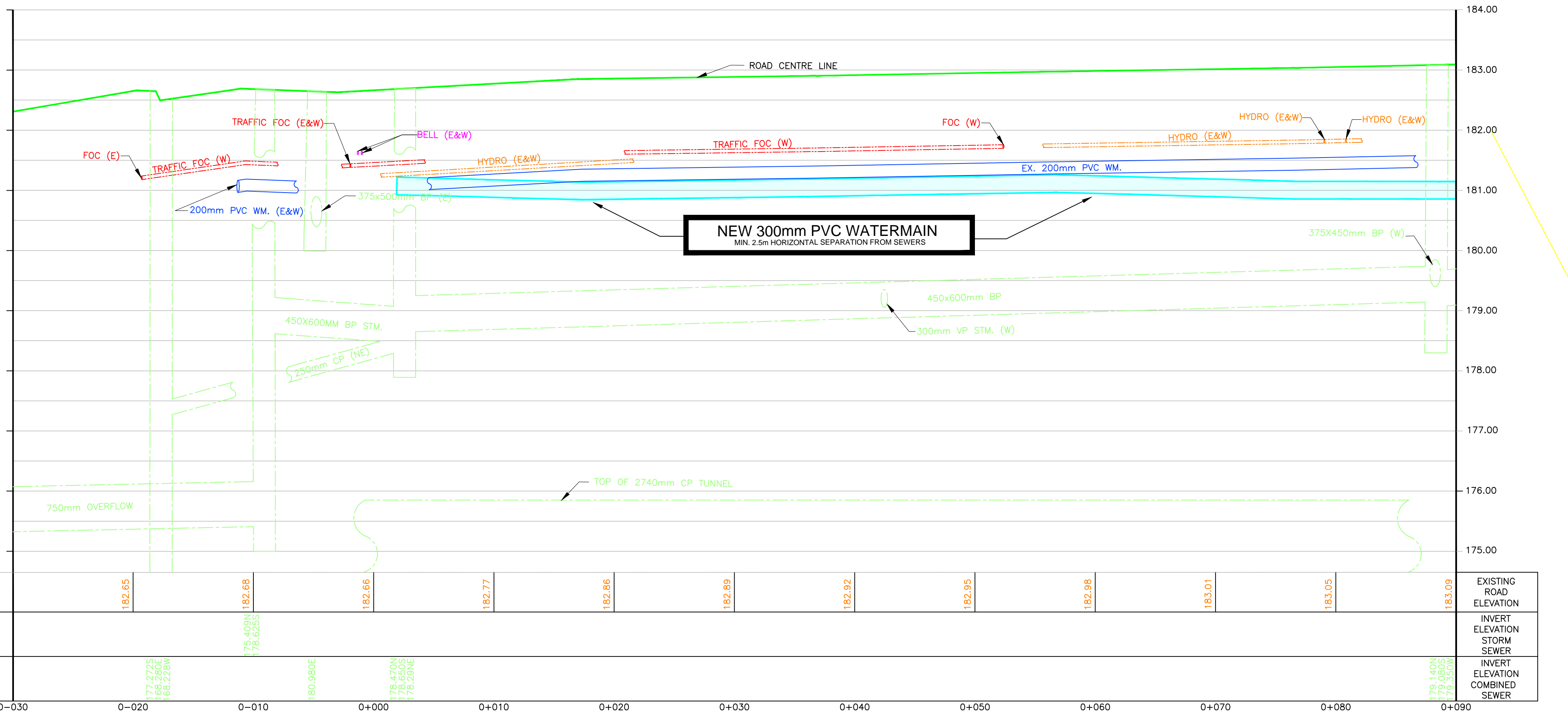
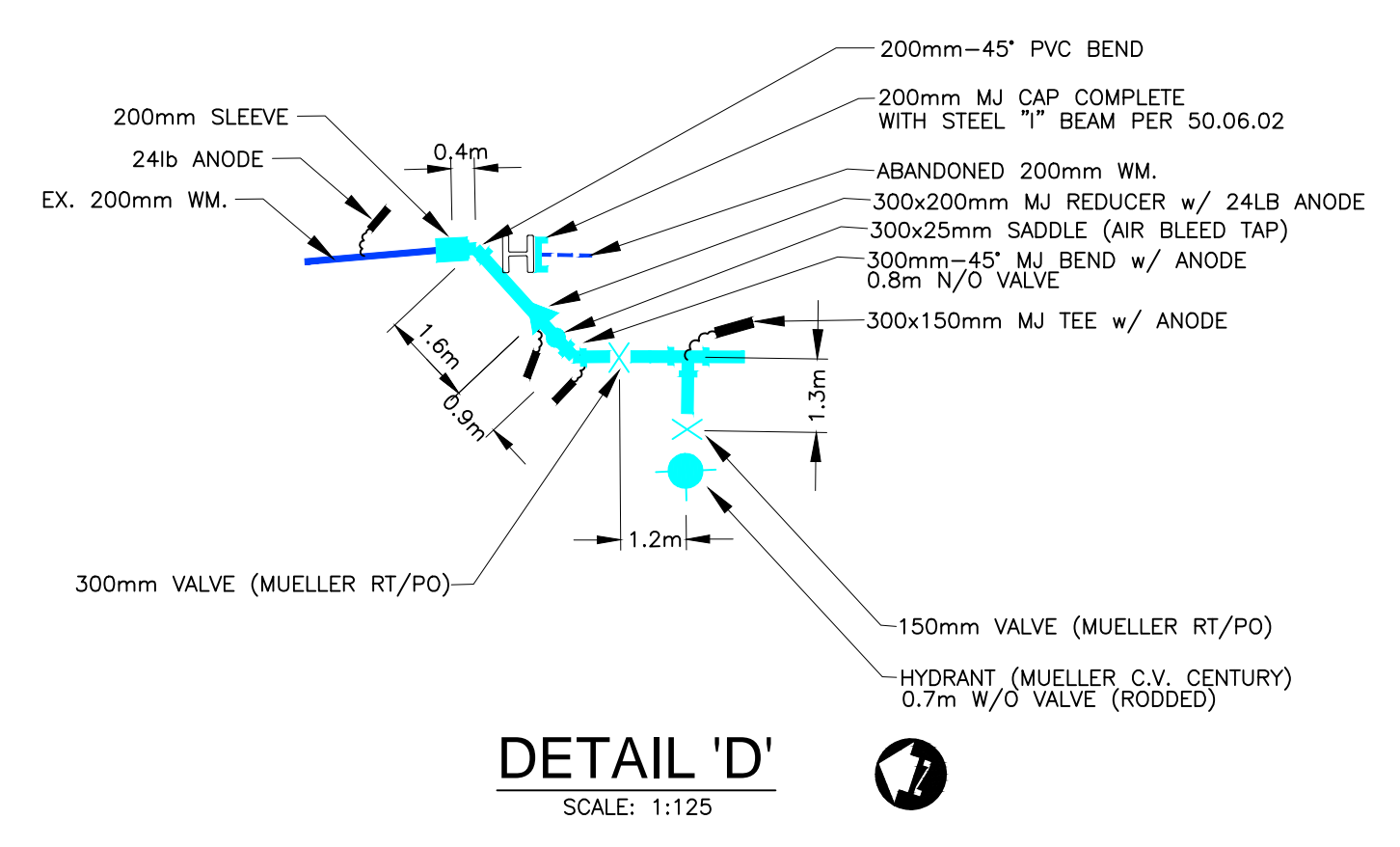
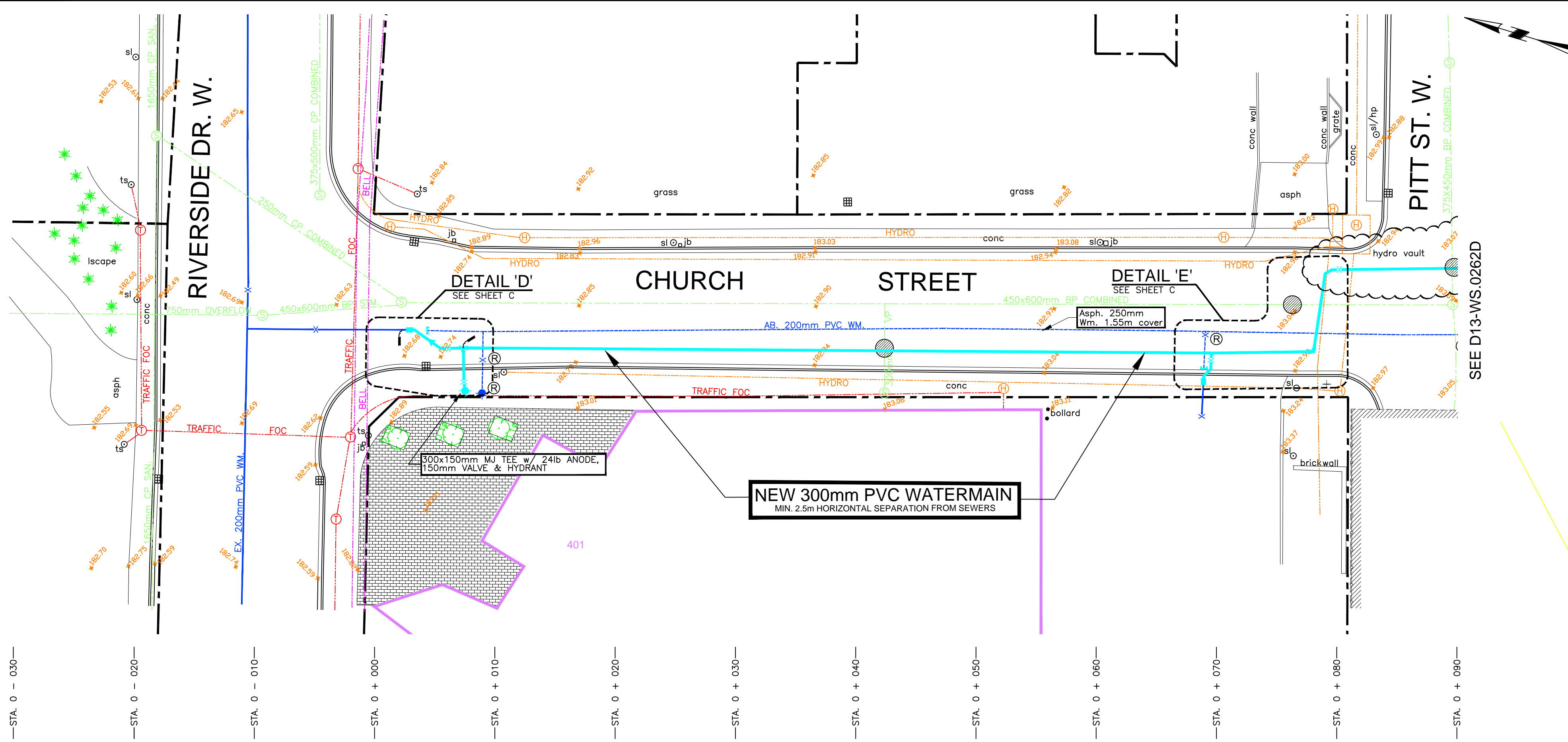
30293935

No Access

30291584

30245187





BORE
 ABANDONED WATERMAIN REMOVALS
 WATER VALVES SHUT, VALVE BOXES, AND HYDRANTS REMOVED.
 SEE TYPICAL SEWER CROSSING DETAIL

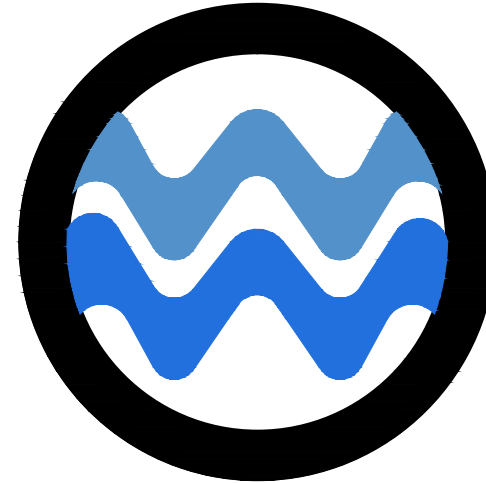
REVISIONS/ASBUILT	
NOTES	DATE
M.O.E. APPROVAL	
CORE SAMPLES	
No.	REVISION DESCRIPTION
	DATE
ASBUILT INFO. ADDED AS PER FIELD PRINTS	
AUG. 19.2014 / V.D.	

LEGEND			
PROPOSED WATERMAIN		GAS METER	
WATERMAIN/WATER VALVE		UNDERGROUND BELL/PEDESTAL	
HYDRANT		UNDERGROUND HYDRO	
WATER SERVICE VALVE		UNDERGROUND TRAFFIC SIGNALS	
WATERMAIN REDUCER		SEWER	
WATER METER PIT		CABLE T.V.	
GAS MAIN/GAS VALVE		MANHOLE	
PAVEMENT CORE SAMPLING PTS.		CATCH BASIN	
		PROPERTY LINE/IRON BAR	
		TRAFFIC SIGN	
		UTILITY POLE	
		GUY WIRE	
		TREE/BUSH	
		GRAVEL	
		SEWER CLEAN OUT	
		FENCE	



NOTE
BEFORE DIGGING CALL

W.U.C. WATER	255-2727 Option #3
BELL TELEPHONE LOCATES	1-888-233-8870
WINDSOR CABLE	972-6894
UNION GAS CO. ENGINEERING	250-2300
ENWIN UTILITIES (HYDRO)	255-2727 Option # 1
CITY OF WINDSOR TRAFFIC SIGNALS	255-6293
CITY OF WINDSOR PUBLIC WORKS	255-6257 ext 9399



WINDSOR UTILITIES COMMISSION
WATER ENGINEERING

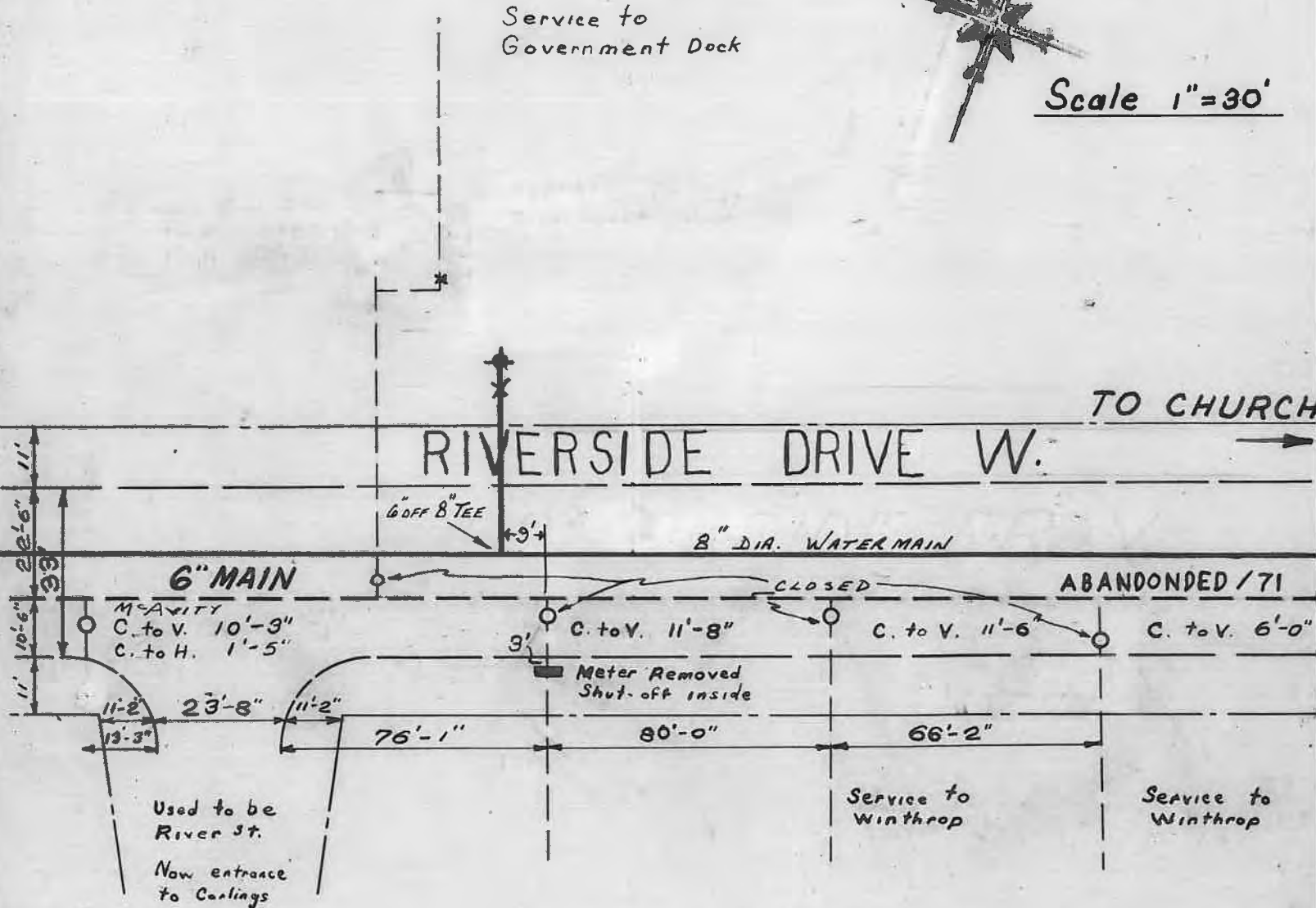
APPROVED FOR CONSTRUCTION

AS-BUILT			
300mm PVC WATERMAIN on CHURCH STREET from Riverside Dr. W. to Chatham St. W.			
DESIGN	JOHNSTON	DRAWN	RCSPECNER
CHECKED		CHECKED	
DATE	DEC. 18, 2012	WORK ORDER	23009381
SCALE	1:250 HOR. 1:50 VERT.	DRAWING No.	D13-WS.0262C

Service to
Government Dock



Scale 1"=30'



Used to be
River St.
Now entrance
to Coolings

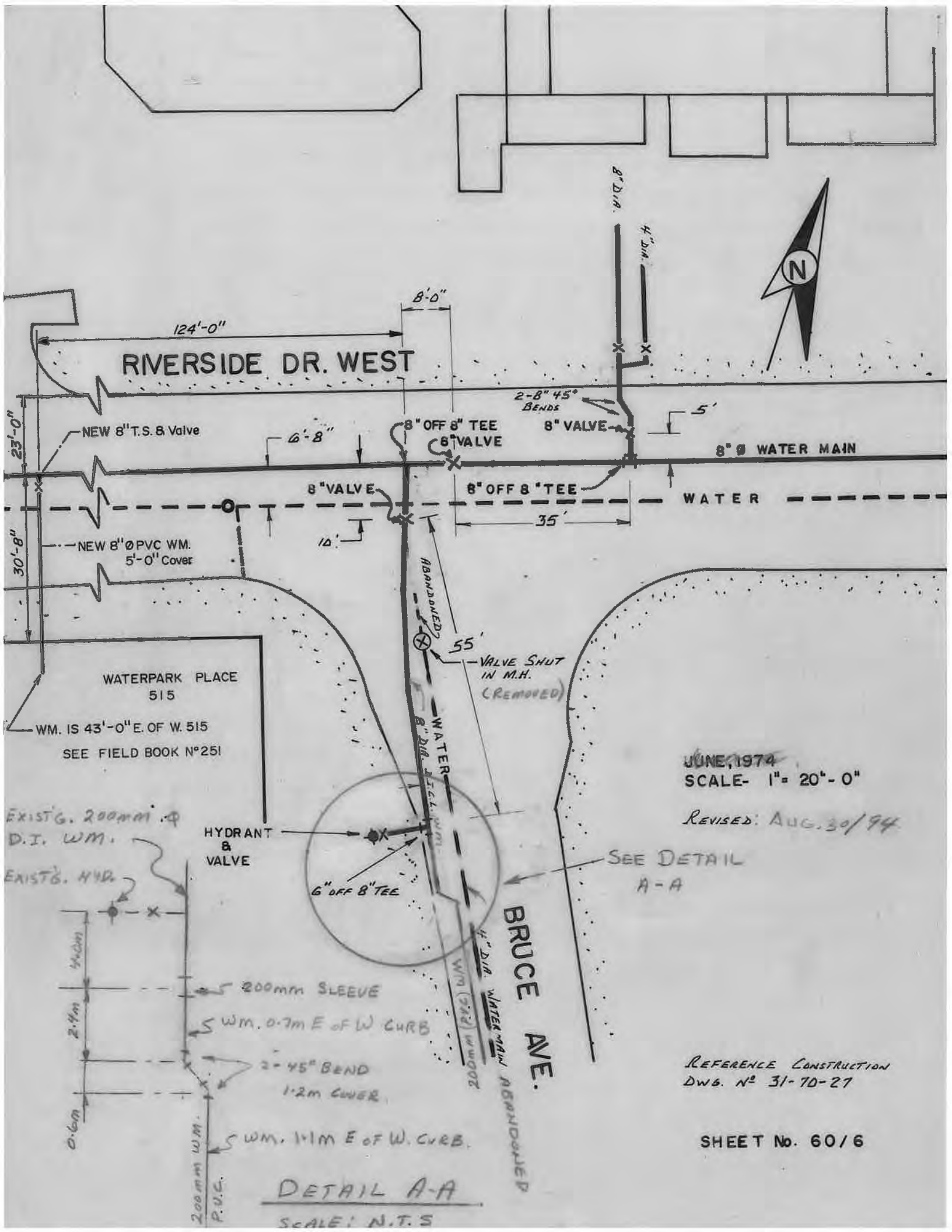
ALBERT GALLER

Revised

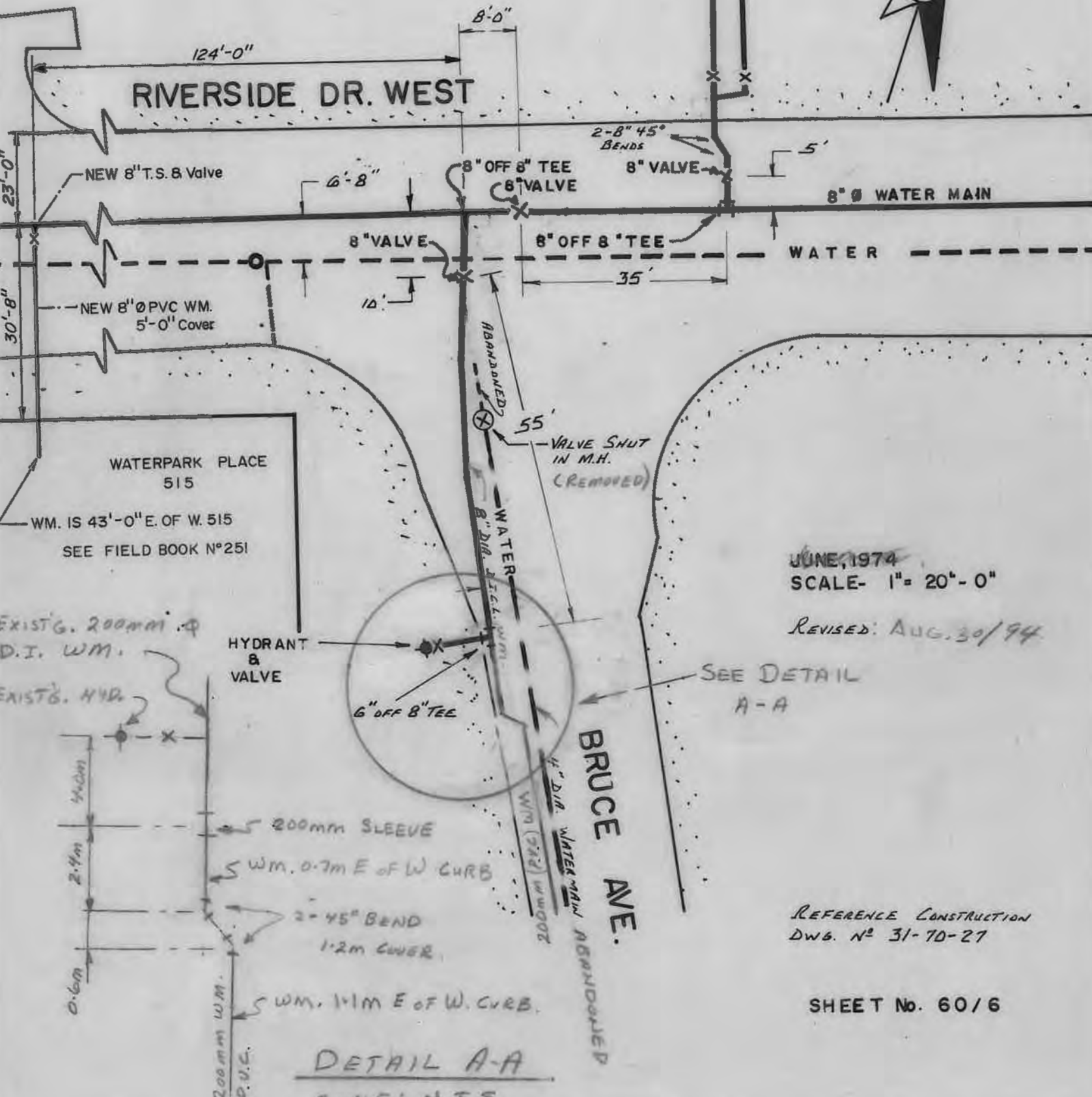
FEB. '68 *llb.*
JUNE /71 *B.C.*
81-10-29
1957

REFERENCE CONSTRUCTION
DWG. N^o 31-70-27

Sheet No. 60/5



RIVERSIDE DR. WEST



JUNE, 1974
SCALE- 1" = 20'-0"

REVISED: AUG. 30/94

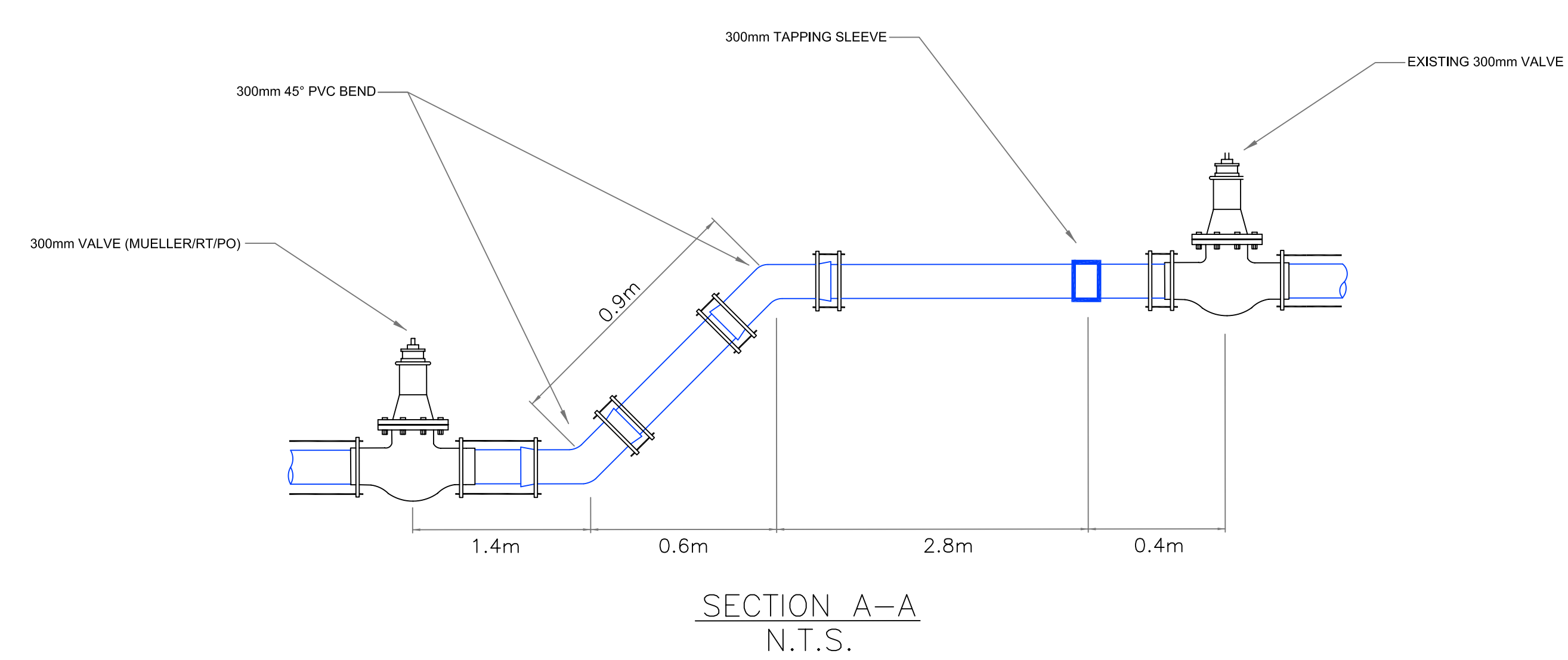
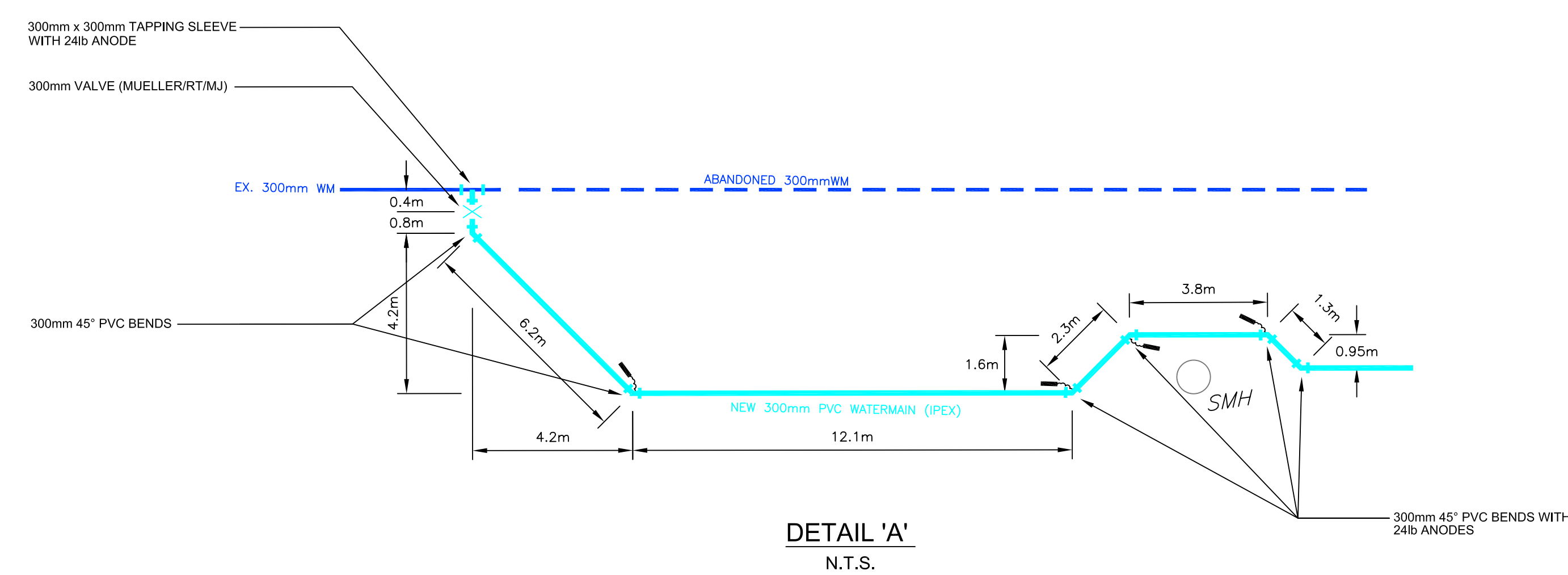
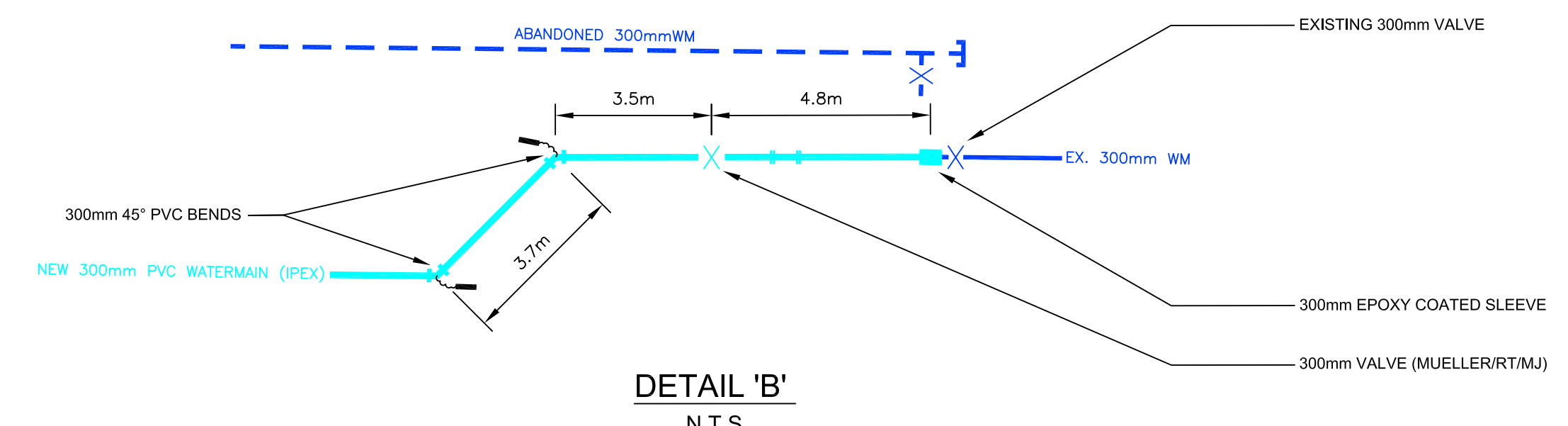
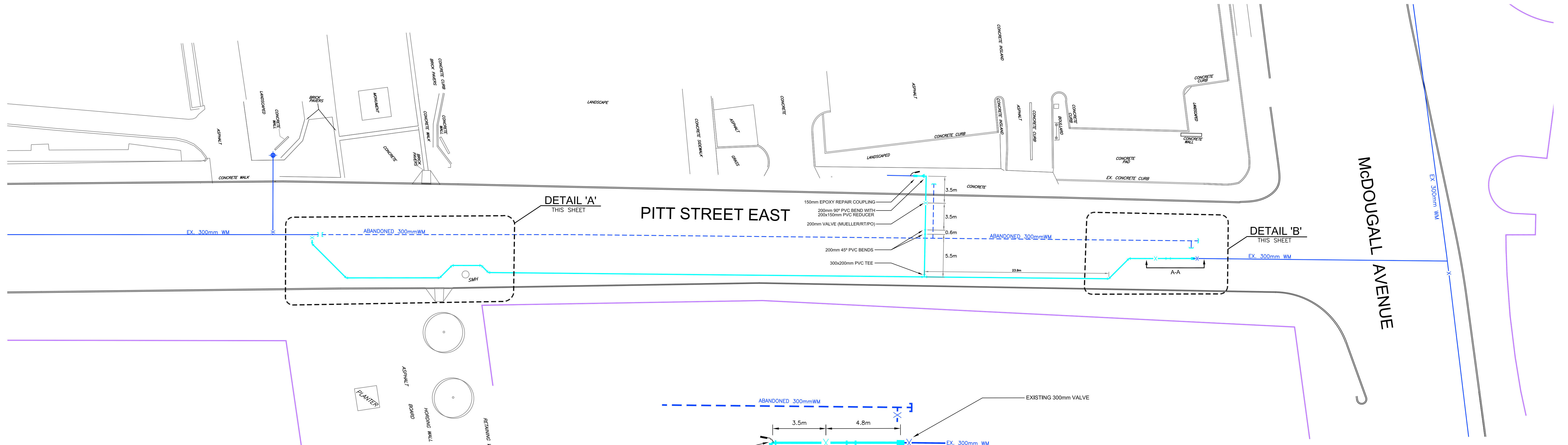
SEE DETAIL A-A

REFERENCE CONSTRUCTION DWG. N° 31-10-27

SHEET No. 60/6

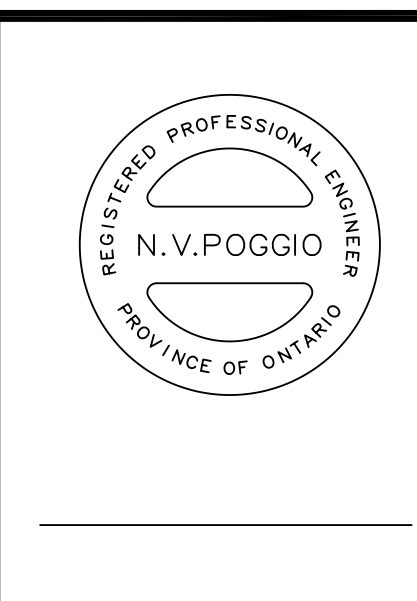
DETAIL A-A

SCALE: N.T.S

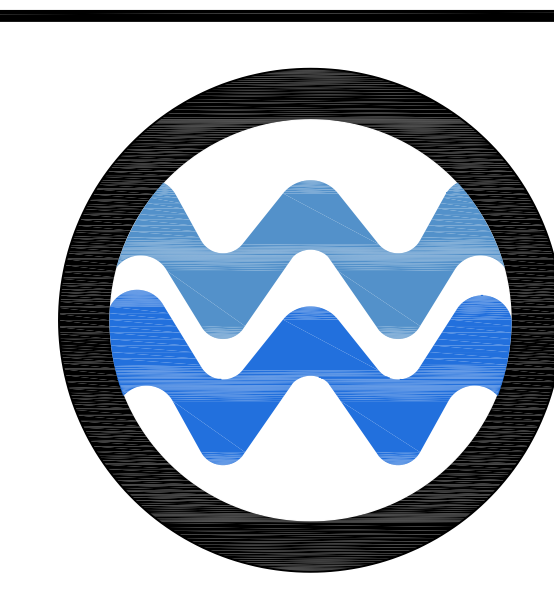


REVISIONS/ASBUILT	
NOTES	DATE
M.O.E. APPROVAL	
CORE SAMPLES	
No.	REVISION DESCRIPTION
	DATE
ASBUILT INFO. ADDED AS PER FIELD PRINTS	

LEGEND					
PROPOSED WATERMAIN		GAS METER		PROPERTY LINE/IRON BAR	
WATERMAIN/WATER VALVE		UNDERGROUND BELL/PEDESTAL		TRAFFIC SIGN	
HYDRANT		UNDERGROUND HYDRO		UTILITY POLE	
WATER SERVICE VALVE		UNDERGROUND TRAFFIC SIGNALS		GUY WIRE	
WATERMAIN REDUCER		SEWER		TREE/BUSH	
WATER METER PIT		CABLE T.V.		GRAVEL	
GAS MAIN/GAS VALVE		MANHOLE		SEWER CLEAN OUT	
PAVEMENT CORE SAMPLING PTS.		CATCH BASIN		FENCE	



NOTE	
BEFORE DIGGING CALL	
W.U.C. WATER	255-2727 Option #3
BELL TELEPHONE LOCATES	1-888-233-8870
WINDSOR CABLE	972-6894
UNION GAS CO. ENGINEERING	250-2300
ENWIN UTILITIES (HYDRO)	255-2727 Option # 1
CITY OF WINDSOR TRAFFIC SIGNALS	255-6293
CITY OF WINDSOR PUBLIC WORKS	255-6257 ext 6359

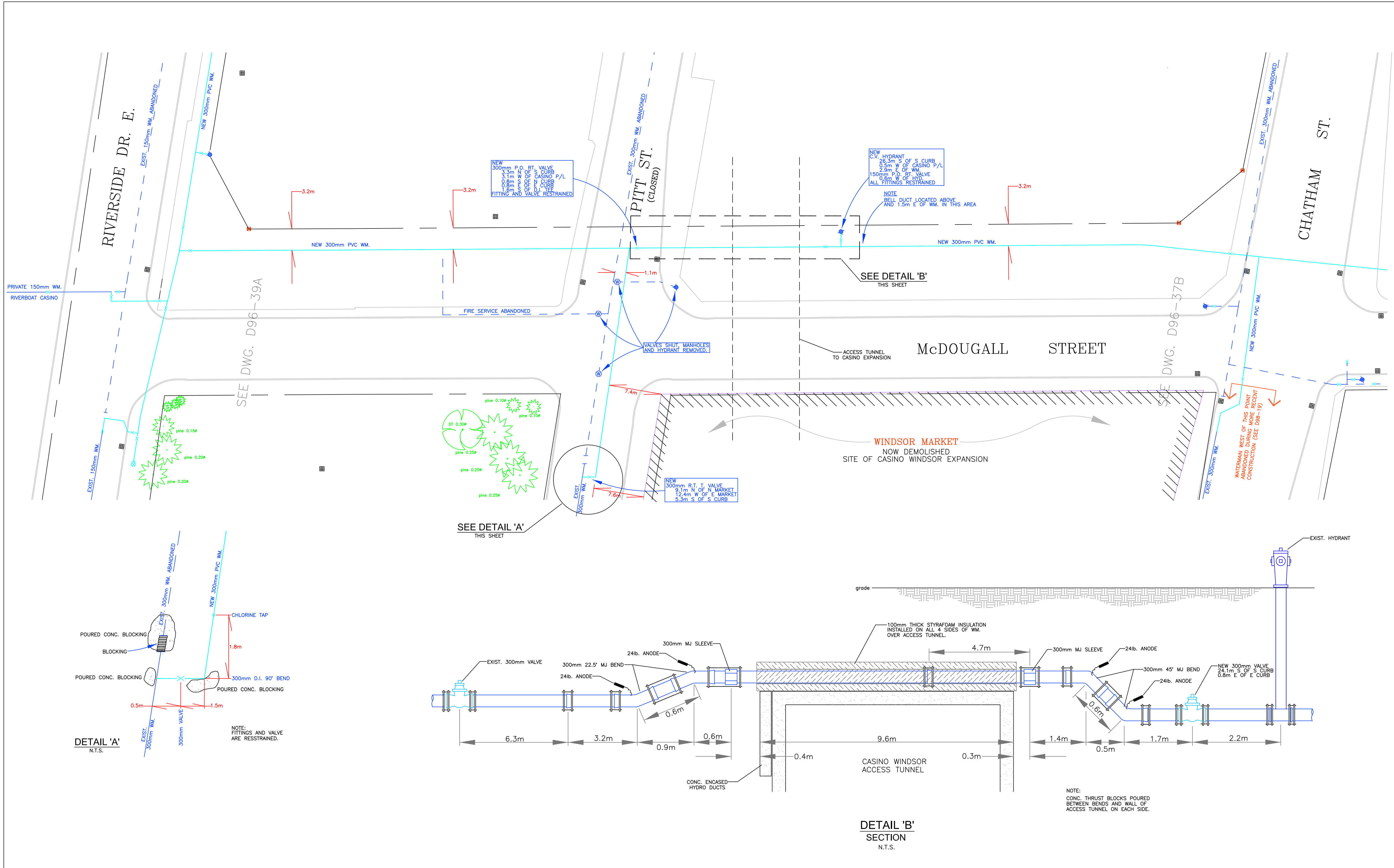


WINDSOR UTILITIES COMMISSION

WATER ENGINEERING

APPROVED FOR CONSTRUCTION _____

AS BUILT			
300mm PVC WATERMAIN on PITT STREET EAST from McDUGALL AVE. to WINDSOR AVE R.O.W.			
DESIGN CHECKED	DRAWN	ML	SCALE
DATE	FIELD BOOK	WORK ORDER	DRAWING No.
DEC 14/2010	544 502	23000337	D07-WN.0109



CONTROLLING BENCHMARKS

BM ELEVATION : 183.77
 TOP NUT OF FIRE HYDRANT ON S.W. CORNER
 OF CHATHAM STREET EAST AND McDOUGALL STREET

BM ELEVATION : 182.898
 TOP NUT OF FIRE HYDRANT ON SOUTH SIDE OF
 UNIVERSITY AVENUE, APPROXIMATELY 170m EAST
 OF McDOUGALL AVENUE.

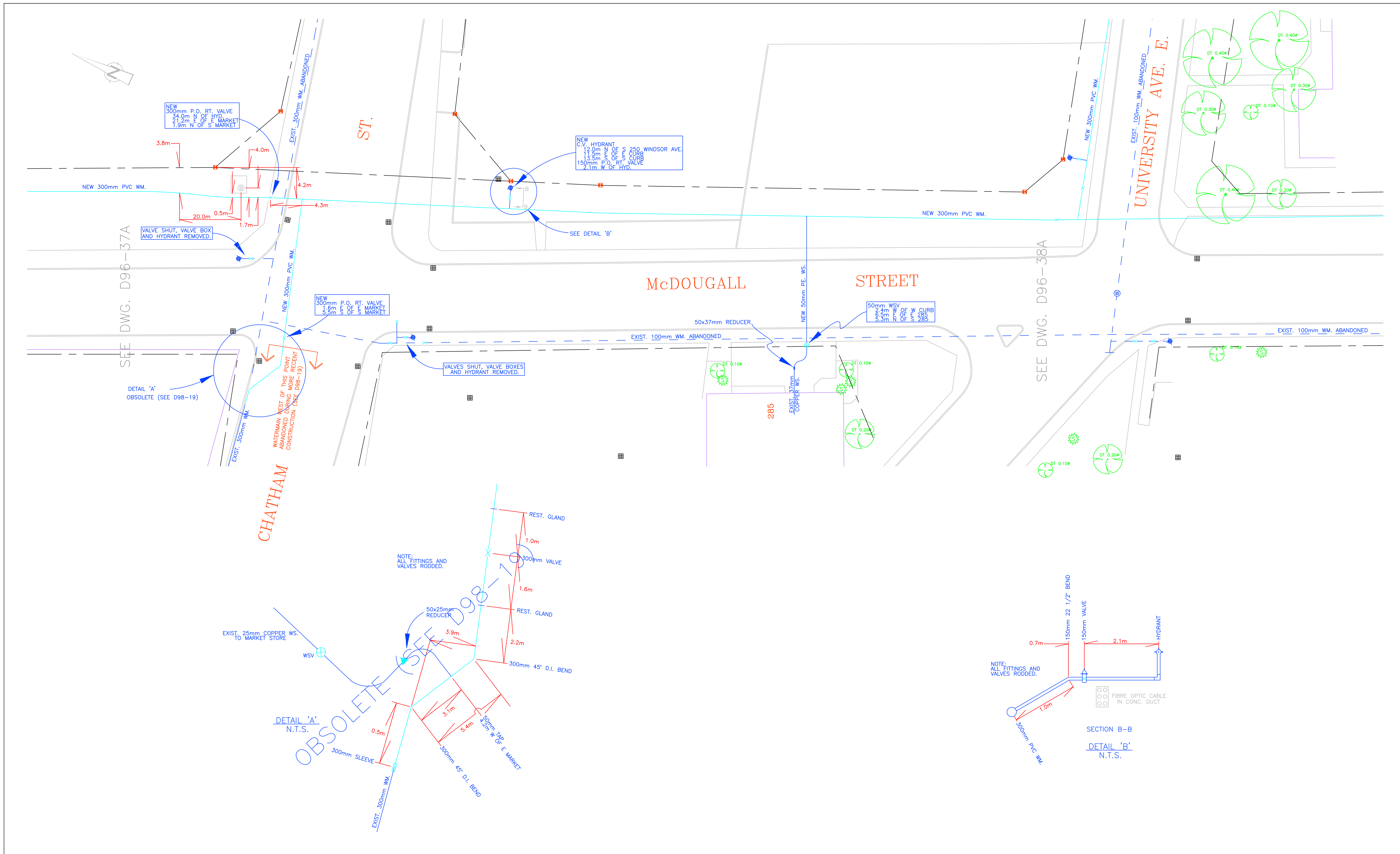
THE LOCATION OF POLE LINES, CONDUITS, WATERMANS,
 SEWERS, OTHER UNDERGROUND AND ABOVEGROUND
 UTILITIES AND STRUCTURES IS NOT NECESSARILY
 SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE
 SHOWN, THE ACCURACY OF THE POSITION OF SUCH
 UTILITIES AND STRUCTURES IS NOT GUARANTEED.
 THE CONTRACTOR SHALL TAKE WHATEVER STEPS NECESSARY
 TO INFORM HIMSELF OF THE EXACT LOCATION OF ALL
 SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME
 ALL LIABILITY FOR DAMAGE TO THEM.

№	Revision	Date	Initial
2	VALVE INSTALLATION-WM. DEFLECTION OVER CASINO ACCESS TUNNEL. FILED BOOK 496.	SEPT. 4/06	☒
1	AS BUILT INFO. ADDED AS PER FIELD PRINTS	JULY 30/96	☒
	W.U.C. FIELD BOOK No. 347		

AS BUILT
 300mm PVC WM.
 on
 McDOUGALL AVENUE
 from
 RIVERSIDE DR.
 to
 CHATHAM ST.

Hewitson Engineering Limited
 47 Bridgeway Road East Waterloo Ontario
 Tel. (519) 725-9369 Fax (519) 725-0575

Drawn by:	K.M.	Scale:	1 : 250	Date:	JANUARY 1996	File No./Rev.No.:	
Designed by:	R.C.L.	Field book:		Contract No.:		Drawing No.:	D96-37A
Checked by:	P.H.						



CONTROLLING BENCHMARKS

BM ELEVATION : 183.77

TOP NUT OF FIRE HYDRANT ON S.W. CORNER OF CHATHAM STREET EAST AND McDOUGALL STREET

BM ELEVATION : 182.898

TOP NUT OF FIRE HYDRANT ON SOUTH SIDE OF UNIVERSITY AVENUE, APPROXIMATELY 170m EAST OF McDOUGALL AVENUE.

THE LOCATION OF POLE LINES, CONDUITS, WATERMANS, SEWERS, OTHER UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. THE CONTRACTOR SHALL TAKE WHATEVER STEPS NECESSARY TO INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

W.U.C. FIELD BOOK No. 347			
1 AS BUILT INFO. ADDED AS PER FIELD PRINTS	JULY 19/96		
Revision	Date	Initial	

AS BUILT
300mm PVC WM.
 on
McDOUGALL STREET
 CHATHAM ST.
 to
UNIVERSITY AVE. E.

Hewitson Engineering Limited
 47 Bridgeport Road East Waterloo Ontario
 Tel. (519) 725-9369 Fax (519) 725-0575

Drawn by: K.M.	Scale: 1 : 250	Date: DECEMBER 1995	File No./Rev.No.
Designed by: R.C.L.	Field book:	Contract No.	Drawing No.
Checked by: P.H.			D96-37B

SERVICE TO
RIVERBOAT CASINO

SCALE: 1"=30'

150MM VALVE
6.5M E OF E CURB
2.4M N OF N CURB

150MM PVC W.M.
PRIVATE

RIVERSIDE DR. E.

No Sidewalk

6" Main

150MM VALVE
6.5M E OF E CURB
4.2M N OF S CURB

Large Mich. St.

Curb to Sidewalk - Solid

REVISED
FEB. 168 1966.

1956

SEE 096-39A

31
20

SHEET No. 49/23

M^{rs} DOUGALL

24'

37'-11"

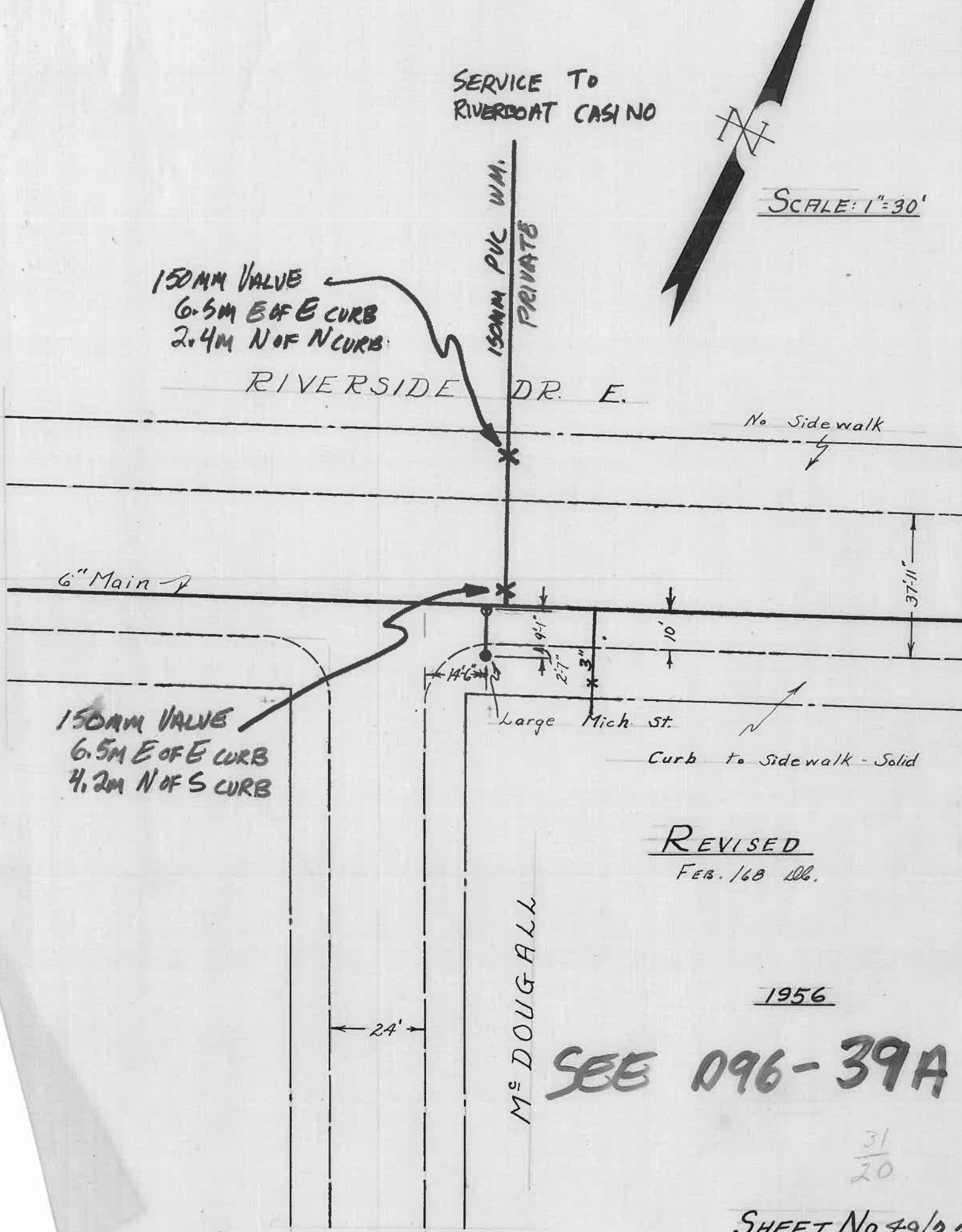
10'

3"

2'-7"

9'-1"

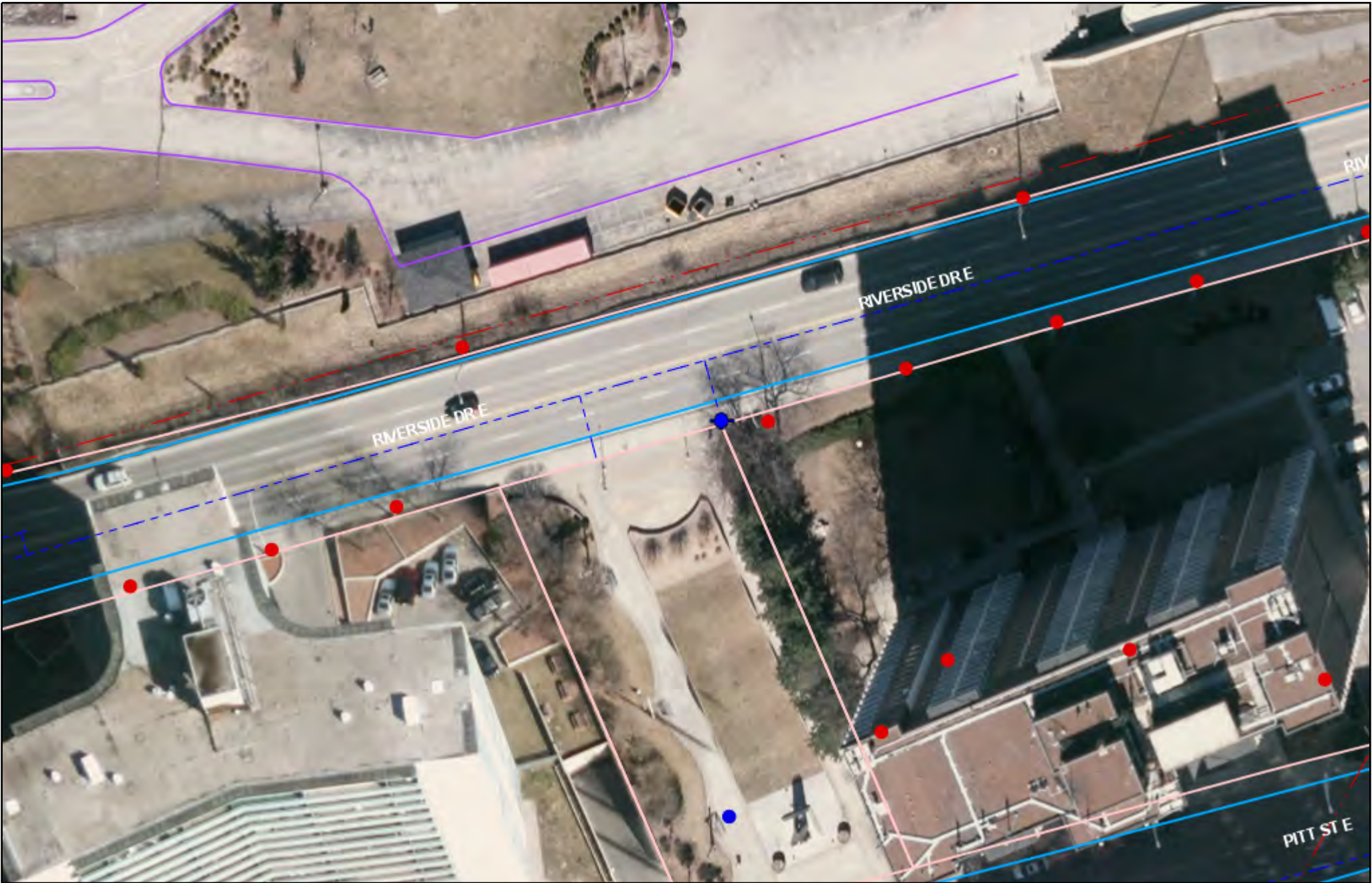
14'-6"





Scale 1: 600





Scale 1: 600



4.0 Preferred Solution and Cost Estimate

For ease of reference, this section of the Project File provides a summary of the Preferred Solution that was presented in Slides 24 through 32 at Public Drop-In Centre No. 2 (refer to Section 2 of this Project File). Further details regarding the development of the Cost Estimate are also presented herein.

4.1 Preferred Locations

There are two locations that have been chosen as the potential locations for a pedestrian underpass. One location is in front of the Aquatic Centre (between Church Street and Bruce Street at Riverside Drive). The other location is near the Civic Esplanade Site (between Goyeau Street and McDougall Street at Riverside Drive). Refer to Section 2 of this Project File (Slides 10-13), for the evaluation and rationale behind the selection of the potential locations.

4.2 Preferred Solution

The ultimate final design of the underpasses and plaza areas is not required to be finalized as part of this Schedule B Environmental Assessment (EA). As part of the EA process, a preferred design was developed to define the set of parameters that should be adhered to during detailed design. The parameters are based on site constraints, environmental considerations and feedback from the public and other stakeholders. The final design of the underpass and plaza areas would be part of a detailed design process, which can commence upon completion of this EA process.

Below is a summary of the Preliminary Design Considerations presented at the second public drop-in center. A copy of the slides illustrating the Preliminary Design Considerations is included in this section of the Project File for ease of reference.

Underpass Structure Dimensions:

- 26 metre minimum length (Aquatic Centre Site)
- 25 metre minimum length (Civic Esplanade Site)
- 3 metre interior height / rise (minimum)
- 8 metre to 12 metre wide clear span
- 0.8 metre minimum cover above the structure
- Headwall heights as needed to meet existing grade
- Wingwall dimensions: to be determined during detailed design

Note: The underpass structure length at both potential locations is based on accommodating the approved Riverside Drive cross section as illustrated in the Vista Improvements EA. Should the approved cross section of Riverside Drive be superseded with an updated EA, the underpass structure length should be extended or reduced to accommodate the new approved cross section.

South Plaza Elements:

- Accessible ramps
- Seating areas and/or seatwalls

- Railings
- Lighting for security and ambiance
- Landscaping
- Site drainage

North Plaza Elements:

- Site elements and landscaping as needed to integrate with Riverfront Park

These recommendations should be considered as *minimum* design criteria for the future detailed design process. The final design of the underpass and south plaza should include all of the criteria listed above (at a minimum). They are not intended to restrict the design from including more elements or a larger underpass structure (if desired).

The following considerations and recommendations should also be accounted for during the detailed design process:

Maintenance Considerations:

- Consider snow removal during final design
- Anti-graffiti coating on the walls within the underpass
- Select durable materials

Material Recommendations:

- Pre-cast concrete structure (based on time of construction considerations)
- Concrete and Redi-Rock retaining walls
- Coloured concrete and exposed aggregate pavement

Safety Considerations:

- LED Lighting through the underpass and plaza areas
- Surveillance cameras
- Maintain clear site lines through the underpass

The following list contains additional features that could be included in the final design (if warranted), but are not considered mandatory elements needed to meet the essential project objectives:

Possible Site Features / Enhancements:

- Skylights
- Water features
- Bicycle channels
- Art and Sculpture

To illustrate how the preferred solution could be translated to each of the site locations, some sketches and images of preliminary designs have been included in this section of the Project File. The sketches and images were presented at the second drop-in centre as part of the preliminary design considerations and should not be regarded as final designs for either site location. Rather, the images are intended to illustrate the scale of the space as well as the general number of stairs and ramps

required to accommodate a 3.5 metre change in elevation between the underpass floor and the surrounding ground level.

It is important to note that the preliminary design concepts shown at the Aquatic Centre Site have been confined to the City-owned parcel of land between the Art Gallery property to the east and the privately owned property to the west. Because the City also owns the Art Gallery property, there is potential to expand the limits of the south plaza onto the Art Gallery property as well. This opportunity should be further considered during detailed design.

At the Civic Esplanade location, the site is constrained by the roadways to the north and south, and by the apartment buildings to the east and west. There is currently a monument to the Underground Railroad located on the south side of the site, adjacent to Pitt Street. The preliminary design concepts shown have maintained the monument in its current location. The potential advantages (or disadvantages) of relocating the monument could be assessed as part of the detailed design process.

The feedback received at the second public drop-in centre indicated that the Aquatic Centre site would be the preferred location if one of the sites was to be developed first. This could be due to the fact that the open-house was held at the Aquatic Centre and that the majority of the individuals who responded to the on-hand questionnaire either frequent the Aquatic Centre or reside nearby. Although a 60% majority had chosen the Aquatic Centre site as the preferred location, this is only based on 10 questionnaires submitted.

Having due regard for the number of events and activities that draw large numbers of visitors to the Festival Plaza site each year, it is felt by the Project Team that there are greater warrants for construction of a grade separated crossing at Riverside Drive near this site at the present time for the following reasons:

1. Due to the nature of use of Festival Plaza, a large number of visitors arrive and depart the site in a relatively short timeframe. The volume of pedestrian traffic increases the potential of a conflict between pedestrians and motorists, as well as the inconvenience posed to each party.
2. There is a current initiative by the City Parks Department to completely build-out Festival Plaza, in order to demonstrate to park users the ultimate vision for the Windsor Waterfront. Construction of the underpass would complement the overall function of the site.

Notwithstanding, this EA provides the City of Windsor opportunity to construct one or more of the two recommended underpasses in whatever order they see fit. The final decision should be based on:

- Availability of capital funding.
- Consideration of other developments that have occurred or are occurring in the area.

4.3 Cost Estimate

At Public Drop-In Centre No. 2, the following preliminary cost estimates were presented for the construction of each underpass:

Preliminary Cost Estimate for the Underpass Structure: \$1.5 Million

Preliminary Cost Estimate for the South Plaza: \$1.0 Million

As indicated on the slides from the Drop-In Centre presentation, the above estimates applies to the construction of an 8 to 12 metre wide, 3-metre high (clear interior height) structure - complete with precast headwalls, road restoration, ramps, retaining walls, landscaping and lighting of the structure interior and South Plaza (as needed) to meet the minimum functional requirements presented in this EA.

Since the completion of Public Drop-In Centre No. 2 and the compilation of the feedback that we received from attendees and stakeholders, we have reviewed and revised the above cost estimates. It was noted that additional contingency allowances should be included to account for:

- maximizing the width of the structure to 12 metres;
- possible unforeseen utility relocations; and,
- encountering chemically impacted soil conditions during excavation for the structure or South Plaza.

We therefore recommend that the following cost estimates be used for preliminary budgeting purposes. It should be noted that these numbers do not account for the construction of a substantial plaza on the north side of either underpass. An allowance has been made for provision of a basic transition from the underpass to the existing features within the Riverfront Park. Any new plaza features on the north side of the underpass would have to be properly integrated into the Riverfront Park Master Plan and should be budgeted separately as part of the ongoing Riverfront Park redevelopment works.

Revised Cost Estimate Breakdown:

a) For each underpass structure:

• Excavation & Soil Disposal:	\$ 250,000
• Underpass structure (including headwalls & backfill):	\$ 1,200,000
• Pavement restoration & flatwork (including granular base):	\$ 150,000
• Drainage, Utility Work & Lighting:	<u>\$ 200,000</u>
Total =	\$ 1,800,000

b) For the development of the South Plaza at each underpass:

• Excavation & Soil Disposal:	\$ 400,000
• Retaining Walls:	\$ 400,000
• Ramps, Flatwork & Stairs (including granular base):	\$ 200,000
• Railings:	\$ 100,000
• Landscaping & Lighting:	<u>\$ 100,000</u>
Total =	\$ 1,200,000

In reviewing the above, it should be noted that the preliminary cost estimates presented herein represent the scope of work required to meet the basic requirements of an underpass as described in this EA. It represents what we regard to be a fiscally responsible project scale and scope.

That said, this EA does not prohibit the City from expanding the scale and scope of the underpasses from the minimum design standards presented herein.

Based on the comments received during the EA process, a significant percentage of the responding public feel that if the underpasses are constructed, the scale and scope of the features should not be minimized. Rather, a significant portion of respondents felt that the final design should be grander and more elaborate than the modest design upon which the cost estimate was based.

Therefore, should the City of Windsor elect to expand the scale of the underpasses to incorporate additional features or to construct the structures on a grander scale than proposed herein, the above figures should be reviewed and revised accordingly. The final project budget should be developed with this in mind, prior to proceeding with final design.

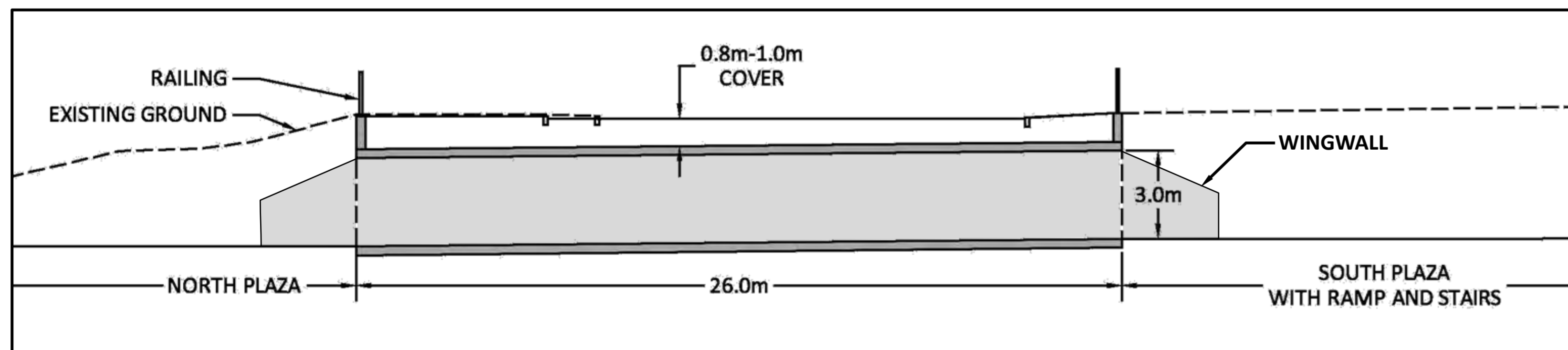
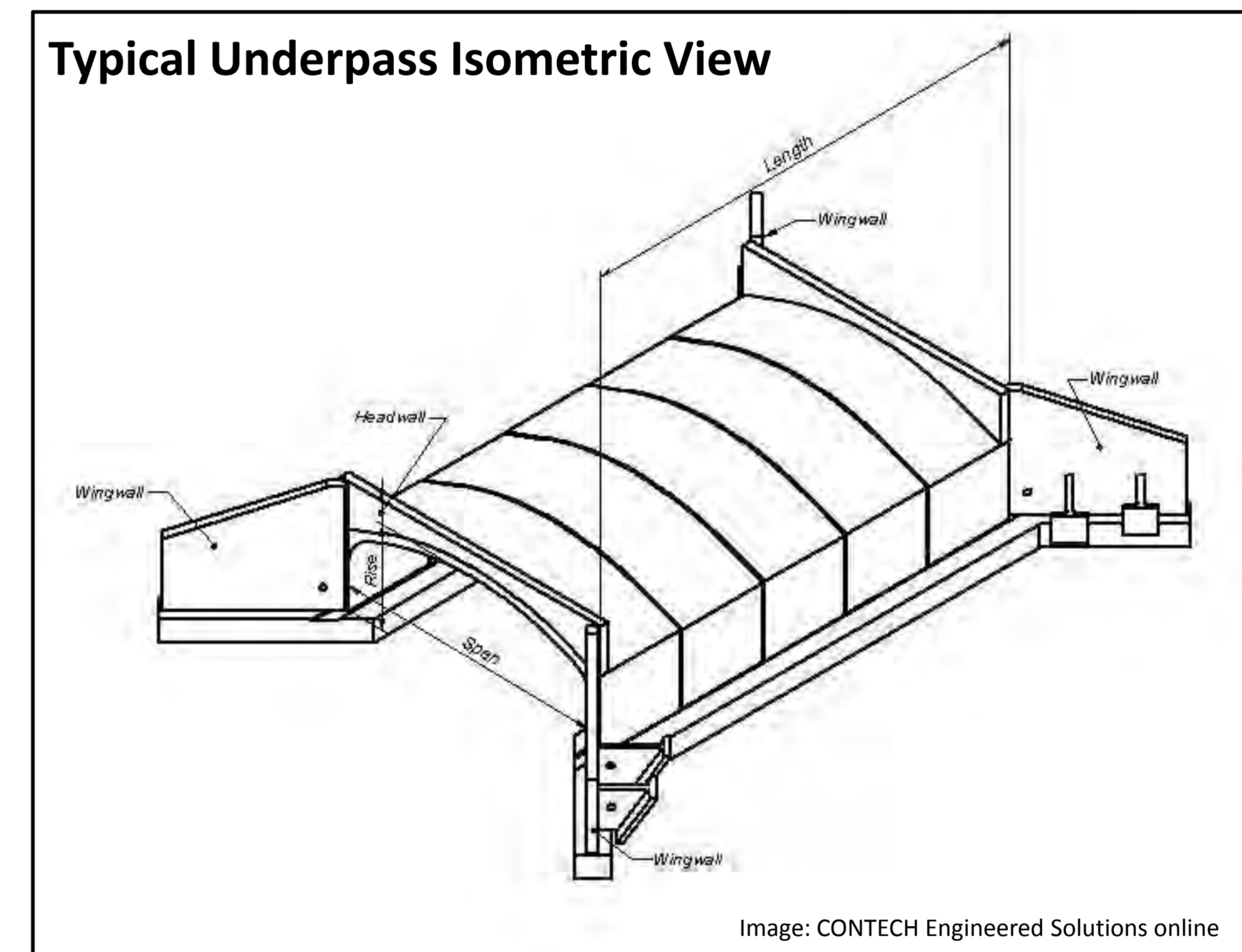
Underpass Dimensions

How big (long, wide) would the underpass be?

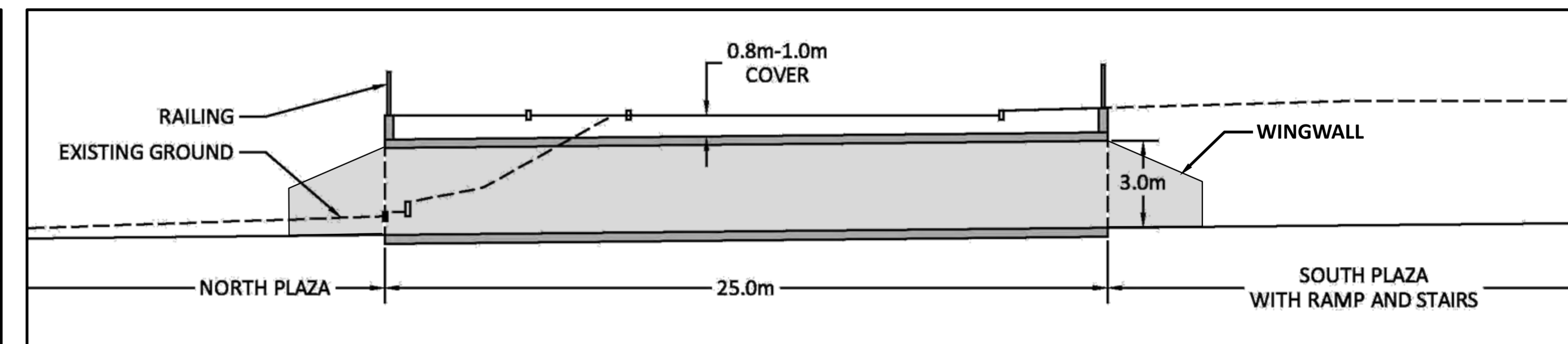
The following cross sections are taken through the centre of the proposed underpass structures at each site. The cross sections take into consideration the future widening of Riverside Drive (to 16.2m) and the addition of a Pedestrian Promenade (4.6m) on the north side of Riverside Drive as previously approved in the Riverside Drive Vista Improvements Project. Based on these cross sections, the minimum required underpass length was determined to be approximately **26 metres at the Aquatic Centre site** and **25 metres at the Civic Esplanade site**.

Preliminary Design Parameters:

- 26 metre minimum length (Aquatic Centre Site)
- 25 metre minimum length (Civic Esplanade Site)
- 3 metre interior rise (minimum)
- 8 metre to 12 metre wide span
- 0.8 metre minimum cover above the structure
- Headwall heights as needed to meet existing grade
- Wingwall dimensions: to be determined during detailed design stages



Aquatic Centre Site (Cross Section through Riverside Drive - looking east)



Civic Esplanade Site (Cross Section through Riverside Drive - looking east)

Underpass Structure Options

How would the underpass be built?

Precast or Cast-In-Place Concrete Structure



Opportunities:

- Precast pieces can be manufactured off-site and quickly installed, which would reduce the duration of construction and associated road closures.
- Concrete finish is aesthetically pleasing and can be enhanced easily and efficiently.
- Many cross section variations are available.
- Concrete structures generally have better durability / longevity than steel structures.

Constraints:

- Concrete structure options are typically more expensive than steel structures.
- Cast-In-Place option would require longer construction time.

Pre-Fabricated Steel Structure



Opportunities:

- Typically less expensive than concrete options.
- Pre-Fabricated pieces can be quickly installed which would reduce the duration of construction and associated road closures.

Constraints:

- The corrugated steel finish would require more enhancement (cladding, etc.) to improve aesthetics, which would add cost.
- Steel structures of the scale that is required are not available in many cross section shapes.

Recommendation:

We recommend the Precast concrete option. This option provides the best balance of function, aesthetics, short construction time and cost.

Safety and Site Security

How would safety and security issues be addressed?

Windsor Police Services supports the construction of a functional pedestrian tunnel (underpass) in the downtown area to safely connect pedestrians to/from the riverfront and lands to the south of Riverside Drive.

Summary of Police Services comments regarding design and safety:

- Commercial grade anti-graffiti clear resin is recommended for the side walls of the underpass to aid in clean up if vandalism occurs.
- Maximization of natural surveillance is key. This can be accomplished by limiting the enclosed length and flaring the approaches on each side.
- The largest single design element that will influence safety is lighting. LED lighting is preferred because it produces a cleaner, brighter luminosity that enhances visibility. The combination of street lighting and pedestrian lighting should be examined carefully.
- Seating, planters, and bicycle parking rings in the vicinity will increase positive activity which allows the space to retain safe usage over longer periods of the day – and deters the unlawful users.

Provide lighting to create inviting spaces

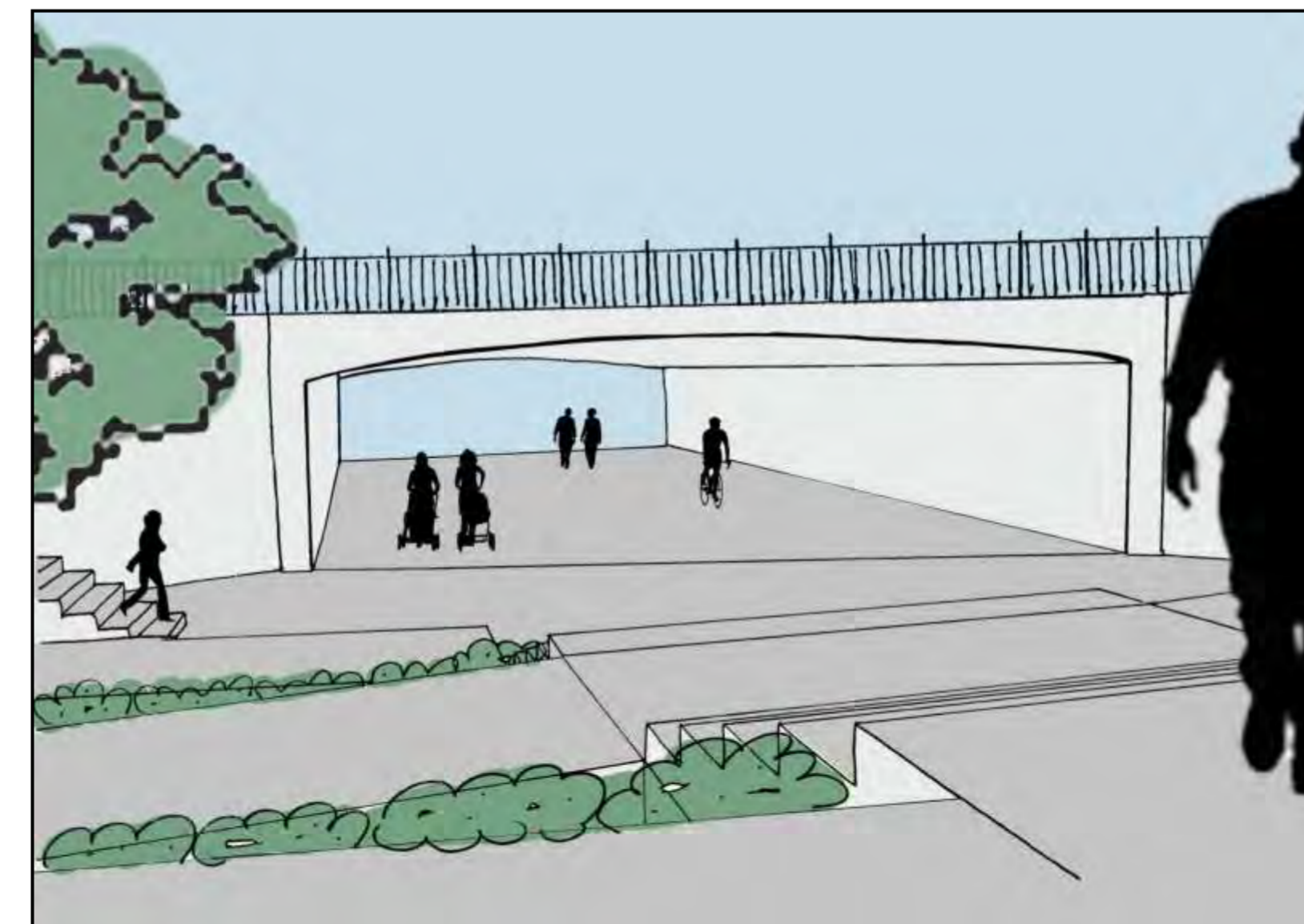


Create a space that promotes lawful use



Example: Seating, flared openings and natural surveillance (gradual stairs, proper lighting and small scale landscaping elements)

Clear sight lines through the underpass



Surveillance



How could the underpass and plaza areas be illuminated?

Underpass Lighting

The underpass should be lit to the same level as the plaza areas on either side. The lighting should be bright enough to maintain sight lines through the underpass at all times of the day. The lighting can be incorporated into the walls and ceiling of the space as shown below.



Decorative lighting



Lighting built into walls and ceilings are less susceptible to vandalism



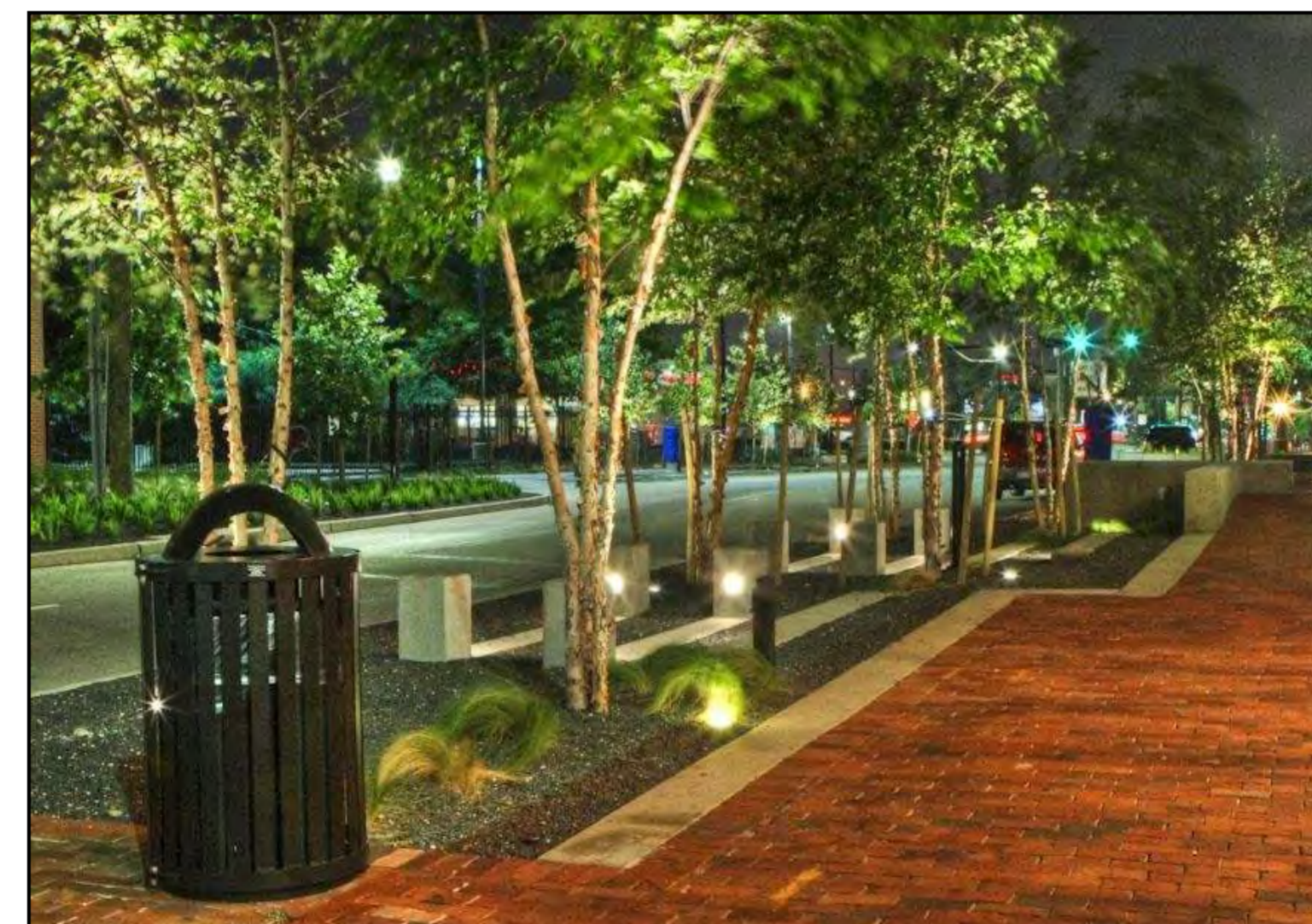
Coloured lighting

Plaza Lighting

Different types of lighting should be used through the space for safety and ambiance. Below are a few examples of how lighting can be used in different ways.



Lighting built into the ground



Tree uplights



Light poles and integrated seat lighting



Lightpoles to illuminate a large area

Construction Material Options

What types of construction materials should be used?

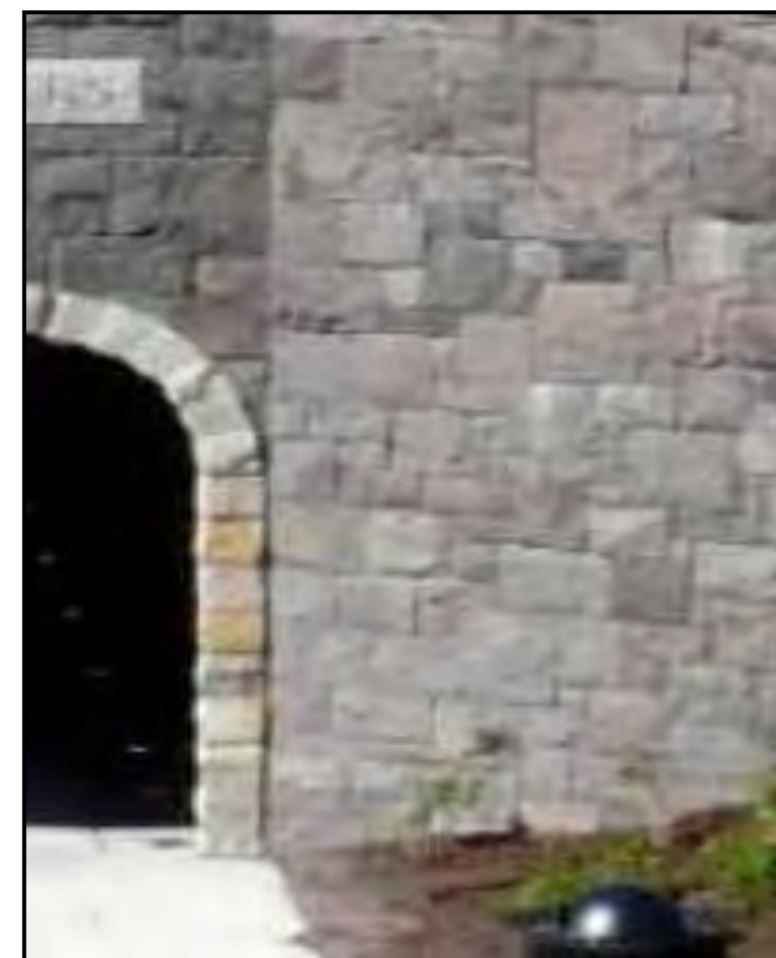
Wall Finish Options



Brick



Concrete



Stone



Glass block



Redi-Rock retaining walls

Redi-Rock retaining walls have been used throughout Windsor (e.g., Dougall Avenue underpass at the E. C. Row Expressway, Riverfront Park). Brick and Stone create more of a traditional feel. Concrete and glass block are more modern looking finishes.

Flatwork / Pavement Options



Coloured Concrete



Exposed Aggregate



Stamped Concrete



Asphalt

A mix of different materials, colours and textures would create interest and delineate spaces within the site.

Preliminary Recommendations:

Concrete and Redi-Rock retaining walls

- Concrete can be painted or enhanced aesthetically.
- Redi-Rock products are used throughout Windsor.
- Redi-Rock products are easy to install and can be re-used or re-configured if needed in the future.
- Low maintenance with anti-graffiti coating applied.
- Durable materials.

Coloured Concrete and Exposed Aggregate

- Aesthetically pleasing finishes.
- Durable materials.
- Low maintenance.

Possible Features

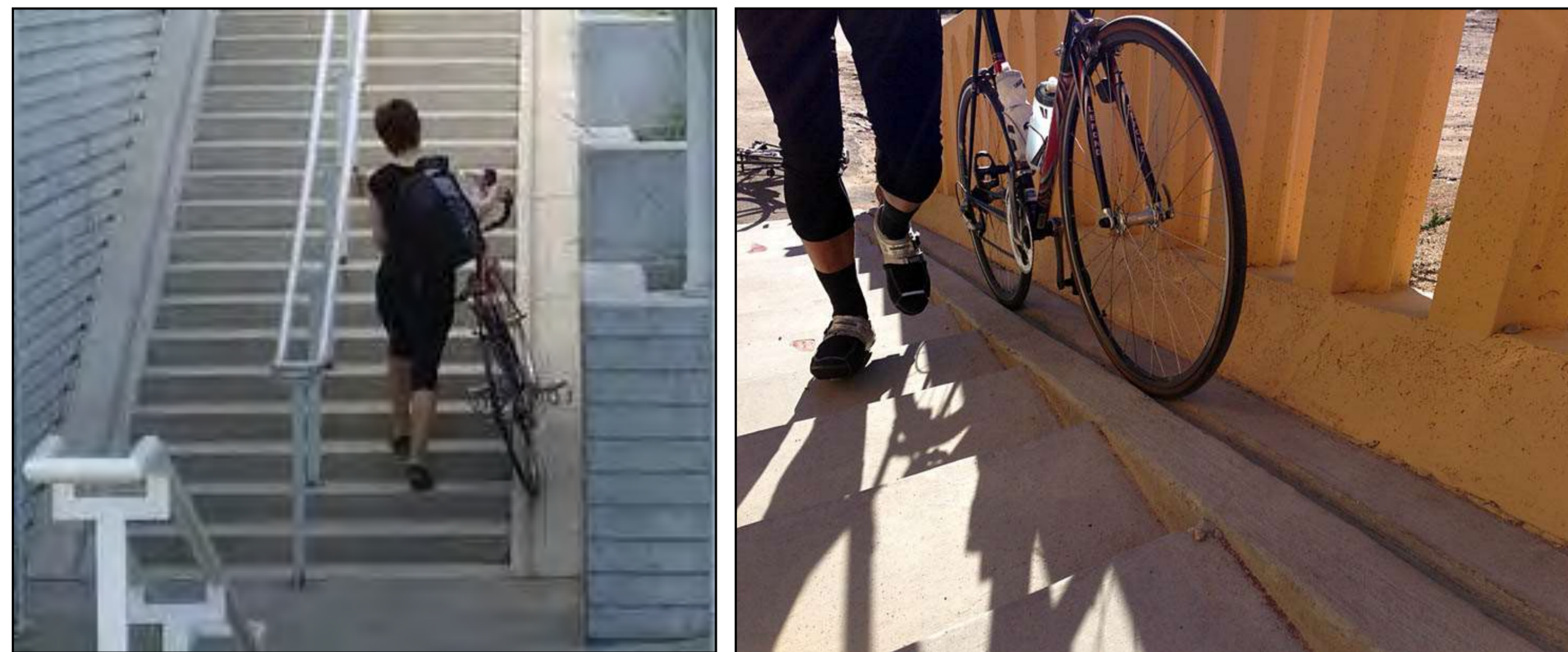
What type of features should be incorporated into the project?

Skylights



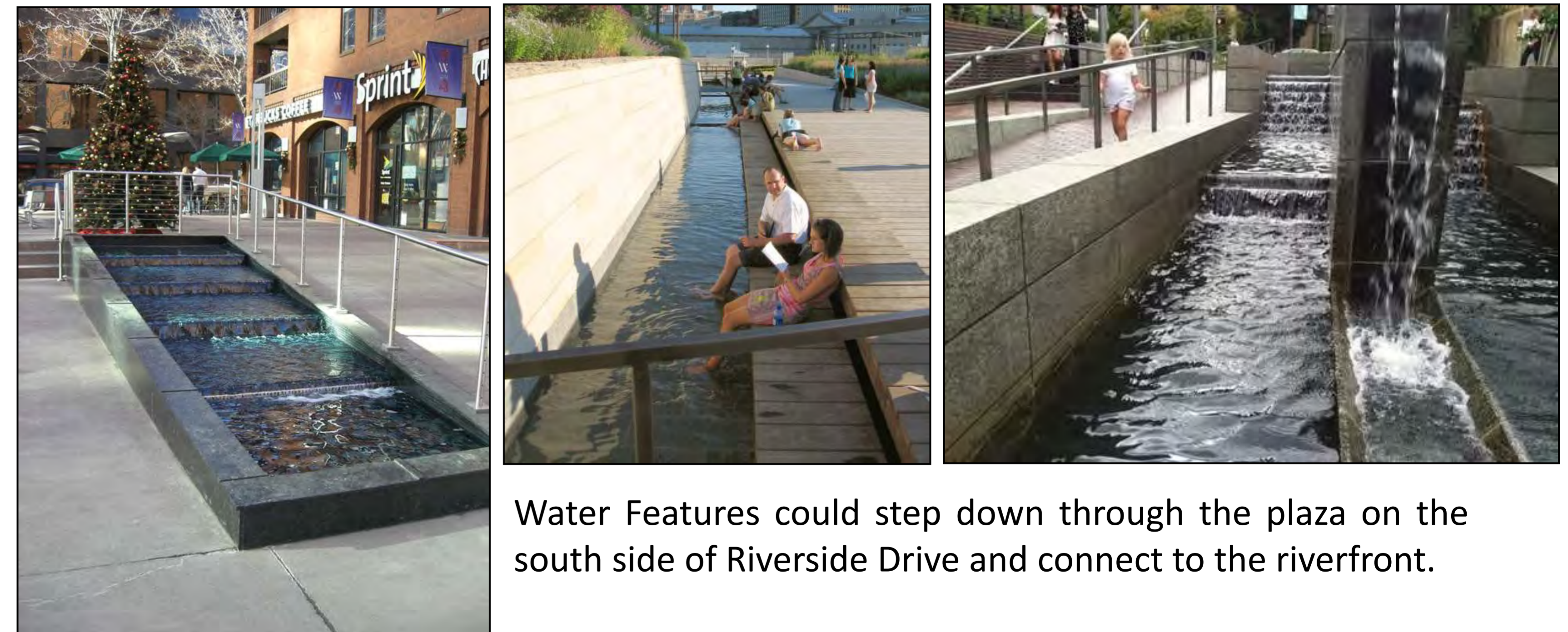
A skylight along the centre of the underpass span may require widening of Riverside Drive by an additional 1.5-2m (over and above the planned future roadway cross-section) in order to accommodate a skylight and the appropriate barriers for traffic. Another option would be to incorporate a skylight within the proposed 2.6m buffer strip along the north curb of Riverside.

Bike Channel



Bicycle stair channels help cyclists easily walk their bike up or down the stairs.

Water Feature



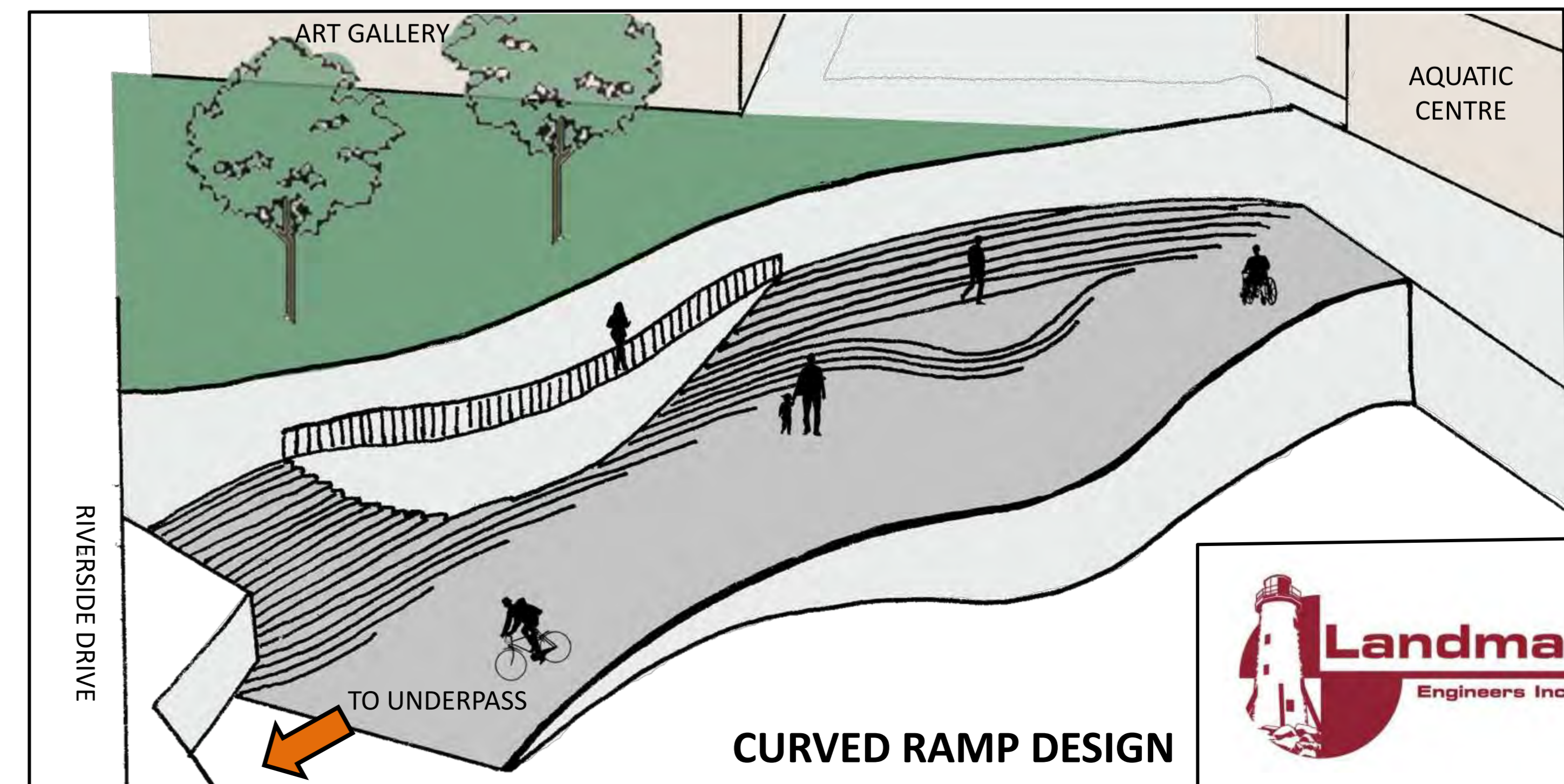
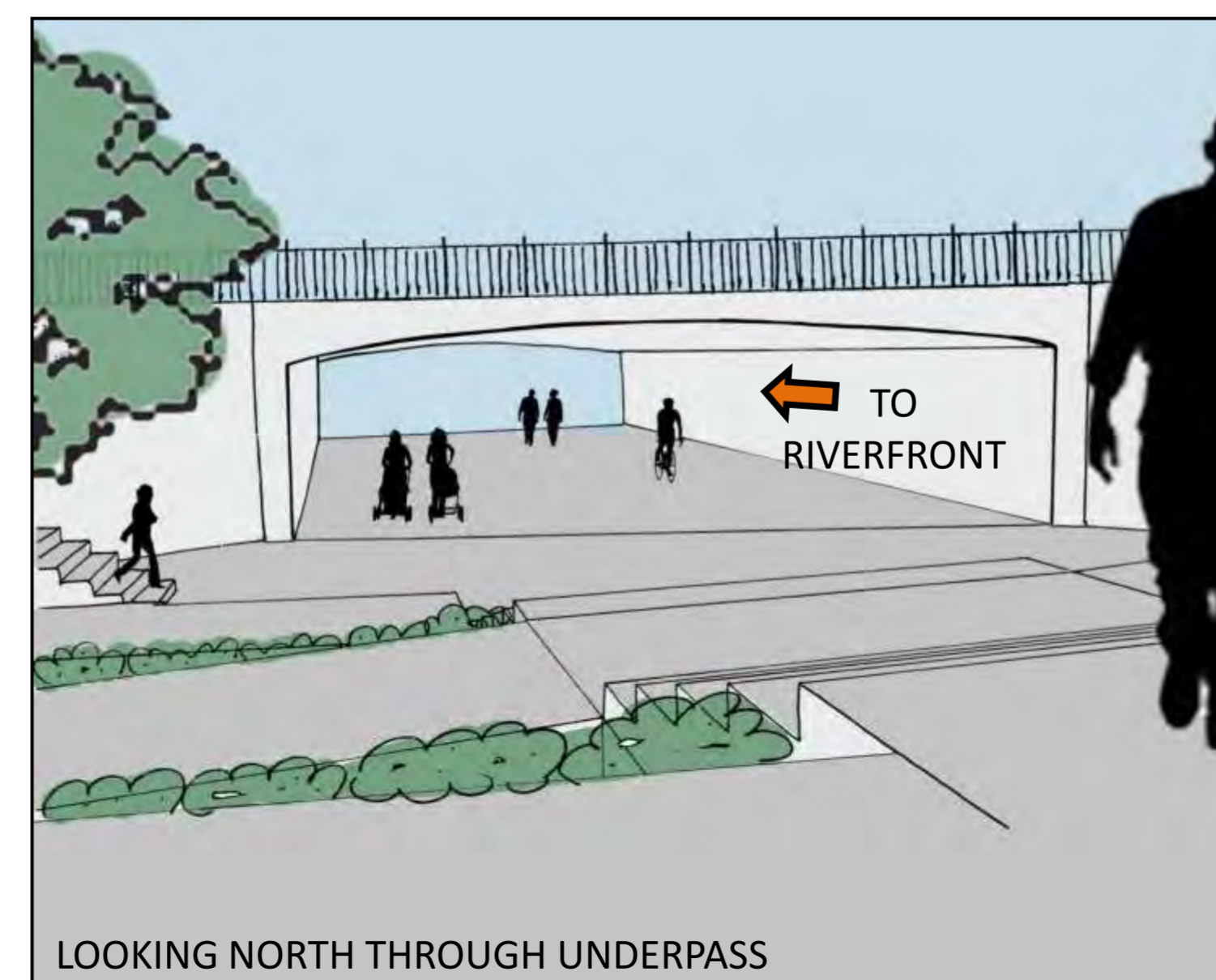
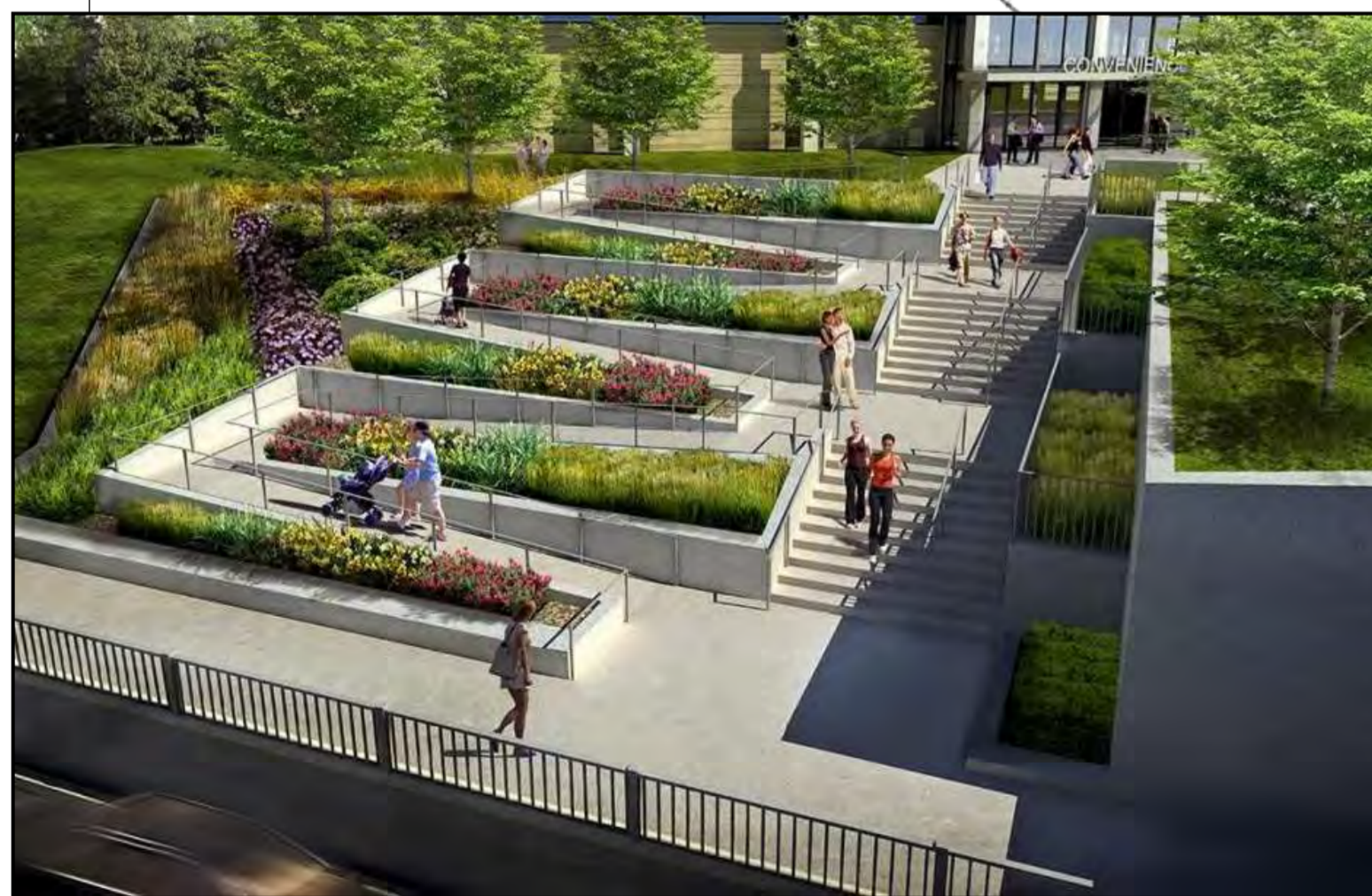
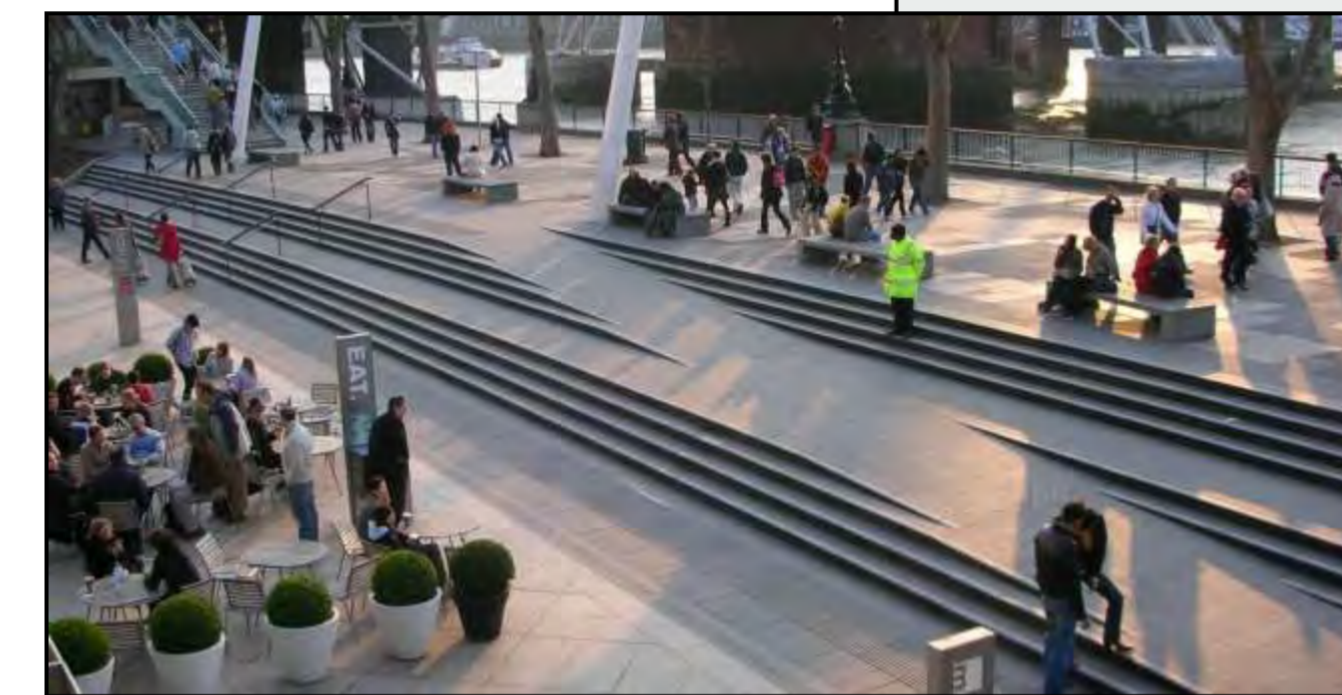
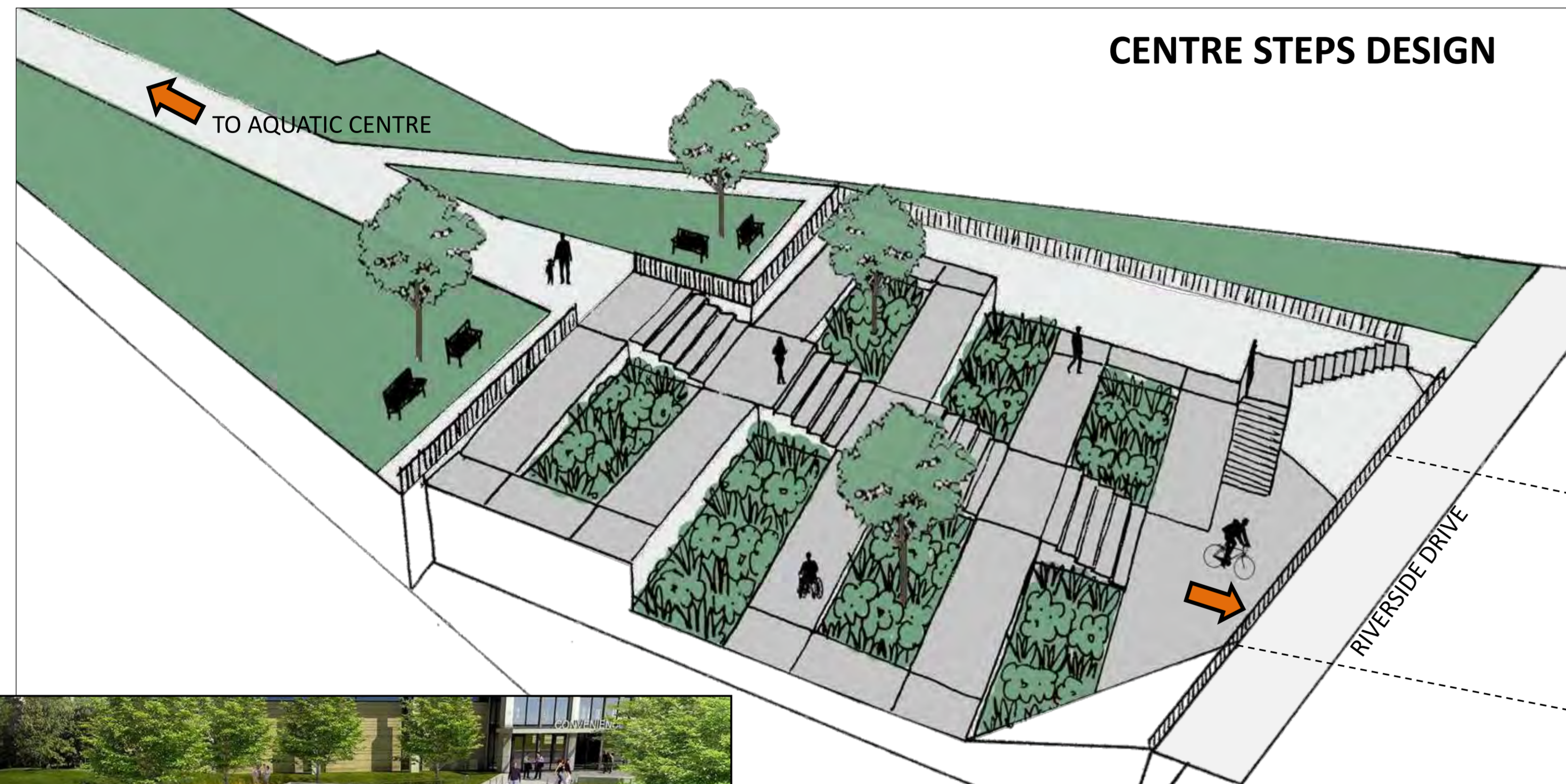
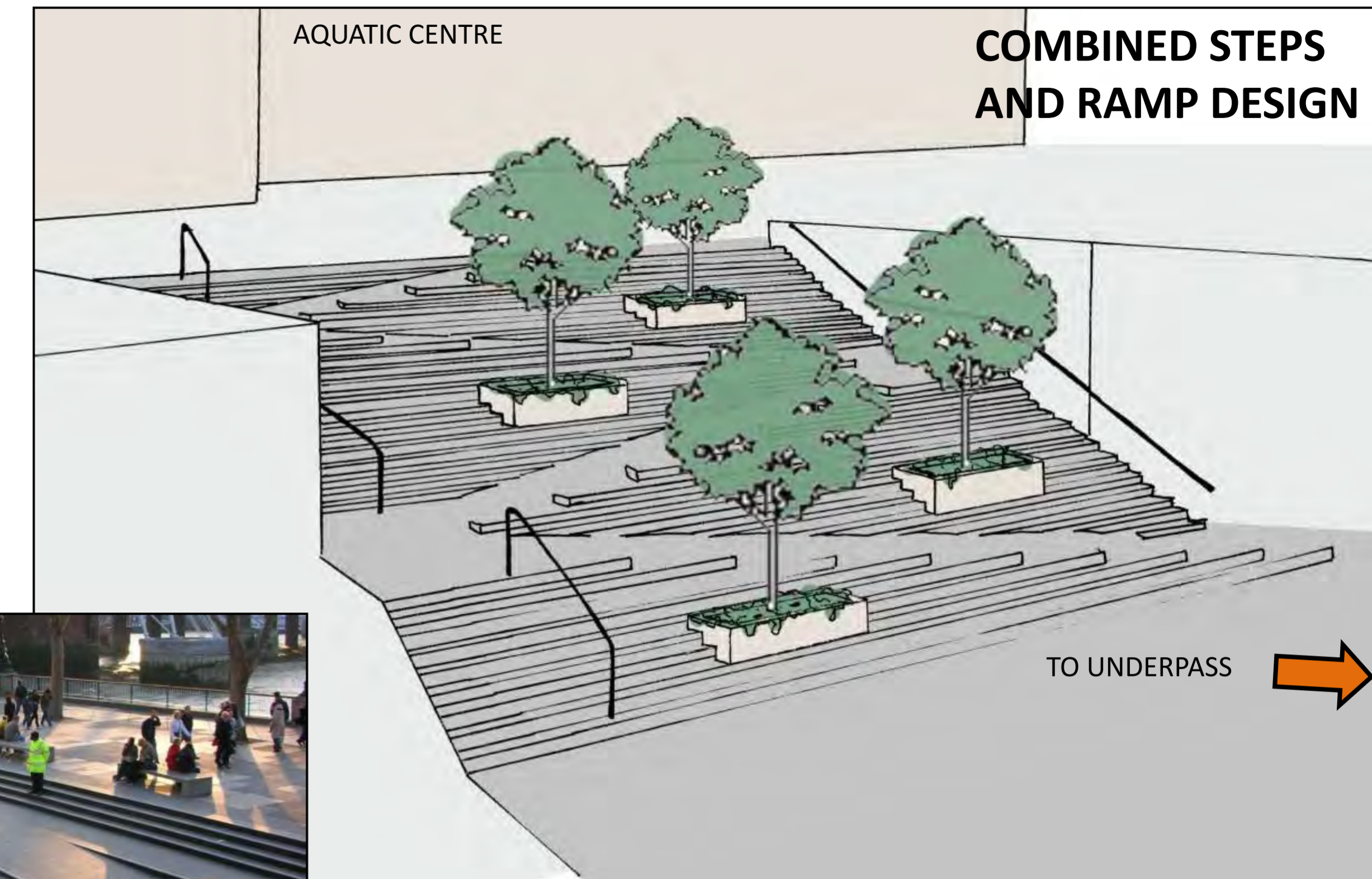
Water Features could step down through the plaza on the south side of Riverside Drive and connect to the riverfront.

Preliminary Design Considerations – South Plaza

Aquatic Centre Site

The final design of the plaza areas are not required to be finalized through the EA process. The final design of the underpass and plaza areas would be part of a detailed design process, which can commence once the EA has been completed. The purpose of the EA process is to define a set of parameters that should be met during detailed design. The parameters are based on site constraints, environmental considerations and feedback from the public.

The following images represent design options for the plaza areas on the south side of Riverside Drive at the entrance to the underpass. The images are intended to illustrate the scale of the space as well as the amount of ramps and stairs required to accommodate the 3.5 metre change in elevation between the underpass floor and the surrounding ground.

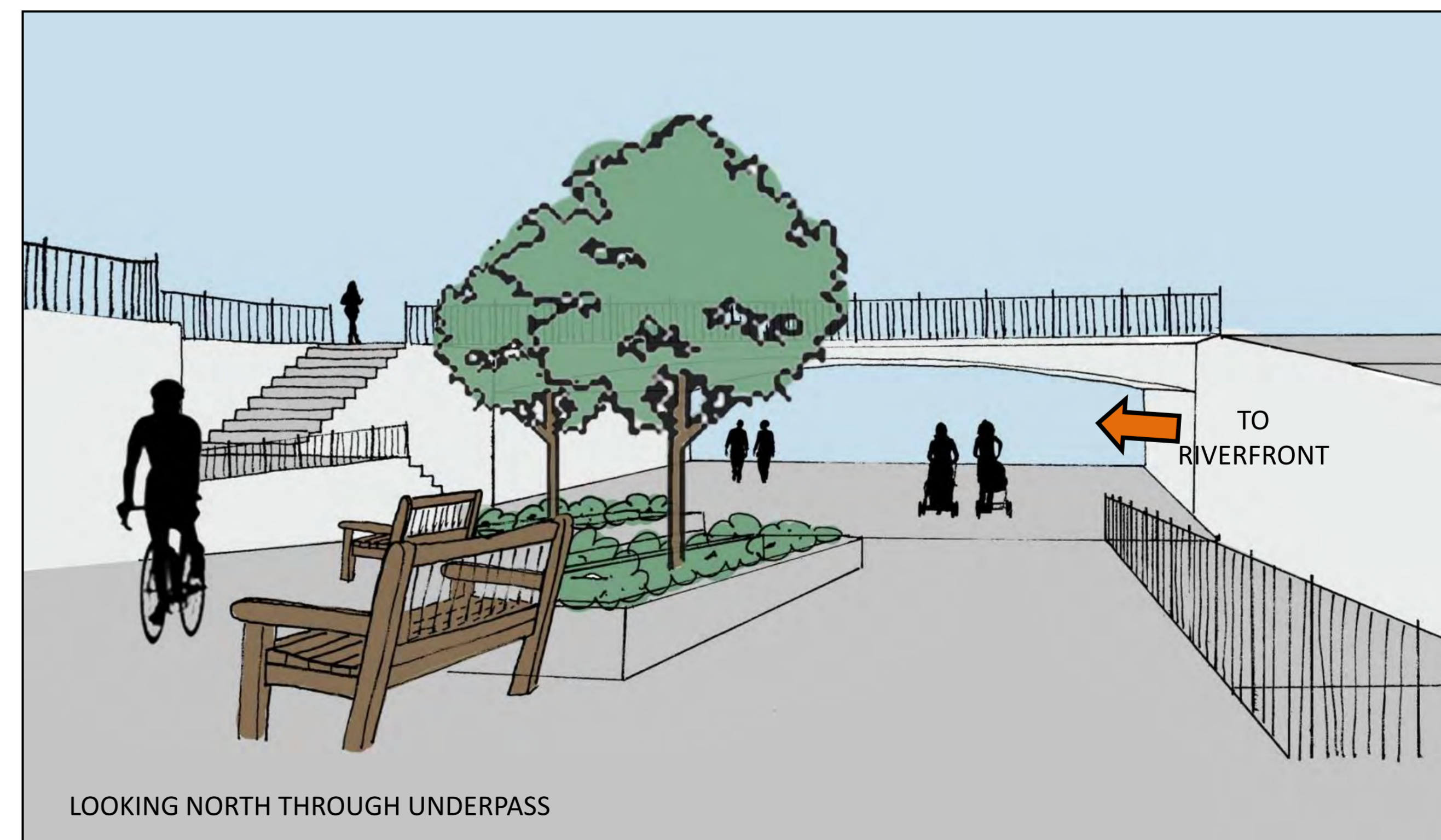
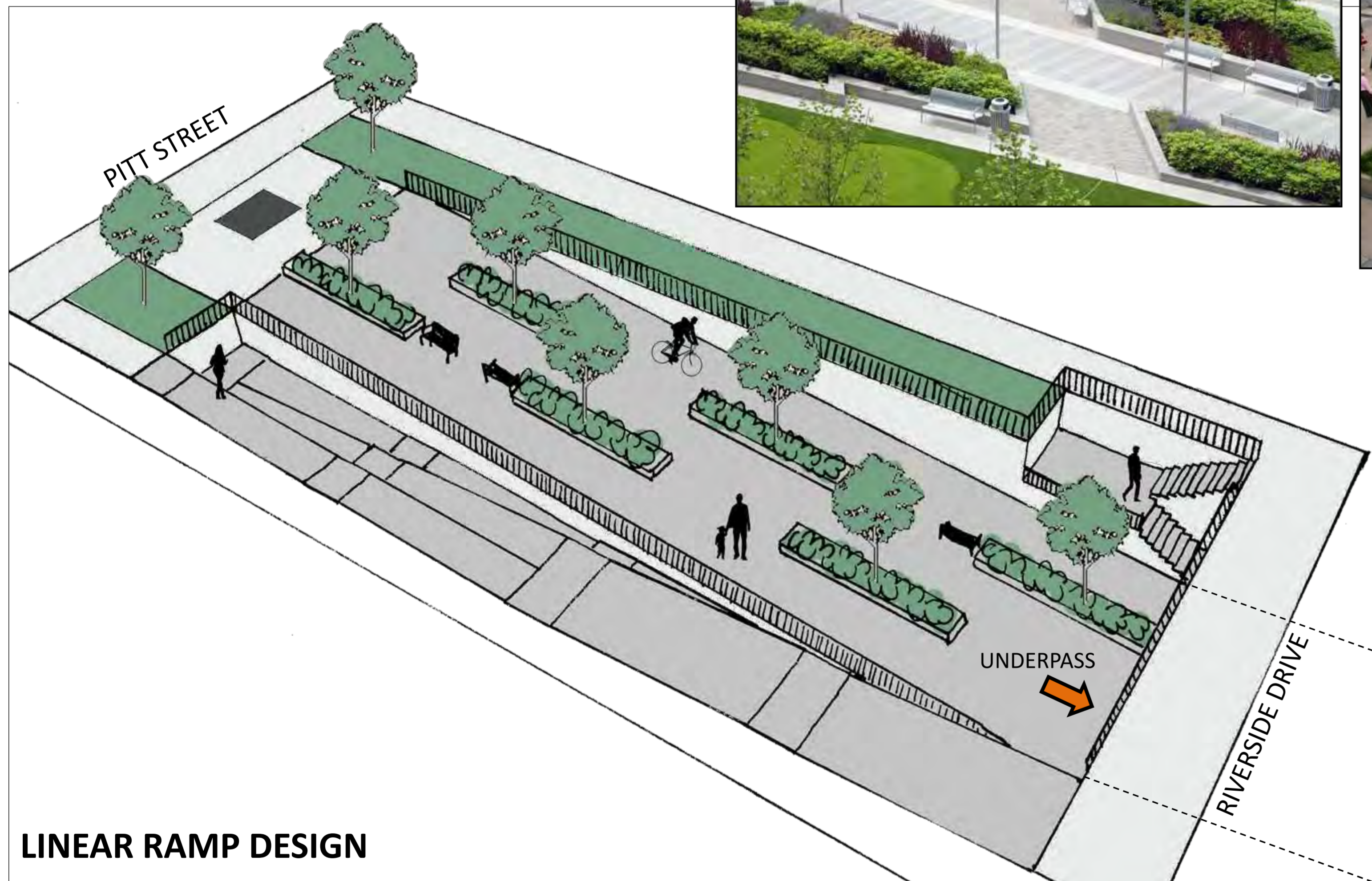


Preliminary Design Considerations – South Plaza

Civic Esplanade Site

Preliminary Design Parameters for the South Plaza

- Provide accessible ramps
- Incorporate seating areas and/or seatwalls
- Design lighting for security and ambiance.
- Provide landscaping.
- Select materials that are durable and easy to maintain.
- Consider snow removal during final design.
- Provide local drainage.



The following lists provide a summary of all of the recommendations from the previous panels. These items form the Preliminary Recommended Solutions.

Underpass Structure Dimensions:

- 26 metre minimum length (Aquatic Centre Site)
- 25 metre minimum length (Civic Esplanade Site)
- 3 metre interior height / rise (minimum)
- 8 metre to 12 metre wide clear span
- 0.8 metre minimum cover above the structure
- Headwall heights as needed to meet existing grade
- Wingwall dimensions: to be determined during detailed design

Preliminary Cost Estimate for the Underpass is \$1.5 million

South Plaza Elements:

- Accessible ramps
- Seating areas and/or seatwalls
- Railings
- Lighting for security and ambiance
- Landscaping
- Site drainage

Preliminary Cost Estimate for the South Plaza is \$1.0 million

North Plaza Elements:

- Site elements and landscaping to integrate with Riverfront Park

Maintenance Considerations:

- Consider snow removal during final design
- Anti-graffiti coating on the walls within the underpass
- Select durable materials

Material Recommendations:

- Pre-cast concrete structure
- Concrete and Redi-Rock retaining walls
- Coloured concrete and exposed aggregate pavement

Safety Considerations:

- LED Lighting through the underpass and plaza areas
- Surveillance cameras
- Maintain clear site lines though the underpass

Possible Site Features / Enhancements:

- Skylights
- Water features
- Bicycle channels
- Art and Sculpture

5.0 Correspondence

As part of the Public Consultation process, individual correspondence regarding this Class EA was distributed to stakeholders and regulatory agencies with a potential interest in the undertaking. A copy of the complete Distribution List can be found in Section 6 of the Project File.

This section of the Project File contains copies of the correspondence sent and received over the course of the study. This section also contains a summary of the comments received pertaining to the study.



October 2, 2015

Project No. 15-022

Company
Branch
Address
City, Province Postal Code

Attention: Attention
Title

**Re: Riverside Drive Pedestrian Crossings
Class Environmental Assessment
Notice of Intent & Invitation to Comment**

Dear Special Greeting:

In accordance with the approved procedures contained in the Municipal Class Environmental Assessment, the City of Windsor is proceeding with the **Riverside Drive Pedestrian Crossings Class Environmental Assessment**.

In September of 2000, Windsor City Council adopted the Central Riverfront Implementation Plan (CRIP), which was intended to guide the design of park lands, open space, buildings, circulation networks, and public infrastructure within Windsor's Central Riverfront district for the subsequent 25 years. The original CRIP document included a recommendation to construct grade-separated crossings of Riverside Drive in order to link the Riverfront Park with the neighbourhoods to the south.

In July of 2013, Windsor City Council embarked upon a city-wide review of the CRIP document to obtain feedback from the general public. This review found that a strong majority agreed that either pedestrian bridges or underpasses crossing Riverside Drive should be considered where warranted by volume of pedestrians.

The study has progressed to the point that locations and design alternatives have been identified for review and public comment. To this end, a Public Drop-In Centre will be held to inform the public on the planning and design process being followed and to receive public input and comments. Displays of study information will be available for review.

Interested parties are welcome to attend the Drop-In Centre. Representatives of the City of Windsor and Landmark Engineers Inc. will be present to answer any questions and obtain feedback. The Drop-In Centre will be held on:

DATE: Thursday, October 15, 2015
TIME: 2:00-4:00 p.m. and 6:00-8:00 p.m.
PLACE: 400 City Hall Square East
4th Floor, Suite 401
Windsor, Ontario

2280 Ambassador Drive
Windsor, Ontario
Canada
N9C 4E4

Phone:
(519) 972-8052
Fax:
(519) 972-8644

www.landmarkengineers.ca



Professional Engineers
Ontario

We are presently contacting all private and public agencies that may have an interest in the project to solicit their comments and to confirm their interest in the Environmental Assessment process. In order to simplify your initial response, we have enclosed a form which we ask you to complete and forward along with any additional information you may wish to provide at this time. We also ask that you indicate your preferred mode for receiving future notifications and information.

To aid in the dissemination of information, a website for the Class Environmental Assessment has been created and can be found at www.citywindsor.ca by searching the key words 'Riverside Drive Pedestrian Crossings Class Environmental Assessment' in the upper right hand corner of the site. The website will contain information pertaining to the project and will be updated periodically as the project progresses.

If you have any questions or require further details, please contact either the undersigned or Mr. Paul Mourad, of the City of Windsor at (519)255-6257 ext. 6119.

Yours truly,

Landmark Engineers Inc.

A handwritten signature in black ink, appearing to read 'Daniel M. Krutsch', written in a cursive style.

Daniel M. Krutsch, P. Eng.

**RIVERSIDE DRIVE PEDESTRIAN CROSSINGS
CLASS ENVIRONMENTAL ASSESSMENT**

With regard to the project/study noted above (as outlined in the attached letter), we have:

- no further interests or concerns.
- interests in this project. We will respond by _____.
- interests in this project. Our concerns are indicated in an accompanying letter.

Form completed by:

_____ (Name)

_____ (Title)

Response from:

_____ (Agency)

_____ (Address)

_____ (Postal Code)

Should this matter require further discussion, I wish to be contacted by:

- telephone (_____) _____
- email _____

*Please return this form by **29 October 2015** to ensure that your concerns are addressed.
Your co-operation is appreciated.*



Notice

INTENT

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS CLASS ENVIRONMENTAL ASSESSMENT

NOTICE OF INTENT AND INVITATION FOR PUBLIC COMMENT

The City of Windsor is planning a grade-separated crossing of Riverside Drive based on the recommendation of the Central Riverfront Implementation Plan Review completed in 2013. The project is being planned under **Schedule B** of the **Municipal Class Environmental Assessment**. The study has progressed to the point that locations and design alternatives have been identified for review and public comment.

DROP-IN CENTRE

Displays of study information will be available for review. Representatives of the City of Windsor and Landmark Engineers Inc. will be present to answer any questions and obtain feedback. The Drop-In Centre will be held on:

DATE: Thursday, October 15, 2015
TIME: 2:00 – 4:00 p.m. and 6:00 – 8:00 p.m.
PLACE: 400 City Hall Square East
4th Floor, Suite 401
Windsor, Ontario

For additional information, please visit the City's website at www.citywindsor.ca or contact one of the following:

City of Windsor

Paul Mourad, P.Eng.
350 City Hall Sq. W., 4th Floor
Windsor, Ontario N9A 6S1
(519) 255-6257 ext. 6119
pmourad@citywindsor.ca

Landmark Engineers Inc.

Dan Krutsch, P.Eng.
2280 Ambassador Drive
Windsor, Ontario N9C 4E4
(519) 972-8052
dkrutsch@landmarkengineers.ca



TTY: 1-866-488-9311

www.citywindsor.ca

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT



INVITATION FOR PUBLIC COMMENT

The City of Windsor is planning a grade-separated crossing of Riverside Drive based on the recommendation of the Central Riverfront Implementation Plan Review completed in 2013. The project is being planned under Schedule B of the Municipal Class Environmental Assessment. The study has progressed to the point that locations and design alternatives have been identified for review and public comment.

DROP-IN CENTRE

Members of the public are welcome to attend a Drop-In Centre to review the study materials and provide comments. Representatives of the City of Windsor and Landmark Engineers Inc. will be present to answer any questions and obtain feedback.

The Drop-In Centre will be held on:

DATE: Thursday, October 15, 2015
TIME: 2:00 – 4:00 p.m. and 6:00 – 8:00 p.m.
PLACE: 400 City Hall Square East
4th Floor, Suite 401
Windsor, Ontario

A website for the Class Environmental Assessment has been created and can be found at www.citywindsor.ca by searching the key words '**Riverside Drive Pedestrian Crossings Class Environmental Assessment**' in the upper right hand corner of the site. The website will contain information pertaining to the project and will be updated periodically as the project progresses.

For additional information or to provide written comments, please contact one of the following:

City of Windsor
Paul Mourad, P.Eng.
350 City Hall Sq. W., 4th Floor
Windsor, Ontario N9A 6S1
(519) 255-6257 ext. 6119
pmourad@citywindsor.ca

Landmark Engineers Inc.
Dan Krutsch, P.Eng.
2280 Ambassador Drive
Windsor, Ontario N9C 4E4
(519) 972-8052
dkrutsch@landmarkengineers.ca

Ministry of the Environment
and Climate Change

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



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

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

October 9th, 2015

Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, Ontario
N9C 4E4

Attention: Mr. Daniel Krutsch, P. Eng.

**Re: Notice of Study Intent, Municipal Class EA Riverside Drive Pedestrian Crossings,
City of Windsor**

Dear Mr. Krutsch:

This letter is this ministry's response to the Notice of Intent for the above noted project. This response acknowledges that this study is being completed following the Municipal Engineers Association Municipal Class EA.

Thank you for the opportunity to comment on this project.

As you know, the 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 public agencies, and the general public, consultation with First Nations and Metis is required.

Consultation with First Nation and Metis Communities

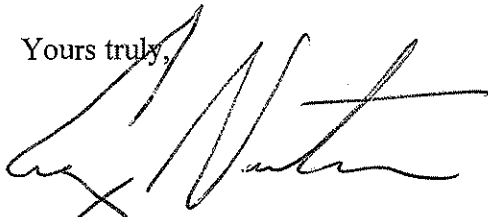
The Crown has a duty to consult First Nation and Metis communities if there is a potential impact to Aboriginal or treaty rights. As the proponent of this project, the City of Windsor has a responsibility to conduct adequate consultation with First Nation and Metis communities as part of the environmental assessment process. The Crown is therefore, delegating the procedural aspects of consultation to the City of Windsor as outlined in the attached document.

The City of Windsor must contact the Director, Environmental Approvals Branch if this project may adversely affect an Aboriginal or treaty right. The Ministry will then determine whether the Crown has a duty to consult. Information and resources to assist the City of Windsor and

Landmark Engineers Inc. in fulfilling this requirement are provided as an attachment.

Please keep this office fully informed of the status of this project as it proceeds through the Class EA process. Thank you in advance.

Yours truly,

A handwritten signature in black ink, appearing to read 'Craig Newton', written over a horizontal line.

Craig Newton
Regional Environmental Planner / Regional EA Coordinator
Ministry of the Environment & Climate Change
Southwestern Region
(519) 873-5014

Attachment (1)

ABORIGINAL CONSULTATION INFORMATION

Consultation with Interested Persons under the Ontario Environmental Assessment Act

Proponents subject to the Ontario *Environmental Assessment Act* are required to consult with interested persons, which may include First Nations and Métis communities. In some cases, special efforts may be required to ensure that Aboriginal communities are made aware of the project and are afforded opportunities to provide comments. Direction about how to consult with interested persons/communities is provided in the Code of Practice: Consultation in Ontario's Environmental Assessment Process available on the Ministry's website:

<https://www.ontario.ca/environment-and-energy/consultation-ontarios-environmental-assessment-process>

As an early part of the consultation process, proponents are required to contact the Ontario Ministry of Aboriginal Affairs' Consultation Unit and visit Aboriginal Affairs and Northern Development Canada's Aboriginal and Treaty Rights Information System (ATRIS) to help identify which First Nation and Métis communities may be interested in or potentially impacted by their proposed projects.

ATRIS can be accessed through the Aboriginal Affairs and Northern Development Canada website:

http://sida1t-atris.aadnc-aandc.gc.ca/atris_online/

For more information in regard Aboriginal consultation as part of the Environmental Assessment process, refer to the Ministry's website:

www.ontario.ca/government/environment-assessments-consulting-aboriginal-communities

You are advised to provide notification directly to all of the First Nation and Métis communities who may be interested in the project. You should contact First Nation communities through their Chief and Band Council, and Métis communities through their elected leadership.

Rights-based consultation with First Nation and Métis Communities

Proponents should note that, in addition to requiring interest-based consultation as described above, certain projects may have the potential to adversely affect the ability of First Nation or Métis communities to exercise their established or credibly asserted Aboriginal or treaty rights. In such cases, Ontario may have a duty to consult those Aboriginal communities.

Activities which may restrict or reduce access to unoccupied Crown lands, or which could result in a potential adverse impact to land or water resources in which harvesting rights are exercised, may have the potential to impact Aboriginal or treaty rights. For assistance in determining whether your proposed project could affect these rights, please refer to the attached "Preliminary Assessment Checklist: First Nation and Métis Community Interest."

If there is likely to be an adverse impact to Aboriginal or treaty rights, accommodation may be required to avoid or minimize the adverse impacts. Accommodation is an outcome of consultation and includes any mechanism used to avoid or minimize adverse impacts to Aboriginal or treaty rights and traditional uses. Solutions could include mitigation such as

v.1.1.4.0

adjustments in the timing or geographic location of the proposed activity. Accommodation may in certain circumstances involve the provision of financial compensation, but does not necessarily require it.

For more information about the duty to consult, please see the Ministry's website at:

www.ontario.ca/government/duty-consult-aboriginal-peoples-ontario

The proponent must contact the Director, Environmental Approvals Branch if a project may adversely affect an Aboriginal or treaty right, consultation has reached an impasse, or if a Part II Order or an elevation request is anticipated; the Ministry will then determine whether the Crown has a duty to consult.

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, 1 st Floor Toronto, ON, M4V 1P5

Delegation of Procedural Aspects of Consultation

Proponents have an important and direct role in the consultation process, including a responsibility to conduct adequate consultation with First Nation and Métis communities as part of the environmental assessment process. This is laid out in existing environmental assessment codes of practice and guides that can be accessed from the Ministry's environmental assessment website at

www.ontario.ca/environmentalassessments

The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process. Where the Crown's duty to consult is triggered, various additional procedural steps may also be asked of proponents as part of their delegated duty to consult responsibilities. In some situations, the Crown may also become involved in consultation activities.

Ontario will have an oversight role as the consultation process unfolds but will be relying on the steps undertaken and information you obtain to ensure adequate consultation has taken place. To ensure that First Nation and Métis communities have the ability to assess a project's potential to adversely affect their Aboriginal or treaty rights, Ontario requires proponents to undertake certain procedural aspects of consultation.

The proponent's responsibilities for procedural aspects of consultation include:

- Providing notice to the elected leadership of the First Nation and/or Métis communities (e.g., First Nation Chief) as early as possible regarding the project;

-
-
- Providing First Nation and/or Métis communities with information about the proposed project including anticipated impacts, information on timelines and your environmental assessment process;
 - Following up with First Nation and/or Métis communities to ensure they received project information and that they are aware of the opportunity to express comments and concerns about the project. If you are unable to make the appropriate contacts (e.g. are unable to contact the Chief) please contact the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office for further direction.
 - Providing First Nation and/or Métis communities with opportunities to meet with appropriate proponent representatives to discuss the project;
 - Gathering information about how the project may adversely impact the relevant Aboriginal and/or Treaty rights (for example, hunting, fishing) or sites of cultural significance (for example, burial grounds, archaeological sites);
 - Considering the comments and concerns provided by First Nation and/or Métis communities and providing responses;
 - Where appropriate, discussing potential mitigation strategies with First Nation and/or Métis communities;
 - Bearing the reasonable costs associated with these procedural aspects of consultation, which may include providing support to help build communities' capacity to participate in consultation about the proposed project.
 - Maintaining a Consultation Record to show evidence that you, the proponent, completed all the steps itemized above or at a minimum made meaningful attempts to do so.
 - Upon request, providing copies of the Consultation Record to the Ministry. The Consultation Record should:
 - summarize the nature of any comments and questions received from First Nation and/or Métis communities
 - describe your response to those comments and how their concerns were considered
 - include a communications log indicating the dates and times of all communications; and
 - document activities in relation to consultation.

Successful consultation depends, in part, on early engagement by proponents with First Nation and Métis communities. Information shared with communities must be clear, accurate and complete, and in plain language where possible. The consultation process must maintain sufficient flexibility to respond to new information, and we trust you will make all reasonable efforts to build positive relationships with all First Nation and Métis communities contacted. If you need more specific guidance on Aboriginal consultation steps in relation to your proposed project, or if you feel consultation has reached an impasse, please contact the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office.

Preliminary Assessment Checklist: First Nation and Métis Community Interests and Rights

In addition to other interests, some main concerns of First Nation and Métis communities may pertain to established or asserted rights to hunt, gather, trap, and fish — these activities generally occur on Crown land or water bodies. As such, projects related to Crown land or water bodies, or changes to how lands and water are accessed, may be of concern to Aboriginal communities.

Please answer the following questions and keep related notes as part of your consultation record. "Yes" responses will indicate a potential adverse impact on Aboriginal or treaty rights.

Where you have identified that your project may trigger rights-based consultation through the following questions, you should arrange for a meeting between you and the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office to provide an early opportunity to confirm whether Ontario's duty to consult is triggered and to discuss roles and responsibilities in that event.

	YES	NO
<p>1. Are you aware of concerns from First Nation and Métis communities about your project or a similar project in the area?</p> <p>The types of concerns can range from interested inquiries to environmental complaints, and even to land use concerns. You should consider whether the interest represents on-going, acute and/or widespread concern.</p>		
2. Is your project occurring on Crown land, or is it close to a water body? Might it change access to either?		
3. Is the project located in an open or forested area where hunting or trapping could take place?		
4. Does the project involve the clearing of forested land?		
5. Is the project located away from developed, urban areas?		
<p>6. Is your project close to, or adjacent to, an existing reserve?</p> <p>Projects in areas near reserves may be of interest to the First Nation and Métis communities living there.</p>		
7. Will the project affect First Nations and/or Métis ability to access areas of significance to them?		
<p>8. Is the area subject to a land claim?</p> <p>Information about land claims filed in Ontario is available from the Ministry of Aboriginal Affairs; information about land claims filed with the federal government is available from Aboriginal Affairs and Northern Development Canada.</p>		
9. Does the project have the potential to impact any archaeological sites?		



Essex Region
Conservation
Authority



360 Fairview Avenue West, Suite 311, Essex, ON, Canada, N8M 1Y6 | P 519-776-5209 | F 519-776-8688 | erca.org | ourgreenlegacy.org

Partner Municipalities

Town of Amherstburg

Town of Essex

Town of Kingsville

Town of Lakeshore

Town of LaSalle

Municipality of
Leamington

Township of Pelee

Town of Tecumseh

City of Windsor

Daniel M. Krutsch, P. Eng.
Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, Ontario
N9C 4E4

October 9, 2015

RE: Riverside Drive Pedestrian Crossings Class Environmental Assessment Project

Dear Dan,

We have received and reviewed the Notice of Intent and Invitation to Comment letter send to our attention regarding the Riverside Drive Pedestrian Crossings Class Environmental Assessment. We have completed the form and attach it to this correspondence.

As you are aware, portions of the study location are located in close proximity to the Detroit River. We would have an interest in reviewing the potential access locations to ensure compliance with our regulatory concerns under Section 28 of the Conservation Authorities Act. In particular, where underpasses are concerned the flood elevation of such structures must be designed to certain standards and representatives from our office would be happy to discuss this in greater detail.

Our primary contact from our office in this regard will be John Henderson, P. Eng.

If you should have any questions or require any additional information, please do not hesitate to contact the ERCA Watershed Planner, Michael Nelson by phone at (519) 776-5209 ext. 347 or by e-mail at mnelson@erca.org.

Sincerely,

Mike Nelson
Watershed Planner
/mn

cc: Paul Mourad, P. Eng., City of Windsor

Encl. Form submission



**RIVERSIDE DRIVE PEDESTRIAN CROSSINGS
CLASS ENVIRONMENTAL ASSESSMENT**

With regard to the project/study noted above (as outlined in the attached letter), we have:

- no further interests or concerns.
- interests in this project. We will respond by e-mail .
- interests in this project. Our concerns are indicated in an accompanying letter.

Form completed by: MICHAEL NELSON
(Name)

 WATERSHED PLANNER
(Title)

Response from: ESSEX REGION CONSERVATION AUTHORITY
(Agency)

 360 FAIRVIEW AVENUE WEST, SUITE 311
(Address)

 ESSEX, ONTARIO

 N0P 2P0
(Postal Code)

Should this matter require further discussion, I wish to be contacted by:

telephone (519) 776-5209 EXT.347

email MNELSON@ERCA.ORG

*Please return this form by **29 October 2015** to ensure that your concerns are addressed.
Your co-operation is appreciated.*

Liz Michaud

From: Liz Michaud <lmichaud@landmarkengineers.ca>
Sent: Friday, October 16, 2015 11:07 AM
To: 'Joseph Passa'
Subject: RE: Study Questionnaire

Good Morning Joe,

Thank you for coming out to the open house yesterday and for sending in the questionnaire. Our e-mail correspondence and your study questionnaire will become part of the public record (included in the EA file) and will be taken into consideration as the project moves forward.

Thank you,

Liz Michaud

Landmark Engineers Inc.

2280 Ambassador Drive

Windsor, ON, N9C 4E4

p (519) 972-8052

f (519) 972-8644

e-mail: lmichaud@landmarkengineers.ca

From: Joseph Passa [<mailto:joseph@passa.ca>]

Sent: Friday, October 16, 2015 9:48 AM

To: lmichaud@landmarkengineers.ca

Subject: Study Questionnaire

Hello Liz,

Please find the attached questionnaire response. While I feel the underpass is a possibility only if done extremely well with a long span, the overpass idea is not functional at all since it too must be wide and have a gentle slope to be used at all. Actually the overpass does not make sense when you have to go down so low on the riverfront side of the drive. I still feel my design with traffic calming aspects with a wide pedestrian crossing over the Drive leading the my 'City Step' covers many aspects most successfully as well as creating a new dynamic space on the riverfront. Please let me know when we can start our further design work to make it happen!

Regards,

Joseph Passa, OAA, MRAIC, LEED AP

Passa Associates Inc.

A R C H I T E C T S

Canada Building, 802,374 Ouellette Ave.

Windsor, Ontario, Canada, N9A 1A8

T 519.252.0775 F 519.252.8559

joseph@passa.ca / www.passa.ca

Consider the environment before printing this email. This email contains confidential information for the intended recipient only. If you have received this email in error please delete it immediately and inform us of the mistake by return email. Any form of reproduction or further dissemination of this email is strictly prohibited.

Liz Michaud

From: Joseph Passa <joseph@passa.ca>
Sent: Thursday, October 15, 2015 4:12 PM
To: lmichaud@landmarkengineers.ca
Subject: The 'CITY STEPS'
Attachments: Windsor's City Steps Package (email).pdf

Hello Liz, it was nice to meet you today. Here are my sketches for the completion of the Esplanade that I mentioned to you. Joe.

Windsor's 'CITY STEPS'

The 'CITY STEPS' vision is to provide access to Windsor's waterfront with a cost effective means to complete the Civic Esplanade by connecting the Detroit River to City Hall Square. Historically Windsor was a linear arrangement of narrow farm lots owned by families such as the Goyeau's, Ouellette's, and Dougall's going deep inland from the river. The Civic Esplanade can work in a similar historic fashion reaching inland once the river connection is made. This direction is significant today since we have a critical mass of people requiring to cross Riverside Drive going to events at the adjacent Festival Plaza. This connection would give the current Civic Esplanade its full meaning and usefulness.

This vision would have a wide 60 foot crosswalk on Riverside Drive with stop lights and a road surface made up of colourful accent paving telling motorists that this is a pedestrian zone. Flags and landscaping would be added to visually show that this is a special place on the Drive. A grand wide staircase would then cascade down to the waterfront level that would become a gathering location to view the river, see performances, and have exceptional crowd access for the throngs of people going to weekend events at Festival Plaza. This major access to the river would become the iconic 'CITY STEPS'. They would be made of gentle terraces with seating areas on the sides while being curved back into the green landscaped hill of Riverside Drive. This location on Windsor's front porch conveniently has handicapped accessible ramps already built close by.

Windsor's 'CITY STEPS' would become a focal point for the community where impromptu theatre groups and buskers would perform similar to the Spanish Steps in Rome, the grand steps of the Sydney Opera House in Australia, the Capitol Hill Steps in Washington, and the Museum Steps in Philadelphia that Rocky ran up which are the most dominant tourist attraction in that city. The 'CITY STEPS' would provide treasured memories for visitors and residents alike, forever providing a positive image of Windsor in its surroundings. Going further with this concept, the future could bring a series of water fountains in the river for summer nights of colourful light shows to celebrate the great City of Windsor.

Joseph Passa, OAA, MRAIC, LEED AP

Passa Associates Inc.

A R C H I T E C T S
Canada Building, 802,374 Ouellette Ave.
Windsor, Ontario, Canada, N9A 1A8
T 519.252.0775 F 519.252.8559
joseph@passa.ca / www.passa.ca

Consider the environment before printing this email. This email contains confidential information for the intended recipient only. If you have received this email in error please delete it immediately and inform us of the mistake by return email. Any form of reproduction or further dissemination of this email is strictly prohibited.

Riverside Drive Pedestrian Crossings Class Environmental Assessment Questionnaire

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4 by November 5th, 2015.

Name (please print): Joseph Passa / Passa Architects
 Address: 374 Ouellette, Suite 802
 Phone Number: 519-252-0775
 E-mail: joseph@passa.ca

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed to question 7.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed to question 7.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
 Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
 Green space Other: All of the Above

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No

Yes (please specify)

Make it as green as possible.

7. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team.

This can only be accomplished if done extremely well - An overpass will not be used, An underpass must be large, soundproof & safe, only then will it be used. You cannot promote anything that appears to be a tunnel.



Windsor's 'CITY STEPS'
At The Esplanade



Windsor's 'CITY STEPS'

At The Esplanade



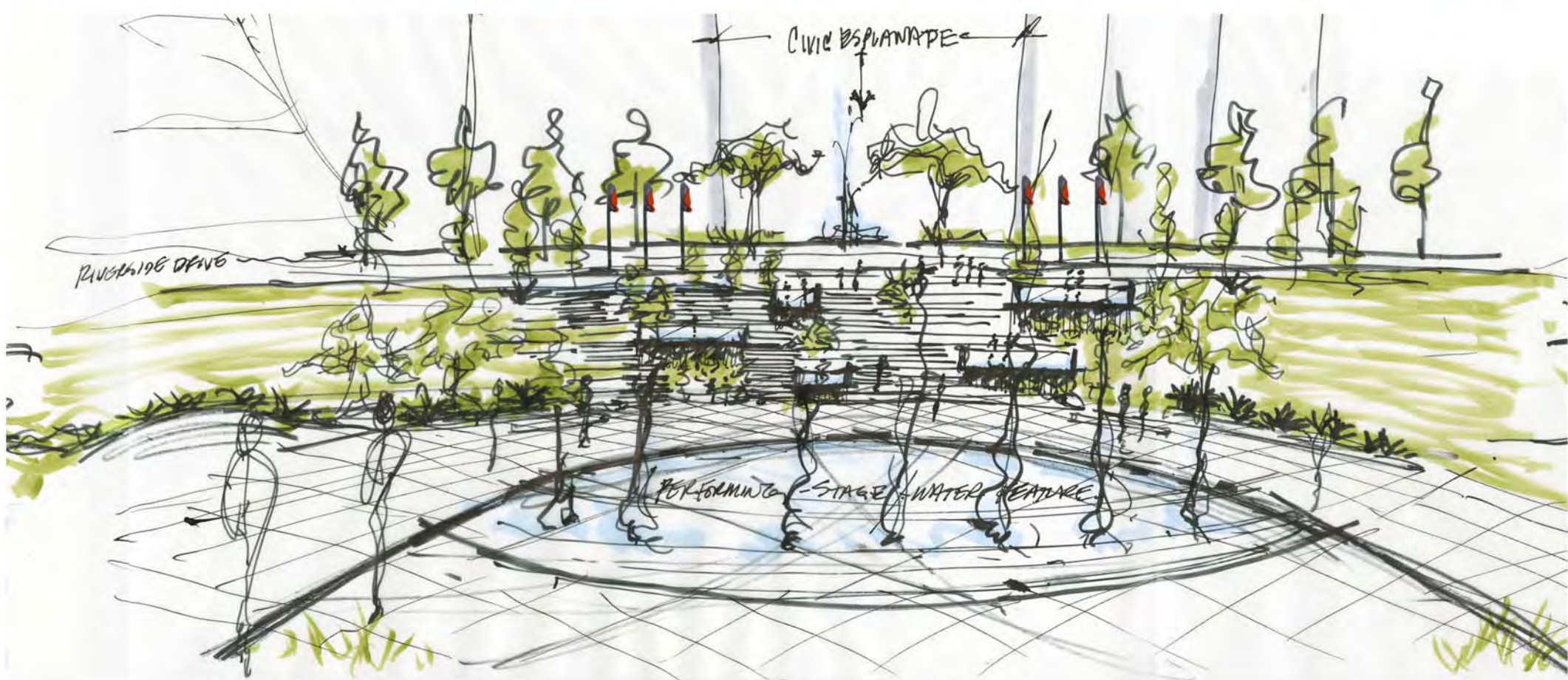
SK 3

Windsor's 'CITY STEPS'
At The Esplanade



Windsor's 'CITY STEPS'

At The Esplanade



Windsor's 'CITY STEPS'
At The Esplanade



Riverside Drive Pedestrian Crossings Class Environmental Assessment Questionnaire

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4 by November 5th, 2015.

Name (please print): _____
Address: _____
Phone Number: _____
E-mail: _____

- 1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.**

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed to question 7.

- 2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?**

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed to question 7.

- 3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?**

Pedestrian Overpass Pedestrian Underpass Either one Neither one

- 4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).**

Utilitarian Design 1 2 3 4 5 Elaborate Design

- 5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.**

Large plaza areas	Seating areas	Water Features	Plantings
Seatwalls	Sculpture/Art	Small plaza areas	Decorative Lighting
Green space	Other: _____		

**RIVERSIDE DRIVE PEDESTRIAN CROSSINGS
CLASS ENVIRONMENTAL ASSESSMENT**

With regard to the project/study noted above (as outlined in the attached letter), we have:

- no further interests or concerns.
- interests in this project. We will respond by 26 Oct 2015.
- interests in this project. Our concerns are indicated in an accompanying letter.

Form completed by: BARRY HORROBIN
(Name)
Director of Planning & Physical Resources
(Title)

Response from: WINDSOR POLICE SERVICE
(Agency)
P.O. Box 60
(Address)
Windsor, Ontario

N9A 6J5
(Postal Code)

Should this matter require further discussion, I wish to be contacted by:

- telephone (519) 255-6700 x 4471
- email bhorrobin@police.windsor.on.ca

*Please return this form by 29 October 2015 to ensure that your concerns are addressed.
Your co-operation is appreciated.*

Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, ON, N9C 4E4
P: (519) 972-8052
F: (519) 972-8644

Landmark

Riverside Drive Pedestrian Crossings Class Environmental Assessment Questionnaire

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4 by November 5th, 2015.

Name (please print): BARRY HORROBIN
 Address: Windsor Police Service
 Phone Number: (519) 255-6700, x 4471
 E-mail: bhorrobin@pdice.windsor.on.ca

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed to question 7.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed to question 7.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

should be a signature piece for our downtown

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
 Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
 Green space Other: highly functional lighting that is tasteful
designed carefully to prevent loitering



RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

Windsor Police Comments

Prepared by: Barry Horrobin, Director of Planning & Physical Resources
WINDSOR POLICE SERVICE

The following is a summary of comments based on the principles of Crime Prevention Through Environmental Design (CPTED) to be considered for the Riverside Drive Pedestrian Crossings Study from a public safety perspective:

GENERAL COMMENTS

- The Windsor Police Service fully supports the construction of a functional pedestrian tunnel in the downtown area to safely connect pedestrians to/from the riverfront and lands to the south of Riverside Drive. The area in general (downtown) has the highest degree of ongoing pedestrian activity compared to anywhere else in the city. This fact underscores the importance and value of taking a comprehensive look at the study **area's entire transportation mosaic in order to properly identify and address any and all safety deficiencies**. The nature of how the transportation environment is utilized in downtown Windsor has a direct impact on public safety.
- It is our strong opinion that the ultimate design solution(s) that should arise out of this study most certainly requires an approach that will fully optimize the ongoing safe usage of this pedestrian linkage for all hours of the day, every day of the year. Such a focus will be optimal for ensuring ongoing safe usage for all users, while minimizing and preventing misuse and unlawful behaviour.
- Furthermore, the ultimate design must be practical, feasible, and easy to maintain so that it will serve the community for many years into the future.

SPECIFIC DESIGN COMMENTS & CONSIDERATIONS

- **Downtown Windsor’s** physical environment unquestionably the busiest in the city in terms of ongoing activity requiring the response and intervention of the Windsor Police Service. Any design solutions created need to address this challenge so that future enforcement capability can be done effectively and safely for all parties involved.
- Pedestrian tunnels, because of their enclosed nature, tend to be targets for nuisance activity such as loitering and graffiti – this is a reality. It is very important that design considerations recognize the vulnerability of the side walls to the consequences of graffiti. It is recommended the inner walls be coated with a commercial grade anti-graffiti clear resin. This will make clean up easier if vandalism occurs.
- A key factor in creating and managing a very safe design for a tunnel pedestrian crossing is the maximization of natural surveillance capability. Specifically, this refers to the ability for as much of the affected space as possible to be easily observed at all times – day and night. The best way to accomplish this is by limiting the overall length of the fully enclosed/**tunneled section, combined with “flaring” the approaches** on either side of the tunnel to open up sight lines. This has been done effectively in other jurisdictions to create a pedestrian route that is safe and comfortable.



Pedestrian tunnel in Washington State features both a “flared” opening, combined with public seating areas to allow for ongoing monitoring of the tunnel space



Tunnel in Washington State that maintains good natural surveillance despite a grade difference – through the use of more gradually placed stairs, proper lighting, and smaller scale soft landscaping elements

- Our ongoing, firsthand experience reveals that on busy weekend evenings in particular, the spillover of large groups of pedestrians from local commercial establishments presents a real safety challenge – one that is exacerbated by the consumption of alcohol by many pedestrians. We will be looking to see how the finalized design solution will address this reality to help prevent future problems.
- Without a doubt, the largest single design element that will influence safety is lighting. The quality and quantity of lighting directly impacts the ability for users to feel safe and for witnesses to make an accurate and detailed account of activities that involve police intervention. The proper combination of nearby street lights with corresponding pedestrian lighting must be carefully examined. I feel that illumination levels in the downtown, because of the high concentration of all different transportation modes, should be higher than would be found in a residential neighbourhood for example. **The city's transition to LED lighting should also be applied to any pedestrian light fixtures being considered since LED lighting produces a cleaner, brighter overall luminosity that enhances visibility and improves the ability and quality of witnessed activity.** Specific illumination levels based on known safety standards can be offered once a more detailed project design is presented.

-
- The selection and placement of street furnishings, planters, and bicycle parking rings in relation to both sides of the tunnel is very important. This will effectively increase the degree of positive activity generation, a criminological phenomenon that allows a public space to retain safe usage over longer periods of the day by having lawful users control functioning of the space.

These comments are intended as a means to influence the project's design toward one that achieves an outcome of optimized safety and security for all users at all times. More detailed comments will follow once specific project designs are developed for review.



26 October 2015

**CERTIFIED
LAW ENFORCEMENT PLANNER**

Barry A. Horrobin
BARRY A. HORROBIN

Liz Michaud

From: Christopher Waters <cwaters@uwindsor.ca>
Sent: Monday, October 26, 2015 11:54 AM
To: lmichaud@landmarkengineers.ca
Cc: amy farkas; anthony ciro; brivett@police.windsor.on.ca; cathy copot-nepszy; derek_huang@yahoo.com; jacquesberge@hotmail.com; jleitinger@city.windsor.on.ca; karen kadour; klaus dohring; rbortolin@city.windsor.on.ca; rdimaio@archonarchitect.com
Subject: Riverside drive - pedestrian crossings

Dear Ms. Michaud,

I chair the Windsor Bicycling Committee and I am writing you with respect to the Riverside Drive crossings. In general, I am very supportive of the thrust of what is being proposed though I think it needs to happen in the context of an overall road diet/complete streets approach for Riverside.

My main concern is that cyclists weren't really addressed explicitly in the display boards. I trust however that cyclists can be accommodated in the wide underpasses being considered. The Riverside trail is a major commuting and leisure artery in the city and it would be useful for cyclists to be able to more easily get from the trail to the downtown core. They should not have to dismount and become pedestrians for this and I would ask that this be borne in mind in the next planning stage. So, for example, where stairs appear in the display boards for some of the underpass models, there should be not only wheelchair accessibility but also cycling accessibility. In terms of the enhanced 'at grade' pedestrian crossings it would be good to have more (and more responsive) call signals.

Two other colleagues have made some comments which I set out below.

Thank you.

Chris

1) How does their first option (if asked to give a first priority to Council-which they will from what I was told) and then how does both connect to BUMP

Design need to accommodate cyclists- BFCommunities looks to see if these types of venues accommodate cyclists (bridges/underpasses) (e.g., width)

Ensure high visibility and design that promotes safety in and at exit/entrance points of tunnel

Is this the most efficient use of investment? how often is there truly large numbers that cross Riverside at one time, what's the injury rate at these proposed areas

Other than the newspaper/radio- did they contact vulnerable population areas (8-80) who maybe couldn't physically get to open house...even through boards/info postings at schools/rec centres-Life After Fifty/etc

2) Bury the cars, not the people, in tunnels.

Christopher Waters, DCL
Acting Dean and Professor
Faculty of Law
University of Windsor
Windsor, Ontario
Canada N9B 3P4
+ (1) 519-253-3000 ext.2930
www.uwindsor.ca/law/cwaters

**Ministry of Tourism,
Culture and Sport**

Culture Services Unit
Programs and Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel: 416 314 7145
Fax: 416 212 1802

**Ministère du Tourisme,
de la Culture et du Sport**

Unité des services culturels
Direction des programmes et des services
401, rue Bay, Bureau 1700
Toronto ON M7A 0A7
Tél: 416 314 7145
Télééc: 416 212 1802



November 6, 2015 (EMAIL ONLY)

Liz Michaud
Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, ON, N9C 4E4
E: lmichaud@landmarkengineers.ca

RE: MTCS file #: 0003761
Proponent: City of Windsor
Subject: Notice of Commencement and Public Information Centre (PIC)
Riverside Drive Pedestrian Crossings
Location: Windsor, Ontario

Dear Liz Michaud:

Thank you for providing the Ministry of Tourism, Culture and Sport (MTCS) with the Notice of Commencement and PIC for your project. MTCS's interest in this EA 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 EA process, the proponent is required to determine a project's potential impact on cultural heritage resources.

While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation. Aboriginal communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Aboriginal 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

We understand that an archaeological assessment (AA) is being undertaken by an archaeologist licenced under the *OHA*, who is responsible for submitting the report directly to MTCS for review. The project locations within the Detroit River flood plain increases the likelihood of deeply buried archaeological remains, as does the urban context and early EuroCanadian settlement of the area. The infill of water lots and early construction of the Riverside Drive (Front Road) may also have resulted in buried soil horizons below fill layers: soil borehole data may provide insight on these potential scenarios.

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 EA project may impact cultural heritage resources. The Clerk for the City of Windsor can provide information on property registered or designated under the *Ontario Heritage Act*. Municipal Heritage Planners can also provide information that will assist you in completing the checklist.

If potential or known heritage resources exist, 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 heritage.

The Detroit River is both a Canadian Heritage River and American Heritage River, so acknowledgement of this cultural heritage landscape feature, and any other of the above criteria that may be met, is warranted.

Environmental Assessment Reporting

All technical heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MTCS whether any technical heritage studies will be completed for your EA 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 EA report or file.

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

Sincerely,

Joseph Muller, RPP/MCIP
Heritage Planner
Joseph.Muller@Ontario.ca

Copied to: Paul Mourad, P.Eng, City of Windsor Public Works

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. MTCS makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MTCS be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Please notify MTCS if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists.

If human remains are encountered, all activities must cease immediately and the local police as well as the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services must be contacted. In situations where human remains are associated with archaeological resources, MTCS should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.



November 9, 2015

Project No. 15-022

«Company»
«Branch»
«Address»
«City» «Province» «Postal_Code»

Attention: «Attention»
«Title»

**Re: Riverside Drive Pedestrian Crossings
Class Environmental Assessment
Invitation to Comment – Public Drop-In Centre No. 2**

Dear «Special_Greeting»

In accordance with the approved procedures contained in the Municipal Class Environmental Assessment, the City of Windsor is proceeding with the **Riverside Drive Pedestrian Crossings Class Environmental Assessment**.

In September of 2000, Windsor City Council adopted the Central Riverfront Implementation Plan (CRIP), which was intended to guide the design of park lands, open space, buildings, circulation networks, and public infrastructure within Windsor's Central Riverfront district for the subsequent 25 years. The original CRIP document included a recommendation to construct grade-separated crossings of Riverside Drive in order to link the Riverfront Park with the neighbourhoods to the south.

In July of 2013, Windsor City Council embarked upon a city-wide review of the CRIP document to obtain feedback from the general public. This review found that a strong majority agreed that either pedestrian bridges or underpasses crossing Riverside Drive should be considered where warranted by volume of pedestrians.

The study has progressed to the point where preliminary recommended solutions have been identified. To this end, a Public Drop-In Centre will be held to inform the public on the planning and design process being followed and to receive public input and comments. Displays of study information will be available for review.

Interested parties are welcome to attend the Drop-In Centre. Representatives of the City of Windsor and Landmark Engineers Inc. will be present to answer any questions and obtain feedback. The Drop-In Centre will be held on:

DATE: Wednesday, November 25, 2015
TIME: 2:00-4:00 p.m. and 6:00-8:00 p.m.
PLACE: Windsor International Aquatic & Training Facility
401 Pitt Street West (at Church Street)
Windsor, Ontario

2280 Ambassador Drive
Windsor, Ontario
Canada
N9C 4E4

Phone:
(519) 972-8052
Fax:
(519) 972-8644

www.landmarkengineers.ca



Professional Engineers
Ontario

To aid in the dissemination of information, a website for the Class Environmental Assessment has been created and can be found at www.windsoreas.ca by selecting the 'Riverside Drive Pedestrian Crossings Class Environmental Assessment' from the list on the left hand side of the page. The website will contain information pertaining to the project and will be updated periodically as the project progresses.

If you have any questions or require further details, please contact either the undersigned or Mr. Paul Mourad, of the City of Windsor at (519) 255-6257 ext. 6119.

Yours truly,

Landmark Engineers Inc.

A handwritten signature in black ink, appearing to read 'D. Krutsch', written in a cursive style.

Daniel M. Krutsch, P. Eng.

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS CLASS ENVIRONMENTAL ASSESSMENT INVITATION FOR PUBLIC COMMENT

The City of Windsor is planning a grade-separated crossing of Riverside Drive based on the recommendation of the Central Riverfront Implementation Plan Review that was completed in 2013. The project is being planned under Schedule B of the Municipal Class Environmental Assessment. The study has progressed to the point where preliminary recommended solutions have been identified.

DROP-IN CENTRE No. 2

Displays of the study information will be available for review and comment. Representatives of the City of Windsor and Landmark Engineers Inc. will be present to answer any questions and obtain feedback. The Drop-In Centre will be held on:

DATE: Wednesday, November 25th, 2015
TIME: 2:00 – 4:00 p.m. and 6:00 – 8:00 p.m.
PLACE: Windsor International Aquatic
& Training Centre
401 Pitt Street West (at Church Street)
Windsor, Ontario

For additional information, please visit the City's website at www.citywindsor.ca or contact one of the following:

City of Windsor

Paul Mourad, P.Eng.
350 City Hall Sq. W., 4th Floor
Windsor, Ontario N9A 6S1
(519) 255-6257 ext. 6119
pmourad@citywindsor.ca

Landmark Engineers Inc.

Dan Krutsch, P.Eng.
2280 Ambassador Drive
Windsor, Ontario N9C 4E4
(519) 972-8052
dkrutsch@landmarkengineers.ca
landmarkengineers.ca

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

CLASS ENVIRONMENTAL ASSESSMENT



INVITATION FOR PUBLIC COMMENT

The City of Windsor is planning a grade-separated crossing of Riverside Drive based on the recommendation of the Central Riverfront Implementation Plan Review completed in 2013. The project is being planned under Schedule B of the Municipal Class Environmental Assessment. The study has progressed to the point where preliminary recommended solutions have been identified.

DROP-IN CENTRE No. 2

Members of the public are welcome to attend a Drop-In Centre to review the study materials and provide comments. Representatives of the City of Windsor and Landmark Engineers Inc. will be present to answer any questions and obtain feedback.

The Drop-In Centre will be held on:

DATE: Wednesday, November 25, 2015
TIME: 2:00 – 4:00 p.m. and 6:00 – 8:00 p.m.
PLACE: Windsor International Aquatic and Training Facility
401 Pitt Street West (at Church Street)
Windsor, Ontario

A website for the Class Environmental Assessment has been created and can be found at www.windsoreas.ca by selecting the 'Riverside Drive Pedestrian Crossings Class Environmental Assessment' from the list on the left hand side of the page. The website will contain information pertaining to the project and will be updated periodically as the project progresses.

For additional information or to provide written comments, please contact one of the following:

City of Windsor
Paul Mourad, P.Eng.
350 City Hall Sq. W., 4th Floor
Windsor, Ontario N9A 6S1
(519) 255-6257 ext. 6119
pmourad@citywindsor.ca

Landmark Engineers Inc.
Dan Krutsch, P.Eng.
2280 Ambassador Drive
Windsor, Ontario N9C 4E4
(519) 972-8052
dkrutsch@landmarkengineers.ca

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS
CLASS ENVIRONMENTAL ASSESSMENT

With regard to the project/study noted above (as outlined in the attached letter), we have:

- no further interests or concerns.
- interests in this project. We will respond by _____.
- interests in this project. Our concerns are indicated in an accompanying letter.

Form completed by: Steve Bastounas
(Name)

Manager of Engineering
(Title)

Response from: Enwin Utilities
(Agency)

4545 Rhodes Dr
(Address)

Windsor, ON

PO Box 1625 Stn. A

N9A 5T7
(Postal Code)

Should this matter require further discussion, I wish to be contacted by:

telephone (_____) _____

email sbastounas@enwin.com

*Please return this form by 29 October 2015 to ensure that your concerns are addressed.
Your co-operation is appreciated.*



Chippewas of Kettle & Stony Point First Nation

6247 Indian Lane
Kettle & Stony Point FN. Ontario. Canada N0N 1J1

RECEIVED
NOV 20 2015

November 16, 2015

Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, Ontario
N9C 4E4
ATT: Daniel M. Krutsch, P. Eng.

Dear Mr. Krutsch:

RE: The City of Windsor and current activity (Riverside Drive Pedestrian Crossings Class EA) within the vicinity of Kettle and Stony Point First Nation's Traditional Territory.

I'd like to take the opportunity to introduce myself as the Consultation Coordinator for Chippewas of Kettle and Stony Point First Nation ("Kettle & Stony Point"). Kettle & Stony Point have asserted its Aboriginal and Treaty Rights, and Aboriginal Title in their traditional territory ("Traditional Territory") since time immemorial. These constitutionally entrenched rights and title to our Traditional Territory have been legally recognized by the provincial and federal Crowns, as signatories to the Huron Tract Treaty #29.

We are aware that the City of Windsor is either engaged, or is interested in engaging in an activity that is in close proximity to Kettle & Stony Point's Traditional Territory. The First Nation does not require that you engage in consultation with the Chippewas of Kettle & Stony Point; however, in the event the scope of the project changes and/or amendments are made that in any manner involves / impacts our Traditional Territory, please ensure that the First Nation receives notification.

We acknowledge that industry does not have a court-imposed duty to consult with First Nations; however, it is our expectation that if Algonquin Power Co. is either engaging, or is interested in engaging, an activity in Kettle & Stony Point's Traditional Territory, it will have an interest in becoming involved in consultation and accommodation efforts with our First Nation.

Consequently, if the City of Windsor is prepared to engage in meaningful consultations to understand, address and accommodate our concerns, then Kettle & Stony Point will welcome your participation as a sign of good faith and cooperation and we will respond in kind.

Therefore, on behalf of the Kettle & Stony Point First Nation, we thank you for providing information to our First Nation regarding the above mentioned.

Sincerely,

K. Suzanne Bressette
Chippewas of Kettle and Stony Point First Nation

Liz Michaud

From: Klaus Dohring <kdohring@greensunrising.com>
Sent: Thursday, November 26, 2015 8:59 AM
To: lmichaud@landmarkengineers.ca; pmourad@citywindsor.ca
Cc: 'Jarvis, Anne (WIN)'
Subject: RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

Dear Elizabeth and Paul,

Regarding the riverside crossing public hearing held yesterday, and as discussed with you in person, I comment as follows:

The concepts shown miss the main point, which is people, particularly pedestrians. You need to develop a concept in which the vehicles go underground, and the people keep the best spot, which is above ground, on ground level. Make the North end of Ouellette a vehicle free zone, like most if not all modern cities have done with their downtown core. This eliminates the traffic stop at Ouellette and Riverside. Tunnel Riverside under the pedestrian and active transportation only Ouellette. Now that there is no stop at Riverside and Ouellette, the vehicles on Riverside Drive go under and up within maybe 10 seconds, driving at Riverside speed. Traffic flow on Riverside is actually improved this way. Now pedestrians and active transportation folks have the ground level and can freely walk between downtown Ouellette and the riverfront. Now that part can become a beautiful people centered place, no vehicle noise or pollution or danger, vehicles disappear into the underpass, and people can enjoy the sunshine and breeze on the ground level.

No matter how you will try, a pedestrian underpass will be underground, and dreadful. There will be dirt and garbage, there will be pan handling, there may be muggings and worse. Putting people underground is a very bad idea.

I have to wonder why in this city the most basic points are missed so completely. The present Cabana Road plans totally miss the opportunity for complete separation of vehicles and bikes and pedestrians. The new City Hall plans are creating an energy hog, which will be obsolete by the time it is built, never mind some decades of operation. The Riverside crossing misses the most important concept, per above. The new hospital out green field and away from the citythe list does not end. Windsor is cementing a City based on cars and trucks only.

Please provide people with the above concept, and do not limit the choices you offer to King Car and subservient underground pedestrians.

Regards,

Klaus Dohring

Liz Michaud

From: Cathy Copot-Nepszy <cnepszy@wechu.org>
Sent: Thursday, November 26, 2015 10:05 AM
To: Liz Michaud
Subject: RE: RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

Thx/...didn't know about the committmeent to the master plan...good point(s)! ☺ take care, cAth

From: Liz Michaud [<mailto:lmichaud@landmarkengineers.ca>]
Sent: November-26-15 9:38 AM
To: Cathy Copot-Nepszy
Subject: RE: RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

Hi Cathy,

We had one gentleman who attended last night that was very strongly urging us to consider the same thing. There are a few reasons why this option is highly unlikely to occur. First, this option is not part of any masterplan that has been approved by the City. At this time the Riverside Drive Vista Improvements Study stands as the approved Riverside Drive masterplan. Any improvements that are made to Riverside Drive have to follow this guideline moving forward – much like the CRIP plan for the Riverfront Park. This is not to say that a masterplan cannot be changed – at this time there is another EA (Downtown Transportation Study) that is recommending Riverside Drive being reduced two one lane each direction plus turning lane.

Second would be the cost. The project would be much more involved if we have cars underground. Although I don't know the specifics of this, there are many issues in general that would drive the cost – much larger size/span of structure needed, ventilation issues, major utilities and infrastructure will be affected. As well how do we deal with the many 'dead end' streets would be created and access to existing buildings and businesses along Riverside Drive with no other access. This would be a major undertaking.

In theory anything *can* be done with enough money and political will.

Thanks for stopping by last night and I hope this helps!

Liz Michaud
Landmark Engineers Inc.
p (519) 972-8052

From: Cathy Copot-Nepszy [<mailto:cnepszy@wechu.org>]
Sent: Thursday, November 26, 2015 8:58 AM
To: Liz Michaud
Subject: FW: RIVERSIDE DRIVE PEDESTRIAN CROSSINGS

Hey Liz, great to see you again last night! Just a question that has come up... is there a possibility of undergrounding car traffic and keeping people at ground level? Would this be much more financially and what would it mean? This has been some strong feedback that I just heard and I wanted to understand this option better.

Thx Cathy

Flu shots save lives! Protect yourself and your loved ones. [Learn more.](#)



CHIPPEWAS OF THE THAMES FIRST NATION

November 23, 2015

RECEIVED
NOV 26 2015

Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, ON N9C 4E4

Attn: Daniel Krutsch

Subject: Municipal Class Environmental Assessment
Riverside Drive Pedestrian Crossings

Dear Mr. Krutsch

We are in receipt of correspondence of the aforementioned project.

In the screening of the correspondence, we have identified no concerns with the project or the information that has been presented to us as this time.

We ask to be kept informed of any changes that are of a substantive nature.

Also, please be advised that Leslee White-eye is now Chief of Chippewas of the Thames First Nation.

Respectfully,

Mary Alikakos
Consultation Coordinator
Chippewa of the Thames First Nation
(519) 289-2662 Ext. 213
malikakos@cottfn.com

320 Chippewa Road, Muncey, ON, N0L 1Y0
Ph. 519-289-5555 Fax. 519-289-2230
info@cottfn.ca www.cottfn.com

**Ministry of Tourism,
Culture and Sport**

Culture Services Unit
Programs and Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel: 416 314 7145
Fax: 416 212 1802

**Ministère du Tourisme,
de la Culture et du Sport**

Unité des services culturels
Direction des programmes et des services
401, rue Bay, Bureau 1700
Toronto ON M7A 0A7
Tél: 416 314 7145
Télééc: 416 212 1802



December 8, 2015 (EMAIL ONLY)

Liz Michaud
Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, ON, N9C 4E4
E: lmichaud@landmarkengineers.ca

RE: MTCS file #: 0003761
Proponent: City of Windsor
Subject: Public Information Centre (PIC) #2
Riverside Drive Pedestrian Crossings
Location: Windsor, Ontario

Dear Liz Michaud:

Thank you for providing the Ministry of Tourism, Culture and Sport (MTCS) with the PIC #2 material for your project. MTCS's interest in this EA 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 EA process, the proponent is required to determine a project's potential impact on cultural heritage resources.

While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation. Aboriginal communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Aboriginal 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

An archaeological assessment (AA) is being undertaken by an archaeologist licenced under the *OHA*, who is responsible for submitting the report directly to MTCS for review. The project locations within the Detroit River flood plain increases the likelihood of deeply buried archaeological remains, as does the urban context and early EuroCanadian settlement of the area. Infill of water lots and early construction of the Riverside Drive (Front Road) may have resulted in buried soil horizons below fill layers: soil borehole data may provide insight on these potential scenarios. The PIC#2 material recognizes this archaeological potential by confirming that monitoring will take place during grading and excavation activities.

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 EA project may impact cultural heritage resources. The PIC#2 material affirms that there are no "Heritage Sites" on either of the sites, so as detailed in the EA Reporting section of this letter, please include the completed checklists and supporting documentation in the EA report or file to document that screening has identified no known or potential cultural heritage resources, or no impacts to these resources.

The Detroit River is unique in being both a Canadian Heritage River and American Heritage River, so acknowledgement of this cultural heritage landscape feature is warranted. It is not anticipated that the project will impact the river itself and so such recognition would not require a cultural heritage evaluation report or heritage impact assessment.

Environmental Assessment Reporting

All technical heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MTCS whether any technical heritage studies will be completed for your EA 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 EA report or file.

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

Sincerely,

Joseph Muller, RPP/MCIP
Heritage Planner
Joseph.Muller@Ontario.ca

Copied to: Paul Mourad, P.Eng, City of Windsor Public Works

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. MTCS makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MTCS be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Please notify MTCS if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists.

If human remains are encountered, all activities must cease immediately and the local police as well as the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services must be contacted. In situations where human remains are associated with archaeological resources, MTCS should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.

Liz Michaud

Subject: RE: FW: Study Questionnaire #2

From: Joseph Passa [mailto:joseph@passa.ca]
Sent: Wednesday, December 23, 2015 1:05 PM
To: Dan Krutsch
Cc: lmichaud@landmarkengineers.ca; David Killen; Paul Mourad
Subject: Re: FW: Study Questionnaire #2

Thank you for your reply and comments Dan. While I do not necessarily agree with what has transpired with the many current studies (as we went through many downtown and river front studies in the 1900's that are now shelved) I can see that you have completed your tasks diligently. The concern is the image that the community has and what they are going to get in the end which must be conveyed clearly and accurately in the final analysis in order to be understood.

Joseph Passa, OAA, MRAIC, LEED AP
PA Architects 519.252.0775

At 12:28 PM 23/12/2015, Dan Krutsch wrote:

Hi Joe,

Thank you for taking the time to attend the open houses for this project and for taking time to complete the questionnaires. I feel that a response to some of your comments is in order.

First, concerning the proposed size of the underpass, a principal purpose of the Class EA process was to develop an appropriate scope and scale for the project. The large majority of respondents and stakeholders have suggested that if an underpass is constructed, that it have a large enough opening to provide functional capacity for users, contain a sufficient number of project elements to make the spaces interesting and inviting, and that it be fitted with high quality lighting and finishes. Therefore, we are recommending that the underpass have a span of 8 metres (minimum). The projected cost of the underpass that we presented at the open house was intended to inform the public of the probable cost to achieve the minimum project objectives. Building the underpass larger than the recommended minimum does not seem to be a concern to the respondents or other project stakeholders. Therefore, if in the end, the City wished to implement a larger, more elaborate design, they will have the flexibility to do so. As for the purpose that the cost estimate was intended to achieve, I can assure you that it was based on actual estimated quantities and current unit prices for comparable work. Therefore, I believe that it is quite reasonable for the intended purpose. That said, the process of finalizing the EA has included refinement of the cost estimate, which may result in some of the numbers being amended.

I believe that your suggestion that we should be advocating a much larger underpass would be highly inappropriate within the framework of the EA process. We have been very careful not to advocate any solution. The process will identify the interest of all legitimate stakeholders and establish the recommended scope and scale of the solution (or minimum parameters for the solution). The final details of the project would be established during detail design, should the City advance the project to the implementation stage.

Regarding your references to the design studies prepared previously, I would like to clarify that those diagrams

have no official status. I understand that the images were developed a few years ago in an attempt to convey to the public how an underpass could be implemented. Although not fully developed in terms of technical feasibility, functionality and affordability, the images serve to demonstrate a more extreme variation of an underpass. I agree that implementation of such a design could not be achieved for the amount that we forecasted. If the City wishes to implement a project of such scale and proportions, the EA process that we are undertaking will not prevent them from doing so.

Regarding your apparent surprise that we did not include your concept of an at grade crossing, I wish to confirm that the scope of the EA is to address the issue of alternative pedestrian crossings along Riverside Drive. The opportunity for the City to implement enhanced grade crossings is available without the undertaking of an additional EA. The existing CRIP (Master Plan) and the Riverside Drive Vista Study, both propose enhanced at-grade crossings along Riverside Dr. The focus of the design concepts that you sent us seems to be the staircase component. Although I am not privy to the current status of your proposal in terms of City endorsement, I can assure you that it would be inappropriate for us to integrate your stairway proposal into the EA that we are undertaking. I would further suggest that it is inconsistent with the recommendations of the CRIP study, which serves as the Master Plan for development of the Windsor Riverfront Park. Your stairway proposal also conflicts with another project that we are undertaking on behalf of the City – that is to update the site plan for building out Festival Plaza. As Liz may have suggested to you at the open house, the location of the stairs will further complicate the resolution of current operational conflicts associated with Festival Plaza, by introducing more activity at the back of stage. For this reason, your proposal may be met with resistance by the Parks department and the operators of the Festival Plaza.

Finally, regarding your last statement of your email, I can assure you that we are well aware of our obligations as professionals. The fact is that we have been very diligent throughout this process to avoid advocating any particular proposal, and to adhere strictly to the intentions of the Environmental Assessment Act (EA Act). Please note that we are undertaking this EA as a Schedule B Class EA, on the basis that both of the alternative crossing locations were identified during preparation of the CRIP document, which is a Master Plan that is recognized under the EA Act. The need for alternative crossings was reconfirmed during the CRIP review process that concluded a couple years ago. As such, the recommendations of CRIP served as the starting point for the EA process. We have represented these facts in the display materials.

Respectfully,
Dan

Daniel M. Krutsch, P.Eng.

Landmark Engineers Inc.

2280 Ambassador Drive

Windsor, ON, N9C 4E4

p (519) 972-8052

f (519) 972-8644

e-mail dkrutsch@landmarkengineers.ca

From: Joseph Passa [<mailto:joseph@passa.ca>]

Sent: Thursday, November 26, 2015 3:47 PM

To: Liz Michaud

Subject: Study Questionnaire #2

Hello Liz,

I have attached the #2 Questionnaire as requested. With regards to your direction and Dan speaking that you

are favouring the relatively small underpass at the Esplanade location please think carefully of what you are suggesting at the price you have evolved, which I feel is far too low. If you are wrong it could come back to haunt you. The 6 or 8 metre width is not big enough and yet a number of your examples showed a larger more proper opening as does the sketch from Architecturra, therefore you should be advocating a much larger underpass as already seen by the public in the papers and by yourselves at a higher more appropriate cost. Also I feel you have not done a proper job in correctly showing that an at grade crossing as I have suggested could be more than adequate and extremely cost effective at less than an million dollars (which I have costed) at the tighter Esplanade location where I cannot see the space needed to do an underpass properly. I was also surprized that you did not show my example of what a successful at grade crossing could be clearly emphasizing your preference for an underpass since you have included the sketch of Architecturra's. You have to understand that as paid professionals you should be covering all the options properly in your report and not forming a bias as it appears you have.

Regards, Joe.

Joseph Passa, OAA, MRAIC, LEED AP

Passa Associates Inc.

A R C H I T E C T S

Canada Building, 802,374 Ouellette Ave.

Windsor, Ontario, Canada, N9A 1A8

T 519.252.0775 F 519.252.8559

joseph@passa.ca / www.passa.ca

Consider the environment before printing this email. This email contains confidential information for the intended recipient only. If you have received this email in error please delete it immediately and inform us of the mistake by return email. Any form of reproduction or further dissemination of this email is strictly prohibited.

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

Please fill out the questionnaire and leave it with us today - or take home and mail to: Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON, N9C 4E4 by December 11th, 2015.

Name (please print):

Joseph Passa

Address:

374 Ouellette, Suite 302

E-mail:

joseph@passa.ca

Note: The first 6 questions are repeated from the first Drop-In Centre questionnaire.

1. Do you agree that the City of Windsor should provide enhanced crossings along Riverside Drive within the Central Riverfront? These crossings could include at-grade street level crossings, pedestrian overpasses and pedestrian underpasses.

Agree Disagree

Note: If you answered 'Disagree' to question 1, you may proceed directly to question 13.

2. If you agree with the above statement, do you agree that consideration should be given to 'Pedestrian Overpasses' and 'Pedestrian Underpasses' connecting the south and north sides of Riverside Drive at locations where a large number of pedestrians are expected?

Agree Disagree

Note: If you answered 'Disagree' to question 2, you may proceed directly to question 13.

3. Which type of grade-separated crossing would you prefer, a Pedestrian Overpass or Pedestrian Underpass?

Pedestrian Overpass Pedestrian Underpass Either one Neither one

4. If a grade-separated crossing were to be constructed, how elaborate should the crossing be? On a scale from 1 to 5, where 1 is a completely utilitarian design (e.g.: stair and/or ramp down to a small underpass opening) and 5 is an elaborate design (e.g.: large plaza spaces on each side with aesthetic features and a large underpass opening).

Utilitarian Design 1 2 3 4 5 Elaborate Design

5. What features would you like to see incorporated into a grade-separated crossing design? Circle all that apply.

Large plaza areas Seating areas Water Features Plantings
Seatwalls Sculpture/Art Small plaza areas Decorative Lighting
Green space Other: _____

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

6. Do you have any environmental concerns regarding this project that you feel have not been adequately addressed?

No Yes (please specify) _____

7. Do you agree with the preliminary recommended size of the underpass? (8-12m wide span)

Agree Too Large Too small

8. How important do you consider the aesthetics of the underpass and the plaza spaces to the success of the project?

Not Important 1 2 3 4 5 Very Important

9. Please rate the following features in terms of importance from 1 to 5, where 1 is not important and 5 is very important.

Lighting	1	2	3	4	<u>5</u>
Skylight	1	2	<u>3</u>	4	5
Water Feature	1	2	3	4	<u>5</u>
Bike Accessibility	1	2	3	4	<u>5</u>
Seating Areas	1	2	3	4	<u>5</u>
Landscaping	1	2	3	4	<u>5</u>
Art/Sculpture	1	2	3	4	<u>5</u>

10. Should the underpass be a simple throughway/passage or should it provide opportunities for users to meet and congregate?

Throughway/passage only Opportunities to congregate

11. Do you agree with the scale and function of the plaza areas presented in the preliminary design options?

Agree Disagree

12. Of the two sites identified, which would you like to see completed first?

Aquatic Centre Site Civic Esplanade Site

Riverside Drive Pedestrian Crossings Class Environmental Assessment
Questionnaire #2

13. Please provide in the space below any other feedback or comments that you would like to have considered by the Project Team. (Please print)

A Pedestrian Underpass Needs Space
for the Ramp to be Open on the
High, South Side, Therefore it is Not
Appropriate at the Esplanade Location.

Summary of Comments

The following is a summary of comments that were received over the course of the EA. The comments were either received by e-mail or from the questionnaires collected at the public drop-in centres.

General

- This would be a great addition to the downtown area.
- Looking forward to seeing the final designs.
- Love this idea. Build it.
- Bury the cars, not the people in tunnels.
- Well landscaped underpasses would be nice but not a priority right now.
- Traffic lights suffice for now. An underpass for the future would be nice.
- Underpass could be a safety concern but it is a good idea.
- Not having to deal with traffic would be a good thing. New development on the Riverfront is long overdue. If done right it could be a big boost for downtown Windsor.
- Do not build an overpass.
- Underpass is a possibility only if done extremely well with a long span.

Safety

- Add lighting, cameras and music for safety.
- Lighting and security cameras would be required.

Connectivity

- This is an opportunity to stitch together downtown Windsor and its riverfront.
- This would create a great link to the downtown from south side of Ouellette.
- Building both would create a connecting circuit for the downtown.

Cost

- Spend this money on other enhancements to CRIP before such a major add on.
- Use the money for other projects.
- Too expensive right now.
- Low cost of long term upkeep and maintenance.

Aesthetics and Features

- Make it attractive as well as functional.
- Provide public art through an art competition.
- Decorate with street art to keep unwanted graffiti away.
- Not too much green space as dogs and geese would soil it.
- Make it skateboard unfriendly (no seatwalls).
- Make it green. Minimize pavement. Shade trees are important. Include skylight in a raised boulevard.
- Consider cycling accessibility. Cyclists should not have to dismount and become pedestrians to use the underpass.
- Design should consider future development. Adaptable to change and modernization over time. Consider multi-use in design.

Alternate Solutions Provided

- Reduce Riverside Drive to two lanes to slow down traffic from downtown to Devonshire road. Use nodes and centre boulevards to provide safe crossing opportunities for pedestrians.
- Slow traffic along Riverside Drive with lower speed limit and grade level solutions.
- Traffic calming, wide pedestrian at grade street crossing located at the Civic Esplanade with a grand 'city steps' staircase leading down to the riverfront behind Festival Plaza (illustrations provided and included in this section of the Project File).
- Need to develop a concept in which the vehicles go underground and the people are kept above ground on ground level. Make the north end of Ouellette a vehicle free zone. Eliminate the traffic stop at Ouellette and Riverside. Tunnel Riverside Drive underground and leave the pedestrians at street level.

Discussion of the Alternative Solutions

Lane reductions of Riverside Drive through the downtown:

It is beyond the scope of this EA to propose alterations to these cross sections. The Riverside Drive Vista Improvements Study established the approved roadway cross sections for Riverside Drive. Any improvements that are made to Riverside Drive have to follow this guideline moving forward. The Downtown Transportation Study has proposed to narrow Riverside Drive – providing to one lane of through traffic in each direction plus a centre turn lane. The Study is ongoing and has yet to be approved. If approved, the cross sections recommended in the Downtown Transportation Study will supersede the Vista study in terms of the approved Riverside Drive cross section.

Grand 'City Steps' with a wide at-grade crossing:

The scope of the EA is to address the issue of alternative pedestrian crossings along Riverside Drive. The opportunity for the City to implement enhanced grade crossings is available without the undertaking of an additional EA. The existing CRIP (Master Plan) and the Riverside Drive Vista Study, both propose enhanced at-grade crossings along Riverside Drive. The focus of the 'City Steps' concepts that were submitted seems to be the staircase component. The 'City Steps' proposal seems inconsistent with the recommendations of the CRIP study, which serves as the current Master Plan for development of the Windsor Riverfront Park. Also, the location of the proposed stairs will further complicate the resolution of current operational conflicts associated with Festival Plaza, by introducing more activity in the already congested 'back of stage' area.

Tunnel Riverside Drive underground and keep pedestrians at existing grade:

Such an option is not part of any masterplan that has been approved by the City. At this time, the Riverside Drive Vista Improvements Study forms the approved masterplan for the future Riverside Drive. Any improvements that are made to Riverside Drive have to follow this guideline moving forward. The masterplan can be changed – as noted, the Downtown Transportation Study is recommending that Riverside Drive be reduced to a single lane in each direction plus a turning lane. Since the Downtown Transportation study has yet to be completed or approved, the Vista Study comprises the approved master plan for Riverside Drive.

The cost of such a proposal would substantially exceed the cost to construct a pedestrian underpass. Also, such a project would be much more involved to provide an underpass for cars. There are many issues in general that would drive the cost – much larger size/span of structure needed, ventilation issues, major utilities and infrastructure will be affected. As well, how to deal with the many ‘dead end’ streets would be created and access to existing buildings and businesses along Riverside Drive with no other access. This would be a major undertaking and is not within the scope of this EA.



March 18, 2016

Project No. 15-022

Company
Branch
Address
City, Province Postal Code

Attention: Attention
Title

**Re: Riverside Drive Pedestrian Crossings
Class Environmental Assessment
Notice of Completion of Environmental Study**

Dear Special Greeting:

In accordance with the approved procedures contained in the Municipal Class Environmental Assessment, this letter is to advise you that the Class EA for the Riverside Drive Pedestrian Crossings has now been completed. Attached is a copy of the Notice of Completion.

Subject to comments received as a result of this Notice, and the receipt of necessary approvals, the City of Windsor may proceed with the design and construction of the project.

Yours truly,

Landmark Engineers Inc.

Daniel M. Krutsch, P. Eng.
Encl.

2280 Ambassador Drive
Windsor, Ontario
Canada
N9C 4E4

Phone:
(519) 972-8052
Fax:
(519) 972-8644

www.landmarkengineers.ca



Professional Engineers
Ontario



RIVERSIDE DRIVE PEDESTRIAN CROSSINGS CLASS ENVIRONMENTAL ASSESSMENT

NOTICE OF COMPLETION OF ENVIRONMENTAL STUDY

The City of Windsor is planning a grade-separated crossing of Riverside Drive based on the recommendation of the Central Riverfront Implementation Plan Review completed in 2013. The project is being planned under Schedule B of the Municipal Class Environmental Assessment. Subject to comments received as a result of this Notice, and the receipt of necessary approvals, the City of Windsor may proceed with the design and construction of the project.

The Environmental Study Report Project File is available for review at the following locations.

Windsor Public Library (Central Branch)
850 Ouellette Avenue
Windsor, ON N9A 4M9
Mon – Thu: 9:00am to 9:00pm
Fri - Sat: 9:00am to 5:00pm
Sun: 1:00pm to 5:00pm
Ph: (519) 255-6770

City of Windsor
City Hall, Clerk's Office
350 City Hall Square West
Suite 203
Windsor, ON N9A 6S1
Mon – Fri: 8:30am to 4:30pm
Ph: (519) 255-6100 ext.6378

Further information may be obtained from Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4. Telephone: 519-972-8052. Attention Mr. Daniel Krutsch P. Eng.

Interested persons should provide written comment to Landmark Engineers Inc. or City Clerk's office by April 25th, 2016.

If the concerns cannot be resolved, a person may request that the Minister of the Environment make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order) which addresses individual environmental assessments. Part II Order requests must detail the issues of concern and the rationale behind the request. Requests must be received by the Minister at the address listed below by April 25th, 2016. A copy of the Part II Order request must also be sent to the City of Windsor at the address listed above. If no Part II Order requests are received by April 25th, 2016, the City of Windsor may proceed with the design and construction of the project.

Part II Order requests should be sent to:

Minister of the Environment
135 St. Clair Ave. W., 12th Floor
Toronto, Ontario M4V 1P5

RIVERSIDE DRIVE PEDESTRIAN CROSSINGS CLASS ENVIRONMENTAL ASSESSMENT

NOTICE OF COMPLETION OF ENVIRONMENTAL STUDY

The City of Windsor is planning a grade-separated crossing of Riverside Drive based on the recommendation of the Central Riverfront Implementation Plan Review completed in 2013. The project is being planned under Schedule B of the Municipal Class Environmental Assessment. Subject to comments received as a result of this Notice, and the receipt of necessary approvals, the City of Windsor may proceed with the design and construction of the project if desired.

The Environmental Study Report Project File is available for review at the following locations.

Windsor Public Library

850 Ouellette Avenue

Windsor, ON N9A 4M9

Mon - Thu: 9:00am to 9:00pm

Fri - Sat: 9:00am to 5:00pm

Sun: 1:00pm to 5:00pm

Ph: (519) 255-6770

(Central Branch) City of Windsor

City Hall, Clerk's Office

350 City Hall Square West

Suite 203

Windsor, ON N9A 6S1

Mon - Fri: 8:30am to 4:30pm

Ph: (519) 255-6100 ext.6378

Further information may be obtained from Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, ON N9C 4E4. Telephone: 519-972-8052. Attention Mr. Daniel Krutsch P. Eng.

Interested persons should provide written comment to Landmark Engineers Inc. or City Clerk's office by April 25th, 2016.

If the concerns cannot be resolved, a person may request that the Minister of the Environment make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order) which addresses individual environmental assessments. Part II Order requests must detail the issues of concern and the rationale behind the request. Requests must be received by the Minister at the address listed below by April 25th, 2016. A copy of the Part II Order request must also be sent to the City of Windsor at the address listed above. If no Part II Order requests are received by April 25th, 2016, the City of Windsor may proceed with the design and construction of the project if desired.

Part II Order requests should be sent to:

Minister of the Environment

135 St. Clair Ave. W., 12th Floor

Toronto, Ontario M4V 1P5

Liz Michaud

From: Liz Michaud <lmichaud@landmarkengineers.ca>
Sent: Monday, April 11, 2016 10:58 AM
To: 'sheri.doxtator@oneida.on.ca'
Subject: Riverside Drive Pedestrian Crossings Environmental Assessment

Good Morning Chief Sheri Doxtator,

I would like to follow up regarding the Notice of Completion for the above noted project that was sent on March 18, 2016. If you have **no further interest** in this project I would appreciate a quick reply of “no further interest” so that we may fulfill our consultation obligations for this EA. If you **do have interest** and would like further consultation, please contact me at your earliest convenience so we can discuss your questions and concerns.

Thank you,

Liz Michaud

Landmark Engineers Inc.

2280 Ambassador Drive

Windsor, ON, N9C 4E4

p (519) 972-8052

c (519) 999-8052

f (519) 972-8644

e lmichaud@landmarkengineers.ca

Liz Michaud

From: Liz Michaud <lmichaud@landmarkengineers.ca>
Sent: Monday, April 11, 2016 10:59 AM
To: 'hankr@metisnation.org'; reception@metisnation.org
Subject: Riverside Drive Pedestrian Crossings Environmental Assessment

Good Morning,

I would like to follow up regarding the Notice of Completion for the above noted project that was sent on March 18, 2016. If you have **no further interest** in this project I would appreciate a quick reply of “no further interest” so that we may fulfill our consultation obligations for this EA. If you **do have interest** and would like further consultation, please contact me at your earliest convenience so we can discuss your questions and concerns.

Thank you,

Liz Michaud

Landmark Engineers Inc.

2280 Ambassador Drive

Windsor, ON, N9C 4E4

p (519) 972-8052

c (519) 999-8052

f (519) 972-8644

e lmichaud@landmarkengineers.ca

Liz Michaud

From: Liz Michaud <lmichaud@landmarkengineers.ca>
Sent: Monday, April 11, 2016 11:01 AM
To: 'alya@metisnation.org'
Subject: Riverside Drive Pedestrian Crossings Environmental Assessment

Good Morning,

I would like to follow up regarding the Notice of Completion for the above noted project that was sent on March 18, 2016. If you have **no further interest** in this project I would appreciate a quick reply of “no further interest” so that we may fulfill our consultation obligations for this EA. If you **do have interest** and would like further consultation, please contact me at your earliest convenience so we can discuss your questions and concerns.

Thank you,

Liz Michaud

Landmark Engineers Inc.

2280 Ambassador Drive

Windsor, ON, N9C 4E4

p (519) 972-8052

c (519) 999-8052

f (519) 972-8644

e lmichaud@landmarkengineers.ca

Liz Michaud

From: Liz Michaud <lmichaud@landmarkengineers.ca>
Sent: Tuesday, April 19, 2016 4:02 PM
To: 'Ryall, Tammie (MOECC)'
Subject: RE: Riverside Drive Pedestrian Crossings Class EA, Notice of Completion of Environmental Study

Hi Tammie,
Thanks for re-sending - I didn't get the original e-mail you sent. Let me know if you have any questions once you review the information.
Thank you,

Liz Michaud
Landmark Engineers Inc.
p (519) 972-8052

-----Original Message-----

From: Ryall, Tammie (MOECC) [<mailto:Tammie.Ryall@ontario.ca>]
Sent: Tuesday, April 19, 2016 2:45 PM
To: Liz Michaud
Subject: Riverside Drive Pedestrian Crossings Class EA, Notice of Completion of Environmental Study

Hello Liz - I am not sure that my previous email was sent - so sending it again -

Thank you Liz for sending this information. I will review it. Tammie _____
From: Liz Michaud [lmichaud@landmarkengineers.ca]
Sent: April 11, 2016 10:37 AM
To: Ryall, Tammie (MOECC)
Subject: RE: Riverside Drive Pedestrian Crossings Class EA, Notice of Completion of Environmental Study

Good Morning Tammie,

I left a phone message earlier this morning, but I did not realize that the City of Windsor posted the entire EA online.

Here is the link:
<http://www.citywindsor.ca/cityhall/committeesofcouncil/Standing-Committees/Environment-Transportation-and-Public-Safety-Standing-Committee/Documents/Riverside%20Pedestrian%20Crossings%20EA%20-%20Council%20Copy.pdf>

All of our First Nations consultations and contacts are included in the distribution list. We are also in the midst of contacting all First Nations by phone to follow up prior to the expiration of the review period (April 25th, 2016). The link above was posted for the Council Services prior to the Notice of Completion letters being sent (so the letter is not included in the link above, as well the distribution list had not been updated). If you would like to have a more current copy of the distribution list I can send that to you.

If you have any further questions please don't hesitate to call me.

Thank you,

Liz Michaud
Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, ON, N9C 4E4
p (519) 972-8052
c (519) 999-8052
f (519) 972-8644
e lmichaud@landmarkengineers.ca

-----Original Message-----

From: Ryall, Tammie (MOECC) [<mailto:Tammie.Ryall@ontario.ca>]

Sent: March-30-16 4:29 PM

To: dkrutsch@landmarkengineers.ca

Cc: skrutsch@landmarkengineers.ca

Subject: Riverside Drive Pedestrian Crossings Class EA, Notice of Completion of Environmental Study

Dear Mr. Krutsch:

Thank you for forwarding the attached notice of completion.

I would appreciate receiving an electronic copy of the Environmental Study.

I also request a the record of Aboriginal consultation. Please advise if the Aboriginal consultation is contained in the Environmental Study or in a separate document.

If the documents are available for download on a website, please let me know.

Thank you in advance, Tammie

Tammie Ryall
Environmental Planner/Regional EA Coordinator Ministry of the Environmental and Climate Change Southwestern
Region
733 Exeter Road
London, ON N6E 1L3
Tel: 519-873-5115
Email: tammie.ryall@ontario.ca

Liz Michaud

From: Liz Michaud <lmichaud@landmarkengineers.ca>
Sent: Tuesday, April 19, 2016 4:08 PM
To: 'Muller, Joseph (MTCS)'
Subject: RE: Riverside Drive Pedestrian Crossings Class Environmental Assessment drop-in centre

Hi Joe,

The project file is not usually available electronically. Usually we send a CD to those who cannot view the file in person. If you would like me to send a CD please let me know.

The city did post a draft that you can see here:

<http://www.citywindsor.ca/cityhall/committeesofcouncil/Standing-Committees/Environment-Transportation-and-Public-Safety-Standing-Committee/Documents/Riverside%20Pedestrian%20Crossings%20EA%20-%20Council%20Copy.pdf>

I caution you that the AMICK report in the above link was not their final draft. I can send you a copy of their final report if that is what you are interested in.

Thank you,

Liz Michaud
Landmark Engineers Inc.
p (519) 972-8052

From: Muller, Joseph (MTCS) [mailto:Joseph.Muller@ontario.ca]
Sent: Tuesday, April 19, 2016 2:48 PM
To: Liz Michaud
Subject: RE: Riverside Drive Pedestrian Crossings Class Environmental Assessment drop-in centre

Hello Liz:

On another note, is there a digital copy of the ESR available? I can see the 2-page executive summary on the city's web page but I'd be interested in the full report and relevant appendices. Thanks,

Joe

Joseph Muller, RPP, MCIP

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

401 Bay Street, Suite 1700
Toronto, Ontario M7A 0A7

Tel. 416.314.7145 | Fax. 416.212.1802

From: Liz Michaud [<mailto:lmichaud@landmarkengineers.ca>]
Sent: April 8, 2016 4:07 PM
To: Muller, Joseph (MTCS)
Subject: RE: Riverside Drive Pedestrian Crossings Class Environmental Assessment drop-in centre

Thank you Joe. I will look into the discrepancy as well.

Liz Michaud
Landmark Engineers Inc.
p (519) 972-8052

From: Muller, Joseph (MTCS) [<mailto:Joseph.Muller@ontario.ca>]
Sent: Friday, April 08, 2016 3:09 PM
To: Liz Michaud
Subject: RE: Riverside Drive Pedestrian Crossings Class Environmental Assessment drop-in centre

Hi Liz:

As a heads-up, the archaeology side of our branch was in touch with me about the archaeology report submitted for this project. While page 17 of the PIC#2 deck indicates that there will be monitoring for deeply buried archaeology during construction by an archaeologist, this recommendation didn't make it into the archaeology report submitted to the Ministry (and it needs to be). The archaeologist will be getting correspondence from the Archaeology Review Officer to this effect, and please let me know if you have any questions. Take care,

Joe

Joseph Muller, RPP, MCIP

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

401 Bay Street, Suite 1700
Toronto, Ontario M7A 0A7

Tel. 416.314.7145 | Fax. 416.212.1802

From: Liz Michaud [<mailto:lmichaud@landmarkengineers.ca>]
Sent: December 8, 2015 10:07 AM
To: Muller, Joseph (MTCS)
Subject: RE: Riverside Drive Pedestrian Crossings Class Environmental Assessment drop-in centre

Joe,

I should be receiving the final report this week. I can forward it on when I have it if you like.

Thanks,

Liz Michaud
Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, ON, N9C 4E4
p (519) 972-8052
f (519) 972-8644
e-mail: lmichaud@landmarkengineers.ca

From: Muller, Joseph (MTCS) [<mailto:Joseph.Muller@ontario.ca>]
Sent: Tuesday, December 08, 2015 9:59 AM
To: Liz Michaud
Subject: RE: Riverside Drive Pedestrian Crossings Class Environmental Assessment drop-in centre

Thanks Liz – have you got a copy of the archaeology report yet? I'm going through the PIC#2 materials and wanted to see if this additional information was available yet. Take care,

Joe

Joseph Muller, RPP, MCIP

Heritage Planner
Ministry of Tourism, Culture and Sport
Culture Division | Programs and Services Branch | Culture Services Unit

401 Bay Street, Suite 1700
Toronto, Ontario M7A 0A7

Tel. 416.314.7145 | Fax. 416.212.1802

From: Liz Michaud [<mailto:lmichaud@landmarkengineers.ca>]
Sent: November 6, 2015 10:11 AM
To: Muller, Joseph (MTCS)
Subject: RE: Riverside Drive Pedestrian Crossings Class Environmental Assessment drop-in centre

Good Morning Joe,

As part of the EA we have engaged AMICK to produce a report specifically for our two potential sites. The report is in progress and we hope to receive the final report within the next two weeks.

There have been other reports prepared for sites in the vicinity of our sites which we have also consulted as a reference:

1. Mayer Heritage Consultants (For RTB by Stantec Consulting)–P040-300-2009
2. AMICK – May 1999 (Riverfront Park Shoreline for BTS) – Corporate #98-140 (no PIF # on the report)
3. AMICK – March 2005 (Riverfront Park Shoreline for Hrycay Engineering) – OM CIF # P058, Corporate # 25560 (no PIF # on the report)

Hopefully this will help you. If you cannot find the referenced reports I have copies of them here at the office. Once I have the final report for our specific sites from AMICK I would be happy to share that with you as well.

Thank you,

Liz Michaud
Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, ON, N9C 4E4
p (519) 972-8052
f (519) 972-8644
e-mail: lmichaud@landmarkengineers.ca

From: Muller, Joseph (MTCS) [<mailto:Joseph.Muller@ontario.ca>]
Sent: Friday, November 06, 2015 9:38 AM
To: Liz Michaud
Subject: RE: Riverside Drive Pedestrian Crossings Class Environmental Assessment drop-in centre

Hello Liz Michaud:

Thanks - I'm going over the materials you pointed me to for this project and have a question about the archaeology – I can't find the AMICK report in our database, so am hoping that you can forward me the PIF number for that work (a unique one gets assigned to every project information form – PIF - submitted by the consultant/licensee). It typically looks something like "P334-141-2011", and should be on the front cover or title page of the report. Once I get that I should be able to send you our comments in short order. Thanks again, and take care,

Joe

Joseph Muller, RPP, MCIP

Heritage Planner
Ministry of Tourism, Culture and Sport
Culture Division | Programs and Services Branch | Culture Services Unit

401 Bay Street, Suite 1700
Toronto, Ontario M7A 0A7

Tel. 416.314.7145 | Fax. 416.212.1802

From: Liz Michaud [<mailto:lmichaud@landmarkengineers.ca>]
Sent: October 13, 2015 1:53 PM
To: Muller, Joseph (MTCS)
Subject: RE: Riverside Drive Pedestrian Crossings Class Environmental Assessment drop-in centre

Good afternoon Joe,

As Dan mentioned in the e-mail below, all of the display materials will be posted on the City of Windsor's website after the open house. The website can be found by following the direct link here:

<http://www.citywindsor.ca/residents/Construction/Environmental-Assessments-Master-Plans/Pages/Riverside-Drive-Pedestrian-Crossing-Class-Environmental-Assessment.aspx>

Thank you for expressing interest in our project. If you have any additional questions or concerns please do not hesitate to contact myself or Dan.

Regards,

Liz Michaud

Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, ON, N9C 4E4
p (519) 972-8052
f (519) 972-8644
e-mail: lmichaud@landmarkengineers.ca

From: Dan Krutsch [<mailto:dkrutsch@landmarkengineers.ca>]
Sent: Tuesday, October 13, 2015 11:56 AM
To: 'Muller, Joseph (MTCS)'

Cc: lmichaud@landmarkengineers.ca

Subject: RE: Riverside Drive Pedestrian Crossings Class Environmental Assessment drop-in centre

Thank you for your reply Joe. As indicated in the notice letter, the panel information will be available for review on the City of Windsor's website. By copy of this email, I am asking that Liz Michaud (project lead) of our office forward you a direct link to where you will be able to review the information when it is posted. It should be available within a week following the open house.

Regards,
Dan

Daniel M. Krutsch, P.Eng.

Landmark Engineers Inc.

2280 Ambassador Drive

Windsor, ON, N9C 4E4

p (519) 972-8052

f (519) 972-8644

e-mail dkrutsch@landmarkengineers.ca

From: Muller, Joseph (MTCS) [<mailto:Joseph.Muller@ontario.ca>]

Sent: October-13-15 10:46 AM

To: dkrutsch@landmarkengineers.ca

Cc: pmourad@citywindsor.ca

Subject: Riverside Drive Pedestrian Crossings Class Environmental Assessment drop-in centre

Hello Daniel M. Krutsch:

Thank-you for circulating the notice of commencement and open house for this project: I am unable to attend the drop-in centre so am requesting a digital copy of the presentation/panel material, when it is available (presumably after the drop-in). Thanks in advance for your assistance, and take care,

Joe

Joseph Muller, RPP, MCIP

Heritage Planner

Ministry of Tourism, Culture and Sport

Culture Division | Programs and Services Branch | Culture Services Unit

401 Bay Street, Suite 1700

Toronto, Ontario M7A 0A7

Tel. 416.314.7145 | Fax. 416.314.7175

**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 7145
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 7145
Télééc: 416 212 1802



April 25, 2016 (EMAIL ONLY)

Daniel M. Krutsch, P.Eng
Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, ON, N9C 4E4
E: dkrutsch@landmarkengineers.ca

RE: MTCS file #: 0003761
Proponent: City of Windsor
Subject: Notice of Completion and Environmental Study Report (ESR)
Municipal Class Environmental Assessment (EA)
Riverside Drive Pedestrian Crossings
Location: Windsor, Ontario

Dear Daniel M. Krutsch:

Thank you for providing the Ministry of Tourism, Culture and Sport (MTCS) with the Notice of Completion and Draft ESR for your project. MTCS's interest in this EA 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 EA process, the proponent is required to determine a project's potential impact on cultural heritage resources. While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation. Aboriginal communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Aboriginal 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

A Stage 1-2 archaeological assessment (AA) has been being undertaken by an archaeologist licenced under the *OHA*, who has submitted the report recommending no further concerns directly to MTCS.

The project locations within the Detroit River flood plain increases the likelihood of deeply buried archaeological remains, as does the urban context and early EuroCanadian settlement of the area. Infill of water lots and early construction of the Riverside Drive (Front Road) may have resulted in buried soil horizons below fill layers: soil borehole data may provide insight on these potential scenarios, along with historical mapping of Windsor's along the waterfront. The PIC#2 material recognizes this archaeological potential by confirming that monitoring will take place during grading and excavation activities, while the submitted draft of the Stage 1-2 AA does not acknowledge this commitment.

When review of the submitted Stage 1-2 AA is complete, the Archaeology Review Officer will comment on any deficiency in the report, including this inconsistency and any other amendments required. Until these are addressed, MTCS retains an interest in archaeological resources for this Municipal Class EA project.

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 EA project may impact cultural heritage resources. The PIC#2 material affirms that there are no "Heritage Sites" on either of the sites, so as detailed in the EA Reporting section of this letter, please include the completed checklist and supporting documentation in an addendum to the EA report or file to document that screening has identified no known or potential cultural heritage resources, or no impacts to these resources.

The Detroit River is unique in being both a Canadian Heritage River and American Heritage River, so acknowledgement of this cultural heritage landscape feature is warranted. It is not anticipated that the project will impact the river itself, or that this recognition will require a cultural heritage evaluation report or heritage impact assessment.

Environmental Assessment Reporting

All technical heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MTCS when any further technical heritage studies are submitted for your EA project, and provide them to MTCS before commencement of construction activities on site. If your screening has identified no known or potential cultural heritage resources, or no impacts to these resources, please include the completed checklist and supporting documentation in the EA report or file.

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

Sincerely,

Joseph Muller, RPP/MCIP
Heritage Planner
Joseph.Muller@Ontario.ca

Copied to: Paul Mourad, P.Eng, City of Windsor Public Works

Liz Michaud, Landmark Engineers Inc.

Craig Newton, Environmental Planner and Environmental Assessment Coordinator
Ministry of the Environment and Climate Change

Meagan Brooks, Archaeology Review Officer, MTCS

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. MTCS makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MTCS be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Please notify MTCS if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists.

If human remains are encountered, all activities must cease immediately and the local police as well as the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services must be contacted. In situations where human remains are associated with archaeological resources, MTCS should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.

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
Riverside Drive Pedestrian Crossings Class Environmental Assessment

Project or Property Location (upper and lower or single tier municipality)
Windsor, Ontario

Proponent Name
Landmark Engineers Inc. on behalf of the City of Windsor

Proponent Contact Information
Dan Krutsch, Landmark Engineers Inc., 2280 Ambassador Drive, Windsor, Ontario, N9C 4E4, 519-972-8052

Screening Questions

1. Is there a pre-approved screening checklist, methodology or process in place? Yes No

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

2. Has the property (or project area) been evaluated before and found **not** to be of cultural heritage value? Yes No

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.

3. Is the property (or project area): Yes No

a. identified, designated or otherwise protected under the <i>Ontario Heritage Act</i> as being of cultural heritage value?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. a National Historic Site (or part of)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. designated under the <i>Heritage Railway Stations Protection Act</i> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. designated under the <i>Heritage Lighthouse Protection Act</i> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. has or is adjacent to a known burial site and/or cemetery?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. is in a Canadian Heritage River watershed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. contains buildings or structures that are 40 or more years old?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. has a special association with a community, person or historical event?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. contains or is part of a cultural heritage landscape?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

Summary:

The Underground Railroad Monument at the Civic Esplanade Site would be considered part of the cultural landscape. This monument was completed in 2003 and would be considered to have substantial built heritage at this point. The City has no intention of moving the monument and should the underpass project move forward, the monument (and foundation) would be protected during construction.

The project sites are adjacent to the Detroit River which is a heritage river. The project is not anticipated to have any impacts on the River itself and there will be no significant landscape changes in the immediate vicinity of the River.

There are no impacts to built heritage or cultural heritage landscapes anticipated for this project.

From: Liz Michaud <lmichaud@landmarkengineers.ca>

Sent: Fri 5/13/2016 11:59 AM

To: lmichaud@landmarkengineers.ca

Cc:

Bcc: 'cfndchief@live.com'; sheri.doxtator@oneida.on.ca; hankr@metisnation.org; reception@metisnation.org; alya@metisnation.org; 'chief@munsee.ca'

Subject: Riverside Drive Pedestrian Crossings Environmental Assessment

Good Morning,

I would like to follow up regarding the Notice of Completion for the above noted project that was sent on March 18, 2016. I also left a message on April 11th, 2016 offering further consultation if desired.

If you have **no further interest** in this project I would appreciate a quick reply of "no further interest" so that we may fulfill our consultation obligations for this EA. If you **do have interest** and would like further consultation, please contact me at your earliest convenience so we can discuss your questions and concerns.

Thank you,

Liz Michaud

Landmark Engineers Inc.

2250 Ambassador Drive

Windsor, ON, N9C 4E4

p (519) 972-8052

c (519) 999-8052

f (519) 972-8644

e lmichaud@landmarkengineers.ca

6.0 Distribution List and Communications Inventory

This section of the Project File contains a copy of the distribution list used throughout the study and a summary of the communications sent and received.

Riverside Drive Pedestrian Crossings Class Environmental Assessment Agency & Public Consultation - Distribution List & Communications Inventory

Provincial Agencies

Communications Sent

Communications Received

	Date	Type	Description	Date	Type	Description
Ministry of the Environment Water Investigations 125 Resources Road, West Wing, 1st Floor Toronto, ON M9P 2V6 Attn: Nadine Benoit	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	03/18/2016	Lettermail	Notice of Completion			
Ministry of the Environment MOE Sarnia District & MOE Windsor Area 1094 London Road Sarnia, Ontario N7S 1P1 Attn: Mr. Mike Moroney	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	03/18/2016	Lettermail	Notice of Completion			
Ministry of the Environment & Climate Change Southwestern Region 733 Exeter Road, 2nd Floor London, Ontario N6E 1L3 Attn: Ms. Tammie Ryall Regional Environmental Planner / Regional EA Coordinator	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment	9-Oct-15	email	provided comments
	9-Nov-15	Lettermail	Invitation to Comment	30-Mar-16	email	Requested copy of EA file
	18-Mar-16	Lettermail	Notice of Completion			
Ministry of the Environment Windsor Area Office 4510 Rhodes Drive, Unit 620 Windsor, Ontario N8W 5K5 Attn: Ms. Teri Gilbert	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Ontario Ministry of Transportation London Office, Exeter Road Complex 659 Exeter Road, 3rd Floor London, Ontario N6E 1L3 Attn: Mr. Gedes Mahabir	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Ontario Ministry of Transportation London Office, Exeter Road Complex 659 Exeter Road, 3rd Floor London, Ontario N6E 1L3 Attn: Ms. Cathy Giesbrecht	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Ontario Ministry of Natural Resources Aylmer District 615 John Street North Aylmer, Ontario N5H 2S8 Attn: Heather Riddell	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			

Ministry of Tourism, Culture and Sport Programs and Services Branch 401 Bay Street, Suite 1700 Toronto, ON M7A 0A7 Attn: Mr. Peter Armstrong	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Ministry of Tourism, Culture and Sport Programs and Services Branch 401 Bay Street, Suite 1700 Toronto, ON M7A 0A7 Attn: Mr. Joseph Muller, RPP, MCIP Heritage Planner	9-Nov-15	Lettermail	Invitation to Comment	6-Nov-15	email	provided comments
	27-Apr-16	email	submitted Built Heritage form as requested	8-Dec-15	email	provided comments
				8-Apr-16	email	provided comments
				25-Apr-16	email	provided comments
Ministry of Aboriginal Affairs Consultation Unit 160 Bloor St E, 9th Floor Toronto, Ontario M7A 2E6 Attn: David Pickles Team Lead	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Ministry of Agriculture Food and Rural Affairs 667 Exeter Road London, Ontario N6E 7L3 Attn: Mr. Drew Crinklaw Planner	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
	Rural					

Riverside Drive Pedestrian Crossings Class Environmental Assessment Agency & Public Consultation - Distribution List & Communications Inventory

Federal Agencies

Communications Sent

Communications Received

	Date	Type	Description	Date	Type	Description
Transport Canada Marine Office 100 S. Front Street Sarnia, Ontario N7T 2M4 Attn: Ms. Kelly Thompson Navigable Waters Protection Officer	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Transport Canada enviroont@tc.gc.ca Attn: Mr. David Zeit Attn: Anna Hamid	2-Oct-15	email	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment	25-Feb-16	email	Request to be removed from distribution list.
Environment Canada - Ontario Region Strategic Integration and Partnership Division Great Lakes Area of Concern Section 867 Lakeshore Rd Burlington, Ontario L7S 1A1 Attn: Ms. Sandra Kok	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Environment Canada Water Survey Division Meteorological Service of Canada 867 Lakeshore Road, Box #5050 Burlington, Ontario L7R 4A6 Attn: Mr. Tom Arsenault, C.E.T. Data Control Lead	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Fisheries and Oceans Canada 867 Lakeshore Road, Burlington, Ontario L7S 1A1 Attn: Ms. Cindy Latendresse	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Fisheries and Oceans Canada Canada Center for Inland Waters 867 Lakeshore Road, Burlington, Ontario L7S 1A1 Attn: David Gibson	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			

Riverside Drive Pedestrian Crossings Class Environmental Assessment Agency & Public Consultation - Distribution List & Communications Inventory

Aboriginal Affairs Canada

Communications Sent

Communications Received

	Date	Type	Description	Date	Type	Description
Aboriginal Affairs and Northern Development Canada Consultation and Accommodation Unit 8th Floor, CAU Unit, 10 Wellington Gatineau, Ontario K1A 0H4 Attn: Ms. Allison Berman Regional Subject Expert for Ontario	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Aboriginal Affairs and Northern Development Canada Litigation Management and Resolution Branch 10 Wellington Street Gatineau, Quebec K1A 0H4 Attn: Ms. Margaret Buist	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Aboriginal Affairs and Northern Development Canada Land and Trusts Services 25 St. Clair Avenue West, 8th Floor Toronto, Ontario M4T 1M2 Attn: Ms. Kerri Hurley Senior, Environmental Unit	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Aboriginal Affairs and Northern Development Canada Treaties and Aboriginal Government 10 Wellington St., 16th Floor Gatineau, Quebec K1A 0H4 Attn: Ms. Nancy Boucher Senior Policy Advisor	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Aboriginal Affairs and Northern Development Canada Specific Claims Branch, Ontario Team 1310-10 Wellington St. Gatineau, Quebec K1A 0H4 Attn: Mr. Stephen Gagnon Director General	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Aboriginal Affairs and Northern Development Canada Assessment and Historical Research 10 Wellington St., 16th Floor Gatineau, Quebec K1A 0H4 Attn: Mr. Sean Darcy Manager	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Aboriginal Affairs and Northern Development Canada Environment and Natural Resources 25 St-Clair Avenue East, 8th Floor Toronto, Ontario M4T 1M2 Attn: Mr. Daniel Wren Environmental Officer	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Aboriginal Affairs and Northern Development Canada Policies & Development Coordination Branch - Treaties 10 Wellington St., 8th Floor Gatineau, Quebec K1A 0H4 Attn: Mr. Perry Billingsley Director General	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			

Ministry of Aboriginal Affairs Consultation Unit 160 Bloor Street East, 4th Floor Toronto, Ontario M7A 2E6 Attn: Ms. Heather Levesque Manager, Consultation Unit	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			

Riverside Drive Pedestrian Crossings Class Environmental Assessment Agency & Public Consultation - Distribution List & Communications Inventory

First Nations

Communications Sent

Communications Received

	<u>Communications Sent</u>			<u>Communications Received</u>		
	Date	Type	Description	Date	Type	Description
Walpole Island First Nation Bkejwanong Territory R.R.#3 Wallaceburg, Ontario N8A 4K9 Attn: Chief Daniel Miskokomon Copy of all correspondence to Mr. Dean Jacobs, Consultation Manager	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
	11-Apr-16	Phone	Offer furthur consultation if desired.			
	13-May-16	Phone	Offer furthur consultation if desired.			
Aamjiwnaang First Nation 978 Tashmoo Avenue Sarnia, Ontario N7T 7H5 Attn: Chief Chris Plain	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
	11-Apr-16	Phone	Offer furthur consultation if desired.			
	13-May-16	Phone	Offer furthur consultation if desired.			
Caldwell First Nation P.O. Box 388 Leamington, Ontario N8H 3W3 Attn: Chief Louise Hillier	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
	11-Apr-16	Phone	Offer furthur consultation if desired.			
	13-May-16	Phone	Offer furthur consultation if desired.			
Chippewas of Kettle & Stoney Point 6247 Indian Lane Kettle & Stoney Point, FN, Ontario N0N 1J0 Attn: Chief Thomas Bressette	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment	20-Nov-15	mail	Suzanne Bressette -no further engagement unless the scope changes
	18-Mar-16	Lettermail	Notice of Completion			
Chippewas of the Thames 320 Chippewa Road, R.R. #1 Muncey, Ontario N0L 1Y0 Attn: Chief Leslee White-eye	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment	26-Nov-15	mail	Mary Alikaakos - no concerns with project
	18-Mar-16	Lettermail	Notice of Completion			
	13-May-16	E-mail	Offer furthur consultation if desired.			
Munsee-Delaware Nation R.R. #1 Muncey, Ontario N0L 1Y0 Attn: Chief Roger Thomas chief@munsee.ca	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
	11-Apr-16	Phone	Offer furthur consultation if desired.			
	13-May-16	E-mail	Offer furthur consultation if desired.			

Six Nations of the Grand River Territory P.O. Box 5000 Ohsweken, Ontario N0A 1M0 Attn: Chief Ava Hill	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
	11-Apr-16	Phone	Offer furthur consultation if desired.			
	13-May-16	Phone	Offer furthur consultation if desired.			
Oneida Nation of the Thames 2212 Elm Avenue Southwold, Ontario N0L 3C0 Attn: Chief Sheri Doxtator sheri.doxtator@oneida.on.ca	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
	11-Apr-16	E-mail	Offer furthur consultation if desired.			
Metis Nation of Ontario Attn: Mr. Hank Rowlinson Hankr@metisnation.org and reception@metisnation.org	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
	11-Apr-16	E-mail	Offer furthur consultation if desired.			
	13-May-16	E-mail	Offer furthur consultation if desired.			
Metis Nation of Ontario Land, Resources and Consultation 75 Sherbourne St., Suite 222 Toronto, Ontario M5A 2P9 Attn: Mr. Hank Rowlinson	2-Oct-15	Lettermail/ email	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail/ email	Invitation to Comment			
	18-Mar-16	Lettermail/ email	Notice of Completion			
	11-Apr-16	E-mail	Offer furthur consultation if desired.			
	13-May-16	E-mail	Offer furthur consultation if desired.			
Metis Nation of Ontario Lands Resources and Consultations 500 Old St. Patrick St. Ottawa, Ontario K1N 9G4 Attn: Mr. Aly Alibhai alya@metisnaiton.org	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
	11-Apr-16	E-mail	Offer furthur consultation if desired.			
	13-May-16	E-mail	Offer furthur consultation if desired.			
Metis Nation of Ontario Windsor-Essex Métis Council 600 Tecumseh Road East Windsor, Ontario N8X 4X9 Attn: Mr. Feliciano Tasabal Council	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
	11-Apr-16	Phone	Offer furthur consultation if desired.			
	13-May-16	Phone	Offer furthur consultation if desired.			

Moravian of the Thames Delaware Nation 14760 School House Line, R.R. #3 Thamesville, Ontario N0P 2K0 Attn: Chief Gergory Peters	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
	11-Apr-16	Phone	Offer furthur consultation if desired.			
	13-May-16	Phone	Offer furthur consultation if desired.			

April 11th, 2016 - An attempt was made to contact each of the First Nations to offer furthur consultation if desired. Phone calls were made and messages were left. For those who provided e-mail addresses, an e-mail was sent as well. A copy of the e-mail can be found in Section 5 - Correspondence of the Project File.

May 13th, 2016 - An attempt was made to contact each of the First Nations to offer furthur consultation if desired. Phone calls were made and messages were left. For those who provided e-mail addresses, an e-mail was sent as well. A copy of the e-mail can be found in Section 5 - Correspondence of the Project File.

Riverside Drive Pedestrian Crossings Class Environmental Assessment Agency & Public Consultation - Distribution List & Communications Inventory

Municipal Agencies and Utilities

Communications Sent

Communications Received

	Date	Type	Description	Date	Type	Description
Hydro One Network Planning Department 56 Embro Street P.O. Box 130 Beachville, Ontario N0J 1A0 Attn: Cindy MacNamara Senior Planning Technician	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Hydro One Network 185 Clegg Road Markham, Ontario L6G 1B7 Attn: Mr. Jim Oriotis Senior Real Estate Coordinator	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Essex Power Corporation 2730 Highway #3, Oldcastle, Ontario, N0R 1L0 Attn: Mr. Ray Tracey President	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment	26-Oct-15	email	per M. Alzher; no further interest
	9-Nov-15	Lettermail	Invitation to Comment			
Essex Power Corporation 2730 Highway #3, Oldcastle, Ontario, N0R 1L0 Attn: Mr. Mark Alzher Engineering & Asset Manager	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment	26-Oct-15	email	no further interest
	9-Nov-15	Lettermail	Invitation to Comment			
Hydro One Networks Inc. Transmission Lines & Row Sustainment 483 Bay Street, TCT 15, North Tower Toronto, Ontario M5G 2P5 Attn: Mr. Anthony Ierullo Senior Network Management Engineer	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Union Gas Ltd. 3840 Rhodes Drive P.O. Box 700 Windsor, Ontario N9A 6N7 Attn: Ms. Andrea Seguin District Manager	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Enwin Utilities Windsor Utilities Commission 4545 Rhodes Drive P.O. Box 1625, Station A Windsor, Ontario N9A 5T7 Attn: Mr. John Wladarski V/P Asset Management	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Enwin Utilities Windsor Utilities Commission 4545 Rhodes Drive P.O. Box 1625, Station A Windsor, Ontario N9A 5T7 Attn: Mr. Marvio Vinhaes Director, Engineering	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment	11-Nov-15	mail	Steve Bastournas - no further interest
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			

Bell Canada 1149 Goyeau St., 1st Floor Windsor, Ontario N9A 1H9 Attn: Mr. Tyson Feurth	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Bell Canada 1149 Goyeau St., 1st Floor Windsor, Ontario N9A 1H9 Attn: Mr. Randy Matis	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Cogeco Cable 2525 Dougall Ave. Windsor, Ontario N8X 5A7 Attn: Bill Sorrell Lead Hand, Engineering	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
City of Windsor Fire Department 815 Goyeau Street Windsor, Ontario N9A 1H7 Attn: Mr. Bruce Montone Chief	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Windsor Police Services Office of the Chief of Police P.O. Box 60 Windsor, Ontario N9A 6J5 Attn: Mr. Barry Horrobin Director of Planning & Physical Resources	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment	26-Oct-15	email/questionnaire	provided comments
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Tourism Windsor Essex Pelee Island 333 Riverside Drive West Suite 103 Windsor, Ontario N9A 7C5 Attn: Mr. Gordon Orr CEO	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Ministry of Municipal Affairs & Housing Southwestern Municipal Services Office 659 Exeter Road, 2nd Floor London, Ontario N6E 1L3 Attn: Ms. Marion Cabral Planner	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail/ email	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
County of Essex County Engineering Department 360 Fairview Avenue West Essex, Ontario N8M 1Y6 Attn: Mr. Tom Bateman, P. Eng County Engineer	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			

County of Essex County Planning Department 360 Fairview Avenue West Essex, Ontario N8M 1Y6 Attn: Mr. Bill King County Planning Advisor	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
County of Essex County Engineering Department 360 Fairview Avenue West Essex, Ontario N8M 1Y6 Attn: Mr. James Bryant, E.I.T., B.A.Sc. Environmental Assessment Coordinator	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Town of Lasalle 5950 Malden Road LaSalle, Ontario N9H 1S4 Attn: Mr. Robert Rudak Superintendant of Waste Water & Drainage	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Hydro One Networks Inc. Mr. Charles s. Esendal, P.Eng. secondaryLandUse@HydroOne.com	2-Oct-15	email	Notice of Intent & Invitation to Comment			
	9-Nov-15	email	Invitation to Comment			
	21-Mar-16	email	Notice of Completion			
CAW Windsor Regional Environment Council Attn: Mr. Mark Bartlett mbartlett@local444.caw.ca	2-Oct-15	email	Notice of Intent & Invitation to Comment			
	9-Nov-15	email	Invitation to Comment			
	21-Mar-16	email	Notice of Completion			
Windsor-Essex Country Environment Committee 4155 Ojibway Parkway Windsor, Ontario N9C 4A5 Attn: Ms. Averil Parent Environmental Coordinator	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Greater Essex County District School Board 451 Park Street West, Box 210 Windsor, Ontario N9A 6K1 Attn: Ms. Erin Kelly Director of Education	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment	14-Oct-15	email	interest in project
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Windsor-Essex Catholic District School Board 1325 California Ave Windsor, Ontario N9B 3Y6 Attn: Mr. Paul Picard Director of Education	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Citizens Environment Alliance 1950 Ottawa Street Windsor, Ontario N8Y 1R7 Attn: Mr. Derek Coronado Administrator	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			

Windsor Bicycling Committee 350 City Hall Square West, Room 203 Windsor, Ontario N9A 6S1 Attn: Dr. Christopher Waters, Chair c/o Ms. Karen Kadour, Council Services Dept.	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Windsor Heritage Committee 350 City Hall Square West, Room 203 Windsor, Ontario N9A 6S1 Attn: Mr. John Colhoun, Planner c/o Ms. Karen Kadour, Council Services Dept.	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Windsor Accessibility Advisory Committee 350 City Hall Square West, Room 203 Windsor, Ontario N9A 6S1 Attn: Ms. Gail Jones, Officer c/o Ms. Karen Kadour, Council Services Dept.	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
City of Windsor 1266 McDougall Avenue Windsor, Ontario N8X 3M7 Attn: Mr. Mark Winterton, P.Eng. City Engineer	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
City of Windsor Field Services and Maintenance 1531 Crawford Avenue Windsor, Ontario N8X 2A9 Attn: Mr. Phong Nguy Manager of Contracts	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
City of Windsor 1266 McDougall Avenue Windsor, Ontario N8X 3M7 Attn: Mr. Dwayne Dawson Executive Director of Operations	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
City of Windsor Planning Department 400 City Hall Square E, Suite 404B Windsor, Ontario N9A 7K6 Attn: Mr. Thom Hunt City Planner/Executive Director	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
City of Windsor 350 City Hall Square W, 4th Floor Windsor, Ontario N9A 6S1 Attn: Mr. Paul Mourad, P.Eng. Project Administrator	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
City of Windsor Legal Department 400 City Hall Square E, Suite 201 Windsor, Ontario N9A 7K6 Attn: Ms. Shelby Askin Hager City Solicitor	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			

City of Windsor Development Projects & Right of Way 350 City Hall Square W, 4th Floor Windsor, Ontario N9A 6S1 Attn: Ms. France Isabelle-Tunks, P.Eng. Senior Manager	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Essex Region Conservation Authority 360 Fairview Avenue West, Suite 311 Essex, Ontario N8M 1Y6 Attn: Mr. Richard Wyma	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Essex Region Conservation Authority 360 Fairview Avenue West, Suite 311 Essex, Ontario N8M 1Y6 Attn: Mr. John Henderson, P.Eng.	2-Oct-15	Lettermail	Notice of Intent & Invitation to Comment	9-Oct-15	email	M.Nelson provided comments
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Essex Region Conservation Authority 360 Fairview Avenue West, Suite 311 Essex, Ontario N8M 1Y6 Attn: Mr. Mike Nelson Watershed Planner	9-Nov-15	Lettermail	Invitation to Comment	9-Oct-15	email	M.Nelson provided comments
	18-Mar-16	Lettermail	Notice of Completion			

Riverside Drive Pedestrian Crossings Class Environmental Assessment Agency & Public Consultation - Distribution List & Communications Inventory

Notices Posted at Adjacent Apartment Buildings

Communications Sent

Communications Received

	Date	Type	Description	Date	Type	Description
111 Riverside Drive E Contact Information: Essex Condominium Corporation No. 39 c/o Arnsby Property Management 924 Oxford Street East London, ON N5Y 3J9	6-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
255 Riverside Drive E Property Owner Address: Windsor-Essex Community Housing Corporation 945 McDougall Street Windsor, ON N9A 1L9 email: kschofield@wehc.com	6-Oct-15	Lettermail/ email	Notice of Intent & Invitation to Comment			
	9-Oct-15	hand delivered	Flyer of Notice to post in building			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Ontario Casino Corporation Casino Windsor 250 Windsor Avenue, Floor 6 Windsor, ON N9A 6V9	6-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
491 Riverside Drive West Farhi Holdings Corporation 484 Richmond Street London, ON N6A 3E6 email: georgette@fhc.ca	6-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
515 Riverside Drive W. - Waterpark Place Condo Contact Information: Canadian Niagra Investment Inc. 80 Acadia Avenue 100 Markham, ON L3R 9V1	6-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Oct-15	hand delivered	Flyer of Notice to post in building			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
137 Bruce Ave.- Palmer Apartments Contact Information: 1017134 B C Ltd. 8760 MyHill Road Richmond, BC V6Y 2J2	6-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Oct-15	hand delivered	Flyer of Notice to post in building			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
524 Pitt Street West - Dieppe Park Apts. Marda Managements 1671 Victoria Avenue Windsor, ON N8X 1P6 Att: Ms. Carla Coffin	6-Oct-15	Lettermail	Notice of Intent & Invitation to Comment			
	9-Oct-15	hand delivered	Flyer of Notice to post in building			
	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			

Riverside Drive Pedestrian Crossings Class Environmental Assessment Agency & Public Consultation - Distribution List & Communications Inventory

Public

Communications Sent

Communications Received

	<u>Communications Sent</u>			<u>Communications Received</u>		
	Date	Type	Description	Date	Type	Description
Mr. & Mrs. Don St. Denis 515 Riverside Drive West, Unit 1608 Windsor, Ontario N9A 7C3	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Mr. Christopher Waters 811 Devonshire Road Windsor, Ontario N8Y 2M3	9-Nov-15	Lettermail	Invitation to Comment	26-Oct-15	e-mail	provided comments
	18-Mar-16	Lettermail	Notice of Completion			
Mr. Joe Passa 374 Ouellette Avenue, Suite 802 Windsor, Ontario N9A 1A8	9-Nov-15	Lettermail	Invitation to Comment	15-Oct-15	e-mail	provided comments
				26-Nov-15	e-mail	provided comments
	18-Mar-16	Lettermail	Notice of Completion			
Ms. Simona Simion, Planner II Corporation of the City of Windsor Planning Department 400 City Hall Square East, Suite 404 Windsor, Ontario N9A 7K6	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Ms. Jill MacDonald Corporation of the City of Windsor Planning Department 400 City Hall Square East, Suite 404 Windsor, Ontario N9A 7K6 Email: jmacdonald@citywindsor.ca	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Mr. Kevin Kuprowski 400 City Hall Square West, Suite 410 Windsor, Ontario N9L 7K6	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Mr. Mark Lefebvre 1122 Lincoln Road Windsor, Ontario N8Y 2H7	9-Nov-15	Lettermail	Invitation to Comment	15-Oct-15	questionnaire	submitted questionnaire
	18-Mar-16	Lettermail	Notice of Completion			
Mr. Kevin Alexander 1760 Partington Avenue Windsor, Ontario N9B 2R3	9-Nov-15	Lettermail	Invitation to Comment	15-Oct-15	questionnaire	submitted questionnaire
	18-Mar-16	Lettermail	Notice of Completion			

Windsor Essex County Health Unit 360 Fairview Avenue West, Suite 215 Windsor, Ontario N8S 2Y1 Att: Ms. Cathy Copot-Nepszy Email: cnepszy@wechu.org	9-Nov-15	Lettermail	Invitation to Comment	26-Nov-15	e-mail	provided comments
	18-Mar-16	Lettermail	Notice of Completion			
Mr. Phil Marentette 1242 Parkview Avenue Windsor, Ontario N9A 4W6	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Mr. David Hanna 4119 Mount Royal Windsor, Ontario N9G 2C3 Email: dhan96@hotmail.com	9-Nov-15	Lettermail	Invitation to Comment	15-Oct-15	questionnaire	submitted questionnaire
	18-Mar-16	Lettermail	Notice of Completion			
Mr. Andrew Dowie 1266 McDougall Street Windsor, Ontario N8X 3M7	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Mr. & Mrs. Gord Henderson 880 Bartlet Drive Windsor, Ontario N9G 1V4	9-Nov-15	Lettermail	Invitation to Comment	15-Oct-15	questionnaire	submitted questionnaires
	18-Mar-16	Lettermail	Notice of Completion			
Ms. Victoria Townsend 2107 Amy Lynn Park Drive Windsor, Ontario N9E 4N1	9-Nov-15	Lettermail	Invitation to Comment	15-Oct-15	questionnaire	provided comments
Mr. Robert Patyll 1137 - 401 Ouellette Avenue Windsor, Ontario N9A 1B2	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Ms. Anastasia Timakis 402 - 575 Riverside Drive West Windsor, Ontario N9A 7C3	9-Nov-15	Lettermail	Invitation to Comment			
	18-Mar-16	Lettermail	Notice of Completion			
Ms. Jane Deneau 3125 Massey Court Windsor, Ontario N9E 2Z6	9-Nov-15	Lettermail	Invitation to Comment	15-Oct-15	questionnaire	submitted questionnaire
	18-Mar-16	Lettermail	Notice of Completion			
Ms. Cynthia Cakebread 515 Victoria Avenue Windsor, Ontario N8X 1P4	9-Nov-15	Lettermail	Invitation to Comment	22-Oct-15	questionnaire	submitted questionnaire
	18-Mar-16	Lettermail	Notice of Completion			
Mr. Klaus Dohring kdohring@greensunrising.com				25-Nov-15	questionnaire	submitted questionnaire
				26-Nov-15	e-mail	provided comments
	21-Mar-16	email	Notice of Completion			

Mr. Donald Leung 1207-515 Riverside Drive Windsor, Ontario N9A 7C3				25-Nov-15	questionnaire	submitted questionnaire
	21-Mar-16	Lettermail	Notice of Completion			
Mr. Paul Collins 1005-515 Riverside Drive Windsor, Ontario N9A 7C3				25-Nov-15	questionnaire	submitted questionnaire
	21-Mar-16	Lettermail	Notice of Completion			
Mr. Adam Mitchell 1496 Giles Blvd. E. Windsor, Ontario N9A 4H1				25-Nov-15	questionnaire	submitted questionnaire
	21-Mar-16	Lettermail	Notice of Completion			
Mr. William Bucholtz 1704-515 Riverside Drive Windsor, Ontario N9A 7C3				25-Nov-15	questionnaire	submitted questionnaire
	21-Mar-16	Lettermail	Notice of Completion			
Mr. William Rankine 2074 Arras Avenue Windsor, Ontario N8W 1T4				25-Nov-15	questionnaire	submitted questionnaire
	21-Mar-16	Lettermail	Notice of Completion			
Mr. Adam Crumb 178 Janette Avenue Windsor, Ontario N9A 4Y8				25-Nov-15	questionnaire	submitted questionnaire
Mr. Hamid Tabti 2302 Randolph Avenue Windsor, Ontario N9E 3X4				25-Nov-15	questionnaire	submitted questionnaire
	21-Mar-16	Lettermail	Notice of Completion			
Mr. Mike McWhor 286 Hall Avenue Windsor, Ontario N9A 2L6				25-Nov-15	questionnaire	submitted questionnaire
	21-Mar-16	Lettermail	Notice of Completion			
Ms. Aseel Alshawakn 120 Caron Avenue Windsor, Ontario N9A 6W7				25-Nov-15	questionnaire	submitted questionnaire
	21-Mar-16	Lettermail	Notice of Completion			
Mr. & Mrs. Hotte 515 Riverside Drive Windsor, Ontario N9A 7C3	21-Mar-16	Lettermail	Notice of Completion			
E. Santin 111 Riverside Drive East Windsor, Ontario N9A 2S6	21-Mar-16	Lettermail	Notice of Completion			

7.0 Report Prepared by AMICK Consultants Ltd.

This section of the Project File contains a copy of the Archaeological Assessment report prepared by AMICK Consultants Ltd.

Conclusion and Recommendations:

- The study area has been identified as an area of archaeological potential.
- As a result of the property Assessment of both sites, no archaeological resources were encountered.
- Monitoring of the study area should be performed during grading and excavation work under the supervision of a licenced archaeologist or the area may be stripped in advance of construction under the supervision of a licenced archaeologist to ensure there are no disruptions if material is found.



1.0 PROJECT REPORT COVER PAGE

LICENSEE INFORMATION:

Contact Information:

Michael B. Henry CD BA FRAI FRSA
Managing Partner
Lakelands District Office
380 Talbot Street, P.O. Box 29
Port McNicoll, ON L0K 1R0
Phone: (705) 534-1546 Fax: (705) 534-7855
Email: mhenry@amick.ca
www.amick.ca

Licensee:

Sarah MacKinnon MSc

Ontario Archaeology Licence:

P1024

PROJECT INFORMATION:

Corporate Project Number:

15825

MTCS Project Number:

P1024-0096-2015

Investigation Type:

Stage 1-2 Archaeological Assessment

Project Name:

Riverside Drive Pedestrian Crossing.

Project Location:

Part of Lot 79 and Part of Lot 83, Concession 1
(Geographic Township of East Sandwich,
County of Essex), City of Windsor

APPROVAL AUTHORITY INFORMATION:

File Designation Number:

Not Currently Available

REPORTING INFORMATION:

Site Record/Update Forms:

N/A

Date of Report Filing:

13 May 2016

Type of Report:

REVISED

2.0 EXECUTIVE SUMMARY

This report describes the results of the 2015 Stage 1-2 Archaeological Assessment of the Riverside Drive Pedestrian Crossing, Part of Lot 79 and Part of Lot 83, Con. 1, (Geographic Township of East Sandwich, County of Essex), City of Windsor (AMICK File #15825/MTCS File #P1024-0096-2015), conducted by AMICK Consultants Limited. This study was conducted under Professional Archaeologist License #P1024 issued to Sarah MacKinnon by the Minister of Tourism, Culture and Sport for the Province of Ontario. This assessment was undertaken as a requirement under the Environmental Assessment Act (RSO 1990b) as a component study of a Municipal Class Environmental Assessment (EA). As part of the EA, an evaluation of archaeological potential for any areas potentially impacted by the proposed undertaking is required and, where applicable, an archaeological assessment report completed by an archaeologist licensed by the Ministry of Tourism, Culture and Sport (MTCS) may be necessary. All work was conducted in conformity with Ontario Ministry of Tourism and Culture (MTC) Standards and Guidelines for Consultant Archaeologists (MTC 2011), the Ontario Heritage Act (RSO 1990a).

AMICK Consultants Limited was engaged by the proponent to undertake a Stage 1-2 Archaeological Assessment of lands potentially affected by the proposed undertaking and was granted permission to carry out archaeological fieldwork. The entirety of the study area was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment on 06 October 2015, consisting of test pit survey at an interval of five metres in undisturbed areas and at an interval of ten metres between individual test pits in order to confirm prior disturbance in areas documented as reclaimed land. All records, documentation, field notes, photographs and artifacts (as applicable) related to the conduct and findings of these investigations are held at the Lakelands District corporate offices of AMICK Consultants Limited until such time that they can be transferred to an agency or institution approved by the Ontario Ministry of Tourism, Culture and Sport (MTCS) on behalf of the government and citizens of Ontario.

As a result of the property Assessment of the study area, no archaeological resources were encountered. However, given the urban context of the proposed development within an area of documented early settlement, there remains the possibility for deeply buried archaeological deposits that have been capped by more recent fill soils and/or pavement. Consequently, the following recommendations are made:

- *Stage 2 archaeological assessment through mechanical trenching or monitoring during construction to confirm disturbance and removal of archaeological potential or to identify areas of remaining archaeological potential is recommended.*
- *Further background research is recommended as part of the additional Stage 2 Property Assessment in order to further aid in the identification of possible areas of archaeological potential (e.g. Fire insurance plans and archival research for property specific histories).*

3.0 TABLE OF CONTENTS

1.0 PROJECT REPORT COVER PAGE	1
2.0 EXECUTIVE SUMMARY	2
3.0 TABLE OF CONTENTS	3
4.0 PROJECT PERSONNEL	3
5.0 PROJECT BACKGROUND	4
6.0 FIELD WORK METHODS AND WEATHER CONDITIONS	17
7.0 RECORD OF FINDS	21
8.0 ANALYSIS AND CONCLUSIONS	22
9.0 RECOMMENDATIONS	29
10.0 ADVICE ON COMPLIANCE WITH LEGISLATION	32
11.0 BIBLIOGRAPHY AND SOURCES	33
12.0 MAPS	35
13.0 IMAGES	43

4.0 PROJECT PERSONNEL

AMICK CONSULTANTS LIMITED PARTNERS

Michael Henry (MTCS Professional Archaeologist Licence #P058)

Marilyn Cornies (MTCS Professional Archaeologist Licence #P038)

AMICK CONSULTANTS LIMITED BUSINESS MANAGER

Melissa Maclean BBA email mmaclean@amick.ca

PROJECT CONSULTANT ARCHAEOLOGIST

Sarah MacKinnon (MTCS Professional Archaeologist Licence #P1024)

PROJECT FIELD DIRECTORS

Michael Henry (MTCS Professional Archaeologist Licence #P058)

PROJECT FIELD ASSISTANT

Marilyn Cornies (MTCS Professional Archaeologist Licence #P038)

PROJECT REPORT PREPARATION

Michael Henry (MTCS Professional Archaeologist Licence #P058)

PROJECT DRAUGHTING

Elizabeth Grant

PROJECT PHOTOGRAPHY

Michael Henry (MTCS Professional Archaeologist Licence #P058)

5.0 PROJECT BACKGROUND

5.1 DEVELOPMENT CONTEXT

This report describes the results of the 2015 Stage 1-2 Archaeological Assessment of the Riverside Drive Pedestrian Crossing, Part of Lot 79 and Part of Lot 83, Con. 1, (Geographic Township of East Sandwich, County of Essex), City of Windsor (AMICK File #15825/MTCS File #P1024-0096-2015), conducted by AMICK Consultants Limited. This study was conducted under Professional Archaeologist License #P1024 issued to Sarah MacKinnon by the Minister of Tourism, Culture and Sport for the Province of Ontario. This assessment was undertaken as a requirement under the Environmental Assessment Act (RSO 1990b) as a component study of a Municipal Class Environmental Assessment (EA). As part of the EA, an evaluation of archaeological potential for any areas potentially impacted by the proposed undertaking is required and, where applicable, an archaeological assessment report completed by an archaeologist licensed by the Ministry of Tourism, Culture and Sport (MTCS) may be necessary. All work was conducted in conformity with Ontario Ministry of Tourism and Culture (MTC) Standards and Guidelines for Consultant Archaeologists (MTC 2011), the Ontario Heritage Act (RSO 1990a).

AMICK Consultants Limited was engaged by the proponent to undertake a Stage 1-2 Archaeological Assessment of lands potentially affected by the proposed undertaking and was granted permission to carry out archaeological fieldwork. The entirety of the study area was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment on 06 October 2015, consisting of test pit survey at an interval of five metres in undisturbed areas and at an interval of ten metres between individual test pits in order to confirm prior disturbance in areas documented as reclaimed land. All records, documentation, field notes, photographs and artifacts (as applicable) related to the conduct and findings of these investigations are held at the Lakelands District corporate offices of AMICK Consultants Limited until such time that they can be transferred to an agency or institution approved by the Ontario Ministry of Tourism, Culture and Sport (MTCS) on behalf of the government and citizens of Ontario.

Detailed Plans of the options under consideration for the proposed undertaking were not available as of the date that this report was prepared. The proponent provided location aerial images to assist in the completion of the Stage 2 Property Assessment.

5.2 HISTORICAL CONTEXT

As part of the present study, background research was conducted in order to determine the archaeological potential of the proposed project area.

“A Stage 1 background study provides the consulting archaeologist and Ministry report reviewer with information about the known and potential cultural heritage resources within a particular study area, prior to the start of the field assessment.” (OMCzCR 1993)

The evaluation of potential is further elaborated Section 1.3 of the Standards and Guidelines for Consultant Archaeologist (2011) prepared by the Ontario Ministry of Tourism and Culture:

“ The Stage 1 background study (and, where undertaken, property inspection) leads to an evaluation of the property’s archaeological potential. If the evaluation indicates that there is archaeological potential anywhere on the property, the next step is a Stage 2 assessment.”
(MTC 2011: 17)

Features or characteristics that indicate archaeological potential when documented within the study area, or within close proximity to the study area (as applicable), include:

- “ - previously identified archaeological sites*
 - water sources (It is important to distinguish types of water and shoreline, and to distinguish natural from artificial water sources, as these features affect site locations and types to varying degrees.):*
 - primary water sources (lakes, rivers, streams, creeks)*
 - secondary water sources (intermittent streams and creeks, springs, marshes, swamps)*
 - features indicating past water sources (e.g., glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches)*
 - accessible or inaccessible shoreline (e.g., high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh)*
 - elevated topography (e.g., eskers, drumlins, large knolls, plateaux)*
 - pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground*
 - distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings.*
 - resource areas, including:*
 - food or medicinal plants (e.g., migratory routes, spawning areas, prairie)*
 - scarce raw materials (e.g., quartz, copper, ochre or outcrops of chert)*
 - early Euro-Canadian industry (e.g., fur trade, logging, prospecting, mining)*
 - areas of early Euro-Canadian settlement. These include places of early military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches and early cemeteries. There may be commemorative markers of their history, such as local, provincial, or federal monuments or heritage parks.*
 - Early historical transportation routes (e.g., trails, passes, roads, railways, portage routes)*
 - property listed on a municipal register or designated under the Ontario Heritage Act 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”*
(MTC 2011: 17-18)

The evaluation of potential does not indicate that sites are present within areas affected by proposed development. Evaluation of potential considers the possibility for as yet undocumented sites to be found in areas that have not been subject to systematic archaeological investigation in the past. Potential for archaeological resources is used to determine if property assessment of a study area or portions of a study area is required.

“Archaeological resources not previously documented may also be present in the affected area. If the alternative areas being considered, or the preferred alternative selected, exhibit either high or medium potential for the discovery of archaeological remains an archaeological assessment will be required.”

(MCC & MOE 1992: 6-7)

“The Stage 1 background study (and, where undertaken, property inspection) leads to an evaluation of the property’s archaeological potential. If the evaluation indicates that there is archaeological potential anywhere on the property, the next step is a Stage 2 assessment.”

(MTC 2011: 17)

In addition, archaeological sites data is also used to determine if any archaeological resources had been formerly documented within or in close proximity to the study area and if these same resources might be subject to impacts from the proposed undertaking. This data was also collected in order to establish the relative significance of any resources that might be encountered during the conduct of the present study. For example, the relative rarity of a site can be used to assign an elevated level of significance to a site that is atypical for the immediate vicinity. The requisite archaeological sites data of previously registered archaeological sites was collected from the Programs and Services Branch, Culture Programs Unit, MTCS and the corporate research library of AMICK Consultants Limited. The Stage 1 Background Research methodology also includes a review of the most detailed available topographic maps, historical settlement maps, archaeological management plans (where applicable) and commemorative plaques or monuments. When previous archaeological research documents lands to be impacted by the proposed undertaking or archaeological sites within 50 metres of the study area, the reports documenting this earlier work are reviewed for pertinent information. AMICK Consultants Limited will often modify this basic methodology based on professional judgment to include additional research (such as, local historical works or documents and knowledgeable informants).

5.2.1 CURRENT CONDITIONS

The study area consists of two distinct parcels of land. Combined, the total project area is approximately (1.05 hectares). The first of these (a.k.a. Site 1) is the more westerly of the two and is situated with the former Lot 79, Concession 1 in the Geographic Township of East

Sandwich. This parcel is situated between Bruce Avenue to the west and the Windsor Art Gallery to the east. The study area straddles Riverside Drive and measures roughly 125 metres along its long axis from north to south and approximately 60 metres along its short axis from east to west (0.75 hectare). This parcel is nearly adjacent to the Riverwalk along the south shore of the Detroit River. Both sides of Riverside Drive are contained within existing park areas. There are artificial landscape areas within each parcel. The portion south of Riverside Drive includes an outdoor art display. Various sculptural works are situated on gravel or concrete pads within the lawn area of the park. Concrete walkways cross the area and converge at the south end of the study area at the location of a circular garden surrounding one of the art works. On the north side of Riverside Drive is a steep slope which presumably is the original or historic bank of the Detroit River. This slope leads down to a flat area of reclaimed river that was used as railway lands. Figure 2, which is the historic atlas map shows the former railway terminating in close proximity to the study area as of the date that the atlas was produced in 1881.

The location of Site 1 is illustrated in Figures 1 & 2. A separate aerial image of Site 1 as provided by the proponent is included as Figure 3. Figure 5 illustrates the study area of Site 1 together with current conditions and the methodology of assessment.

The second parcel (a.k.a. Site 2) is the eastern segment and is situated with the former Lot 83, Concession 1 in the Geographic Township of East Sandwich (0.30 hectare). The property is located primarily within the Civic Esplanade midway between Pitt Street East to the east and Goyeau Street to the west. The study area extends north from Pitt Street East at the south edge across Riverside Drive and part way across the parking lot area at the Civic Terrace for a distance of approximately 100 metres. The study area is roughly 30 metres wide. The area south of Riverside Drive consists of a series of artificial sequential parallel mounds between two concrete walkways leading from Riverside Drive to Pitt Street East. At the south end of the Civic Esplanade is a monument to the participants in the Underground Railway.

The location of Site 2 is illustrated in Figures 1 & 2. A separate aerial image of Site 2 as provided by the proponent is included as Figure 4. Figure 6 illustrates the study area of Site 2 together with current conditions and the methodology of assessment.

5.2.2 GENERAL HISTORICAL OUTLINE

Essex County was among the first areas of Ontario to be settled. The original settlers were primarily disbanded French soldiers or former fur traders. Permanent settlement began on what was to become the Canadian side of the Detroit River in 1747, at this time these lands were largely inhabited by native peoples, both the Huron and the Ottawas had villages in the area. (www.windsor-essex.info)

Sandwich was one of the original towns in Essex County and grew up across the river from the fort on the Detroit side. Although settlement had begun earlier the town of Sandwich was established in 1796 when the British gave up Detroit in accordance with the Jay Treaty.

Many of the early settlers were Loyalists who chose to remain loyal to the crown and settled therefore on the Canadian side of the river. In 1845 an act to better define counties and townships in Ontario defined the Boundaries of the Township of Sandwich. (www.windsor-essex.info)

Figure 2 is a facsimile segment of the Township of Sandwich map reproduced from the Essex Supplement in Illustrated Atlas of the Dominion of Canada. (H. Belden & Co. 1881). Figure 2 illustrates the location of the study area and environs as of 1881. Site 1 (the western parcel) is situated within Lot 79, Concession 1 and Site 2 is within Lot 83, Concession 1 of East Sandwich. At the time that the map was prepared both properties are situated within the area of urban density development associated with the growing community of Windsor. The Canadian Pacific Railway is shown to terminate just to the west of Site 2. The street plan is clearly visible with Riverside Drive defining the northern edge of urban development. Riverside Drive is believed to be situated adjacent to the original south bank of the Detroit River and is the oldest road in the area. It was established by the French in the 18th century. The land north of Riverside Drive, which was created by dumping fill into the Detroit River, is shown as largely vacant and is not depicted as within the urban fabric of Windsor. This area was probably maintained as relatively open land for the purposes of cross border communications and transportation facility development.

5.2.3 SUMMARY OF HISTORICAL CONTEXT

The brief overview of documentary evidence readily available indicates that the study area is situated within an area that was close to the historic transportation routes and in an area well populated during the nineteenth century and as such has potential for sites relating to early Euro-Canadian settlement in the region. Background research indicates the property has potential for significant archaeological resources of Native origins based on proximity to a natural source of potable water in the past.

5.3 ARCHAEOLOGICAL CONTEXT

5.3.1 PREVIOUS ARCHAEOLOGICAL ASSESSMENTS

Background research shows that one (1) previous study has taken place within 50m of the study area. For further information see:

Cataraqui Archaeological Research Foundation. (1990). *The CNR Riverfront Lands, AbHs-11, Archaeological Assessment Project 1989*. (No MTCS or Corporate File Numbers provided). Cataraqui Archaeological Research Foundation (CARF), Kingston, Ontario. Archaeological License Report on File With the Ministry of Tourism, Culture and Sport, Toronto, Ontario.

Data contained in previous archaeological reports in close proximity to the study area that is relevant to Stage 1 Background Study is defined within the Standards and Guidelines for Consultant Archaeologists in Section 7.5.8 Standard 4 as follows:

“Provide descriptions of previous archaeological fieldwork carried out within the limits of, or immediately adjacent to the project area, as documented by all available reports that include archaeological fieldwork carried out on the lands to be impacted by this project, or where reports document archaeological sites immediately adjacent (i.e., within 50 m) to those lands.”

(MTCS 2011: 126 Emphasis Added)

The above noted report details, “archaeological fieldwork carried out on the lands to be impacted by this project”, and documents a known archaeological site within 50 metres of the study area (Site 2).

The Standards and Guidelines for Consultant Archaeologists stipulates that the necessity to summarize the results of previous archaeological assessment reports, or to cite MTCS File Numbers in references to other archaeological reports, is reserved for reports that are directly relevant to the fieldwork and recommendations for the study area (S & Gs 7.5.7, Standard 2, MTC 2011: 125). This is further refined and elaborated upon in Section 7.5.8, Standards 4 & 5, MTC 2011:

“4. Provide descriptions of previous archaeological fieldwork carried out within the limits of, or immediately adjacent to the project area, as documented by all available reports that include archaeological fieldwork carried out on the lands to be impacted by this project, or where reports document archaeological sites immediately adjacent (i.e., within 50m) to those lands.”

“5. If previous findings and recommendations are relevant to the current stage of work, provide the following:

- a. *a brief summary of previous findings and recommendations*
- b. *documentation of any differences in the current work from the previously recommended work*
- c. *rationale for the differences from the previously recommended work”*

(Emphasis Added)

CARF completed an assessment of the CNR Riverfront Lands in 1989 prior to the transfer of the lands to the City of Windsor for redevelopment as a waterfront park area. The lands immediately to the north of Riverside Drive within the study area of Site 2 were a part of the area addressed in this previous assessment. The fieldwork component of that study was undertaken from 25 September to 21 November 1989. Michael Henry, Partner of AMICLK Consultants Limited, and now Field Director and Report Author for the current study, was the Assistant Field Director for the CARF study and also catalogued all recovered artifacts and produced all graphics (including maps) for this earlier work. Since that time, Mr. Henry has completed a number of studies in the City of Windsor including several along the bank of the Detroit River. As a result of this study a number of archaeological resources were identified but most did not require further study beyond the original assessment. Most of the component lands were found to be entirely disturbed (see CARF 1990: 47-56). Two sites

were identified that required further study one was a remnant of a First Nations village site from the Post Contact era which is far from the areas affected by the proposed undertaking and the second was a former train station found within 50 metres of the study area.

“These remains are the only intact and apparently relatively undisturbed features of the entire train period encountered through the testing program. A further investigation of the area should centre around the delineation of the perimeter of the building to ascertain dimensional agreement between the historic documentation and construction reality, as well as any interior room divisions. Artifact remains will possible shed light on the functional use of these rooms over time. The connection between the two distinct foundations should be investigated to determine whether they are in fact two separate phases of construction, evidence of repairs or renovations, or functionally distinct construction techniques used simultaneously.”

(CARF 1990: 53-54)

Further testing of the site was completed by CARF in 1991. This site has been registered as the Train Depot Site (AbHs-13). There is no possibility that this site extends into the study area. Although the site is within 50 metres of the edge of the current study area, the site is too small and too far from the study area to be directly affected by the proposed undertaking.

5.3.2 CITY OF WINDSOR ARCHAEOLOGICAL MASTER PLAN

The study area is located in an area of high archaeological potential due to its location relative to water transportation routes, historic transportation routes, and pre-contact and post-contact settlement areas, reported in the Archaeological Master Plan Study Report for the City of Windsor (Culture Resource Management Group Limited, Fisher Archaeological Consulting, Historic Horizon Inc., Dillon Consulting Limited, 2005).

5.3.3 PREVIOUSLY REGISTERED ARCHAEOLOGICAL SITES

5.3.3.1 First Nations Registered Sites

A summary of registered and/or known archaeological sites within a 1-kilometre radius of the study area was gathered from the Archaeological Sites Database, administered by MTCS. As a result it was determined that no (0) archaeological sites relating directly to First Nations habitation/activity had been formally registered within the immediate vicinity of the study area. However, the lack of formally documented archaeological sites does not mean that First Nations people did not use the area; it more likely reflects a lack of systematic archaeological research in the immediate vicinity.

The distance to water criteria used to establish potential for archaeological sites suggests potential for First Nations occupation and land use in the area in the past. This consideration establishes archaeological potential within the study area.

Table 1 illustrates the chronological development of cultures within southern Ontario prior to the arrival of European cultures to the area at the beginning of the 17th century. This general cultural outline is based on archaeological data and represents a synthesis and summary of research over a long period of time. It is necessarily generalizing and is not necessarily representative of the point of view of all researchers or stakeholders. It is offered here as a rough guideline and outline to illustrate the relationships of broad cultural groups and time periods.

TABLE 1 CULTURAL CHRONOLOGY FOR SOUTH-CENTRAL ONTARIO

Years ago	Period	Southern Ontario
250	Terminal Woodland	Ontario and St. Lawrence Iroquois Cultures
1000 2000	Initial Woodland	Princess Point, Saugeen, Point Peninsula, Meadowood Cultures
3000 4000 5000 6000	Archaic	Laurentian Culture
7000 8000 9000 10000 11000	Palaeo-Indian	Plano and Clovis Cultures
		(Wright 1972)

5.3.3.2 Euro-Canadian Registered Sites

A summary of registered and/or known archaeological sites within a 1-kilometre radius of the study area was gathered from the Archaeological Sites Database, administered by MTCS. As a result it was determined that two (2) archaeological sites relating directly to Euro-Canadian habitation/activity had been formally registered within the immediate vicinity of the study area. All previously registered Euro-Canadian sites are briefly described below in Table 2:

TABLE 2 EURO-CANADIAN SITES WITHIN 1KM

Site Name	Borden #	Site Type	Cultural Affiliation
Train Depot	AbHs-13	Railway Depot	Post-Contact Euro-Canadian
Senator David A. Croll Park	AbHs-15	Midden, House	Post-Contact Euro-Canadian

As noted above, the Train Depot Site (AbHs-13) is located within 300 metres of the study area. This contributes to archaeological potential for further remains dating from that period to be found within the study area. In addition, although the site is within 50 metres of the study area, there is no possibility that the proposed undertaking will impact this site.

TRAIN DEPOT (ABHS-13)

The Train Depot site (AbHs-13) is further discussed in is further discussed in the Archaeological Master Plan Study Report for the City of Windsor (Culture Resource Management Group Limited, Fisher Archaeological Consulting, Historic Horizon Inc., Dillon Consulting Limited, 2005). The entire discussion of the Train Depot site (AbHs-13) from the Master Plan is included below:

“The Train Depot site is located on C.N. Riverfront lands, on property adjacent to the Detroit River and is directly across from the foot of Goyeau Street. The land is mostly comprised of fill material that was laid down to create the rail bed for the Great Western Railway in the mid 19th century. The site was investigated in 1989 by C.A.R.F. (1992:27). They excavate two trenches and discovered remnants of the train depot’s foundation. They noted “two distinct building styles [that] may correspond to two construction periods (1857-1882 and 1884-1961)”

(CRM 2005: 3-19)

SENATOR DAVID A. CROLL PARK (AbHs-15)

The Senator David A. Croll Park site (AbHs-15) is further discussed in the Archaeological Master Plan Study Report for the City of Windsor (Culture Resource Management Group Limited, Fisher Archaeological Consulting, Historic Horizon Inc., Dillon Consulting Limited, 2005). The entire discussion of the Senator David A. Croll Park site (AbHs-15) from the Master Plan is included below:

“The Croll Park site was registered after archaeological monitoring of the Tourist Information Center construction in 1991 and sidewalks in 1994, revealed 19th century brick building foundation s and domestic artifacts dating as early as 1800 (MPA 1991, 1991a; Mayer 1994). However, when the adjacent Civic Square was upgraded in 1998, recommendations for monitoring subsequent landscape modifications were not implemented in spite of the recommendations for a Stage 1 assessment study (Henderson 1998).”

(CRM 2005: 3-19)

5.3.3 LOCATION AND CURRENT CONDITIONS

The study area is described as the Riverside Drive Pedestrian Crossing, Part of Lot 79 and Part of Lot 83, Con. 1, (Geographic Township of East Sandwich, County of Essex), City of Windsor. This assessment was undertaken as a requirement under the Environmental Assessment Act (RSO 1990b) as a component study of a Municipal Class Environmental Assessment (EA). As part of the EA, an evaluation of archaeological potential for any areas potentially impacted by the proposed undertaking is required and, where applicable, an archaeological assessment report completed by an archaeologist licensed by the Ministry of Tourism, Culture and Sport (MTCS) may be necessary.

The study area consists of two distinct parcels of land. Combined, the total project area is approximately (1.05 hectares). The first of these (a.k.a. Site 1) is the more westerly of the

two and is situated with the former Lot 79, Concession 1 in the Geographic Township of East Sandwich. This parcel is situated between Bruce Avenue to the west and the Windsor Art Gallery to the east. The study area straddles Riverside Drive and measures roughly 125 metres along its long axis from north to south and approximately 60 metres along its short axis from east to west (0.75 hectare). This parcel is nearly adjacent to the Riverwalk along the south shore of the Detroit River. Both sides of Riverside Drive are contained within existing park areas. There are artificial landscape areas within each parcel. The portion south of Riverside Drive includes an outdoor art display. Various sculptural works are situated on gravel or concrete pads within the lawn area of the park. Concrete walkways cross the area and converge at the south end of the study area at the location of a circular garden surrounding one of the art works. On the north side of Riverside Drive is a steep slope which presumably is the original or historic bank of the Detroit River. This slope leads down to a flat area of reclaimed river that was used as railway lands. Figure 2, which is the historic atlas map shows the former railway terminating in close proximity to the study area as of the date that the atlas was produced in 1881.

The location of Site 1 is illustrated in Figures 1 & 2. A separate aerial image of Site 1 as provided by the proponent is included as Figure 3. Figure 5 illustrates the study area of Site 1 together with current conditions and the methodology of assessment.

The second parcel (a.k.a. Site 2) is the eastern segment and is situated with the former Lot 83, Concession 1 in the Geographic Township of East Sandwich (0.30 hectare). The property is located primarily within the Civic Esplanade midway between Pitt Street East to the east and Goyeau Street to the west. The study area extends north from Pitt Street East at the south edge across Riverside Drive and part way across the parking lot area at the Civic Terrace for a distance of approximately 100 metres. The study area is roughly 30 metres wide. The area south of Riverside Drive consists of a series of artificial sequential parallel mounds between two concrete walkways leading from Riverside Drive to Pitt Street East. At the south end of the Civic Esplanade is a monument to the participants in the Underground Railway.

The location of Site 2 is illustrated in Figures 1 & 2. A separate aerial image of Site 2 as provided by the proponent is included as Figure 4. Figure 6 illustrates the study area of Site 2 together with current conditions and the methodology of assessment.

5.3.4 PHYSIOGRAPHIC REGION

The study area is within the St. Clair Clay Plains. The St. Clair clay plains cover 2, 270 square miles including the Counties of Essex, Kent and Lambton. The region has little relief varying between 575 and 700 feet a.s.l. in most areas. The counties of Lambton and Essex are till plains which have been smoothed by deposits of lacustrine clay which has settled in depressions as a result of glacial lakes Whittlesey and Warren which covered the whole area. A deep cover of overburden lies on the bedrock creating good conditions for vegetation (Chapman and Putnam 1984: 147-148).

5.3.5 SURFACE WATER

Sources of potable water, access to waterborne transportation routes, and resources associated with watersheds are each considered, both individually and collectively to be the highest criteria for determination of the potential of any location to support extended human activity, land use, or occupation. Accordingly, proximity to water is regarded as the primary indicator of archaeological site potential. The Standards and Guidelines for Consultant Archaeologists stipulates that undisturbed lands within 300 metres of a water source are considered to have archaeological potential (MTC 2011: 21).

Site 1 is within 20 metres of the Detroit River and Site 2 is within 50 metres of the Detroit River. The presumed historic south bank of the Detroit River passes through both study areas immediately to the north of Riverside Drive.

5.3.6 CURRENT PROPERTY CONDITIONS CONTEXT

Current characteristics encountered within an archaeological research study area determine if property Assessment of specific portions of the study area will be necessary and in what manner a Stage 2 Property Assessment should be conducted, if necessary. Conventional assessment methodologies include pedestrian survey on ploughable lands and test pit methodology within areas that cannot be ploughed. For the purpose of determining where property Assessment is necessary and feasible, general categories of current landscape conditions have been established as archaeological conventions. These include:

5.3.6.1 BUILDINGS AND STRUCTURAL FOOTPRINTS

A building, in archaeological terms, is a structure that exists currently or has existed in the past in a given location. The footprint of a building is the area of the building formed by the perimeter of the foundation. Although the interior area of building foundations would often be subject to property Assessment when the foundation may represent a potentially significant historic archaeological site, the footprints of existing structures are not typically assessed. Existing structures commonly encountered during archaeological assessments are often residential-associated buildings (houses, garages, sheds), and/or component buildings of farm complexes (barns, silos, greenhouses). In many cases, even though the disturbance to the land may be relatively shallow and archaeological resources may be situated below the disturbed layer (e.g. a concrete garage pad), there is no practical means of assessing the area beneath the disturbed layer. However, if there were evidence to suggest that there are likely archaeological resources situated beneath the disturbance, alternative methodologies may be recommended to study such areas.

The study area contains no buildings or structural footprints.

5.3.6.2 DISTURBANCE

Areas that have been subjected to extensive and deep land alteration that has severely

damaged the integrity of archaeological resources are known as land disturbances. Examples of land disturbances are areas of “past quarrying, major landscaping, recent built and industrial uses, sewage and infrastructure development, etc.” (MCL 2005: 15), as well as driveways made of gravel or asphalt or concrete, in-ground pools, and wells or cisterns. Surfaces paved with interlocking brick, concrete, asphalt, gravel and other surfaces meant to support heavy loads or to be long wearing hard surfaces in high traffic areas, must be prepared by the excavation and removal of topsoil, grading, and the addition of aggregate material to ensure appropriate engineering values for the supporting matrix and also to ensure that the installations shed water to avoid flooding or moisture damage. All hard surfaced areas are prepared in this fashion and therefore have no or low archaeological potential. Major utility lines are conduits that provide services such as water, natural gas, hydro, communications, sewage, and others. These major installations should not be confused with minor below ground service installations not considered to represent significant disturbances removing archaeological potential, such as services leading to individual structures which tend to be comparatively very shallow and vary narrow corridors. Areas containing substantial and deeply buried services or clusters of below ground utilities are considered areas of disturbance, and may be excluded from Stage 2 Property Assessment. Disturbed areas are excluded from Stage 2 Property Assessment due to no or low archaeological potential and often because they are also not viable to assess using conventional methodology.

*“Earthwork is one of the major works involved in road construction. This process includes excavation, material removal, filling, compaction, and construction. Moisture content is controlled, and compaction is done according to standard design procedures. Normally, rock explosion at the road bed is not encouraged. While filling a depression to reach the road level, **the original bed is flattened after the removal of the topsoil.** The fill layer is distributed and compacted to the designed specifications. This procedure is repeated until the compaction desired is reached. **The fill material should not contain organic elements, and possess a low index of plasticity.** Fill material can include gravel and decomposed rocks of a particular size, but should not consist of huge clay lumps. Sand clay can be used. The area is considered to be adequately compacted when the roller movement does not create a noticeable deformation. **The road surface finish is reliant on the economic aspects, and the estimated usage.**” [Emphasis Added]*

(Goel 2013)

The supporting matrix of a hard paved surface cannot contain organic material which is subject to significant compression, decay and moisture retention. Topsoil has no engineering value and must be removed in any construction application where the surface finish at grade requires underlying support.

Installation of sewer lines and other below ground services associated with infrastructure development often involves deep excavation that can remove archaeological potential. This consideration does not apply to relatively minor below ground services that connect structures and facilities to services that support their operation and use. Major servicing

corridors will be situated within adjacent road allowances with only minor, narrow and relatively shallow underground services entering into the study area to connect existing structures to servicing mainlines. The relatively minor, narrow and shallow services buried within a residential property do not require such extensive ground disturbance to remove or minimize archaeological potential within affected areas.

The study area does contain previous disturbances. Both Site 1 and Site 2 are located in park areas recently developed within the downtown core of the City of Windsor. It is very likely that former construction and demolition activities have occurred within the limits of the study area. It is known that both areas contain extensive fill deposits below the slope to the north of Riverside Drive. Both areas exhibit landscape modifications and contain areas of paved asphalt roadway, concrete sidewalks, concrete or gravel bases for monuments and art works, etc. It is not known how extensive the disturbances may be beneath the surface of the grass in these areas as a result of urban renewal and demolition over the years.

5.3.6.3 LOW-LYING AND WET AREAS

Landscape features that are covered by permanently wet areas, such as marshes, swamps, or bodies of water like streams or lakes, are known as low-lying and wet areas. Low-lying and wet areas are excluded from Stage 2 Property Assessment due to inaccessibility.

The study area does not contain low-lying and wet areas.

5.3.6.4 STEEP SLOPE

Landscape which slopes at a greater than (>) 20 degree change in elevation, is known as steep slope. Areas of steep slope are considered uninhabitable, and are excluded from Stage 2 Property Assessment.

Although some portions of the study area that were subject to test pit survey may qualify as steep slope under the Standards and Guideline for Consultant Archaeologists (MTC 2011), AMICK Consultants Limited corporate policy is that slopes are to be test pit surveyed on any occasion where it is safe to do so. This exceeds the requirements of the Standards and Guidelines and offers greater surety of total coverage of viable assessment areas. Slopes are not assessed because steep slopes are interpreted to have low potential, not due to viability to assess, except in cases where the slope is severe enough to become a safety concern for archaeological field crews. In such cases, the Occupational Health and Safety Act takes precedence as indicated in the introduction to the Standards and Guidelines. Assessment of slopes, except where safety concerns arise, eliminates the invariably subjective interpretation of photographs that generates disputes between reviewers and consultant archaeologists. This is done to minimize delays due to conflicts in such interpretations and to increase the efficiency of review.

The study area does contain areas of steep slope. In both study area there is a steep slope immediately to the north of Riverside Drive. It is believed that this slope is roughly coincident with the historic embankment of the Detroit River.

5.3.6.5 WOODED AREAS

Areas of the property that cannot be ploughed, such as natural forest or woodlot, are known as wooded areas. These wooded areas qualify for Stage 2 Property Assessment, and are required to be assessed using test pit survey methodology.

The study area does not contain any wooded areas.

5.3.6.6 PLOUGHABLE AGRICULTURAL LANDS

Areas of current or former agricultural lands that have been ploughed in the past are considered ploughable agricultural lands. Ploughing these lands regularly turns the soil, which in turn brings previously buried artifacts to the surface, which are then easily identified during visual inspection. Furthermore, by allowing the ploughed area to weather sufficiently through rainfall, soil is washed off of exposed artifacts at the surface and the visibility of artifacts at the surface of recently worked field areas is enhanced markedly. Pedestrian survey of ploughed agricultural lands is the preferred method of physical assessment because of the greater potential for finding evidence of archaeological resources if present.

The study area does not contain any ploughable lands.

5.3.6.7 LAWN, PASTURE, MEADOW

Landscape features consisting of former agricultural land covered in low growth, such as lawns, pastures, meadows, shrubbery, and immature trees. These are areas that may be considered too small to warrant ploughing, (i.e. less than one hectare in area), such as yard areas surrounding existing structures, and land-locked open areas that are technically workable by a plough but inaccessible to agricultural machinery. These areas may also include open area within urban contexts that do not allow agricultural tillage within municipal or city limits or the use of urban roadways by agricultural machinery. These areas are required to be assessed using test pit survey methodology.

The study area consists largely of existing park maintained as lawn with occasional tree plantings and garden features.

5.3.7 SUMMARY

Background research indicates the vicinity of the study area has potential for archaeological resources of Native origins based on proximity to a source of potable water in the past. Background research also suggests potential for archaeological resources of Euro-Canadian

origins based on proximity to a known historic site, proximity to a historic roadway, and proximity to areas of documented historic settlement.

Current conditions within the study area indicate that some areas of the property may have no or low archaeological potential and do not require Stage 2 Property Assessment or should be excluded from Stage 2 Property Assessment. These areas include the asphalt roadway of Riverside Drive and the existing concrete and gravel surfaces which indicate grading below topsoil in these areas and are also areas that are not viable to assess. Normally, areas of steep slope would be considered to have low potential. However, in this instance because the earliest settlement of the current City of Windsor occurred along Riverside Drive and included development along the south bank of the Detroit River, this slope is considered to have potential to yield evidence of significant archaeological deposits related to the initial establishment and growth of the City of Windsor. A significant proportion of the study area does exhibit archaeological potential and therefore a Stage 2 Property Assessment is required.

Archaeological potential does not indicate that there are necessarily sites present, but that environmental and historical factors suggest that there may be as yet undocumented archaeological sites within lands that have not been subject to systematic archaeological research in the past.

6.0 FIELD WORK METHODS AND WEATHER CONDITIONS

This report confirms that the entirety of the study area was subject to visual inspection, and that the fieldwork was conducted according to the archaeological fieldwork standards and guidelines, including weather and lighting conditions. Weather conditions were appropriate for the fieldwork required to complete the necessary fieldwork and documentation appropriate to this study. The locations from which photographs were taken and the directions toward which the camera was aimed for each photograph are illustrated in Figures 4 & 5 of this report. Upon completion of the property inspection of the study area, it was determined that select areas would require Stage 2 archaeological assessment consisting of test pit survey methodology.

6.1 PROPERTY INSPECTION

A detailed examination and photo documentation was carried out on the study area in order to document the existing conditions of the study area to facilitate the Stage 2 Property Assessment. All areas of the study area were visually inspected and photographed. This component of the study was completed concurrently with the Stage 2 Property Assessment. The locations from which photographs were taken and the directions toward which the camera was aimed for each photograph are illustrated in Figures 4 & 5 of this report.

6.2 TEST PIT SURVEY

In accordance with the Standards and Guidelines for Consultant Archaeologists, test pit survey is required to be undertaken for those portions of the study area where deep prior disturbance had not occurred prior to assessment or which were accessible to survey. Test pit survey is only used in areas that cannot be subject to ploughing or cultivation. This report confirms that the conduct of test pit survey within the study area conformed to the following standards:

1. Test pit survey only on terrain where ploughing is not possible or viable, as in the following examples:

a. wooded areas

[Not Applicable – The study area does not contain any wooded areas]

b. pasture with high rock content

[Not Applicable - The study area does not contain any pastures with high rock content]

c. abandoned farmland with heavy brush and weed growth

[Not Applicable - The study area does not contain any abandoned farmland with heavy brush and weed growth]

d. orchards and vineyards that cannot be strip ploughed (planted in rows 5 m apart or less), gardens, parkland or lawns, any of which will remain in use for several years after the survey

[The study area contains areas of lawn within existing landscaped parks that could not be ploughed and was test pit surveyed at an interval of 10m between individual test pits in order to confirm disturbance as discussed below.]

e. properties where existing landscaping or infrastructure would be damaged. The presence of such obstacles must be documented in sufficient detail to demonstrate that ploughing or cultivation is not viable.

[The study area is to be maintained as park with landscape features including terraced lawn areas, walkways, patios and gardens, which are to be maintained; therefore ploughing, would damage or destroy these features. The study area is situated in an area of urban density development where there are numerous underground services such as hydro, water, sanitary sewer, gas, communications, etc. Many of these services support the existing use of the study area. Ploughing of the affected portions of the study area would therefore damage or destroy these services. All areas where existing landscaping or infrastructure would be damaged were test pit surveyed at an interval of 10 metres between individual test pits in order to confirm disturbance as discussed below.]

f. narrow (10 m or less) linear survey corridors (e.g., water or gas pipelines, road widening). This includes situations where there are planned impacts 10 m or less beyond the previously impacted limits on both sides of an existing linear corridor (e.g., two linear survey corridors on either side of an existing roadway). Where at the time of fieldwork the lands within the linear corridor meet the standards as stated under the above section on pedestrian survey land preparation, pedestrian survey must be carried out. Space test pits at maximum intervals of 5 m (400 test pits per hectare) in areas less than 300 m from any feature of archaeological potential.

[Not Applicable – The study area does not contain any linear corridors]

2. *Space test pits at maximum intervals of 5 m (400 test pits per hectare) in areas less than 300 m from any feature of archaeological potential.*
[All test pits were spaced at an interval of 10m between individual test pits in order to confirm disturbance as discussed below.]
3. *Space test pits at maximum intervals of 10 m (100 test pits per hectare) in areas more than 300 m from any feature of archaeological potential.*
[The entirety of the test pitted areas of the study area were assessed using high intensity test pit methodology at an interval of 10 metres between individual test pits in order to confirm disturbance as discussed below.]
4. *Test pit to within 1 m of built structures (both intact and ruins), or until test pits show evidence of recent ground disturbance.*
[Not Applicable – no structures are located within the study areas]
5. *Ensure that test pits are at least 30 cm in diameter.*
[All test pits were at least 30 cm in diameter]
6. *Excavate each test pit, by hand, into the first 5 cm of subsoil and examine the pit for stratigraphy, cultural features, or evidence of fill.*
[All test pits were excavated by hand into the first 5 cm of subsoil and examined for stratigraphy, cultural features, or evidence of fill]
7. *Screen soil through mesh no greater than 6 mm.*
[All soil was screened through mesh no greater than 6 mm]
8. *Collect all artifacts according to their associated test pit.*
[Not Applicable - No archaeological resources were encountered]
9. *Backfill all test pits unless instructed not to by the landowner.*
[All test pits were backfilled]

(MTC 2011: 31-32)

“A combination of property inspection and test pitting may be used when initial Stage 2 results determine that all or part of the project area may in fact be disturbed. The

Stage 2 survey may then consists of a detailed inspection (equivalent to Stage 1), combined with test pitting.”

- 1. If it was not done as part of Stage 1, inspect and document the disturbed areas according to the standards described for Stage 1 property inspections.*

[The disturbed areas of the study area were inspected and documented as per the standards described for Stage 1 property inspections. Apparent areas of disturbance where Stage 2 Property Assessment survey was not viable were mapped and documented photographically but excluded from the Stage 2 survey. Surfaces paved with interlocking brick, concrete, asphalt, gravel and other surfaces meant to support heavy loads or to be long wearing hard surfaces in high traffic areas, must be prepared by the excavation and removal of topsoil, grading, and the addition of aggregate material to ensure appropriate engineering values for the supporting matrix and also to ensure that the installations shed water to avoid flooding or moisture damage. All hard surfaced areas are prepared in this fashion and therefore have no or low archaeological potential. Disturbed areas are excluded from Stage 2 Property Assessment due to no or low archaeological potential and often because they are also not viable to assess using conventional methodology]

- 2. Place Stage 2 test pits throughout the disturbed areas according to professional judgment (and where physically viable) as to confirm that these areas have been completely disturbed.*

[An area of probable disturbance was identified during the property inspection conducted concurrently with the Stage 2 Property Assessment. This area consists of an area identified by previous studies as an area of infilling. Test pits were excavated in these areas to confirm that the soil consists entirely of fill. Test pits were excavated every 10m across the entirety of the disturbed portion of the study area. The excavated soil and the profiles of these test pits were examined to determine if each represented an area of disturbance. In this manner the extent of the disturbed area was delineated. This area was deemed to have low potential for archaeological resources. Once the extent and limits of the disturbance was identified, standard test pit survey at a 5-metre interval between test pits was resumed.]

(MTC 2011: 38)

Approximately 70% of the study area consisted of lawn area that was test pit surveyed at an interval of 10 metres between individual test pits in order to confirm disturbance as discussed above. Approximately 20% of the study area was reclaimed land consisting entirely of fill soil. Approximately 10% of the study area was not assessable due to the presence of existing hard surface pavements such as gravel, concrete and asphalt indicating low archaeological potential due to deep prior disturbance through grading below the topsoil layer.

7.0 RECORD OF FINDS

Section 7.8.2 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 137-138) outlines the requirements of the Record of Finds component of a Stage 2 report:

1. *For all archaeological resources and sites that are identified in Stage 2, provide the following:*
 - a. *a general description of the types of artifacts and features that were identified*
 - b. *a general description of the area within which artifacts and features were identified, including the spatial extent of the area and any relative variations in density*
 - c. *a catalogue and description of all artifacts retained*
 - d. *a description of the artifacts and features left in the field (nature of material, frequency, other notable traits).*
2. *Provide an inventory of the documentary record generated in the field (e.g. photographs, maps, field notes).*
3. *Submit information detailing exact site locations on the property separately from the project report, as specified in section 7.6. Information on exact site locations includes the following:*
 - a. *table of GPS readings for locations of all archaeological sites*
 - b. *maps showing detailed site location information.*

7.1 ARCHAEOLOGICAL RESOURCES

No archaeological resources of any description were encountered anywhere within the study area.

7.2 ARCHAEOLOGICAL FIELDWORK DOCUMENTATION

The documentation produced during the field investigation conducted in support of this report includes: two sketch maps, one page of photo log, one page of field notes, and 47 digital photographs.

8.0 ANALYSIS AND CONCLUSIONS

AMICK Consultants Limited was engaged by the proponent to undertake a Stage 1-2 Archaeological Assessment of lands potentially affected by the proposed undertaking and was granted permission to carry out archaeological fieldwork. The entirety of the study area was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment on 06 October 2015, consisting of test pit survey at an interval of five metres in undisturbed areas and at an interval of ten metres between individual test pits in order to confirm prior disturbance in areas documented as reclaimed land. All records, documentation, field notes, photographs and artifacts (as applicable) related to the

conduct and findings of these investigations are held at the Lakelands District corporate offices of AMICK Consultants Limited until such time that they can be transferred to an agency or institution approved by the Ontario Ministry of Tourism, Culture and Sport (MTCS) on behalf of the government and citizens of Ontario.

Section 7.7.3 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 132) outlines the requirements of the Analysis and Conclusions component of a Stage 1 Background Study.

- 1) *“Identify and describe areas of archaeological potential within the project area.*
- 2) *Identify and describe areas that have been subject to extensive and deep land alterations. Describe the nature of alterations (e.g., development or other activity) that have severely damaged the integrity of archaeological resources and have removed archaeological potential.”*

8.1 CHARACTERISTICS INDICATING ARCHAEOLOGICAL POTENTIAL

Section 1.3.1 of the Standards and Guidelines for Consultant Archaeologists specifies the property characteristics that indicate archaeological potential (MTC 2011: 17-18). Factors that indicate archaeological potential are features of the local landscape and environment that may have attracted people to either occupy the land or to conduct activities within the study area. One or more of these characteristics found to apply to a study area would necessitate a Stage 2 Property Assessment to determine if archaeological resources are present. These characteristics are listed below together with considerations derived from the conduct of this study.

- 1) *Previously Identified Archaeological Sites*
Previously registered archaeological sites have been documented within 300 metres of the study area.
- 2) *Water Sources*
Primary water sources are described as including lakes, rivers streams and creeks. Close proximity to primary water sources (300 metres) indicates that people had access to readily available sources of potable water and routes of waterborne trade and communication should the study area have been used or occupied in the past.

The Detroit River is a primary water source within 300 metres of the study area.

Secondary water sources are described as including intermittent streams and creeks, springs, marshes, and swamps. Close proximity (300 metres) to secondary water sources indicates that people had access to readily available sources of potable water, at least on a seasonal basis, and in some cases seasonal access to routes of waterborne trade and communication should the study area have been used or occupied in the past.

There are no identified secondary water sources within 300 metres of the study area.

3) *Features Indicating Past Water Sources*

Features indicating past water resources are described as including glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, and cobble beaches. Close proximity (300 metres) to features indicating past water sources indicates that people had access to readily available sources of potable water, at least on a seasonal basis, and in some cases seasonal access to routes of waterborne trade and communication should the study area have been used or occupied in the past.

The historic bank of the Detroit River traverses both sections of the study area and is therefore within 300 metres of the proposed undertaking.

4) *Accessible or Inaccessible Shoreline*

This form of landscape feature would include high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.

The existing and former banks of the Detroit River constitute shorelines within 300 metres of the study area. Although river banks would not generally be classified as a shoreline, the substantial width of the Detroit River makes it a significant body of water that was heavily exploited throughout history for resources and as a route of communication and trade.

5) *Elevated Topography*

Features of elevated topography that indicate archaeological potential include eskers, drumlins, large knolls, and plateaux.

There are no identified features of elevated topography within the study area. Riverside Drive and the lands to the south of Riverside Drive within both parcels are elevated well above the lower terrace of reclaimed land and the surface of the Detroit River.

6) *Pockets of Well-drained Sandy Soil*

Pockets of sandy soil are considered to be especially important near areas of heavy soil or rocky ground.

The soil throughout the study area is dark brown sand, which is consistent with the wider area surrounding the property. Therefore, the presence of this soil has no impact on potential within the study area, as the wider area is not known for clay soils or exposed bedrock.

7) *Distinctive Land Formations*

These are landscape features that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings.

There are no identified distinctive land formations within the study area.

8) Resource Areas

Resource areas that indicate archaeological potential include food or medicinal plants (e.g., migratory routes, spawning areas, and prairie), scarce raw materials (e.g., quartz, copper, ochre or outcrops of chert) and resources of importance to early Euro-Canadian industry (e.g., logging, prospecting, and mining).

There are no identified resource areas within the study area.

9) Areas of Early Euro-Canadian Settlement

These include places of early military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, and farmstead complexes), early wharf or dock complexes, pioneer churches and early cemeteries. There may be commemorative markers of their history, such as local, provincial, or federal monuments or heritage parks.

The study area is situated in close proximity to a historic community identified on the historic atlas map.

10) Early Historical Transportation Routes

This includes evidence of trails, passes, roads, railways, portage routes.

The study area is situated within 100 metres of an early settlement roads that appears on the Historic Atlas Map of 1881. Site 2 of the study area is situated within 100 metres of a railway line indicated on the historic atlas map. Both parcels are situated within 300 metres of a body of water that was used for waterborne trade and communication. In addition, the Detroit River is classified as a Heritage River and is designated under the Ontario Heritage Act.

11) Heritage Property

Property listed on a municipal register or designated under the *Ontario Heritage Act* or is a federal, provincial or municipal historic landmark or site.

There are no listed or designated heritage buildings or properties that form a part of the study area. There are no listed or designated heritage buildings or properties that are adjacent to the study area. The study area is part of the historic Civic Esplanade, which is a recent commemorative monument. However, given the importance of this monument to the City of Windsor it does have cultural heritage value, but this does not imply potential for archaeological resources to be present that are directly associated with this monument. This monument commemorates the Underground

Railway and the connection of this history to the City of Windsor. Any resources potentially associated with that aspect of Windsor's history would be considered to have high cultural value or interest, but not because of this monument. This monument is situated here because of a general recognition of the high cultural heritage value of this segment of Windsor's past.

12) Documented Historical or Archaeological Sites

This includes property that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations. These are properties which have not necessarily been formally recognized or for which there is additional evidence identifying possible archaeological resources associated with historic properties in addition to the rationale for formal recognition.

There are no known heritage features, or known historic sites, or known archaeological sites within the study area in addition to those formally documented with the appropriate agencies or previously noted under a different criterion.

8.2 CHARACTERISTICS INDICATING REMOVAL OF ARCHAEOLOGICAL POTENTIAL

Section 1.3.2 of the Standards and Guidelines for Consultant Archaeologists specifies the property characteristics which indicate no archaeological potential or for which archaeological potential has been removed (MTC 2011: 18-19). These characteristics are listed below together with considerations derived from the conduct of this study.

The introduction of Section 1.3.2 (MTC 2011: 18) notes that "*Archaeological potential can be determined not to be present for either the entire property or a part(s) of it when the area under consideration has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources. This is commonly referred to as 'disturbed' or 'disturbance', and may include:*"

1) Quarrying

There is no evidence to suggest that quarrying operations were ever carried out within the study area.

2) Major Landscaping Involving Grading Below Topsoil

Unless there is evidence to suggest the presence of buried archaeological deposits, such deeply disturbed areas are considered to have lost their archaeological potential. Properties that do not have a long history of Euro-Canadian occupation can have archaeological potential removed through extensive landscape alterations that penetrate below the topsoil layer. This is because most archaeological sites originate at grade with relatively shallow associated excavations into the soil. First Nations sites and early historic sites are vulnerable to extensive damage and complete removal due to landscape modification activities. In urban contexts where a lengthy history of occupation has occurred, properties may have deeply buried archaeological deposits covered over and sealed through redevelopment activities that do not include the deep

excavation of the entire property for subsequent uses. Buildings are often erected directly over older foundations preserving archaeological deposits associated with the earlier occupation.

There is evidence to suggest that major landscaping operations involving grading below topsoil were carried out within the study area. Surfaces paved with interlocking brick, concrete, asphalt, gravel and other surfaces meant to support heavy loads or to be long wearing hard surfaces in high traffic areas, must be prepared by the excavation and removal of topsoil, grading, and the addition of aggregate material to ensure appropriate engineering values for the supporting matrix and also to ensure that the installations shed water to avoid flooding or moisture damage. All hard surfaced areas are prepared in this fashion and therefore have no or low archaeological potential. Disturbed areas are excluded from Stage 2 Property Assessment due to no or low archaeological potential and often because they are also not viable to assess using conventional methodology. Riverside Drive, walkways and bases for monuments and statuary or art works constitute areas of deep prior disturbance. In addition, the lower terrace of land north of Riverside Drive is composed of fill deposits placed here to create a base for railway operations.

3) *Building Footprints*

Typically, the construction of buildings involves the deep excavation of foundations, footings and cellars that often obliterate archaeological deposits situated close to the surface.

There are no buildings within the study area.

4) *Sewage and Infrastructure Development*

Installation of sewer lines and other below ground services associated with infrastructure development often involves deep excavation that can remove archaeological potential.

There is no evidence to suggest that substantial below ground services of any kind have resulted in significant impacts to any significant portion of the study area. Major utility lines are conduits that provide services such as water, natural gas, hydro, communications, sewage, and others. These major installations should not be confused with minor below ground service installations not considered to represent significant disturbances removing archaeological potential, such as services leading to individual structures which tend to be comparatively very shallow and vary narrow corridors. Areas containing substantial and deeply buried services or clusters of below ground utilities are considered areas of disturbance, and may be excluded from Stage 2 Property Assessment.

“Activities such as agricultural cultivation, gardening, minor grading and landscaping do not necessarily affect archaeological potential.”

(MTC 2011: 18)

“Archaeological potential is not removed where there is documented potential for deeply buried intact archaeological resources beneath land alterations, or where it cannot be clearly demonstrated through background research and property inspection that there has been complete and intensive disturbance of an area. Where complete disturbance cannot be demonstrated in Stage 1, it will be necessary to undertake Stage 2 assessment.”

(MTC 2011: 18)

Table 3 below summarizes the evaluation criteria of the Ministry of Tourism and Culture together with the results of the Stage 1 Background Study for the proposed undertaking. Based on the criteria, the property is deemed to have archaeological potential on the basis of proximity to a previously documented archaeological site, proximity to water, proximity to existing and former shorelines, location of elevated land within the study area, location within an early historic settlement area, proximity to early historic settlement roads, and proximity to a route of waterborne communication and trade that also served as an important source of food.

REVISED 2015 Stage 1-2 Archaeological Assessment of the Riverside Drive Pedestrian Crossing, Part of Lot 79 and Part of Lot 83, Con. 1, (Geographic Township of East Sandwich, County of Essex), City of Windsor (AMICK File #15825/MTCS File #P1024-0096-2015)

TABLE 3 EVALUATION OF ARCHAEOLOGICAL POTENTIAL

FEATURE OF ARCHAEOLOGICAL POTENTIAL		YES	NO	N/A	COMMENT
1	Known archaeological sites within 300m	Y			If Yes, potential determined
PHYSICAL FEATURES					
2	Is there water on or near the property?	Y			If Yes, what kind of water?
2a	Primary water source within 300 m. (lakeshore, river, large creek, etc.)	Y			If Yes, potential determined
2b	Secondary water source within 300 m. (stream, spring, marsh, swamp, etc.)		N		If Yes, potential determined
2c	Past water source within 300 m. (beach ridge, river bed, relic creek, etc.)	Y			If Yes, potential determined
2d	Accessible or Inaccessible shoreline within 300 m. (high bluffs, marsh, swamp, sand bar, etc.)	Y			If Yes, potential determined
3	Elevated topography (knolls, drumlins, eskers, plateaus, etc.)	Y			If Yes, and Yes for any of 4-9, potential determined
4	Pockets of sandy soil in a clay or rocky area		N		If Yes and Yes for any of 3, 5-9, potential determined
5	Distinctive land formations (mounds, caverns, waterfalls, peninsulas, etc.)		N		If Yes and Yes for any of 3-4, 6-9, potential determined
HISTORIC/PREHISTORIC USE FEATURES					
6	Associated with food or scarce resource harvest areas (traditional fishing locations, agricultural/berry extraction areas, etc.)	Y			If Yes, and Yes for any of 3-5, 7-9, potential determined.
7	Early Euro-Canadian settlement area within 300 m.	Y			If Yes, and Yes for any of 3-6, 8-9, potential determined
8	Historic Transportation route within 100 m. (historic road, trail, portage, rail corridors, etc.)	Y			If Yes, and Yes for any 3-7 or 9, potential determined
9	Contains property designated and/or listed under the Ontario Heritage Act (municipal heritage committee, municipal register, etc.)	Y			If Yes and, Yes to any of 3-8, potential determined
APPLICATION-SPECIFIC INFORMATION					
10	Local knowledge (local heritage organizations, First Nations, etc.)		N		If Yes, potential determined
11	Recent disturbance not including agricultural cultivation (post-1960-confirmed extensive and intensive including industrial sites, aggregate areas, etc.)	Y			If Yes, no potential or low potential in affected part (s) of the study area.

If **YES** to any of 1, 2a-c, or 10 Archaeological Potential is **confirmed**

If **YES** to 2 or more of 3-9, Archaeological Potential is **confirmed**

If **YES** to 11 or No to 1-10 Low Archaeological Potential is **confirmed** for at least a portion of the study area.

8.3 STAGE 1 ANALYSIS AND CONCLUSIONS

As a result of the Stage 1 portion of the study it was determined that the study area has archaeological potential on the basis of proximity to a previously documented archaeological site, proximity to water, proximity to existing and former shorelines, location of elevated land within the study area, location within an early historic settlement area, proximity to early historic settlement roads, and proximity to a route of waterborne communication and trade that also served as an important source of food.

8.4 STAGE 2 ANALYSIS AND CONCLUSIONS

Section 7.8.3 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 138-139) outlines the requirements of the Analysis and Conclusions component of a Stage 2 Property Assessment.

1. *Summarize all finding from the Stage 2 survey, or state that no archaeological sites were identified.*
2. *For each archaeological site, provide the following analysis and conclusions:*
 - a. *A preliminary determination, to the degree possible, of the age and cultural affiliation of any archaeological sites identified.*
 - b. *A comparison against the criteria in 2 Stage 2: Property Assessment to determine whether further assessment is required*
 - c. *A preliminary determination regarding whether any archaeological sites identified in Stage 2 show evidence of a high level cultural heritage value or interest and will thus require Stage 4 mitigation.*

No archaeological sites or resources were found during the Stage 2 survey of the study area.

9.0 RECOMMENDATIONS

9.1 STAGE 1 RECOMMENDATIONS

Under Section 7.7.4 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 133) the recommendations to be made as a result of a Stage 1 Background Study are described.

- 1) *Make recommendations regarding the potential for the property, as follows:*
 - a. *if some or all of the property has archaeological potential, identify areas recommended for further assessment (Stage 2) and areas not recommended for further assessment. Any exemptions from further assessment must be consistent with the archaeological fieldwork standards and guidelines.*
 - b. *if no part of the property has archaeological potential, recommend that the property does not require further archaeological assessment.*

- 2) *Recommend appropriate Stage 2 assessment strategies.*

The study area has been identified as an area of archaeological potential.

The study area is roughly 1.05 hectares in area and consists of mostly grass covered parkland. The study area also consists of areas of steep slope, which are located immediately north of Riverside Drive in both parcels. These areas were not determined to have low archaeological potential as they are areas with significant associations to past settlement along the Detroit River and have the potential to yield archaeological resources dating from initial settlement in the community. Riverside Drive, walkways and other hard surfaced portions of the study area were determined to have low or no potential and therefore it is recommended that there is no further archaeological concern for these areas. Portions of the study area excluded from these noted areas of low potential, were determined to have potential and Stage 2 assessment was therefore conducted using test pit survey methodology in accordance with the Standards governing the use of this method.

Any areas that were viable to assess were subject to assessment using the test pit methodology. Test pits were dug at a fixed interval of 10 metres across the surface area in order to confirm disturbance as previously discussed. Test pits measured a minimum of 30 centimeters in diameter and were dug at least 5 centimeters into the subsoil beneath the topsoil layer. All excavated earth was screened through 6 mm wire mesh to ensure that any artifacts contained within the soil matrix are recovered. All test pits were back filled and restored as much as was reasonably possible to the level of the surrounding grade. Test pit intervals were widened to ten metres between individual test pits in areas identified as reclaimed land. Test pits were excavated here to confirm that this area consists entirely of fill soil and lacks archaeological potential.

9.2 STAGE 2 RECOMMENDATIONS

Under Section 7.8.4 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 139) the recommendations to be made as a result of a Stage 2 Property Assessment are described.

- 1) *For each archaeological site, provide a statement of the following:
 - a. Borden number or other identifying number
 - b. Whether or not it is of further cultural heritage value or interest
 - c. Where it is of further cultural heritage value or interest, appropriate Stage 3 assessment strategies*
- 2) *Make recommendations only regarding archaeological matters. Recommendations regarding built heritage or cultural heritage landscapes should not be included.*
- 3) *If the Stage 2 survey did not identify any archaeological sites requiring further assessment or mitigation of impacts, recommend that no further archaeological assessment of the property be required.*

As a result of the property Assessment of the study area, no archaeological resources were encountered. However, given the urban context of the proposed development within an area of documented early settlement, there remains the possibility for deeply buried archaeological deposits that have been capped by more recent fill soils and/or pavement. Consequently, the following recommendations are made:

- *Stage 2 archaeological assessment through mechanical trenching or monitoring during construction to confirm disturbance and removal of archaeological potential or to identify areas of remaining archaeological potential is recommended.*
- *Further background research is recommended as part of the additional Stage 2 Property Assessment in order to further aid in the identification of possible areas of archaeological potential (e.g. Fire insurance plans and archival research for property specific histories).*

10.0 ADVICE ON COMPLIANCE WITH LEGISLATION

While not part of the archaeological record, this report must include the following standard advisory statements for the benefit of the proponent and the approval authority in the land use planning and development process:

- a. *This report is submitted to the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c. 0.18. The report is reviewed to ensure that it complies with the standards and guidelines 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 ministry 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 completed 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 Archaeological Reports referred to in Section 65.1 of the Ontario Heritage Act.*
- c. *Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore 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 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, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human*

REVISED 2015 Stage 1-2 Archaeological Assessment of the Riverside Drive Pedestrian Crossing, Part of Lot 79 and Part of Lot 83, Con. 1, (Geographic Township of East Sandwich, County of Essex), City of Windsor (AMICK File #15825/MTCS File #P1024-0096-2015)

remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

- e. 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.

11.0 BIBLIOGRAPHY AND SOURCES

Cataraqui Archaeological Research Foundation. (1990). *The CNR Riverfront Lands, AbHs-11, Archaeological Assessment Project 1989*. (No MTCS or Corporate File Numbers provided). Cataraqui Archaeological Research Foundation (CARF), Kingston, Ontario. Archaeological License Report on File With the Ministry of Tourism, Culture and Sport, Toronto, Ontario.

Chapman, L.J. & D.F. Putnam. (1984). *The Physiography of Southern Ontario (Third Edition)*. Ontario Geological Survey, Special Report #2. Ontario Ministry of Natural Resources, Toronto.

CRM. (2005). *Archaeological Master Plan Study Report for the City of Windsor*. CRM, Windsor.

Goel, Tarun (2013). Road Construction: History and Procedure. Bright Hub Engineering. Retrieved 24 May 2015 from URL: <http://www.brighthubengineering.com/structural-engineering/59665-road-construction-history-and-procedure/>

Google Earth (Version 6.0.3.2197) [Software]. (2009). Available from <http://www.google.com/earth/index.html>.

Google Maps. (2012). Available from: http://maps.google.ca/?utm_campaign=en&utm_source=en-ha-na-ca-bk-gm&utm_medium=ha&utm_term=google%20maps.

H. Belden & Co. (1881). *Essex Supplement in Illustrated Atlas of the Dominion of Canada*. H. Belden & Co., Toronto.

Landmark Engineering (2015). *Aerial Images of the Riverside Pedestrian Underpass - Sites 1 and 2*.

Ontario Heritage Act, RSO 1990a, Government of Ontario. (Queen's Printer, Toronto).

Ontario Heritage Amendment Act, SO 2005, Government of Ontario. (Queen's Printer, Toronto).

Ontario Ministry of Citizenship, Culture and Recreation (OMCzCR). (1993). *Archaeological Assessment Technical Guidelines, Stages 1-3 and Reporting Format*. (Queen's Printer for Ontario 1993)

Ontario Ministry of Culture (MCL). (2005). *Conserving a Future for Our Past: Archaeology, Land Use Planning & Development in Ontario (An Educational Primer and Comprehensive Guide for Non-Specialists)*. (Heritage & Libraries Branch, Heritage Operations Unit: Toronto).

REVISED 2015 Stage 1-2 Archaeological Assessment of the Riverside Drive Pedestrian Crossing, Part of Lot 79 and Part of Lot 83, Con. 1, (Geographic Township of East Sandwich, County of Essex), City of Windsor (AMICK File #15825/MTCS File #P1024-0096-2015)

Ontario Ministry of Culture and Communications (MCC) & Ministry of Environment (MOE). (1992). *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments*. (Cultural Programs Branch, Archaeology and Heritage Planning: Toronto).

Ontario Ministry of Tourism and Culture (MTC). (2011). *Standards and Guidelines for Consultant Archaeologist*. (Programs and Services Branch: Culture Programs Unit, Toronto).

Ontario Planning Act, RSO 1990b, Government of Ontario. (Queen's Printer, Toronto).

Provincial Policy Statement (2014). Government of Ontario. (Queen's Printer, Toronto).

Wright, J.V. (1972). *Ontario Prehistory: an Eleven-thousand-year Archaeological Outline*. Archaeological Survey of Canada. National Museum of Man, Ottawa.

www.windsor-essex.info (2011). Early History of Essex County. URL: <http://www.windsor-essex.info/wps/wcm/connect/COE/COE/ABOUT+ESSEX+COUNTY/History+of+Essex+County/Early+History+of+Essex+County+%281792+-+1924%29/>, as of October 18, 2011.

REVISED 2015 Stage 1-2 Archaeological Assessment of the Riverside Drive Pedestrian Crossing, Part of Lot 79 and Part of Lot 83, Con. 1, (Geographic Township of East Sandwich, County of Essex), City of Windsor (AMICK File #15825/MTCS File #P1024-0096-2015)

12.0 MAPS



FIGURE 1 LOCATION OF THE STUDY AREA (GOOGLE MAPS 2012)

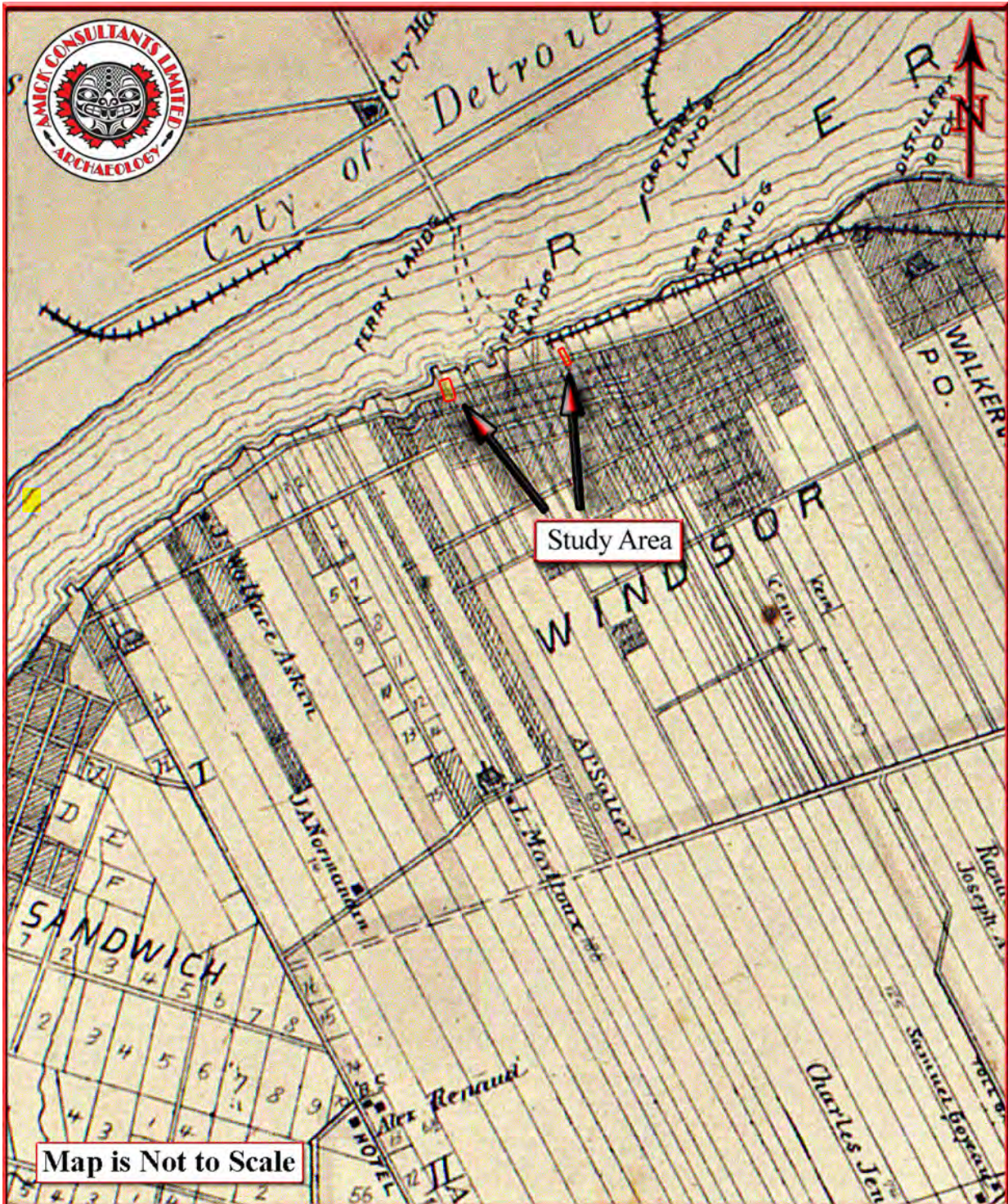


FIGURE 2 FACSIMILE SEGMENT OF THE HISTORIC ATLAS MAP OF THE TOWNSHIP OF EAST SANDWICH (H. BELDEN & CO. 1881)



**FIGURE 3 AERIAL IMAGE OF THE STUDY AREA FOR SITE 1
(LANDMARK ENGINEERING)**



**FIGURE 4 AERIAL IMAGE OF THE STUDY AREA FOR SITE 2
(LANDMARK ENGINEERING)**

REVISED 2015 Stage 1-2 Archaeological Assessment of the Riverside Drive Pedestrian Crossing, Part of Lot 79 and Part of Lot 83, Con. 1, (Geographic Township of East Sandwich, County of Essex), City of Windsor (AMICK File #15825/MTCS File #P1024-0096-2015)



FIGURE 5 AERIAL OF THE STAGE 2 PROPERTY ASSESSMENT OF SITE 1

REVISED 2015 Stage 1-2 Archaeological Assessment of the Riverside Drive Pedestrian Crossing, Part of Lot 79 and Part of Lot 83, Con. 1, (Geographic Township of East Sandwich, County of Essex), City of Windsor (AMICK File #15825/MTCS File #P1024-0096-2015)

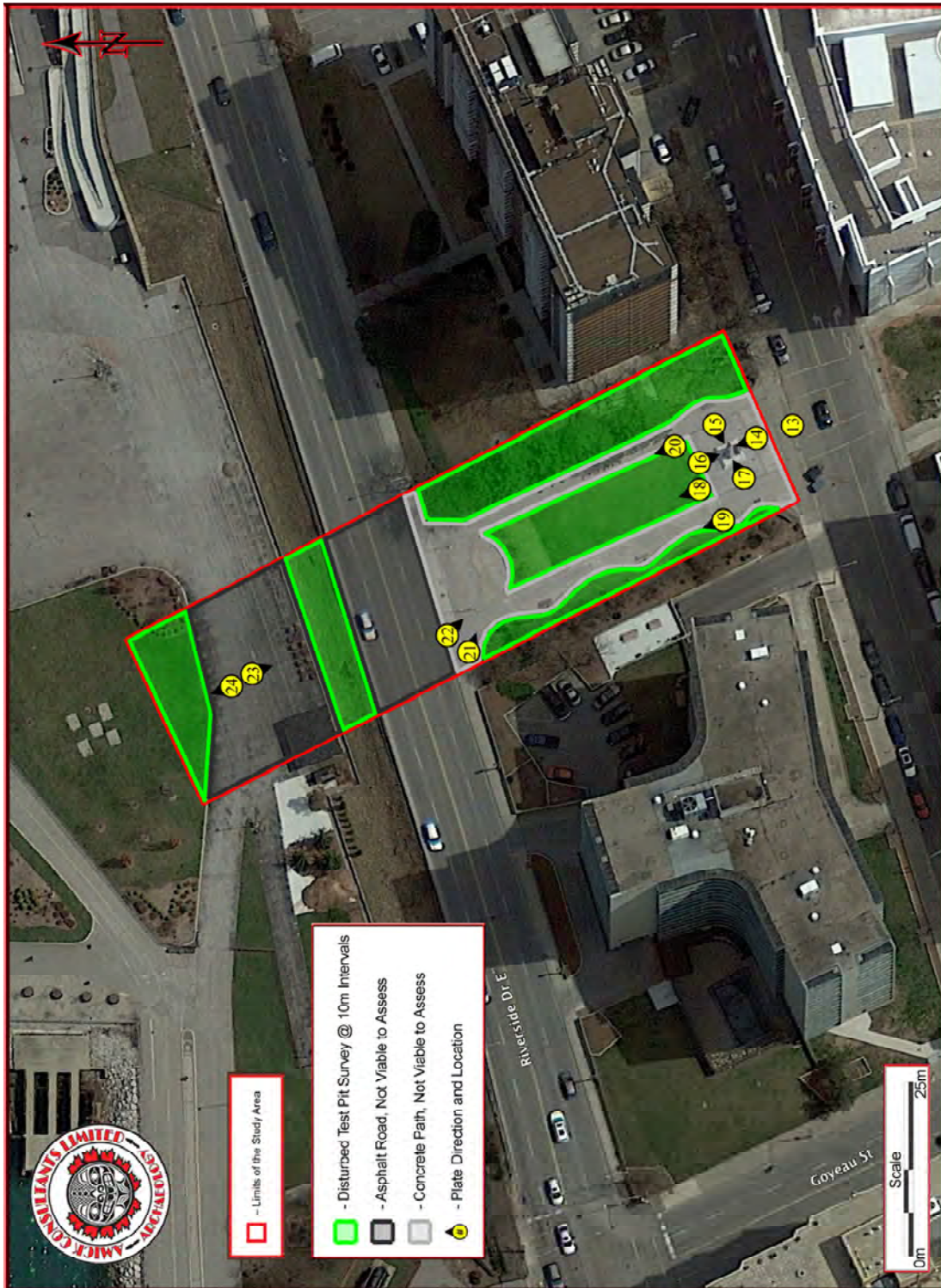


FIGURE 6 AERIAL OF THE STAGE 2 PROPERTY ASSESSMENT OF SITE 2

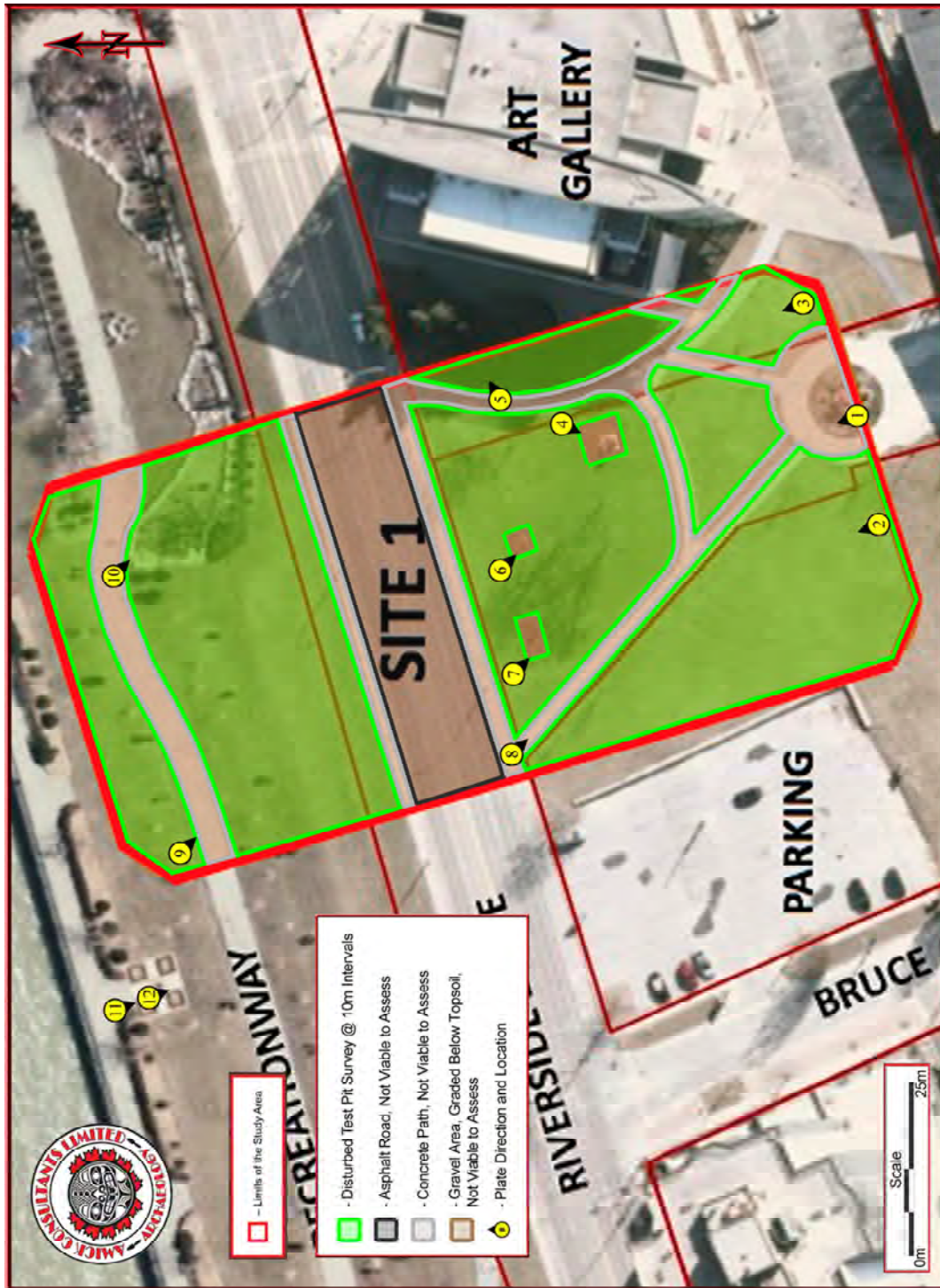


FIGURE 7 DRAFT PLAN OF THE STAGE 2 PROPERTY ASSESSMENT OF SITE 1

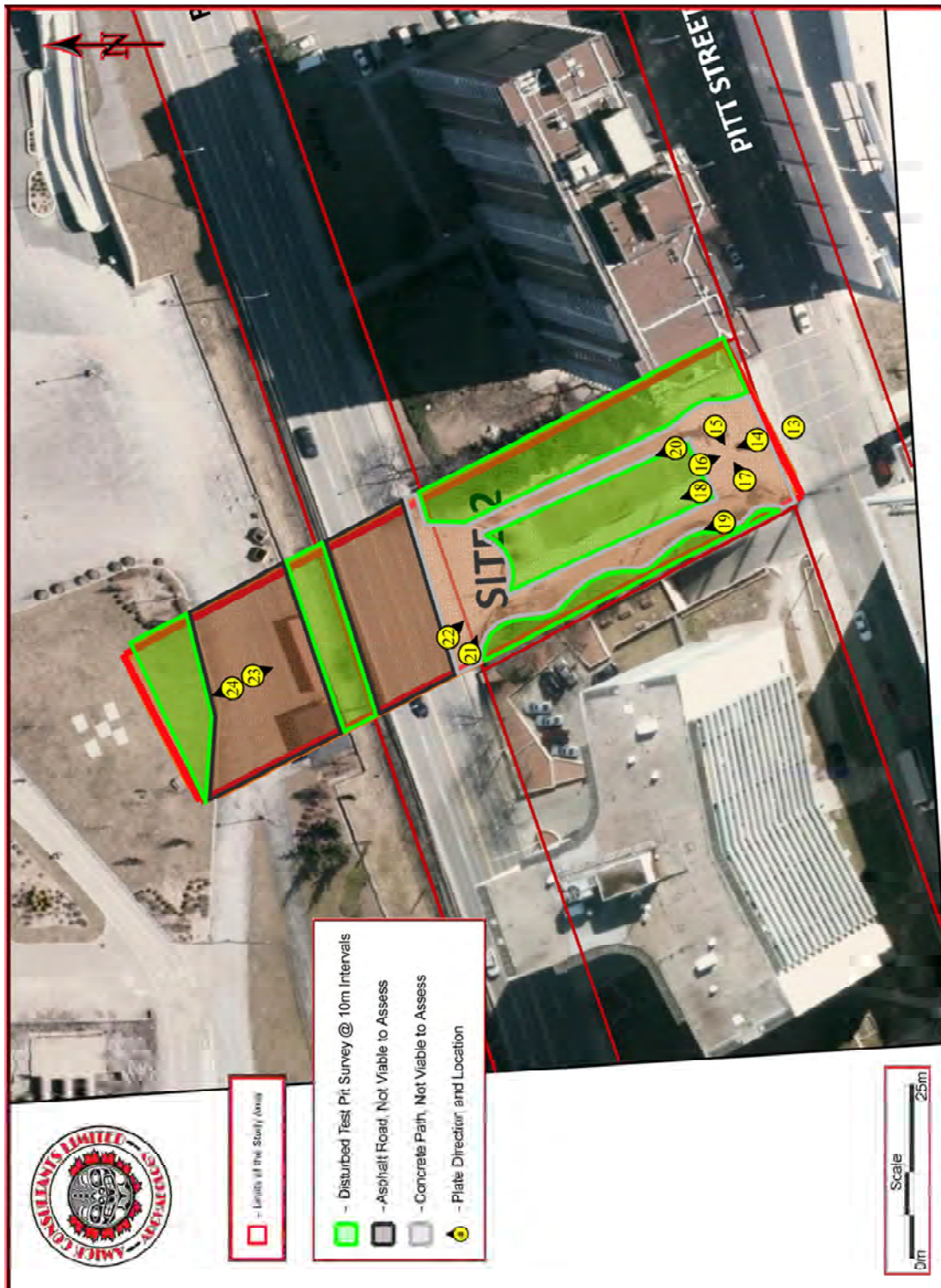


FIGURE 8 DRAFT PLAN OF THE STAGE 2 PROPERTY ASSESSMENT OF SITE 2

13.0 IMAGES



PLATE 1 SITE 1 ART INSTALLATION



PLATE 2 SITE 1 OVERVIEW



PLATE 3 SITE 1 OVERVIEW



PLATE 4 SITE 1 ART INSTALLATION



PLATE 5 SITE 1 ART INSTALLATION

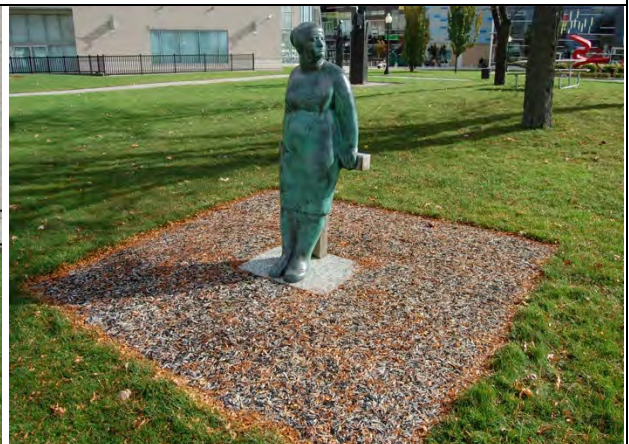


PLATE 6 SITE 1 ART INSTALLATION

REVISED 2015 Stage 1-2 Archaeological Assessment of the Riverside Drive Pedestrian Crossing, Part of Lot 79 and Part of Lot 83, Con. 1, (Geographic Township of East Sandwich, County of Essex), City of Windsor (AMICK File #15825/MTCS File #P1024-0096-2015)



PLATE 7 SITE 1 ART INSTALLATION



PLATE 8 SITE 1 CONCRETE WALKWAY



PLATE 9 SITE 1 OVERVIEW



PLATE 10 SITE 1 LANDSCAPING



PLATE 11 SITE 1 ADJACENT MEMORIAL

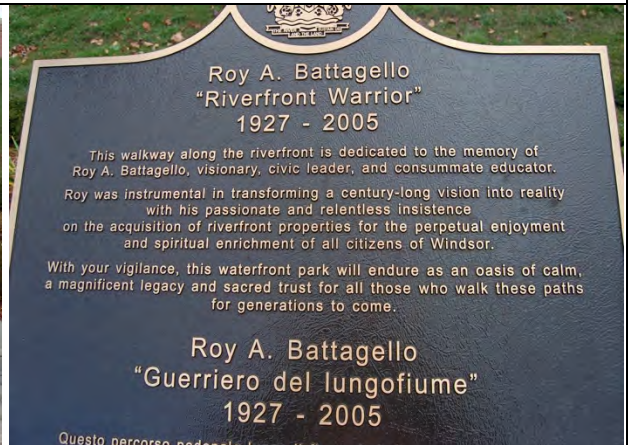


PLATE 12 SITE 1 ADJACENT MEMORIAL PLAQUE

REVISED 2015 Stage 1-2 Archaeological Assessment of the Riverside Drive Pedestrian Crossing, Part of Lot 79 and Part of Lot 83, Con. 1, (Geographic Township of East Sandwich, County of Essex), City of Windsor (AMICK File #15825/MTCS File #P1024-0096-2015)



PLATE 13 SITE 2 UNDERGROUND RAILWAY MONUMENT



PLATE 14 SITE 2 UNDERGROUND RAILWAY MONUMENT PLAQUE



PLATE 15 SITE 2 UNDERGROUND RAILWAY MONUMENT INSCRIPTION



PLATE 16 SITE 2 UNDERGROUND RAILWAY MONUMENT PLAQUE



PLATE 17 SITE 2 UNDERGROUND RAILWAY MONUMENT INSCRIPTION



PLATE 18 SITE 2 OVERVIEW

REVISED 2015 Stage 1-2 Archaeological Assessment of the Riverside Drive Pedestrian Crossing, Part of Lot 79 and Part of Lot 83, Con. 1, (Geographic Township of East Sandwich, County of Essex), City of Windsor (AMICK File #15825/MTCS File #P1024-0096-2015)



PLATE 19 SITE 2 WALKWAY



PLATE 20 SITE 2 WALKWAY



PLATE 21 SITE 2 OVERVIEW

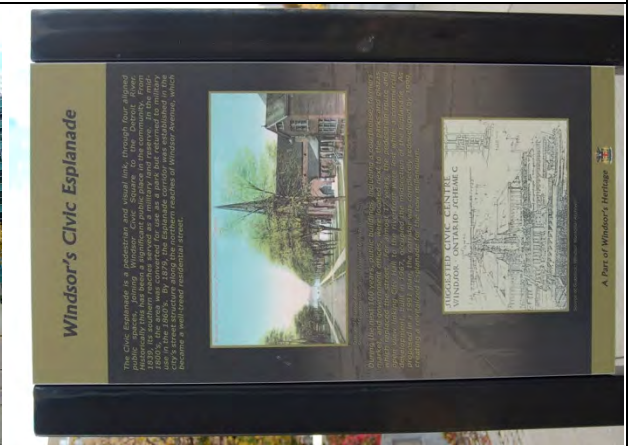


PLATE 22 SITE 2 CIVIC ESPLANADE PLAQUE

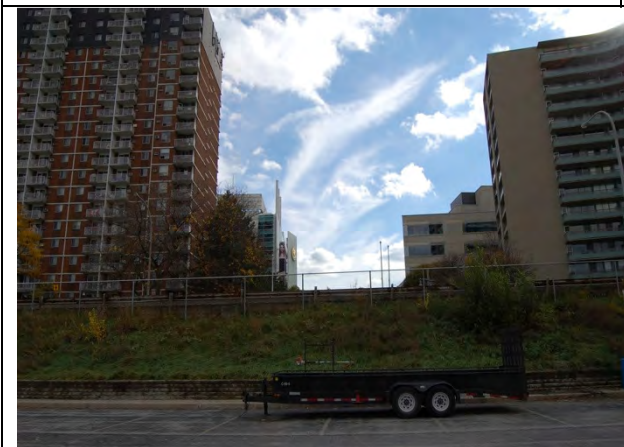


PLATE 23 SITE 2 OVERVIEW



PLATE 24 SITE 2 OVERVIEW

8.0 Report Prepared by Golder Associates

This section of the Project File contains the Geotechnical report prepared by Golder Associates.

Conclusions and Recommendations:

- A site specific geotechnical investigation should be carried out during detailed design.
- Temporary cut excavations should be maintained at inclinations of 1 horizontal to 1 vertical or properly designed braced/supported excavation could be used to limit extent of excavations.
- The fill materials and clay would be considered to be Type 3 soils.
- Surface water should be directed away from the excavations.
- The excavated materials would not be suitable for backfill material. Granular A or B is suggested.
- Filtered longitudinal drains should be provided in the backfill at the invert level and be connected to a positive gravity outlet.
- Consider weep holes in the structure wall to reduce hydrostatic pressures.



December 2015

GEOTECHNICAL ASSESSMENT

**Pedestrian Underpass Connection
Riverside Drive
Windsor, Ontario**

Submitted to:

Ms. Liz Michaud
Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, Ontario N9C 4E4

REPORT



**A world of
capabilities
delivered locally**

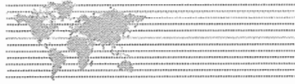
Report Number: 1541974-R01

Distribution:

1 e-Copy - Landmark Engineers Inc.

1 e-Copy - Golder Associates Ltd.





**GEOTECHNICAL ASSESSMENT
RIVERSIDE DRIVE PEDESTRIAN UNDERPASS CONNECTION
WINDSOR, ONTARIO**

December 9, 2015

Project No. 1541974-R01

Landmark Engineers Inc.
2280 Ambassador Drive
Windsor, Ontario N9C 4E4

Attention: Ms. Liz Michaud,

**GEOTECHNICAL ASSESSMENT
PEDESTRIAN UNDERPASS
RIVERSIDE DRIVE
WINDSOR, ONTARIO**

Dear Ms. Michaud:

This report summarizes the results of the geotechnical assessment carried for the above-noted project to support the Environmental Assessment (EA) to assess a viable pedestrian underpass connecting amenities in downtown Windsor, Ontario to parklands located on the north side of Riverside Drive along the Detroit River. Two underpass locations are being considered in the general areas shown on Figures 1 and 2, attached.

1.0 TERMS OF REFERENCE

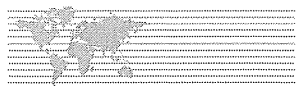
This report was prepared as part of a submission for the EA and presents an overview of existing conditions within the project areas from a geotechnical perspective based on a review of existing geotechnical data.

Authorization for Golder Associates Ltd. (Golder) to proceed with the project in accordance with our proposal P1541974, dated October 13, 2015 was provided by Ms. Liz Michaud of Landmark Engineers Inc. ("Landmark").

Important information on the limitations of this report is attached.

2.0 INTRODUCTION

Consideration is being given to constructing a riverfront underpass beneath Riverside Drive in the downtown core of the City of Windsor. The underpass will cross beneath Riverside Drive and provide pedestrians with access between the park lands on the north side of the road and the downtown amenities on the south side. Two locations are being considered for the construction of the underpass. The first site ("Aquatic Centre" location) is approximately halfway between Bruce Street and Church Street, immediately west of the Art Gallery of Windsor and fronting on the Windsor Aquatic Centre. The second site ("Civic Esplanade" location) is approximately 100 metres (m) east of Goyeau Street, immediately west of Caesars Windsor. Constructing an underpass at both of the sites is also being considered.



GEOTECHNICAL ASSESSMENT RIVERSIDE DRIVE PEDESTRIAN UNDERPASS CONNECTION WINDSOR, ONTARIO

The pedestrian underpass will be constructed in open cut across Riverside Drive and will be founded at a depth of about 5 m below the current road elevation. The underpass will have an inside clearance height of about 3 m.

The Aquatic Centre location is shown on Figure 1 and the Civic Esplanade location is shown on Figure 2.

3.0 METHODOLOGY

The existing geotechnical information in the area of the sites readily available from our files was compiled and reviewed. The information consisted of topographical mapping, aerial mapping, soils and bedrock mapping and geotechnical data from previous investigations carried out adjacent to the sites. Key investigations carried out in the vicinity of the Aquatic Centre Location are listed as follows:

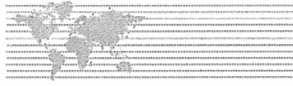
- Golder Report No. 13-1140-0188-R01, titled "Geotechnical Investigation, Proposed Electrical Buildings, Elm Avenue and Dougall Avenue, CSO Interceptor Chambers, Windsor, Ontario", dated May 2014.
- Golder Report No. 11-1140-0045-R01, titled "Geotechnical Investigation, Proposed Aquatic Centre, Windsor, Ontario", dated July 2011.
- Golder Report No. 991-4087, titled "Geotechnical Investigation, Art Gallery of Windsor, Church Street and Riverside Drive, Windsor, Ontario", dated May 1999.
- Golder Report No. 70339/1, titled "Additional Subsurface Investigation, Existing Retaining Wall at Holiday Inn, Riverside Drive, Windsor, Ontario", dated September 1970.
- Golder Report No. 70339, titled "Subsurface Investigation, Proposed Riverside Drive Reconstruction, Goyeau Street to Janette Avenue, Windsor, Ontario", dated July 1970.

Key investigations carried out in the vicinity of the Civic Esplanade Location are listed as follows:

- Golder Report No. 09-1140-W090-R03, titled "Geotechnical Data Report, Windsor Riverfront Retention Treatment Basin, Interceptor Sewer, City of Windsor Contract No. 19-10", dated January 2010.
- Golder Report No. 881-4090, titled "Geotechnical Investigation, Ministry of the Attorney General, Provincial Courthouse, Project No. AG-74944, Windsor, Ontario", dated October 1988.

The relevant Records of Boreholes from those investigations are attached to this report in Appendix A and the approximate locations of the previous boreholes are shown on Figures 1 and 2.

Post investigation construction activities at the sites may have modified the subsurface conditions from those shown on the previous Records of Boreholes.



4.0 SITE DESCRIPTION

4.1 Aquatic Centre Location

The Aquatic Centre site is located south of Riverside Drive West and fronts on the Windsor Aquatic Centre. The site is currently undeveloped grassland and pedestrian walkways. The Art Gallery of Windsor is located to the east of the site and a municipal parking lot is located to the west of the site. The underpass will connect to parkland on the north side of Riverside Drive West. The site is located within a mixed commercial/residential area of Windsor. A sanitary sewer runs beneath the west bound lane of Riverside Drive. Other underground services may also be present at the crossing location.

4.2 Civic Esplanade Location

The Civic Esplanade site is located approximately 100 m east of Goyeau Street, immediately west of Caesars Windsor and is currently vacant. The site is bound to both the east and west by apartment buildings. A combined sewer is present beneath the Riverside Drive eastbound lane which turns south in the centre of the site. A sanitary sewer is also present beneath Riverside Drive. Other underground services may also be present. Land use in the vicinity of the site is residential and commercial.

5.0 SITE GEOLOGY

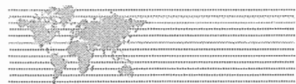
Based on the Ontario Department of Mines and Northern Affairs Preliminary Map P.750 titled "Quaternary Geology of the Windsor-Essex Area (Eastern Part), Southern Ontario", the surficial deposits in the vicinity of both sites consist of clayey silt till.

The site is reportedly underlain by middle Devonian-age limestone of the Dundee Formation of the Hamilton Group. The upper member consists of microcrystalline limestone and the lower member consists of crinoidal limestone containing quartz sand grains and chert. Based on the Ministry of Natural Resources, Ontario Geological Survey, Preliminary Map P.814, Drift Thickness Series, "Windsor-Essex Area (Western Part), Southern Ontario", the bedrock surface at the site is approximately 39 m below ground surface.

6.0 GENERALIZED SUBSURFACE CONDITIONS

Based on our review of available geotechnical and geological information, the soil conditions in the sites area are generally consistent with the geological mapping described above. A site specific geotechnical investigation should be carried out during detailed design once the preferred underpass location option has been selected.

At the Aquatic Centre site, the boreholes generally encountered fill materials overlying an extensive deposit of stiff to very stiff clayey silt to silty clay till. Buried concrete and/or other obstructions were encountered within and beneath the fill at some of the exploration locations. Layers of silty sand and sandy silt were encountered within the clayey silt to silty clay till.



At the Civic Esplanade site, the boreholes generally encountered fill materials overlying an extensive deposit of firm to stiff clayey silt to silty clay till.

Although not explicitly encountered in the previous boreholes, cobbles and boulders should be expected in the fill and clayey silt to silty clay till.

Post investigation construction activities at the sites may have modified the subsurface conditions from those shown on the previous Records of Boreholes.

6.1 Aquatic Centre Site

6.1.1 Topsoil and Fill Materials

Layers of surficial topsoil were encountered at ground surface in the landscaped areas in the previous boreholes. The topsoil ranged from about 0.1 to 0.6 m in thickness at the borehole locations,

The Riverside Drive pavement structure, consisting of asphalt, granular fill and concrete, were encountered in the previous boreholes drilled in paved areas. The granular fill extended to depths of as much as 3.1 m.

Silty clay to clayey silt fill materials were encountered in several of the previous boreholes and extended to depths of as much as 4.6 m. The silty clay fill had N values, as determined in the standard penetration testing, of 5 to 19 blows per 0.3 m.

Buried concrete or other obstructions were also encountered at several locations at depths ranging from about 0.6 to 2.3 m.

6.1.2 Silty Clay to Clayey Silt Till

Beneath the fill, the previous boreholes generally encountered and were terminated in native silty clay to clayey silt till. The clayey silt till had N values ranging from 8 to 63 blows per 0.3 m and, in general, is stiff to very stiff. Silt and sandy silt layers were encountered in the silty clay to clayey silt till. While not explicitly encountered in the previous boreholes, cobbles and boulders should be expected in the till.

6.1.3 Groundwater

Where encountered, groundwater seepage was noted between 1.8 and 3.1 m depth. Groundwater levels should be expected to fluctuate seasonally and in response to significant precipitation events.

6.2 Civic Esplanade Site

6.2.1 Topsoil and Fill Materials

Topsoil was encountered at the ground surface in one of the previous boreholes. The topsoil was about 0.3 m thick at the borehole location.



GEOTECHNICAL ASSESSMENT RIVERSIDE DRIVE PEDESTRIAN UNDERPASS CONNECTION WINDSOR, ONTARIO

The pavement structures encountered in the previous boreholes drilled through paved areas were about 0.4 to 0.9 m thick and generally consisted of asphalt overlying sand and gravel layers.

Silty clay to clayey silt fill materials were encountered in several previous boreholes. The fill extended to depths of as much as 3.5 m at the borehole locations. The fill had N values ranging from 3 to 18 blows per 0.3 m.

6.2.2 Silty Clay to Clayey Silt Till

Beneath the fill, the previous boreholes generally encountered and were terminated in native silty clay to clayey silt till. The upper approximately 3 to 4 m of the till had N values ranging from 19 to 47 blows per 0.3 m while the lower till had N values of 4 to 17 blows per 0.3 m. In situ vane testing indicated undrained shear strengths of about 40 to 130 kilopascals (kPa) in the lower till, generally increasing with depth. In one borehole, a 1.1 m thick layer of silty sand to sandy silt was encountered over the till. While not explicitly encountered in the previous boreholes, cobbles and boulders should be expected in the till.

6.2.3 Groundwater

Where encountered, groundwater seepage was noted between 3.5 and 12 m depth. Measured groundwater levels ranged from about 0.7 to 4.5 m depth. Groundwater levels should be expected to fluctuate seasonally and in response to significant precipitation events.

7.0 DISCUSSION

7.1 General

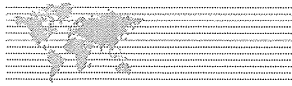
This section of the report provides our interpretation of the available factual geotechnical data from the vicinity of the project and it is intended for the guidance of the design engineer for planning and preliminary purposes. Where comments are made on construction, they are provided only to highlight those aspects which could affect the preliminary planning and design of the project.

It is understood that an underpass is to be constructed beneath Riverside Drive in open cut across Riverside Drive and founded at a depth of approximately 5 m below the current road elevation. The underpass will have an inside clearance height of 3 m.

7.2 Excavations

Based on the available information, excavations for the underpasses will generally encounter the existing pavement structures, granular and silty clay to clayey silt fill materials and silty clay to clayey silt till. Contractors should be prepared for cobbles and boulders in the till and obstructions or buried concrete in the fill materials.

Temporary open cut excavations should be maintained at inclinations of 1 horizontal to 1 vertical and may need to be flatter in the fill materials. Alternatively, properly designed braced/supported excavations could be used to limit the extent of the excavations.



GEOTECHNICAL ASSESSMENT RIVERSIDE DRIVE PEDESTRIAN UNDERPASS CONNECTION WINDSOR, ONTARIO

Based on the current Occupational Health and Safety Act, the existing fill materials and silty clay to clayey silt till would be considered to be Type 3 soils.

Surface water should be directed away from all excavations. It is anticipated that groundwater flows into the open excavations can be handled by pumping from properly filtered and constructed sumps in the base of the excavation.

7.3 Foundations

For preliminary considerations, a factored geotechnical resistance at Ultimate Limit States (ULS) of 150 kPa and a geotechnical reaction at Serviceability Limit States (SLS) of 100 kPa may be used for a box type structure founded on the native silty clay to clayey silt till.

7.4 Backfill

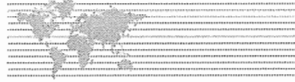
The excavated materials are not considered to be suitable for use as backfill for the underpass structure. It is suggested that Granular A or Granular B be used as backfill. The backfill should be placed in maximum 300 millimetre thick lifts uniformly compacted to 95 per cent of standard Proctor maximum dry density. Care should be taken to ensure that the elevation of the backfill does not differ on each side of the structure by more than 0.5 m. Further, heavy compaction equipment should not be used immediately adjacent to the structure roof and walls.

7.5 Drainage

Filtered longitudinal drains should be provided in the backfill at invert level and be connected to a positive gravity outlet. Further, consideration should be given to installing weep holes in the structure walls to reduce hydrostatic pressures.

8.0 ADDITIONAL GEOTECHNICAL INPUT

A site and structure specific geotechnical investigation should be carried out once the preferred underpass location(s) and structure type(s) have been determined. At that time, project specific geotechnical engineering recommendations can be provided for detailed design.



**GEOTECHNICAL ASSESSMENT
RIVERSIDE DRIVE PEDESTRIAN UNDERPASS CONNECTION
WINDSOR, ONTARIO**

We trust that this report provides all of the geotechnical information presently required. Should any point require clarification, or should you have any comments on this report, please contact this office.

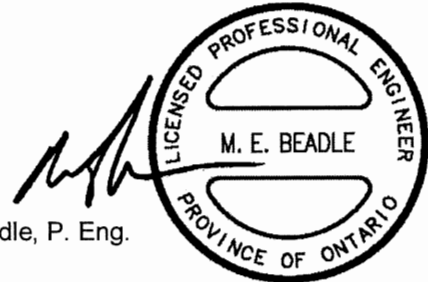
GOLDER ASSOCIATES LTD.

Anthony Pusic, EIT
Junior Geotechnical Professional

AP/MEB/dp/sjo

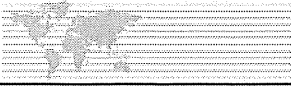
Attachments:

- Important Information and Limitations to This Report
- Method of Soil Classification
- Abbreviations and Terms Used on Records of Boreholes and Test Pits
- List of Symbols
- Figure 1: Location Plan (Aquatic Centre Site)
- Figure 2: Location Plan (Civic Esplanade Site)
- Appendix A: Records of Boreholes Previous Investigations



Michael E. Beadle, P. Eng.
Associate

\\golder.gds\gal\london\active\2015\3 proj\1541974 landmark_geo ped underpass_windsor\7-correspondence\5-rpts\final\1541974-r01-dec1815-geo assess-ped underpass.docx



IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Standard of Care: Golder Associates Ltd. (Golder) has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practising under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

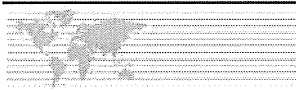
Basis and Use of the Report: This report has been prepared for the specific site, design objective, development and purpose described to Golder by the Client. The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location. Any change of site conditions, purpose, development plans or if the project is not initiated within eighteen months of the date of the report may alter the validity of the report. Golder can not be responsible for use of this report, or portions thereof, unless Golder is requested to review and, if necessary, revise the report.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, Golder may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings and other documents as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client can not rely upon the electronic media versions of Golder's report or other work products.

The report is of a summary nature and is not intended to stand alone without reference to the instructions given to Golder by the Client, communications between Golder and the Client, and to any other reports prepared by Golder for the Client relative to the specific site described in the report. In order to properly understand the suggestions, recommendations and opinions expressed in this report, reference must be made to the whole of the report. Golder can not be responsible for use of portions of the report without reference to the entire report.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project. The extent and detail of investigations, including the number of test holes, necessary to determine all of the relevant conditions which may affect construction costs would normally be greater than has been carried out for design purposes. Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their work, including but not limited to proposed construction techniques, schedule, safety and equipment capabilities.

Soil, Rock and Groundwater Conditions: Classification and identification of soils, rocks, and geologic units have been based on commonly accepted methods employed in the practice of geotechnical engineering and related disciplines. Classification and identification of the type and condition of these materials or units involves judgment, and boundaries between different soil, rock or geologic types or units may be transitional rather than abrupt. Accordingly, Golder does not warrant or guarantee the exactness of the descriptions.



IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Special risks occur whenever engineering or related disciplines are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain subsurface conditions. The environmental, geologic, geotechnical, geochemical and hydrogeologic conditions that Golder interprets to exist between and beyond sampling points may differ from those that actually exist. In addition to soil variability, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties. The professional services retained for this project include only the geotechnical aspects of the subsurface conditions at the site, unless otherwise specifically stated and identified in the report. The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.

Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal and meteorological conditions. The condition of the soil, rock and groundwater may be significantly altered by construction activities (traffic, excavation, groundwater level lowering, pile driving, blasting, etc.) on the site or on adjacent sites. Excavation may expose the soils to changes due to wetting, drying or frost. Unless otherwise indicated the soil must be protected from these changes during construction.

Sample Disposal: Golder will dispose of all uncontaminated soil and/or rock samples 90 days following issue of this report or, upon written request of the Client, will store uncontaminated samples and materials at the Client's expense. In the event that actual contaminated soils, fills or groundwater are encountered or are inferred to be present, all contaminated samples shall remain the property and responsibility of the Client for proper disposal.

Follow-Up and Construction Services: All details of the design were not known at the time of submission of Golder's report. Golder should be retained to review the final design, project plans and documents prior to construction, to confirm that they are consistent with the intent of Golder's report.

During construction, Golder should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not materially differ from those interpreted conditions considered in the preparation of Golder's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in Golder's report. Adequate field review, observation and testing during construction are necessary for Golder to be able to provide letters of assurance, in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, Golder's responsibility is limited to interpreting accurately the information encountered at the borehole locations, at the time of their initial determination or measurement during the preparation of the Report.

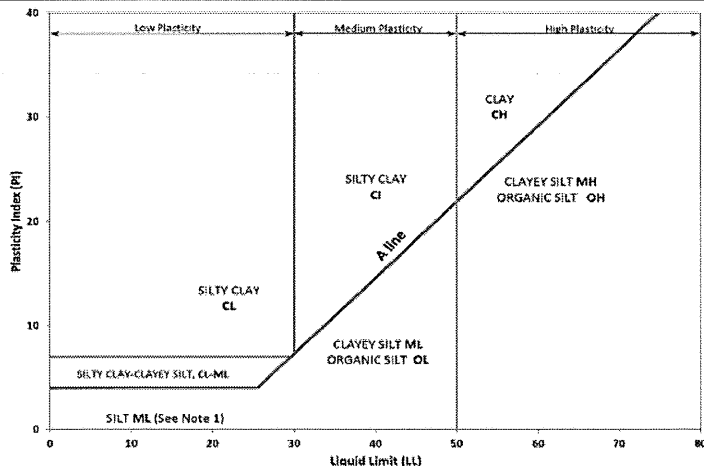
Changed Conditions and Drainage: Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that Golder be notified of any changes and be provided with an opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires experience and it is recommended that Golder be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.

Drainage of subsurface water is commonly required either for temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. Golder takes no responsibility for the effects of drainage unless specifically involved in the detailed design and construction monitoring of the system.

METHOD OF SOIL CLASSIFICATION

The Golder Associates Ltd. Soil Classification System is based on the Unified Soil Classification System (USCS)

Organic or inorganic	Soil Group	Type of Soil	Gradation or Plasticity	$C_u = \frac{D_{60}}{D_{10}}$		$C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$		Organic Content	USCS Group Symbol	Group Name	
				<4	≥4	≤1 or ≥3	1 to 3				
INORGANIC (Organic Content ≤30% by mass)	COARSE-GRAINED SOILS (>50% by mass is larger than 0.075 mm)	GRAVELS (>50% by mass of coarse fraction is larger than 4.75 mm)	Poorly Graded	<4		≤1 or ≥3		≤30%	GP	GRAVEL	
			Well Graded	≥4		1 to 3			GW	GRAVEL	
			Below A Line			n/a			GM	SILTY GRAVEL	
			Above A Line			n/a			GC	CLAYEY GRAVEL	
		SANDS (≥50% by mass of coarse fraction is smaller than 4.75 mm)	Poorly Graded	<6		≤1 or ≥3			SP	SAND	
			Well Graded	≥6		1 to 3			SW	SAND	
			Below A Line			n/a			SM	SILTY SAND	
			Above A Line			n/a			SC	CLAYEY SAND	
Organic or inorganic	Soil Group	Type of Soil	Laboratory Tests	Field Indicators					Organic Content	USCS Group Symbol	Primary Name
				Dilatancy	Dry Strength	Shine Test	Thread Diameter	Toughness (of 3 mm thread)			
INORGANIC (Organic Content ≤30% by mass)	FINE-GRAINED SOILS (≥50% by mass is smaller than 0.075 mm)	SILTS (Non-Plastic or PI and LL plot below A-Line on Plasticity Chart below)	Liquid Limit <50	Rapid	None	None	>6 mm	N/A (can't roll 3 mm thread)	<5%	ML	SILT
			Liquid Limit <50	Slow	None to Low	Dull	3mm to 6 mm	None to low	<5%	ML	CLAYEY SILT
				Slow to very slow	Low to medium	Dull to slight	3mm to 6 mm	Low	5% to 30%	OL	ORGANIC SILT
			Liquid Limit ≥50	Slow to very slow	Low to medium	Slight	3mm to 6 mm	Low to medium	<5%	MH	CLAYEY SILT
		None		Medium to high	Dull to slight	1 mm to 3 mm	Medium to high	5% to 30%	OH	ORGANIC SILT	
		CLAYS (PI and LL plot above A-Line on Plasticity Chart below)	Liquid Limit <30	None	Low to medium	Slight to shiny	~ 3 mm	Low to medium	0% to 30%	CL	SILTY CLAY
			Liquid Limit 30 to 50	None	Medium to high	Slight to shiny	1 mm to 3 mm	Medium	(see Note 2)	CI	SILTY CLAY
Liquid Limit ≥50	None		High	Shiny	<1 mm	High	CH	CLAY			
HIGHLY ORGANIC SOILS (Organic Content >30% by mass)	Peat and mineral soil mixtures						30% to 75%	PT	SILTY PEAT, SANDY PEAT		
	Predominantly peat, may contain some mineral soil, fibrous or amorphous peat						75% to 100%		PEAT		



Note 1 – Fine grained materials with PI and LL that plot in this area are named (ML) SILT with slight plasticity. Fine-grained materials which are non-plastic (i.e. a PL cannot be measured) are named SILT.

Note 2 – For soils with <5% organic content, include the descriptor "trace organics" for soils with between 5% and 30% organic content include the prefix "organic" before the Primary name.

Dual Symbol — A dual symbol is two symbols separated by a hyphen, for example, GP-GM, SW-SC and CL-ML.

For non-cohesive soils, the dual symbols must be used when the soil has between 5% and 12% fines (i.e. to identify transitional material between "clean" and "dirty" sand or gravel.

For cohesive soils, the dual symbol must be used when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart (see Plasticity Chart at left).

Borderline Symbol — A borderline symbol is two symbols separated by a slash, for example, CL/CI, GM/SM, CL/ML.

A borderline symbol should be used to indicate that the soil has been identified as having properties that are on the transition between similar materials. In addition, a borderline symbol may be used to indicate a range of similar soil types within a stratum.



ABBREVIATIONS AND TERMS USED ON RECORDS OF BOREHOLES AND TEST PITS

PARTICLE SIZES OF CONSTITUENTS

Soil Constituent	Particle Size Description	Millimetres	Inches (US Std. Sieve Size)
BOULDERS	Not Applicable	>300	>12
COBBLES	Not Applicable	75 to 300	3 to 12
GRAVEL	Coarse	19 to 75	0.75 to 3
	Fine	4.75 to 19	(4) to 0.75
SAND	Coarse	2.00 to 4.75	(10) to (4)
	Medium	0.425 to 2.00	(40) to (10)
	Fine	0.075 to 0.425	(200) to (40)
SILT/CLAY	Classified by plasticity	<0.075	< (200)

MODIFIERS FOR SECONDARY AND MINOR CONSTITUENTS

Percentage by Mass	Modifier
>35	Use 'and' to combine major constituents (i.e., SAND and GRAVEL, SAND and CLAY)
> 12 to 35	Primary soil name prefixed with "gravelly, sandy, SILTY, CLAYEY" as applicable
> 5 to 12	some
≤ 5	trace

PENETRATION RESISTANCE

Standard Penetration Resistance (SPT), N:

The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) required to drive a 50 mm (2 in.) split-spoon sampler for a distance of 300 mm (12 in.).

Cone Penetration Test (CPT)

An electronic cone penetrometer with a 60° conical tip and a project end area of 10 cm² pushed through ground at a penetration rate of 2 cm/s. Measurements of tip resistance (q_t), porewater pressure (u) and sleeve frictions are recorded electronically at 25 mm penetration intervals.

Dynamic Cone Penetration Resistance (DCPT); N_d:

The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) to drive uncased a 50 mm (2 in.) diameter, 60° cone attached to "A" size drill rods for a distance of 300 mm (12 in.).

PH: Sampler advanced by hydraulic pressure

PM: Sampler advanced by manual pressure

WH: Sampler advanced by static weight of hammer

WR: Sampler advanced by weight of sampler and rod

SAMPLES

AS	Auger sample
BS	Block sample
CS	Chunk sample
DO or DP	Seamless open ended, driven or pushed tube sampler – note size
DS	Denison type sample
FS	Foil sample
RC	Rock core
SC	Soil core
SS	Split spoon sampler – note size
ST	Slotted tube
TO	Thin-walled, open – note size
TP	Thin-walled, piston – note size
WS	Wash sample

SOIL TESTS

w	water content
PL, w _p	plastic limit
LL, w _L	liquid limit
C	consolidation (oedometer) test
CHEM	chemical analysis (refer to text)
CID	consolidated isotropically drained triaxial test ¹
CIU	consolidated isotropically undrained triaxial test with porewater pressure measurement ¹
D _R	relative density (specific gravity, G _s)
DS	direct shear test
GS	specific gravity
M	sieve analysis for particle size
MH	combined sieve and hydrometer (H) analysis
MPC	Modified Proctor compaction test
SPC	Standard Proctor compaction test
OC	organic content test
SO ₄	concentration of water-soluble sulphates
UC	unconfined compression test
UU	unconsolidated undrained triaxial test
V (FV)	field vane (LV-laboratory vane test)
γ	unit weight

1. Tests which are anisotropically consolidated prior to shear are shown as CAD, CAU.

NON-COHESIVE (COHESIONLESS) SOILS

Compactness²

Term	SPT 'N' (blows/0.3m) ¹
Very Loose	0 - 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very Dense	>50

1. SPT 'N' in accordance with ASTM D1586, uncorrected for overburden pressure effects.

2. Definition of compactness descriptions based on SPT 'N' ranges from Terzaghi and Peck (1967) and correspond to typical average N₆₀ values.

Field Moisture Condition

Term	Description
Dry	Soil flows freely through fingers.
Moist	Soils are darker than in the dry condition and may feel cool.
Wet	As moist, but with free water forming on hands when handled.

COHESIVE SOILS

Consistency

Term	Undrained Shear Strength (kPa)	SPT 'N' ¹ (blows/0.3m)
Very Soft	<12	0 to 2
Soft	12 to 25	2 to 4
Firm	25 to 50	4 to 8
Stiff	50 to 100	8 to 15
Very Stiff	100 to 200	15 to 30
Hard	>200	>30

1. SPT 'N' in accordance with ASTM D1586, uncorrected for overburden pressure effects; approximate only.

Water Content

Term	Description
w < PL	Material is estimated to be drier than the Plastic Limit.
w ~ PL	Material is estimated to be close to the Plastic Limit.
w > PL	Material is estimated to be wetter than the Plastic Limit.

LIST OF SYMBOLS

Unless otherwise stated, the symbols employed in the report are as follows:

I. GENERAL

π	3.1416
$\ln x$	natural logarithm of x
$\log_{10} x$	x or log x, logarithm of x to base 10
g	acceleration due to gravity
t	time

II. STRESS AND STRAIN

γ	shear strain
Δ	change in, e.g. in stress: $\Delta \sigma$
ϵ	linear strain
ϵ_v	volumetric strain
η	coefficient of viscosity
ν	Poisson's ratio
σ	total stress
σ'	effective stress ($\sigma' = \sigma - u$)
σ'_{vo}	initial effective overburden stress
$\sigma_1, \sigma_2, \sigma_3$	principal stress (major, intermediate, minor)
σ_{oct}	mean stress or octahedral stress $= (\sigma_1 + \sigma_2 + \sigma_3)/3$
τ	shear stress
u	porewater pressure
E	modulus of deformation
G	shear modulus of deformation
K	bulk modulus of compressibility

III. SOIL PROPERTIES

(a) Index Properties

$\rho(\gamma)$	bulk density (bulk unit weight)*
$\rho_d(\gamma_d)$	dry density (dry unit weight)
$\rho_w(\gamma_w)$	density (unit weight) of water
$\rho_s(\gamma_s)$	density (unit weight) of solid particles
γ'	unit weight of submerged soil ($\gamma' = \gamma - \gamma_w$)
D_R	relative density (specific gravity) of solid particles ($D_R = \rho_s / \rho_w$) (formerly G_s)
e	void ratio
n	porosity
S	degree of saturation

(a) Index Properties (continued)

w	water content
w_l or LL	liquid limit
w_p or PL	plastic limit
I_p or PI	plasticity index = $(w_l - w_p)$
w_s	shrinkage limit
I_L	liquidity index = $(w - w_p) / I_p$
I_C	consistency index = $(w_l - w) / I_p$
e_{max}	void ratio in loosest state
e_{min}	void ratio in densest state
I_D	density index = $(e_{max} - e) / (e_{max} - e_{min})$ (formerly relative density)

(b) Hydraulic Properties

h	hydraulic head or potential
q	rate of flow
v	velocity of flow
i	hydraulic gradient
k	hydraulic conductivity (coefficient of permeability)
j	seepage force per unit volume

(c) Consolidation (one-dimensional)

C_c	compression index (normally consolidated range)
C_r	recompression index (over-consolidated range)
C_s	swelling index
C_α	secondary compression index
m_v	coefficient of volume change
C_v	coefficient of consolidation (vertical direction)
C_h	coefficient of consolidation (horizontal direction)
T_v	time factor (vertical direction)
U	degree of consolidation
σ'_p	pre-consolidation stress
OCR	over-consolidation ratio = σ'_p / σ'_{vo}

(d) Shear Strength

τ_p, τ_r	peak and residual shear strength
ϕ'	effective angle of internal friction
δ	angle of interface friction
μ	coefficient of friction = $\tan \delta$
c'	effective cohesion
c_u, s_u	undrained shear strength ($\phi = 0$ analysis)
p	mean total stress $(\sigma_1 + \sigma_3)/2$
p'	mean effective stress $(\sigma'_1 + \sigma'_3)/2$
q	$(\sigma_1 - \sigma_3)/2$ or $(\sigma'_1 - \sigma'_3)/2$
q_u	compressive strength $(\sigma_1 - \sigma_3)$
S_t	sensitivity

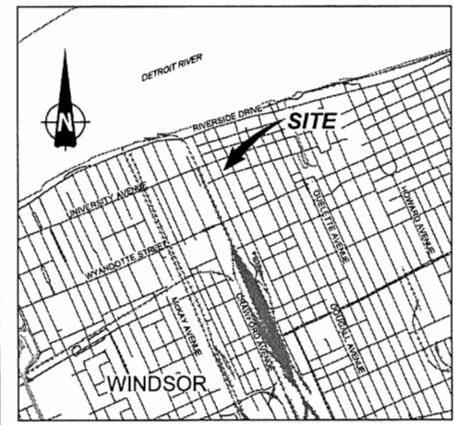
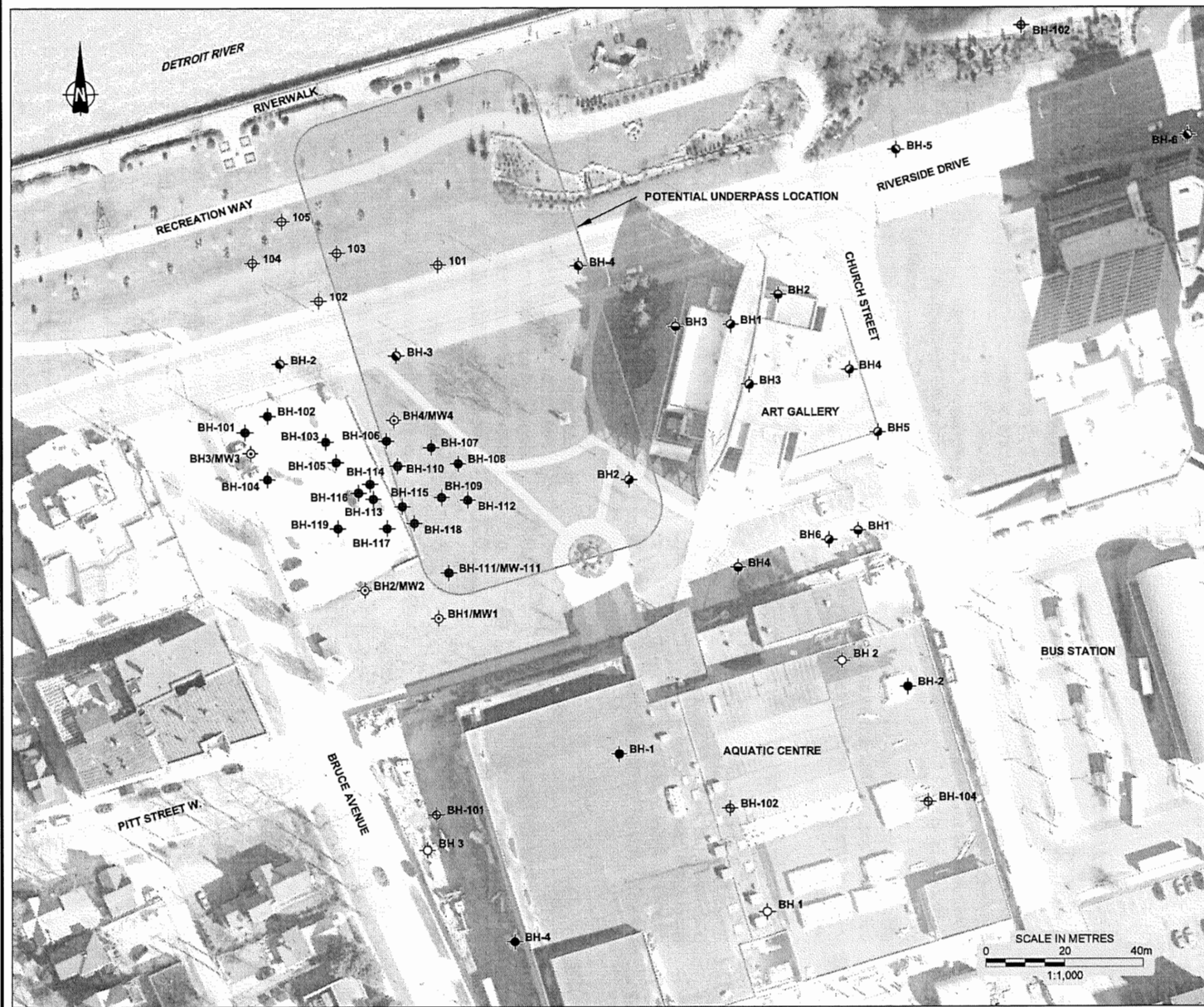
* Density symbol is ρ . Unit weight symbol is γ where $\gamma = \rho g$ (i.e. mass density multiplied by acceleration due to gravity)

Notes: 1
2

$$\tau = c' + \sigma' \tan \phi'$$

$$\text{shear strength} = (\text{compressive strength})/2$$

Drawing file: 1541974-001001.dwg Dec 09, 2015 - 3:17pm



LEGEND

- BOREHOLE (Golder Report No. 1417044)
- ⊕ BOREHOLE (Golder Report No. 13-1140-0188)
- ⊕ BOREHOLE / MONITORING WELL (Golder Report No. 11-1140-0045)
- ⊕ BOREHOLE / MONITORING WELL (Golder Report No. 06-1145-176)
- BOREHOLE (Golder Report No. 011-4209)
- ⊕ BOREHOLE (Golder Report No. 991-4087)
- ⊕ BOREHOLE (Golder Report No. 921-4210)
- BOREHOLE (Golder Report No. 73589)
- ⊕ BOREHOLE (Golder Report No. 70339)
- ⊕ BOREHOLE (Golder Report No. 70339-1)

REFERENCE

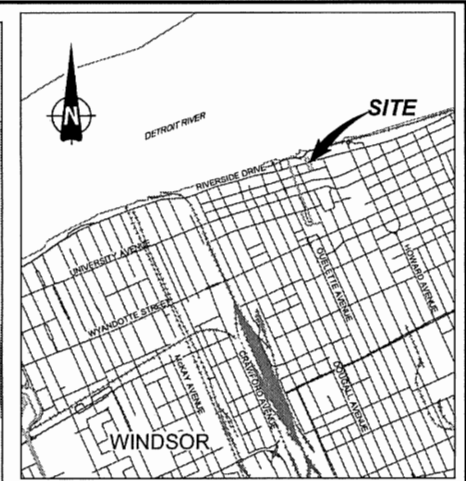
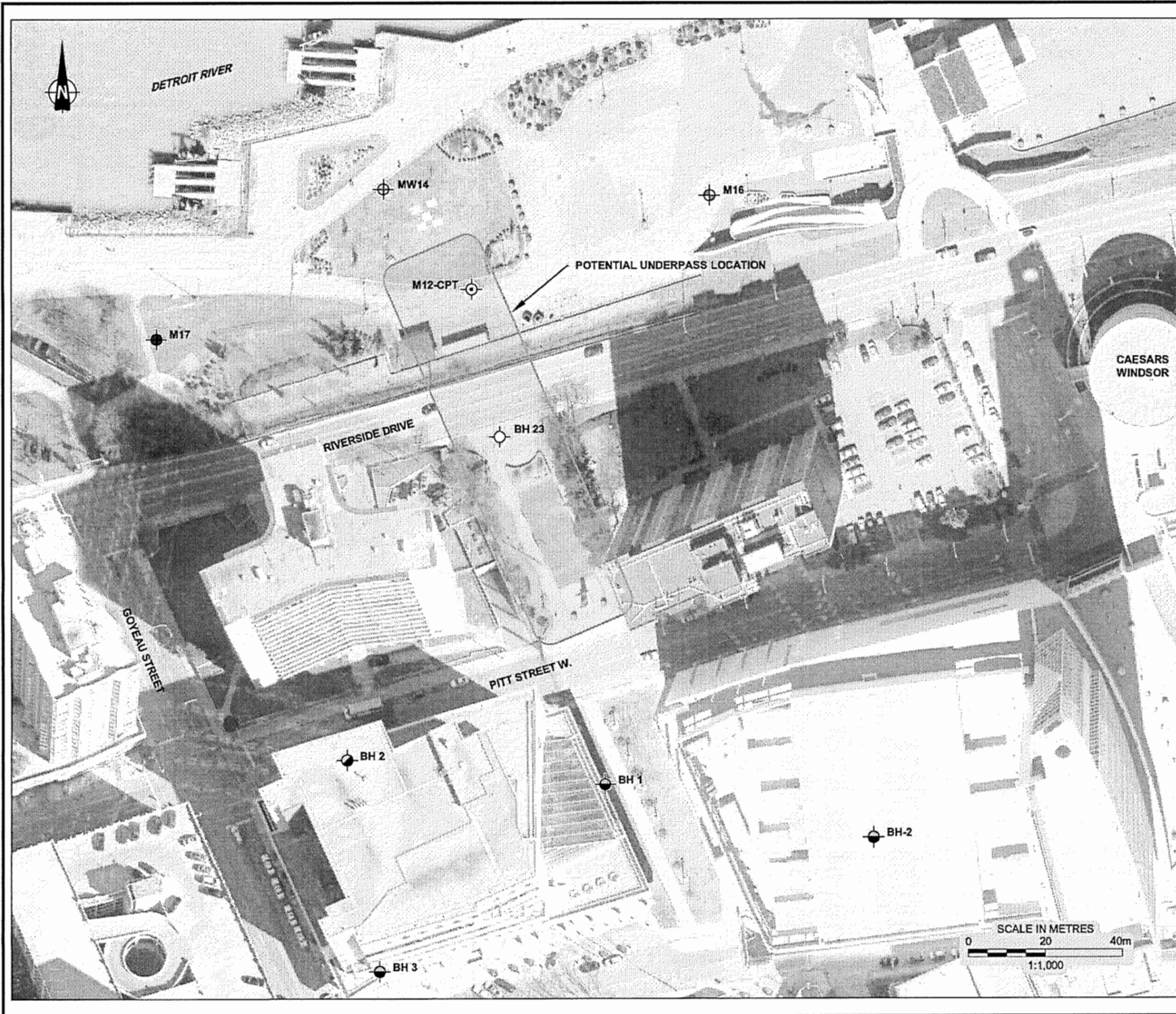
DRAWING BASED ON 2013 AERIAL IMAGE FROM THE COUNTY OF ESSEX INTERACTIVE WEB MAPPING SITE, BY PERMISSION; AND CANMAP STREETFILES V.2008.

NOTES

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE ONLY.

PROJECT		RIVERFRONT PEDESTRIAN UNDERPASS WINDSOR, ONTARIO		
TITLE		LOCATION PLAN (AQUATIC CENTRE SITE)		
	PROJECT No.	1541974	FILE No.	1541974-001001
	SCALE	AS SHOWN		
CADD	WFO/CH	Dec 9/15	SCALE	AS SHOWN
CHECK			REV.	0
				FIGURE 1



KEY PLAN

LEGEND

- BOREHOLE (Golder Report No. 09-1140-W090)
- ⊕ BOREHOLE \ MONITORING WELL (Golder Report No. 09-1140-W090)
- ⊙ CONE PENETRATION TEST (Golder Report No. 09-1140-W090)
- ⊕ BOREHOLE (Golder Report No. 901-4060)
- ⊕ BOREHOLE (Golder Report No. 881-4090)
- ⊕ BOREHOLE (Golder Report No. 65075)
- ⊙ BOREHOLE (Previous Investigation By Others)

REFERENCE

DRAWING BASED ON 2013 AERIAL IMAGE FROM THE COUNTY OF ESSEX INTERACTIVE WEB MAPPING SITE, BY PERMISSION; AND CANMAP STREETFILES V.2008.

NOTES

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

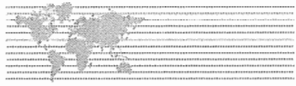
ALL LOCATIONS ARE APPROXIMATE ONLY.

PROJECT	RIVERFRONT PEDESTRIAN UNDERPASS WINDSOR, ONTARIO	
TITLE	LOCATION PLAN (FESTIVAL PLAZA SITE)	
PROJECT NO.	1541874	FILE NO. 1541914-03/001
CADD	WDF/DC	DATE 9/15
CHECK		SCALE AS SHOWN REV. 3



FIGURE 2

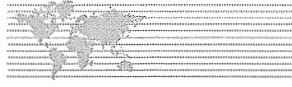
Drawing file: 1541914-R01001.dwg Dec 09, 2015 - 3:18pm



**GEOTECHNICAL ASSESSMENT
RIVERSIDE DRIVE PEDESTRIAN UNDERPASS CONNECTION
WINDSOR, ONTARIO**

APPENDIX A

Records of Boreholes Previous Investigations



**GEOTECHNICAL ASSESSMENT
RIVERSIDE DRIVE PEDESTRIAN UNDERPASS CONNECTION
WINDSOR, ONTARIO**

Aquatic Centre Site

PROJECT: 1417044

RECORD OF BOREHOLE BH-106

SHEET 1 OF 1

LOCATION: REFER TO LOCATION PLAN

BORING DATE: December 17, 2014
 DRILLING CONTRACTOR: Landshark Drilling

DATUM: LOCAL

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES			ELEVATION	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM]				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No. NUMBER	TYPE		ND = Not Detected	50	100	150		
(Golder Report No. 1417044)													
0	GEOPROBE 7822 DIRECT PUSH SAMPLING SYSTEM	GROUND SURFACE		100.73			101						
		TOPSOIL - SILTY CLAY		0.00									
		FILL - SILTY CLAY, some sand and gravel; brown, with trace brick, concrete, and ash; non-cohesive, moist		0.13	1	1A	SC	100	ND				Chem
1		SILTY CLAY, some sand, trace gravel; brown, with pockets of sand, (TILL); non-cohesive, w<PL		99.59									
				1.14		1B	SC	99	ND				
2					2A	SC	99	ND					
3					2								
					2B	SC	98	ND					
3		END OF BOREHOLE		97.68									
				3.05									
4							97						

LON_ENV_11 1417044.GPJ GLDR_LON.GDT 10/03/15 DATA.INPUT:DMB

DEPTH SCALE

1 : 50



LOGGED: KL

CHECKED:

PROJECT: 1417044

RECORD OF BOREHOLE BH-107

SHEET 1 OF 1

LOCATION: REFER TO LOCATION PLAN

BORING DATE: December 17, 2014
 DRILLING CONTRACTOR: Landshark Drilling

DATUM: LOCAL

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES			ELEVATION	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM]				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No. NUMBER	TYPE	ND = Not Detected								
							HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [%LEL] ND = Not Detected								
								50	100	150	200				
								20	40	60	80				
<i>(Golder Report No. 1417044)</i>															
0	GEOPROBE 7822 DIRECT PUSH SAMPLING SYSTEM	GROUND SURFACE		100.52											
		TOPSOIL - SILTY CLAY		0.00											
		FILL - SILTY CLAY, trace gravel; dark brown, with trace debris; cohesive, w<PL		0.15		1A	SC								
1		SILTY CLAY, some sand, trace gravel; mottled brown and grey, (TILL); cohesive, w<PL		0.99.51	1.01	1B	SC								
2		SILTY CLAY, some sand, trace gravel; brown, with wet sand seams, (TILL); cohesive, w<PL		0.99.00	1.52	2A	SC								
					2										
					2B	SC									
3	END OF BOREHOLE		97.47	3.05											
4															
5															
6															
7															
8															
9															

Chem

LDN_ENV_11_1417044.GPJ GLDR LONGDT 10/03/15 DATA INPUT: DMB

DEPTH SCALE

1 : 50



LOGGED: KL

CHECKED:

PROJECT: 1417044

RECORD OF BOREHOLE BH-108

SHEET 1 OF 1

LOCATION: REFER TO LOCATION PLAN

BORING DATE: December 17, 2014
 DRILLING CONTRACTOR: Landshark Drilling

DATUM: LOCAL

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES			HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS (PPM)				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	NUMBER	TYPE	ND = Not Detected					
							ELEVATION	50	100	150	200		
								HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [%LEL] ND = Not Detected					
								20	40	60	80		
<i>(Golder Report No. 1417044)</i>													
0	GEOROBE 7822 DIRECT PUSH SAMPLING SYSTEM	GROUND SURFACE		100.64			101						
		TOPSOIL - SILTY CLAY		0.00									
		FILL - SILTY CLAY, some sand, trace gravel; dark brown, with concrete debris to about 0.4m depth; cohesive, w<PL		0.15	1A	SC	ND						
1		SILTY CLAY, some sand, trace gravel; mottled brown and grey, (TILL); cohesive, w<PL		100.01	1			100					
			0.63	1B	SC	ND						Chem	
		END OF BOREHOLE		99.12			99						
				1.52									

LDN_ENV_11_1417044.GPJ GLDR_LON.GDT 10/03/15 DATA INPUT: DMB

DEPTH SCALE

1 : 50



LOGGED: KL

CHECKED:

PROJECT: 1417044

RECORD OF BOREHOLE BH-109

SHEET 1 OF 1

LOCATION: REFER TO LOCATION PLAN

BORING DATE: December 17, 2014
 DRILLING CONTRACTOR: Landshark Drilling

DATUM: LOCAL

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES			ELEVATION	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM]				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No. NUMBER	TYPE	ND = Not Detected								
							50		100	150	200				
								HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [%LEL] ND = Not Detected							
								20	40	60	80				
(Golder Report No. 1417044)															
0	GEOPROBE 7822 DIRECT PUSH SAMPLING SYSTEM	GROUND SURFACE		100.54											
		TOPSOIL - SILTY CLAY		0.00											
		FILL - SILTY CLAY; dark brown, with trace debris; cohesive, w<PL		0.15		1A	SC		ND						
		FILL - SAND and GRAVEL; light brown; non-cohesive, moist		0.30											
1		SILTY CLAY, some sand, trace gravel; dark brown, (TILL); cohesive, w<PL		0.97		1	1B	SC		ND				Chem	
				99.57											
		SILTY CLAY, some sand, trace gravel; brown; cohesive, w<PL		1.52		2	2A	SC		ND					
2				99.02											
				97.49											
3		END OF BOREHOLE		3.05											
4															
5															
6															
7															
8															
9															

LDN_ENV_11_1417044.GPJ GLDR LONGDT_10/03/15 DATA INPUT; DMB

DEPTH SCALE

1 : 50



LOGGED: KL

CHECKED:

PROJECT: 1417044

RECORD OF BOREHOLE BH-110

SHEET 1 OF 1

LOCATION: REFER TO LOCATION PLAN

BORING DATE: December 17, 2014
 DRILLING CONTRACTOR: Landshark Drilling

DATUM: LOCAL

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES			HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS (PPM)				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No. NUMBER	TYPE	ELEVATION	ND = Not Detected				
0	GEOPROBE 7822 DIRECT PUSH SAMPLING SYSTEM	GROUND SURFACE		100.73								
		TOPSOIL - SILTY CLAY		0.00								
		FILL - SILTY CLAY, some sand and gravel; brown, with brick debris at about 0.5m and 0.6m depth		0.13	1A	SC	ND					
					1B	SC	ND					
1		FILL - SAND and GRAVEL; grey, with cobbles; dry		99.84	1							
				0.89								
2					2A	SC	ND					
					2							
3		FILL - SAND and GRAVEL, some clay; brown; moist		98.04	2B	SC	ND					
				2.69								
	FILL - SAND and GRAVEL; grey; wet		97.68	3A	SC	⊕						
			3.05									
4	SILTY CLAY, some sand, trace gravel; grey, (TILL); cohesive, w>PL		97.05	3								
			3.68	3B	SC	ND						
5	END OF BOREHOLE		96.16									
			4.57									
6												
7												
8												
9												

(Golder Report No. 1417044)

Chem

Enc.

Groundwater encountered at about elev. 97.6m during drilling on December 17, 2014.

LDN_ENV_11_1417044.GPJ GLDR_LON.GDT 10/03/15 DATA INPUT: DMB

DEPTH SCALE
1 : 50



LOGGED: KL
CHECKED:

PROJECT: 1417044

RECORD OF BOREHOLE BH-111

SHEET 1 OF 1

LOCATION: REFER TO LOCATION PLAN

BORING DATE: December 17, 2014
 DRILLING CONTRACTOR: Landshark Drilling

DATUM: LOCAL

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES			ELEVATION	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM]				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	NUMBER		TYPE	50	100	150		
0	GEOPROBE 7822 DIRECT PUSH SAMPLING SYSTEM	GROUND SURFACE		100.42								Chem	MW-111 Flushmount Protective Casing Concrete Granular Bentonite Sand 50mm Dia. Slot 10 Sch. 40 PVC Screen Granular Bentonite Groundwater encountered at about elev. 98.6m during drilling on December 17, 2014.
		TOPSOIL - SILTY CLAY, some sand; dark brown		0.00									
		FILL - SAND and GRAVEL; grey, with some concrete debris; dry		0.15	1A	SC	100	ND					
1					1B	SC	99	ND					
		FILL - SAND, medium to fine; brown to black; wet		98.72	2A	SC	98	ND					
		FILL - SAND and GRAVEL; grey; wet		98.21	2								
		FILL - SAND, medium to fine; black, trace slag-like material, trace brown rust oxidation; wet		2.21	2B	SC	98	ND					
				97.96									
				2.46	3A	SC	97	ND					
3					3								
		FILL - SILTY CLAY, some sand and gravel; grey; w>PL		96.10	3B	SC	96	ND					
		SILTY CLAY, some sand, trace gravel; grey, sand pocket, (TILL); cohesive, w>PL		4.32	4A	SC	95	ND					
				95.85									
			4.57	4B	SC	95	ND						
6		END OF BOREHOLE											
			94.32										
			6.10			94							

(Golder Report No. 1417044)

LDN_ENV_11_1417044.GPJ GLDR_LON.GDT 10/03/15 DATA INPUT: DMB

DEPTH SCALE

1 : 50



LOGGED: KL

CHECKED:

PROJECT: 1417044


RECORD OF BOREHOLE BH-115

SHEET 1 OF 1

LOCATION: REFER TO LOCATION PLAN

BORING DATE: December 17, 2014
 DRILLING CONTRACTOR: Landshark Drilling

DATUM: LOCAL

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES			ELEVATION	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM]				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No.	NUMBER	TYPE		ND = Not Detected						
HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [%LEL] ND = Not Detected															
								50	100	150	200				
								20	40	60	80				
				101.03				(Golder Report No. 1417044)							
0		PAVEMENT SURFACE		101.03											
	GEOPROBE 7822 DIRECT PUSH SAMPLING SYSTEM	FILL - SILTY CLAY, some sand and gravel; brown and black; with brick and slag debris; moist		0.00											
1				1	1A	SC									
					1B	SC									
2					2	2	SC								
		END OF BOREHOLE DUE TO REFUSAL (Possible concrete slab)		98.74											
				2.29											
3															
4															
5															
6															
7															
8															
9															

LDN_ENV_11_1417044.GPJ GLDR_LON.GDT 10/03/15 DATA INPUT: DMB

DEPTH SCALE

1 : 50



LOGGED: KL

CHECKED:

PROJECT: 1417044

RECORD OF BOREHOLE BH-118

SHEET 1 OF 1

LOCATION: REFER TO LOCATION PLAN

BORING DATE: December 17, 2014
 DRILLING CONTRACTOR: Landshark Drilling

DATUM: LOCAL

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES			HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM]				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	RUN No. NUMBER	TYPE	ND = Not Detected					
							HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [%LEL] ND = Not Detected 50 100 150 200					
0	GEOPROBE 7822 DIRECT PUSH SAMPLING SYSTEM	GROUND SURFACE		101.02								
		TOPSOIL - SILTY CLAY		0.00								
		FILL - SILTY CLAY, some sand; dark brown, with trace concrete and brick debris; moist		0.13	1A	SC	ND					
		FILL - SAND and GRAVEL; grey, with concrete, trace red brick and other pulverized debris; dry		100.51	1							
1				0.51	1B	SC	ND					
2				2	2	SC	ND				Chem	
		END OF BOREHOLE DUE TO REFUSAL (Possible concrete slab)		98.73								
				2.29								
3												
4												
5												
6												
7												
8												
9												

102 (Golder Report No. 1417044)

LDN_ENV_11 1417044.GPJ GLDR_LON.GDT 10/03/15 DATA INPUT: DMB

DEPTH SCALE
1 : 50



LOGGED: KL
CHECKED:

PROJECT: 06-1145-176

RECORD OF BOREHOLE 1

SHEET 1 OF 1

LOCATION: SEE LOCATION PLAN

BORING DATE: DECEMBER 21, 2006

DATUM: LOCAL

SAMPLER HAMMER, 63.5kg; DROP, 760mm

SAMPLER HAMMER, 63.5kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES			ELEVATION	HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS (PPM)				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE		BLOWS/0.3m	100	200	300		
0	POWER AUGER SOLID STEM	GROUND SURFACE		99.02								MW1	
		Brown, clayey topsoil, rooted (FILL)		0.08	1	SS	12	99	ND				
		Compact, brown, silty sand and gravel, concrete, brick and gravel fragments, steel and wires pieces (FILL)		98.34									
1				0.69	2	SS	14	98	ND				
					3	SS	32		ND				
			Compact, grey, crushed gravel (FILL)			4	SS	21	97	ND			
2				5	SS	15		ND					
3		Stiff, grey, SILTY CLAY, some sand, trace gravel with silty sand partings (TILL)		95.98				96	ND			Chem	
				3.05	6	SS	14						
4		END OF BOREHOLE		95.37									
				3.66									

(Golder Report No. 06-1145-176)

Protective Casing
Bentonite Seal

Water Level
Water Level

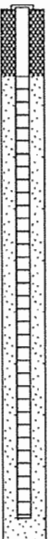
Sand

Water Seepage

Water seepage into borehole encountered at about elevation 96.74m during drilling

Water level in borehole at about elevation 97.20m upon completion of drilling on December 21, 2006

Water level in MW1 at about elevation 97.29m on January 12, 2007



LDN_ENV_06-1145-176.GPJ CLDR_LDN.GDT 1/15/07 DATA INPUT: Tony Mastrolanni

DEPTH SCALE

1 : 50



LOGGED: C.C.

CHECKED:

PROJECT: 991-4087

RECORD OF BOREHOLE 2

SHEET 1 OF 1

LOCATION: SEE LOCATION PLAN

BORING DATE: MAY 6, 1999

DATUM: GEODETIC

SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				HYDRAULIC CONDUCTIVITY, k_f cm/s				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH				WATER CONTENT, PERCENT					
								Cu, kPa		rem. V		Wp				W	
0		PAVEMENT SURFACE ASPHALT		184.20													
		Compact granular base (FILL)		0.09	1	AS											
1				182.83	2	50 DO	53										
		Stiff brown silty clay, mixed with black clayey topsoil, sand, gravel, orange clay brick (FILL)		1.37	3	50 DO	8										
2				182.10	4	50 DO	8										
		firm mottled brown and grey SILTY CLAY, some sand, trace of gravel (TILL)		2.10													
3				181.30	5	50 DO	34										
	POWER AUGER SOLID STEM	Hard brown SILTY CLAY, some sand, trace of gravel, occ. sand pockets (TILL)		2.90	6	50 DO	36										
4				179.30	7	50 DO	32										
		Very stiff grey SILTY CLAY, some sand, trace of gravel with grey SILTY SAND, layers and lenses (TILL)		4.90	8	50 DO	13										
5				177.85	9	50 DO	15										
6		END OF BOREHOLE		6.55													
7																	
8																	
9																	
10																	

(Golder Report No. 991-4087)

Minor water seepage into borehole at elevation 180.4m during drilling on May 7, 1999

0
15 5 PERCENT AXIAL STRAIN AT FAILURE
10

DATA INPUT: TONY MASTROJANNI

DEPTH SCALE
1 to 10

Golder Associates

LOGGED: R.W.W.
CHECKED: *[Signature]*

RECORD OF BOREHOLES 2 & 3

LOCATION See Figure 1 BORING DATE APRIL 15 & 16, 1970 DATUM GEODETIC
 SAMPLER HAMMER WEIGHT 140 LB., DROP 30 IN. PENETRATION TEST HAMMER WEIGHT 140 LB., DROP 30 IN.

BORING METHOD	SOIL PROFILE		SAMPLES			ELEVATION SCALE	DYNAMIC PENETRATION RESISTANCE, BLOWS/FT.				COEFFICIENT OF PERMEABILITY, K., CM./SEC.				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
	ELEV./N DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE		BLOWS/FT.	SHEAR STRENGTH Cu., LB./SQ.FT.				WATER CONTENT, PERCENT					
								20	40	60	80	1x10	1x10	1x10			1x10
POWER AUGER & HOLLOW STEM	599.9	BRICK AND ASPHALT BROWN SAND AND GRAVEL PAVEMENT LEVEL				600	(Golder Report No. 70339) B4-2				NAT. V. - + G. - REM. V. - ⊕ U - O Wp ——— W ——— Wl						
	599.8																
	599.7																
	599.6																
	593.9	VERY STIFF TO HARD MOTTLED BROWN SAND AND CLAYEY SILT TRACE GRAVEL	1	2"	25	595									BOREHOLE DRY DURING DRILLING APRIL 15, 1970		
	593.8	CLAYEY SILT TRACE FINE GRAVEL	2	"	34												
	593.7	END OF HOLE	3	"	60												
	590																
POWER AUGER & HOLLOW STEM	600	ASPHALT BROWN SAND AND GRAVEL PAVEMENT LEVEL				600	B4-3				NAT. V. - + G. - REM. V. - ⊕ U - O Wp ——— W ——— Wl						
	599.9																
	599.8																
	599.7																
	594.8	STIFF TO FIRM MOTTLED GREY AND BROWN CLAYEY SILT TRACE GRAVEL (LIGHTLY GRAVEL AT ELEV. 597)	1	2"	11	595								BOREHOLE DRY DURING DRILLING APRIL 16, 1970			
	594.7		2	"	7												
	594.6	END OF HOLE	3	"	8												
	590																

0
 15 — 5 Percent axial strain at failure
 10

VERTICAL SCALE
1 IN. TO 5 FT.

Golder Associates

DRAWN V.J.K.
CHECKED

RECORD OF BOREHOLE 4

LOCATION See Figure 1

BORING DATE APRIL 15 & 16, 1970 DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LB., DROP 30 IN.

PENETRATION TEST HAMMER WEIGHT 140 LB., DROP 30 IN.

BORING METHOD	SOIL PROFILE			SAMPLES		ELEVATION SCALE	DYNAMIC PENETRATION RESISTANCE, BLOWS/FT.				COEFFICIENT OF PERMEABILITY, K., CM./SEC.				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION		
	ELEV'N DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE		BLOWS/FT.	20 40 60 80				1x10 1x10 1x10 1x10						
								SHEAR STRENGTH Cu., LB./SQ.FT. NAT. V. - + C. - ● REM. V. - ⊕ U. - ○				WATER CONTENT, PERCENT						
							500 1000 1500 2000											
							(Golder Report No. 70339)											
	599.7	GROUND LEVEL																
	597.7	BLACK TOP SOIL		1	2"	21												
	2.0	VERY STIFF TO HARD MOTTLED BROWN AND GREY CLAYEY SILT SOME SAND TRACE FINE GRAVEL		2	"	20												
	597.7			3	"	38	595											
	597.7			4	"	40												
	597.7	DEEPS BROWN SILTY CLAY		4	"	40												
	8.0	HARD BROWN SILTY CLAY SOME SAND TRACE GRAVEL		5	"	41	590											
	597.7			6	"	18												
	10.0	VERY STIFF GREY SILTY CLAY SOME SAND TRACE FINE TO MEDIUM GRAVEL (TILL-LIKE)		7	"	32	585											
	597.7			8	"	15	580											
	16.5	DEEPS GREY SANDY SILT		8	"	15												
		STIFF TO VERY STIFF GREY SILTY CLAY SOME SAND TRACE FINE TO MEDIUM GRAVEL (TILL-LIKE)		9	"	19	575											
				10	"	10	570											
	566.7																	
	33.0	END OF HOLE																

WATER LEVEL IN OPEN BOREHOLE AT ELEV. 591.7 DURING DRILLING APRIL 16, 1970

POWER AUGER 6" HOLLOW STEM

MM

0 to 10 Percent axial strain at failure

VERTICAL SCALE 1 IN. TO 5 FT.

Golder Associates

DRAWN V.J.K.
CHECKED [Signature]

RECORD OF BOREHOLE 101

LOCATION See Figure 1

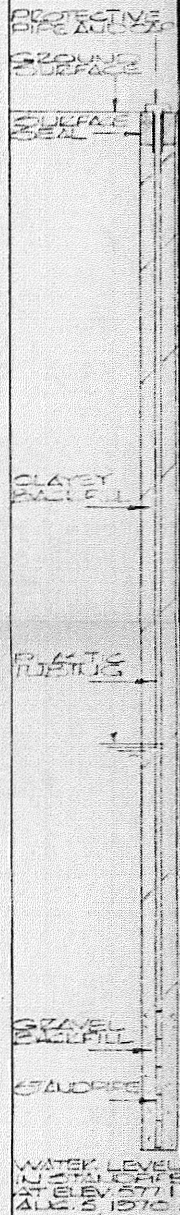
BORING DATE JULY 22, 1970

DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LB., DROP 30 IN.

PENETRATION TEST HAMMER WEIGHT 140 LB., DROP 30 IN.

BORING METHOD	SOIL PROFILE		SAMPLES			ELEVATION SCALE	DYNAMIC PENETRATION RESISTANCE, BLOWS/FT.				COEFFICIENT OF PERMEABILITY, K., CM./SEC.				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
	ELEV'N DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE		BLOWS/FT.	SHEAR STRENGTH				WATER CONTENT, PERCENT					
								Cu., LB./SQ.FT.				NAT. V. - + G. - ● REM. V. - ⊕ U. - ○					
POWER AUGER 4.5" DIA. (LUGGED)	(Golder Report No. 70339)																
	600	GROUND LEVEL															
	598	TOP SOIL															
	595	BROWN SILTY CLAY FILL															
	590			1	2"	0.0											
	588			2	"	8	596										
	585	FIRM TO STIFF GREY SILTY CLAY OCC. RUBBLE WOOD AND ORGANIC MATERIAL (FILL)		3	"	8											
	580			4	"	6	590										
	578			5	"	6											
	575	FIRM TO VERY STIFF BROWN SILTY CLAY OCCASIONAL RUBBLE (FILL)		6	"	13	588										
	570			7	"	26											
	568			8	"	24	580										
	565			9	"	13											
	560			10	"	27	575										
	558			11	"	16											
555	VERY STIFF TO STIFF GREY SILTY CLAY OCCASIONAL SAND AND GRAVEL (TILL-LIKE)		12	"	18	570											
550			13	"	13												
545			14	"	10	565											
540			15	"	14												
530	END OF HOLE					560											



0
15 $\frac{1}{2}$ 5 Percent axial strain at failure
10

VERTICAL SCALE
1 IN. TO 5 FT.

Golder Associates

DRAWN V.L.K.
CHECKED [Signature]

RECORD OF BOREHOLE 102

LOCATION See Figure 1

BORING DATE JULY 22 & 23, 1970

DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LB., DROP 30 IN.

PENETRATION TEST HAMMER WEIGHT 140 LB., DROP 30 IN.

BORING METHOD	SOIL PROFILE			SAMPLES			ELEVATION SCALE	DYNAMIC PENETRATION RESISTANCE, BLOWS/FT.				COEFFICIENT OF PERMEABILITY, K, CM./SEC.				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
	ELEV'N DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS/FT.		SHEAR STRENGTH Cu., LB./SQ.FT.				WATER CONTENT, PERCENT					
								20	40	60	80	1x10	1x10	1x10	1x10		
POWER AUGER 4.5" DIA. (UNCOATED)	580.0	GROUND LEVEL OF BLACK TOP SOIL					(Golder Report No. 70339)										
	580.5	STEEL TO FIRM BROWN SILTY CLAY FILL OVER WOOD		1	2"	5										PROTECTIVE PIPE AND CAP	
	581.4			2	"	6										GROUND SURFACE	
	581.4			3	"	8										SURFACE SEAL	
	581.4			4	"	15										CLAYEY SAND FILL	
	581.4	STIFF MOTILED SILTY CLAY FILL OVER SAND AND GRAVEL WITH STRIPS AND BRICK MATERIAL		5	"	11										PLASTIC TUBING	
	582.6			6	"	14											
	582.6	LOOSE BROWN SILTY CLAY FILL		7	"	7											
	583.4	FIRM GREY SILTY CLAY FILL		8	"	45											
	583.4	DEEP BROWN FINE TO MEDIUM SILTY SAND		9	"	23											
	583.4	VERY STIFF CLAY		10	"	18											
	584.4	COMPACT FINE TO MEDIUM SAND		11	"	20											
	584.4	VERY STIFF CLAY SILTY SAND AND GRAVEL WITH SAND LAYERS (TILL-LIKE)		12	"	24										GRAVEL FILL	
	584.4			13	"	23										STANDPIPE	
585.9			14	"	16										WATER LEVEL IN STANDPIPE AT 5.0 FT. B.T.S.		
586.0	END OF HOLE																

15 5 Percent axial strain at failure

VERTICAL SCALE
1 IN. TO 5 FT.

Golder Associates

DRAWN Y.L.K.
CHECKED SO

RECORD OF BOREHOLES 103 to 105

LOCATION See Figure 1

BORING DATE JULY 23 & 24, 1970

DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LB., DROP 30 IN.

PENETRATION TEST HAMMER WEIGHT 140 LB., DROP 30 IN.

BORING METHOD	SOIL PROFILE		SAMPLES			ELEVATION SCALE	DYNAMIC PENETRATION RESISTANCE, BLOWS/FT.				COEFFICIENT OF PERMEABILITY, K, CM./SEC.				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
	ELEV'N DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE		BLOWS/FT.	SHEAR STRENGTH Cu., LB./SQ. FT.				WATER CONTENT, PERCENT					
								20	40	60	80	1x10	1x10	1x10			1x10
(Golder Report No. 70339)																	
POWER AUGER		ASPHALT															
		ROAD LEVEL				580									BOREHOLE DRY DURING DRILLING JULY 23, 1970		
	0.2	GRANULAR FILL															
0.7	CONCRETE																
	577.5	END OF HOLE				575											
BH-104																	
POWER AUGER		ASPHALT															
		ROAD LEVEL				580									BOREHOLE DRY DURING DRILLING JULY 23, 1970		
	0.2	GRANULAR FILL															
0.7	CONCRETE																
	577.6	END OF HOLE				575											
BH-105																	
POWER AUGER 4.5" DIA. (UCAPED)		ASPHALT															
		ROAD LEVEL				580									PROTECTIVE PIPE AND CAP ROAD SURFACE SURFACE GRAEL PLASTIC TUBING GRAVEL BACKFILL STANDPIPE WATER LEVEL IN STANDPIPE AT ELEV. 576.1 AUG. 8, 1970		
	0.2	GRANULAR FILL															
	578.0	COMPACT GRY SANDY SILT		1	2"	575											
	574.8	STIFF BROWN TO GRY CLAYEY SILT OCCASIONAL SAND AND GRAVEL		2	" 11	575											
572.0	COMPACT GRY SILTY SAND		4	" 21	570												
	570.5	END OF HOLE				570											

0
15 \pm 5 Percent axial strain at failure
10

VERTICAL SCALE
1 IN. TO 5 FT.

Golder Associates

DRAWN VJK
CHECKED 10



**GEOTECHNICAL ASSESSMENT
RIVERSIDE DRIVE PEDESTRIAN UNDERPASS CONNECTION
WINDSOR, ONTARIO**

Civic Esplanade Site

PROJECT: 09-1140-W090
 LOCATION: SEE LOCATION PLAN
 SAMPLER HAMMER, 63.5kg; DROP, 760mm

RECORD OF BOREHOLE M16

BORING DATE: November 4, 2009

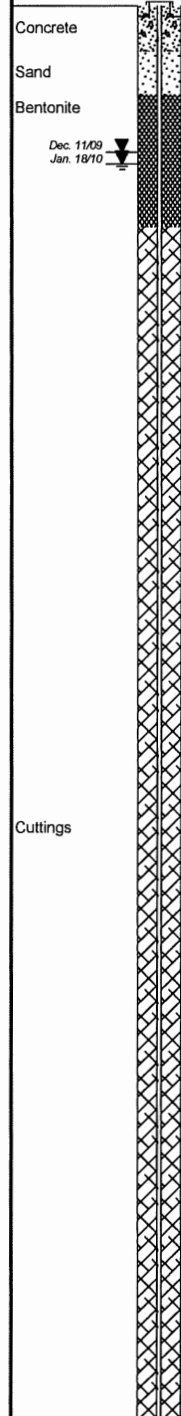
SHEET 1 OF 2

DATUM: GEODETIC

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES			ELEVATION	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m		HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE		BLOWS/0.3m	20	40	60		
0		PAVEMENT SURFACE		177.40									
		ASPHALT		0.00	1	AS							
		Compact grey-brown granular roadbase (FILL)		0.08	2	SS	24						
		Compact black silty sand and gravel, with cinders and slag (FILL)		0.61									
		Loose brown sand and gravel, trace silt (FILL)		0.76	3	SS	9						
		Loose brown sand and gravel, trace silt (FILL)		0.91									
1		Stiff to firm mottled brown and grey clayey silt to silty clay, some sand, trace gravel, occ. sand pockets (FILL)			4	SS	7						
				175.27									
				2.13	5	SS	5						
2		Firm to stiff brown clayey silt to silty clay, some sand and gravel, some black organic staining, some silt/fine sand pockets (FILL)											
				174.05	6	SS	9						
		Loose grey-brown SILTY FINE SAND, trace clay		3.35									
				173.74									
				3.66	7	SS	12						
3		Compact grey-brown SANDY SILT, trace clay and gravel with silt and sand seams											
				172.98									
				4.42	8	SS	5						
4	POWER AUGER HOLLOW STEM												
					9	SS	4	171	ND				
5													
6													
7		Stiff to very stiff grey SILTY CLAY to CLAYEY SILT, trace to some sand and gravel, occ. silt/fine sand partings											
8					10	SS	4	170					
9													
					11	SS	6	168					

HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS [PPM]
 ND = Not Detected
(Golder Report No. 09-1140-W090)



— CONTINUED NEXT PAGE —

LDN_BHS_07 091140W090.GPJ GLDR_LON.GDT 1/21/10 DATA INPUT: SJJ/DMB

DEPTH SCALE
1 : 50



LOGGED: TA
CHECKED:

PROJECT: 09-1140-W090
 LOCATION: SEE LOCATION PLAN
 SAMPLER HAMMER, 63.5kg, DROP, 760mm

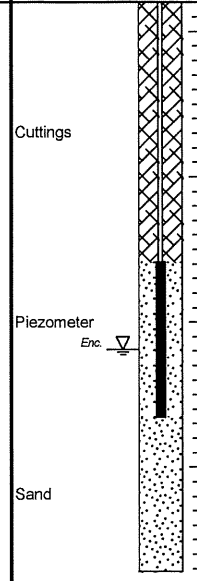
RECORD OF BOREHOLE M16

BORING DATE: November 4, 2009

SHEET 2 OF 2
 DATUM: GEODETIC

PENETRATION TEST HAMMER, 63.5kg, DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES			ELEVATION	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m		20	40	60	80	10 ⁰	10 ¹	10 ²	10 ³			
— CONTINUED FROM PREVIOUS PAGE —																			
<i>(Golder Report No. 09-1140-W090)</i>																			
10	POWER AUGER HOLLOW STEM	Stiff to very stiff grey SILTY CLAY to CLAYEY SILT , trace to some sand and gravel, occ. silt/fine sand partings																	
11				12	SS	7													
12				13	SS	7													
13				14	SS	8													
14					END OF BOREHOLE		163.23	14.17											
15																			
16																			
17																			
18																			
19																			



Water seepage into borehole observed at about elev. 165.2m during drilling on November 4, 2009.

Water level in standpipe at about elev. 176.4m on December 11, 2009.

Water level in piezometer at about elev. 176.3m on January 18, 2010.

Monitor installation abandoned on January 18, 2010.

LDN_BHS_07_091140W090.GPJ GLDR_LON.GDT_1/21/10 DATA INPUT: SJL/DMB

DEPTH SCALE
1 : 50



LOGGED: TA
CHECKED:

PROJECT: 09-1140-W090
 LOCATION: SEE LOCATION PLAN
 SAMPLER HAMMER, 63.5kg; DROP, 760mm

RECORD OF BOREHOLE M17

BORING DATE: November 5, 2009

SHEET 1 OF 2

DATUM: GEODETIC

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		ELEVATION	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER		TYPE	20	40	60	80	10 ⁰	10 ¹	10 ²		
0		GROUND SURFACE		177.14												
		Black silty topsoil (FILL)		0.00	1	AS										
		Stiff brown silty clay, some sand, trace gravel, trace topsoil (FILL)		0.30	2	SS	12									
		Compact grey crushed limestone (FILL)		0.61												
		Dense black silty sand and gravel, pieces of metal, occ. clay inclusions (FILL)		0.91	3	SS	37									
				1.37												
		Soft to firm grey-brown silty clay to clayey silt, some sand, trace gravel, occ. sand seams, some black organic staining, occ. black topsoil pockets (FILL)		175.77	4	SS	4									
				1.37												
				173.47	5	SS	4									
				3.67												
					7	SS	5									
					8	SS	6									
					9	SS	5									
		Firm to stiff grey SILTY CLAY to CLAYEY SILT, trace to some sand and gravel, occ. silt partings														
					10	SS	5									
					11	SS	4									

HEADSPACE COMBUSTIBLE VAPOUR CONCENTRATIONS (PPM)
 ND = Not Detected

(Golder Report No. 09-1140-W090)

Borehole dry during drilling on November 5, 2009.

MH

— CONTINUED NEXT PAGE —

LDN_BHS_07_091140W090.GPJ_GLDR_LON.GDT_1/21/10 DATA INPUT: SJJ/DMB

DEPTH SCALE
1 : 50



LOGGED: TA
CHECKED:

PROJECT: 09-1140-W090

RECORD OF BOREHOLE M17

SHEET 2 OF 2

LOCATION: SEE LOCATION PLAN

BORING DATE: November 5, 2009

DATUM: GEODETIC

SAMPLER HAMMER, 63.5kg, DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg, DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES			ELEVATION	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS						
		DESCRIPTION	STRATA PILOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m		SHEAR STRENGTH Cu, kPa		WATER CONTENT PERCENT													
									20	40	60	80	10 ⁰	10 ¹	10 ²	10 ³								
— CONTINUED FROM PREVIOUS PAGE —		<i>(Golder Report No. 09-1140-W090)</i>																						
10	POWER AUGER HOLLOW STEM	Firm to stiff grey SILTY CLAY to CLAYEY SILT , trace to some sand and gravel, occ. silt partings	[Hatched Pattern]	162.97	14.17	5	SS	167	⊕	+														
11								166																
12								165	⊕	+														
13								164	⊕	+														
14								163																
15		END OF BOREHOLE						162																

LDN_BHS_07_091140W090.GPJ GLDR_LON.GDT_1/21/10. DATA INPUT: SJL/DMB

DEPTH SCALE

1 : 50



LOGGED: TA

CHECKED:

PROJECT: 09-1140-W090

RECORD OF CONE PENETRATION TEST M12-CPT

SHEET 1 OF 3

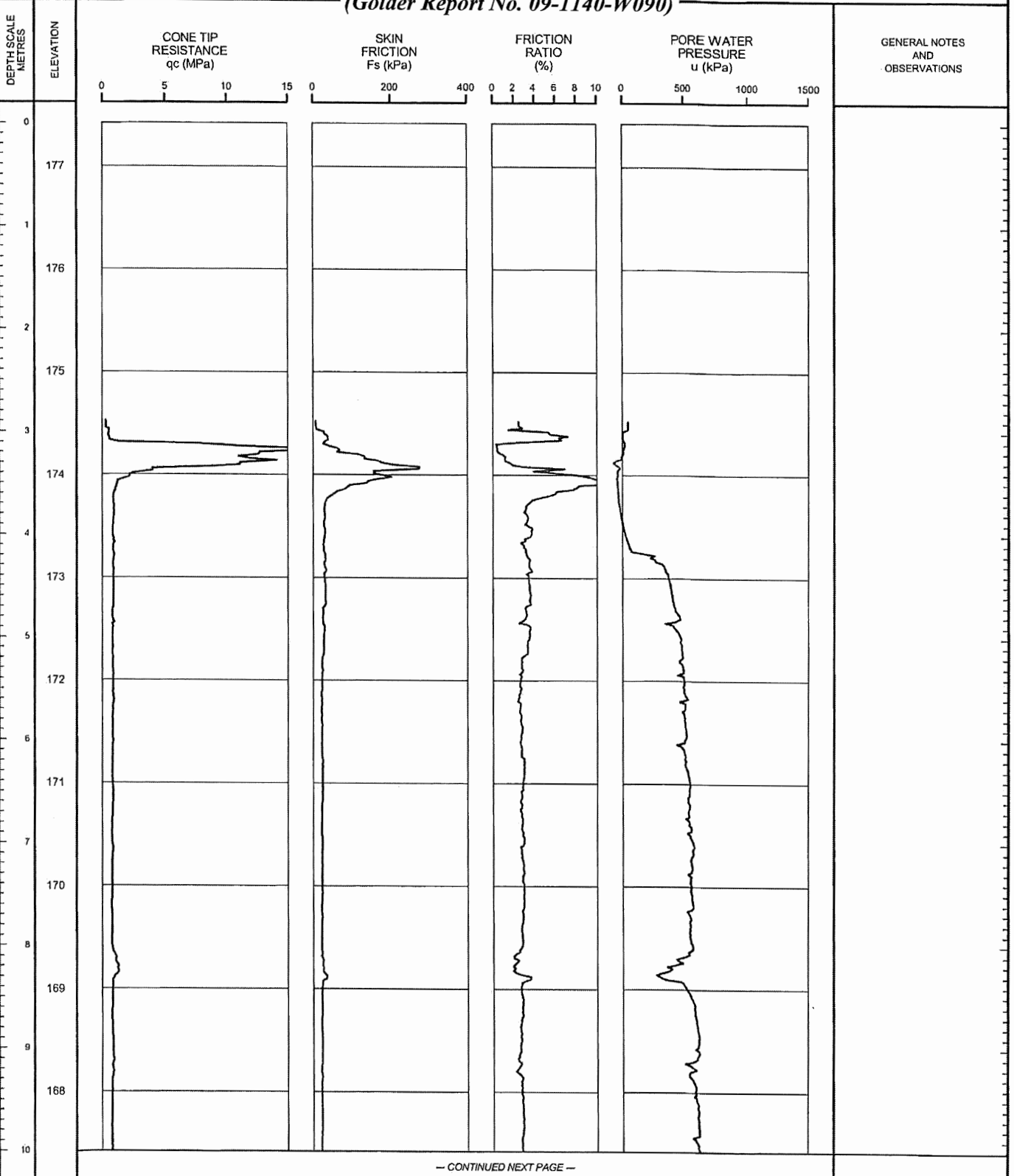
LOCATION: SEE LOCATION PLAN

TEST DATE: November 2, 2009

DATUM: GEODETIC

GROUND SURFACE ELEVATION: 177.42m PREDRILL DEPTH: 2.90m CORRECTION FACTOR A: 0.6 CORRECTION FACTOR B: 0.013

(Golder Report No. 09-1140-W090)



LDN_CPT_01_091140W090-CPT.GPJ_GLOR_LON.GDT_1/21/10_DATA.INPUT:DMB

DEPTH SCALE
1: 50



OPERATOR: TA
CHECKED: *TA*

PROJECT: 09-1140-W090

RECORD OF CONE PENETRATION TEST M12-CPT

SHEET 2 OF 3

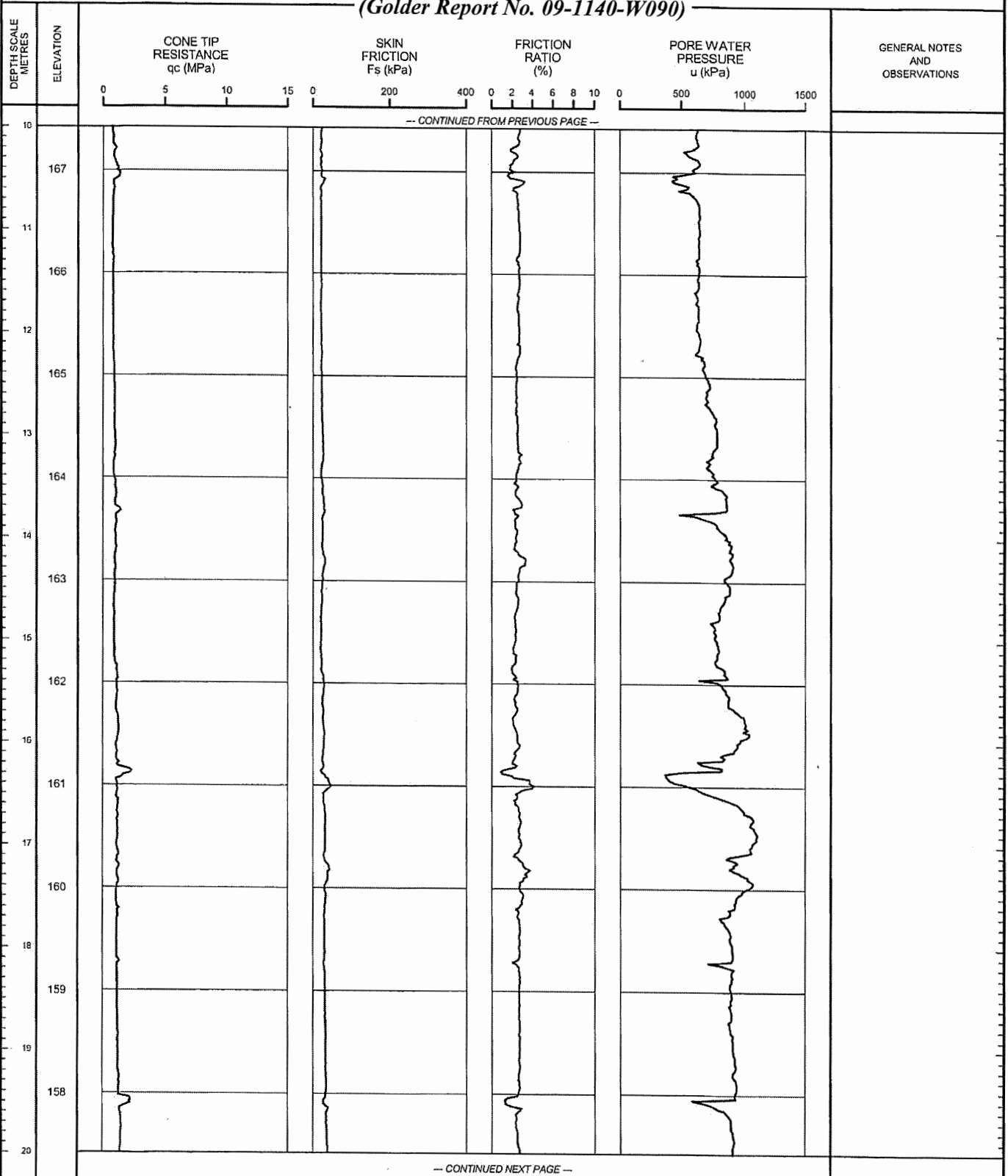
LOCATION: SEE LOCATION PLAN

TEST DATE: November 2, 2009

DATUM: GEODETIC

GROUND SURFACE ELEVATION: 177.42m PREDRILL DEPTH: 2.90m CORRECTION FACTOR A: 0.6 CORRECTION FACTOR B: 0.013

(Golder Report No. 09-1140-W090)



-- CONTINUED NEXT PAGE --

LDN_CPT_01_091140W090-CPT.GPJ_GLDR_LON_GDT_1/21/10_DATA INPUT: DMB

DEPTH SCALE

1:50



OPERATOR: TA

CHECKED: *SK*

PROJECT: 09-1140-W090

RECORD OF CONE PENETRATION TEST M12-CPT

SHEET 3 OF 3

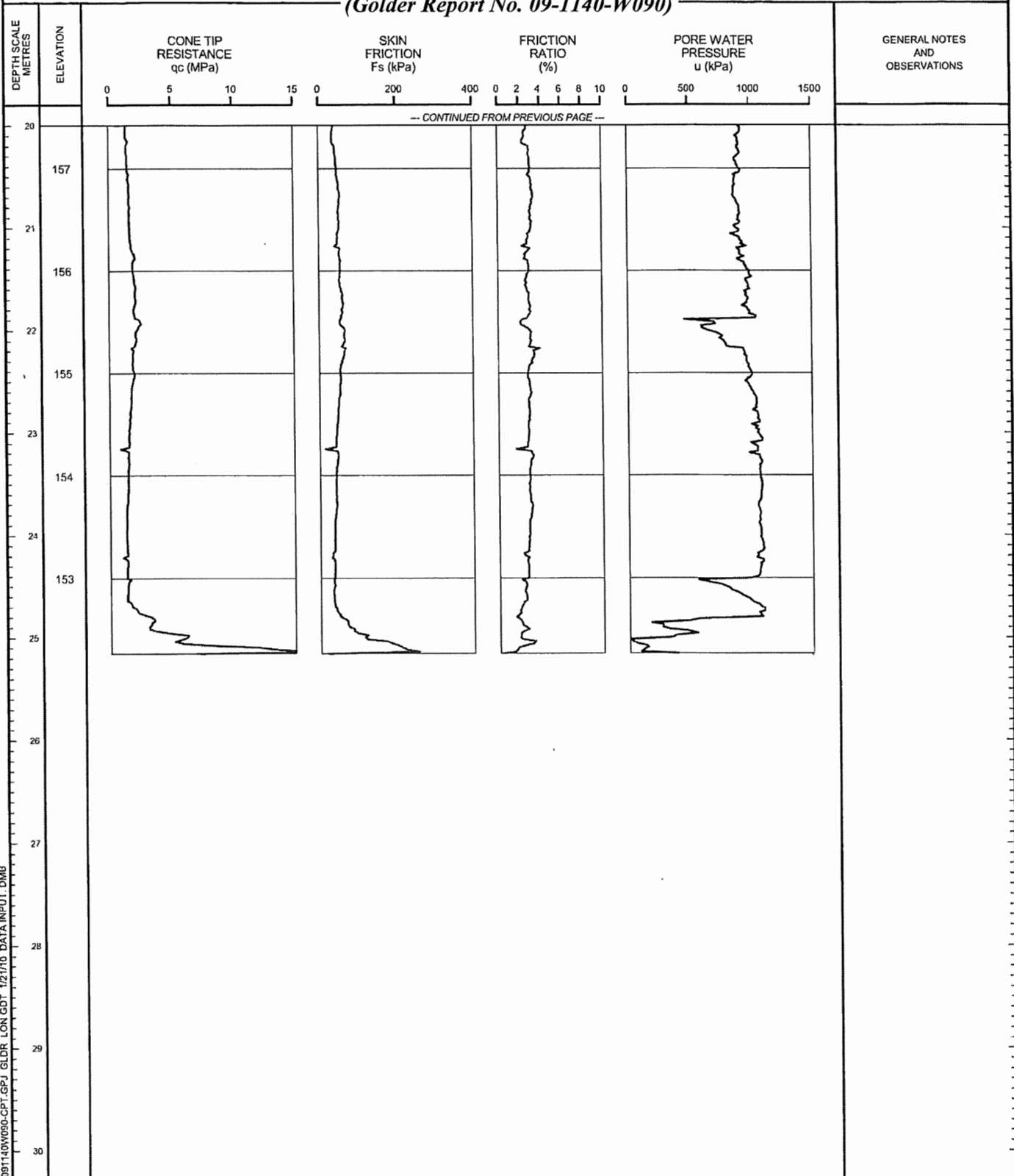
LOCATION: SEE LOCATION PLAN

TEST DATE: November 2, 2009

DATUM: GEODETIC

GROUND SURFACE ELEVATION: 177.42m PREDRILL DEPTH: 2.90m CORRECTION FACTOR A: 0.6 CORRECTION FACTOR B: 0.013

(Golder Report No. 09-1140-W090)



LDN_CPT_01_091140W090_CPT_GP1_GLDR_LON_GDT_12/2/10_DATA_IMPORT_DMB

DEPTH SCALE

1 : 50



OPERATOR: TA

CHECKED: *JK*

PROJECT: 901-4060

RECORD OF BOREHOLE MW 14

SHEET 1 OF 1

LOCATION: See Figure 2

BORING DATE: May 7, 1990

DATUM: Geodetic

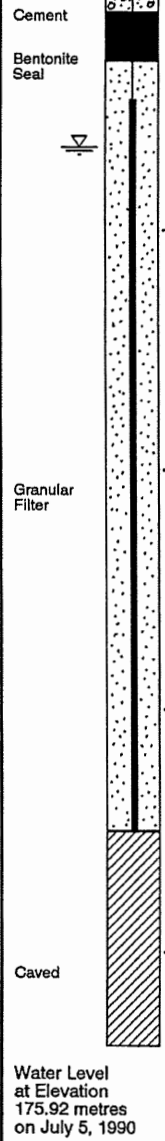
SAMPLER HAMMER, 63.5kg; DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES			Downhole Vapour Levels During Drilling (ppm)				Sample Headspace Vapour Levels (ppm)				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	1	2	3	4	1	2	3			4	
0		Ground Surface		178.57														
		Loose Black Sandy Cinders, occ. Coal Fragments, some round Gravel (FILL)		0.00	1	DO	7											
				175.97														
				0.60														
1		Stiff to Very Stiff Brown to Grey Mottled Clayey Silt to Silty Clay, occ. fine Sand layers, occ. Gravel and pockets of Topsoil (FILL)			2	DO	18											
							3	DO	7									
2	Mobile B57 Nordwell 215 mm Hollow Stem Auger				4	DO	4											
					5	DO	8											
				173.07														
				3.50														
4		Firm Grey SILTY CLAY, occ. Fine Gravel and Coarse Sand.			6	DO	5											
				172.17														
				4.40														
		End of Borehole																

(Golder Report No. 901-4060)



15 5 PERCENT AXIAL STRAIN AT FAILURE

DEPTH SCALE

1 to 30

Golder Associates

LOGGED: D.J.B.

CHECKED:

RECORD OF BOREHOLE 2

SHEET 1



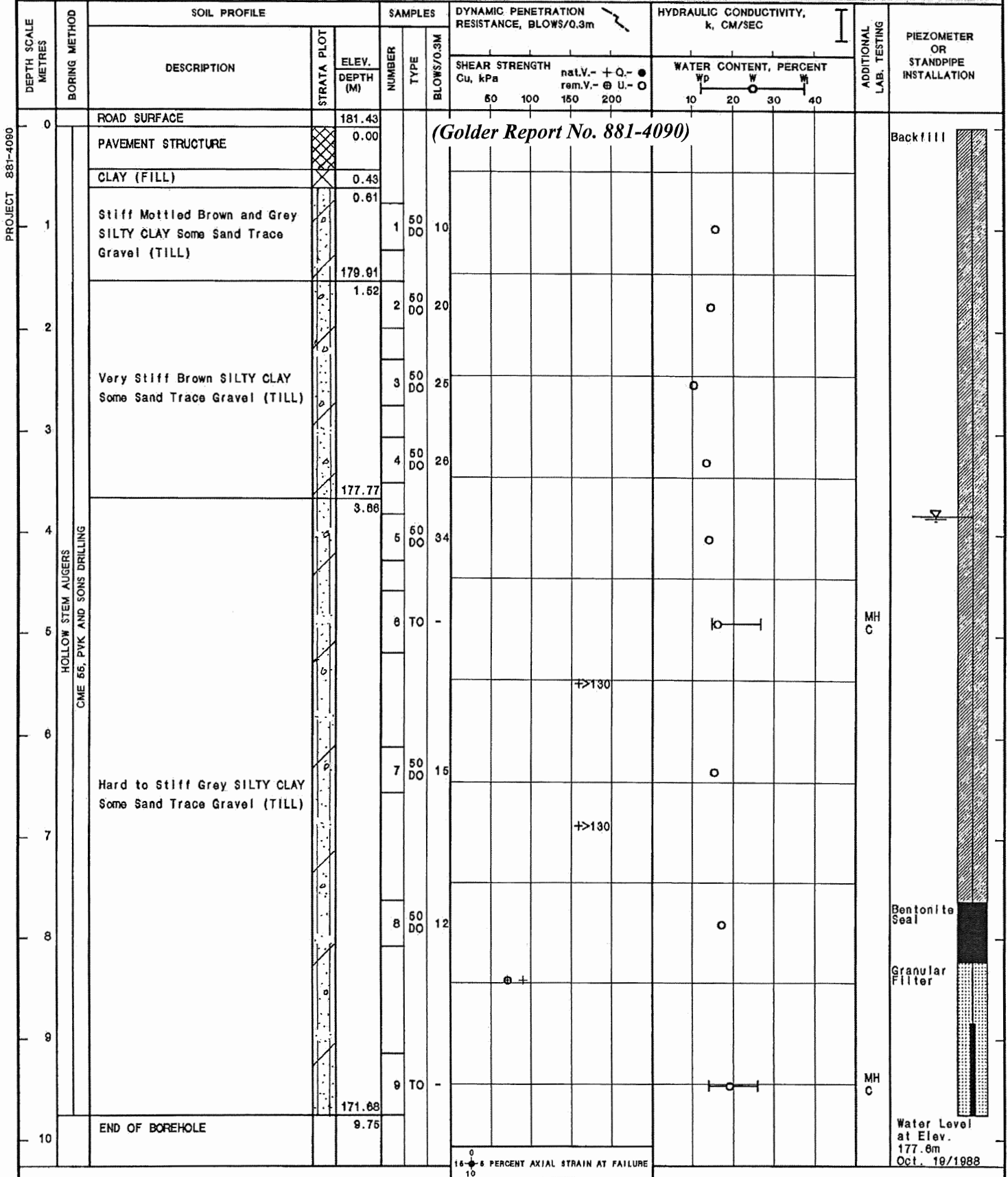
LOCATION See Figure 2

BORING DATE October 3, 1988

DATUM Geodetic

SAMPLER HAMMER, 63.5kg, DROP, 760mm

PENETRATION TEST HAMMER, 63.5kg, DROP, 760mm



DEPTH SCALE
1 : 60

Golder Associates

LOGGED P.D.H.
CHECKED I.D.D.

RECORD OF BOREHOLE 1

LOCATION See Figure 1 BORING DATE JULY 6-7, 1965 DATUM CITY OF WINDSOR
 BOREHOLE TYPE POWER AUGER BORING BOREHOLE DIAMETER 4.5 INCHES
 SAMPLER HAMMER WEIGHT 140 LB. DROP 30 INCHES PEN. TEST HAMMER WEIGHT - LB. DROP - INCHES

ELEV. DEPTH	SOIL PROFILE DESCRIPTION	STRAT. PLOT	SAMPLES		ELEVATION SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS/FT. -----					COEFFICIENT OF PERMEABILITY k, CM./SEC.			ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION		
			NUMBER	TYPE		SHEAR STRENGTH C _v , LB./SQ. FT. + - VANE, ⊕ - REM. V. ⊙ - Q.					WATER CONTENT, PERCENT						
						500	1000	1500	2000	2500	W _p	W	W _L				
595.8	PAVEMENT				600	(Golder Report No. 65075)											
593.3	GROUND LEVEL																
593.3	LOOSE SAND AND GRAVEL (FILL)																
579.8	HARD BROWN SILTY CLAY TRACE OF SAND AND GRAVEL.		1	T.O. PH	590						⊙			γ=137			
			2	" 31							⊙			γ=139			
579.8			3	" 25	580						⊙			γ=138			
16.0			4	" PH													
			5	" PH	570						⊙			γ=135			
			6	" PH													
			7	T.O. PH	560	⊕		+									
			8	" PH		⊕		+									
			9	" PH	550	⊕		+									
	STIFF TO VEKY STIFF GREY SILTY CLAY TRACE OF SAND AND GRAVEL.		10	" PH		⊕		+						γ=131	CRUSHED STONE		
			11	" PH	540												
			12	" PH		⊕		+						γ=119			
			13	" PH	530												
			14	" PH		⊕		+						γ=131			
			15	" PH	520												
			16	T.O. 3													
510.7	DENSE GREY SILTY SAND SOME GRAVEL		17	T.O. 49	510												
55.1																	
86.0	END OF HOLE																

⊕ 15-10 Percent axial strain at failure

W.L. IN PIEZOMETER AT ELEV. 579.7 JULY 21, 1965.

VERTICAL SCALE
1 INCH TO 10' - 0"

GOLDER & ASSOCIATES

DRAWN *[Signature]*
CHECKED F.J.H.

RECORD OF BOREHOLES 2 & 3

LOCATION **See Figure 1** BORING DATE **JULY 8, 1965** DATUM **CITY OF WINDSOR**
 BOREHOLE TYPE **POWER AUGER BORING** BOREHOLE DIAMETER **4.5 INCHES**
 SAMPLER HAMMER WEIGHT **140 LB. DROP 30 INCHES** PEN. TEST HAMMER WEIGHT - LB. DROP - INCHES

ELEV. DEPTH	SOIL PROFILE DESCRIPTION	STRAT. PLOT	SAMPLES		ELEVATION SCALE	DYNAMIC PENETRATION RESISTANCE	COEFFICIENT OF PERMEABILITY k, CM./SEC.		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
			NUMBER	TYPE		BLOWS/FT.	BLOWS/FT.	SHEAR STRENGTH C_u , LB./SQ. FT.		
						500 1000 1500 2000 2500 * - Q.	W_p W W_L 10 20 40 60			
(Golder Report No. 65075)										
595.4	GROUND LEVEL				600					
0.0	STIFF BROWN TO BLACK SILTY CLAY SOME SAND BRICK AND CONCRETE (FILL)		1	T.O. PH	590					
586.9	HARD BROWN SILTY CLAY		2	" 41		($q = 10,500$) →	0			X=142
581.3	VERY STIFF GREY SILTY CLAY		3	" 15	580	p	0			X=138
16.5	END OF HOLE									
3/										
595.1	GROUND LEVEL				600					
0.0	STIFF BROWN SILTY CLAY, SOME GRAVEL, BECK AND CONCRETE (FILL)		1	T.O. 12	590					
589.1	HARD BROWN SILTY CLAY		2	T.O. 38		($q = 9,750$) →	0			X=141
580.1	HARD GREY SILTY CLAY		3	" 19	580	p	0 0			X=138
16.5	END OF HOLE									

$\frac{0}{10}$ - 5 Percent axial strain at failure

VERTICAL SCALE
1 INCH TO 10' - 0"

GOLDER & ASSOCIATES

DRAWN *[Signature]*
CHECKED *F.J.H.*

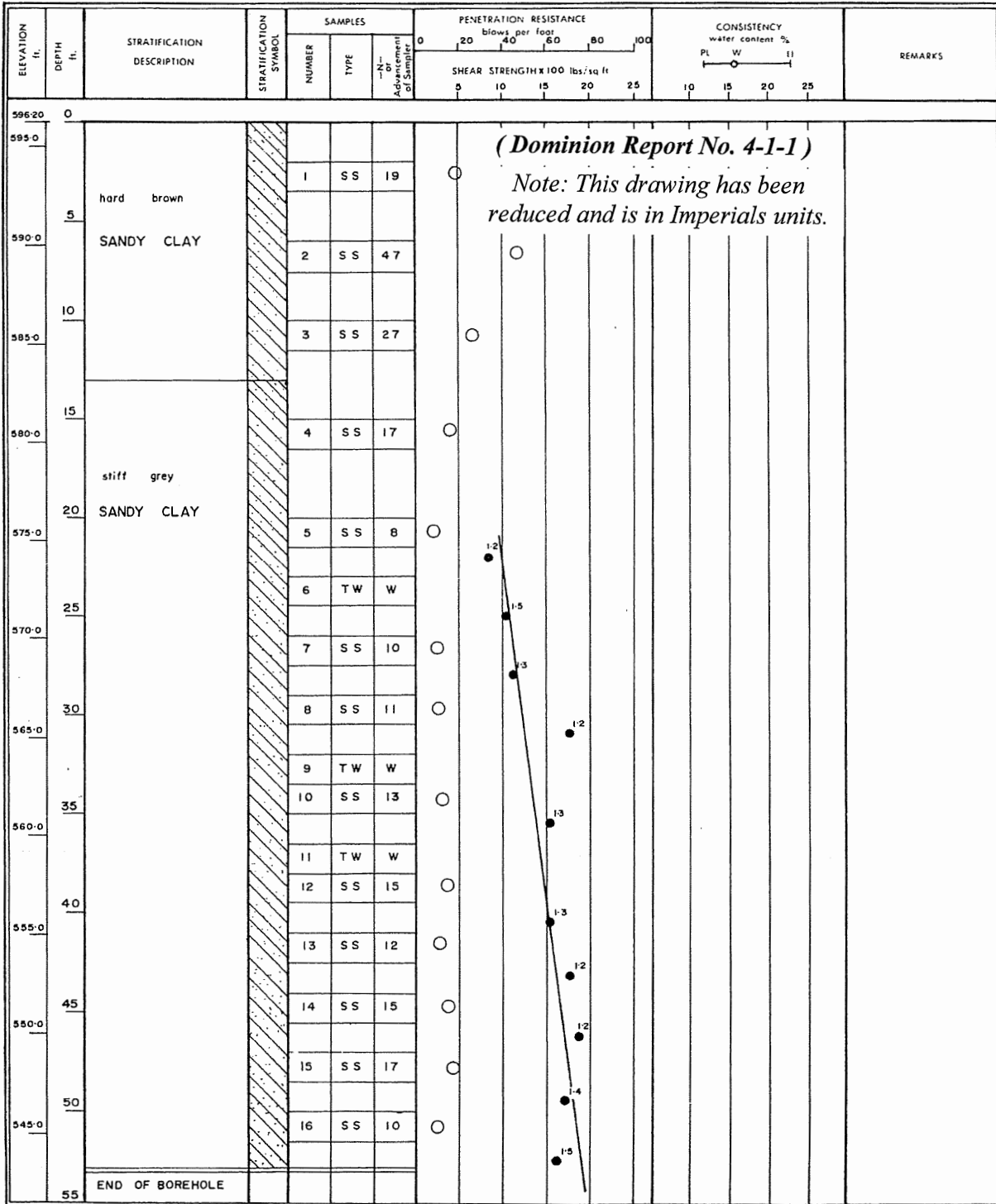
GEOTECHNICAL DATA SHEET FOR BOREHOLE . 23 . . .

OUR REFERENCE NO 4-1-1

CLIENT: C.G. RUSSELL ARMSTRONG
 PROJECT: PROPOSED INTERCEPTOR SEWER
 LOCATION: CITY OF WINDSOR, ONTARIO
 DATUM ELEVATION: GEODETIC

METHOD OF BORING PENNDRILL
 DIAMETER OF BOREHOLE 6"
 DATE: JAN 27, 28, 1964.

ENCLOSURE NO 28



VERTICAL SCALE: 1 IN. TO 5 FT.

DOMINION SOIL INVESTIGATION LIMITED

MADE: L.K.

CHD: *llc*

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

Africa	+ 27 11 254 4800
Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

solutions@golder.com
www.golder.com

Golder Associates Ltd.
1825 Provincial Road
Windsor, Ontario N8W 5V7
T: +1 (519) 250-3733



9.0 Reports Prepared by BioLogic Inc.

This section of the Project File contains a copy of the Natural Heritage Assessment reports prepared by BioLogic Inc.

Habitat Assessment Summary:

The site is maintained regularly and no natural heritage features are present. No Species-at-Risk (SAR) not habitat for SAR listed by National Heritage Information Centre were found on site.

Tree Risk Assessment Summary:

The trees at Site 1 are mostly young ornamental trees and the species do not warrant special consideration for preservation. If the site is developed, it is recommended that future landscaping should aim to replace the removed trees. The replacement trees should be of the largest available containerized stock.

The trees within the hedgerows at Site 2 were found to be of less-than-desirable species. If this site is developed, there will be opportunity to plant replacement trees. It is recommended that the replacement trees should be of the largest available containerized stock.



Liz Michaud
Landmark Engineering Inc.
2280 Ambassador Drive
Windsor, Ontario N9G 4E4

December 3, 2015

Habitat and Tree Assessment - Windsor Waterfront Pedestrian Crossing Site 1

The following Habitat and Tree Risk Assessment has been prepared for the Windsor Waterfront Pedestrian Crossing EA project in Windsor, Ontario.

Approval to proceed with this project was provided by Liz Michaud, Landmark Engineering Inc.. We were given a site location map and a general project description.

According to our agreement this report will provide:

- a general habitat assessment
- a tree species inventory
- a visual assessment of trees for preservation value
- recommendations for tree removals and/or retention based on our observations

1.0 Habitat and Tree Species Inventory

The study area is a designed and constructed urban park-type landscape [Figure 1]. The site is maintained regularly and no natural heritage features are present. No Species-at-Risk (SAR) nor habitat for SAR listed by NHIC (searched Nov 30, 2015) were found on site.

Trees within Study Area 1 were visually evaluated to assess species value, age, health, and structural integrity [Figure 1]. Evaluated trees were identified and reviewed based on International Society of Arboriculture (ISA) Basic Tree Risk Assessment Guidelines. Tools used to conduct inspections include but are not limited to: diameter tape, sharp knife for probing decay, mallet for sounding, binoculars, hand lens and hand trowel for root inspections.

Tree species were typically recently planted ornamental landscape species of about 10cm-15cm DBH. Trees larger than 15cm DBH were 4 Honeylocust (*Gleditsia triacanthos*), 1 Amur Corktree (*Phellodendron amurense*), and 1 London Planetree (*Platanus X acerifolia*). All Honeylocust found on site are cultivated landscape trees rather than provincially rare native stock. All trees on site appeared to be in good health and low risk.

2.0 Site Plan

We were not given a site plan, however, the proposed site use is for a pedestrian underpass to cross Riverside Drive West. It is assumed that trees within the Study Area will require removal as part of the development of this site.

2.1 Site Plan Conclusions

While all trees on site may be preserved if the site plan allow for it, no trees found on site were determined to be of extraordinary value to warrant particular preservation measures. Trees on site are common ornamental landscape species and most are at an size that can be easily replaced with trees of relatively the same size.

3.0 Standard Tree Protection Measures

Final tree protection measures should be developed once the final site plan has been determined.

Tree protection measures shall be implemented prior to any tree removals, land clearing, demolition, excavation, construction or grading operations within 30m of the TPZ. The TPZ shall be established according to the Tree Protection Plan (Figure 1). The TPZ shall be delineated by tree protection fencing which shall be 1.2m high, orange vinyl snow fencing secured at 3.0m intervals with 2.0m high iron T-posts driven 0.60m into the ground or an approved alternate. Wherever possible, placement of fencing at the outer edge of the TPZ shall follow the following formula: for every 2.5cm of trunk diameter, fencing shall be placed 30cm from the trunk of the tree wherever possible or at the dripline, whichever is greater. For example; for a tree with a trunk diameter of 28cm protection fencing should be placed 3.4m $[(28\text{cm} \div 2.5\text{cm}) \times 30\text{cm} = 336\text{cm}]$ from the trunk of the tree.

During construction, no equipment, materials or tools should be stored within the TPZ.

Unless noted otherwise, tree protection fencing should remain in place until all construction work is completed. The consultant shall be contacted should work within the TPZ be required for any reason during the development process.

Any damage to trees to remain that may happen as a result of demolition or construction related operations shall be reported to the consultant as soon as possible so that appropriate treatments can be applied.

Care should be taken to avoid damaging any trees on neighbouring properties.

4.0 Tree Removals

Where possible trees shall be felled so as to fall outside of the TPZ.

Trees to be removed which have branches extending into the canopies of trees to remain should be removed by a qualified arborist. The arborist shall remove such trees in a way as to not injure trees in the TPZ or the remaining understory.

5.0 Pruning

All pruning shall be completed by a qualified arborist.

All trees to remain that are within the development area and trees at the edges of tree groupings shall be pruned to clear the crown(s) of diseased, rubbing, weak or dead wood greater than 4cm diameter.

Pruning cuts greater than 10cm, except for dead wood, shall be avoided.

Trees to remain within road rights-of-way shall be pruned to provide 4m clearance over streets and 2.4m clearance over sidewalks.

If temporary access is needed, branches shall be tied back to hold them out of the clearance zone.

6.0 Excavations

Excavations at the edge of the TPZ may be conducted carefully using a backhoe or excavator until roots greater than 4cm in diameter are encountered. Any roots greater than 4cm in diameter should be exposed using less invasive methods (hand shoveling, air spade, hydro-excavating) and cut cleanly, by hand with clean tools. Care should be taken to avoid exposing excess root mass of trees to remain.

Any roots damaged during excavations shall be exposed to sound tissue and cut cleanly with a saw.

Exposed roots should be backfilled or covered as soon as possible. In hot, dry weather, when roots may be exposed for even a short period of time, it may be necessary to periodically wet exposed roots to prevent them drying out.

7.0 Opportunities for Tree Planting

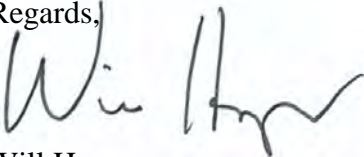
There will be opportunities to plant new trees as part of the landscaping requirement of the site plan. Replacement plants should be of the largest available containerized stock.

8.0 Conclusion

Most of the trees on site are young ornamental species. There are 6 trees on site larger than 15cm DBH. The largest tree on site is 35cm DBH and is likely around 15-20 years old. All trees on site are in good health and none are high risk yet no trees were found to be of particular species or ornamental value that would warrant special considerations for preservation. Future landscaping should aim to replace any trees that are removed as part of this development.

Should you have any questions regarding this matter please contact me at your convenience.

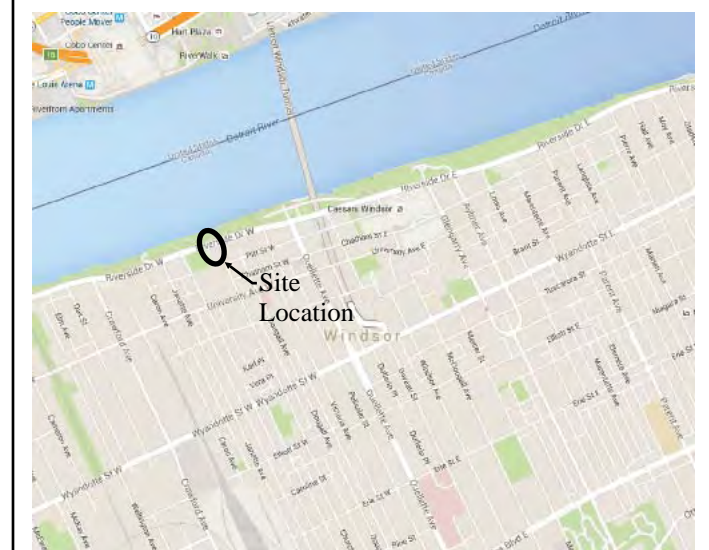
Regards,



Will Huys,
ISA Certified Arborist ON-1183A
whuys@biologic.ca



Figure 1: Site Location - Site 1
(2015 Google Earth Air Photo)



0 1,000
Scale 1:50,000
Key Plan

Legend:

Key	Common Name	Botanical Name
Ap	Norway Maple	<i>Acer platanoides</i>
Cn	Nootka Cypress	<i>Chamaecyparis nootkatensis</i>
Gt	Honeylocust	<i>Gleditsia triacanthos</i>
Jv	Red Cedar	<i>Juniperus virginiana</i>
Ma	White Mulberry Std.	<i>Morus alba</i>
Mg	Magnolia	<i>Magnolia sp.</i>
Pa	London Planetree	<i>Platanus acerifolia</i>
Pc	Chanticleer Pear	<i>Pyrus calleryana 'Chanticleer'</i>
Ph	Amur Corktree	<i>Phellodendron amurense</i>
Ps	Dwarf Pine	<i>Pinus strobus sp.</i>
Qr	Red Oak	<i>Quercus rubra</i>
To	White Cedar	<i>Thuja occidentalis</i>

○ Tree Larger than 15cm DBH

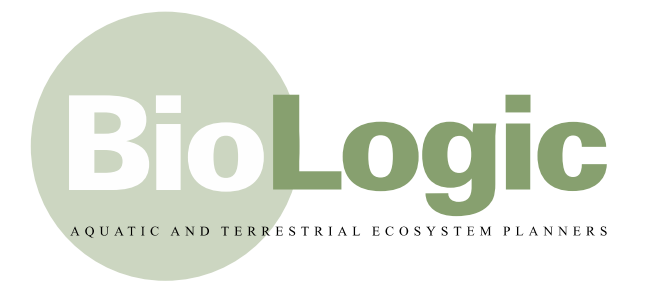
Print on 11X17, Landscape Orientation

0 20

Scale 1:1000
December 2015



Photo 1





Liz Michaud
Landmark Engineering Inc.
2280 Ambassador Drive
Windsor, Ontario N9G 4E4

December 3, 2015

Habitat and Tree Assessment - Windsor Waterfront Pedestrian Crossing Site 2

The following Habitat and Tree Risk Assessment has been prepared for the Windsor Waterfront Pedestrian Crossing EA project in Windsor, Ontario.

Approval to proceed with this project was provided by Liz Michaud, Landmark Engineering Inc.. We were given a site location map and a general project description.

According to our agreement this report will provide:

- a general habitat assessment
- a tree species inventory
- a basic visual assessment of these trees for preservation value
- recommendations for tree removals and/or retention based on our observations

1.0 Habitat and Tree Species Inventory

The study area is a designed and constructed urban park-type landscape [Figure 1]. The site is maintained regularly and no natural heritage features are present. No Species-at-Risk (SAR) nor habitat for SAR listed by NHIC (searched Nov 30 2015) were found on site.

Trees within Study Area 2 were visually evaluated to assess species value, age, health, and structural integrity [Figure 1]. Evaluated trees were identified and reviewed based on International Society of Arboriculture (ISA) Basic Tree Risk Assessment Guidelines. Tools used to conduct inspections include but are not limited to: diameter tape, sharp knife for probing decay, mallet for sounding, binoculars, hand lens and hand trowel for root inspections.

Tree species are typically planted ornamental landscape species of about 15cm-30cm DBH and were planted in rows on either side of an existing pedestrian walkway and garden feature connecting Riverside Drive to Pitt Street. On the west side of the walkway is a row of eight Norway Maple (*Acer platanoides*) around 20cm DBH that appear to have been topped at some point to keep them short. On the east side of the walkway is another row of trees. At the north limit are three 35cm DBH Honeylocust (*Gleditsia triacanthos*), followed by a row of ten 15cm-30cm DBH Austrian Pine (*Pinus nigra*) and three 25cm DBH Norway Maple at the south limit. All Honeylocust found on site are cultivated landscape trees rather than provincially rare native stock. All trees on site appear to be in good health and low risk. These trees are not of a species that would warrant particular consideration for preservation but they do provide an established hedge function that may be valuable as part of the future development.

Head Office
110 Riverside Drive, Suite 201
London, Ontario N6H 4S5
Telephone: 519-434-1516
Fax: 519-434-0575

www.biologic.ca

Windsor Office
2280 Ambassador Drive
Windsor, Ontario N9G 4E4
Telephone: 519-966-1645
Fax: 519-966-1645

2.0 Site Plan

We were not given a site plan, however, the proposed site use is for a pedestrian underpass to cross Riverside Drive West. It is assumed that trees within the Study Area may require removal as part of the development of this site.

2.1 Site Plan Conclusions

While all trees on site may be preserved if the site plan allows, no trees found on site were determined to be of extraordinary value to warrant particular preservation measures. Trees on site are currently providing a mature hedgerow function that may be valuable as part of the proposed development yet the species are less-than-desirable for a modern landscape feature. A similar function could be redesigned with more interesting or valuable species as part of the site plan.

Individual trees within the hedgerows are not recommended for preservation. The hedgerows should be removed or preserved as an entire unit pending the site plan.

3.0 Standard Tree Protection Measures

Final tree protection measures should be developed once the final site plan has been determined.

Tree protection measures shall be implemented prior to any tree removals, land clearing, demolition, excavation, construction or grading operations within 30m of the TPZ. The TPZ shall be established according to the Tree Protection Plan (Figure 1). The TPZ shall be delineated by tree protection fencing which shall be 1.2m high, orange vinyl snow fencing secured at 3.0m intervals with 2.0m high iron T-posts driven 0.60m into the ground or an approved alternate. Wherever possible, placement of fencing at the outer edge of the TPZ shall follow the following formula: for every 2.5cm of trunk diameter, fencing shall be placed 30cm from the trunk of the tree wherever possible or at the dripline, whichever is greater. For example; for a tree with a trunk diameter of 28cm protection fencing should be placed 3.4m $[(28\text{cm} \div 2.5\text{cm}) \times 30\text{cm} = 336\text{cm}]$ from the trunk of the tree.

During construction, no equipment, materials or tools should be stored within the TPZ.

Unless noted otherwise, tree protection fencing should remain in place until all construction work is completed. The consultant shall be contacted should work within the TPZ be required for any reason during the development process.

Any damage to trees to remain that may happen as a result of demolition or construction related operations shall be reported to the consultant as soon as possible so that appropriate treatments can be applied.

Care should be taken to avoid damaging any trees on neighbouring properties.

4.0 Tree Removals

Where possible trees shall be felled so as to fall outside of the TPZ.

Trees to be removed which have branches extending into the canopies of trees to remain should be removed by a qualified arborist. The arborist shall remove such trees in a way as to not injure trees in the TPZ or the remaining understory.

5.0 Pruning

All pruning shall be completed by a qualified arborist.

All trees to remain that are within the development area and trees at the edges of tree groupings shall be pruned to clear the crown(s) of diseased, rubbing, weak or dead wood greater than 4cm diameter.

Pruning cuts greater than 10cm, except for dead wood, shall be avoided.

Trees to remain within road rights-of-way shall be pruned to provide 4m clearance over streets and 2.4m clearance over sidewalks.

If temporary access is needed, branches shall be tied back to hold them out of the clearance zone.

6.0 Excavations

Excavations at the edge of the TPZ may be conducted carefully using a backhoe or excavator until roots greater than 4cm in diameter are encountered. Any roots greater than 4cm in diameter should be exposed using less invasive methods (hand shoveling, air spade, hydro-excavating) and cut cleanly, by hand with clean tools. Care should be taken to avoid exposing excess root mass of trees to remain.

Any roots damaged during excavations shall be exposed to sound tissue and cut cleanly with a saw.

Exposed roots should be backfilled or covered as soon as possible. In hot, dry weather, when roots may be exposed for even a short period of time, it may be necessary to periodically wet exposed roots to prevent them drying out.

7.0 Opportunities for Tree Planting

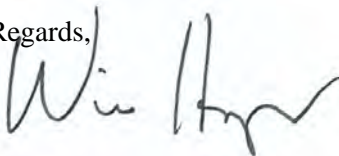
There will be opportunities to plant new trees as part of the landscaping requirement of the site plan. Replacement plants should be of the largest available containerized stock.

8.0 Conclusion

Trees on site are in two separate rows as mature hedgerow trees. The hedge is mature and does provide a screening function yet species are less-than-desirable. There may be value in the hedgerow function of these trees depending of the site plan design and trees may be preserved as part of the development, however, a redesign of the hedgerows and landscaping may be more appropriate for a modern landscape.

Should you have any questions regarding this matter please contact me at your convenience.

Regards,



Will Huys,
ISA Certified Arborist ON-1183A
whuys@biologic.ca

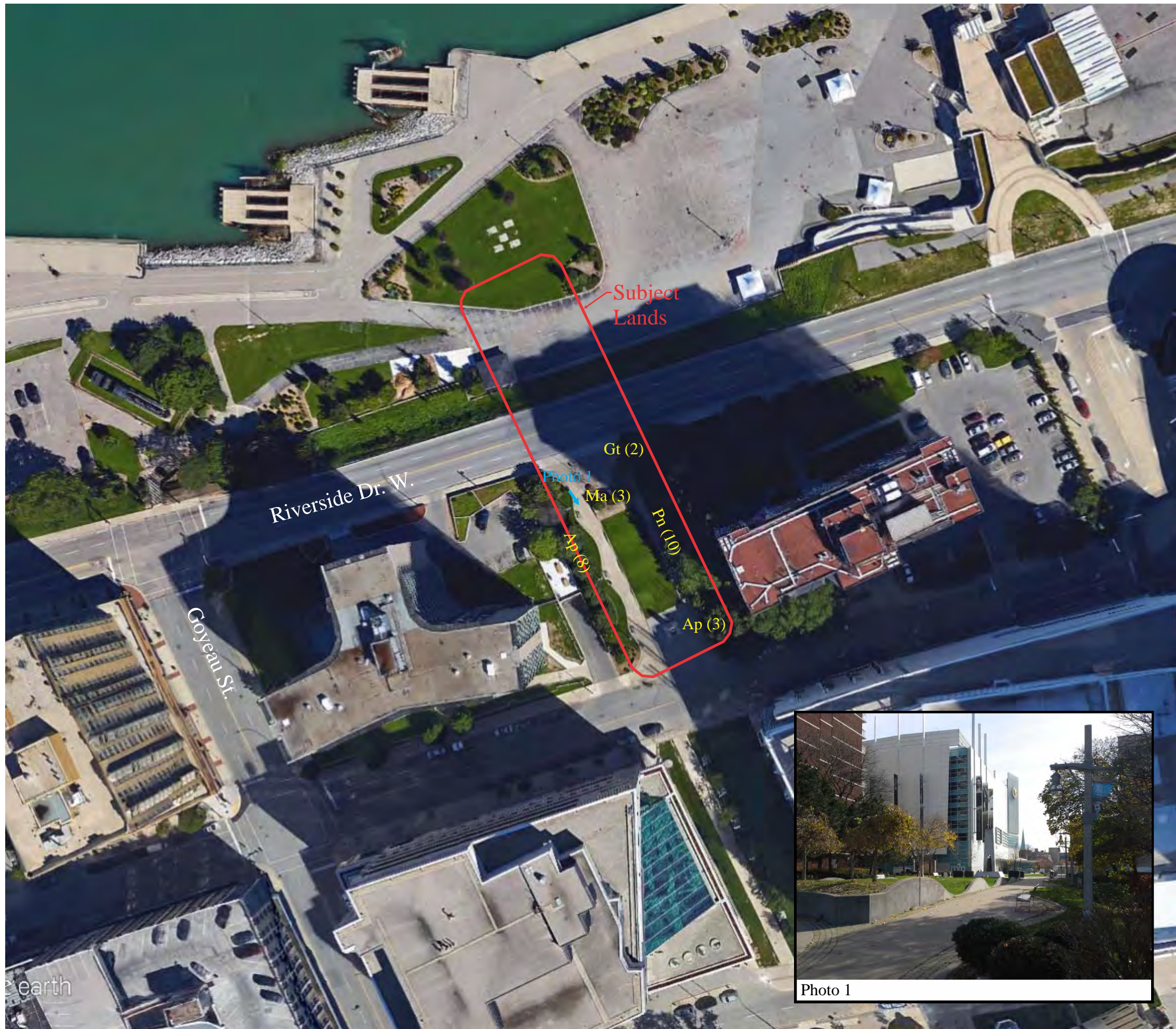
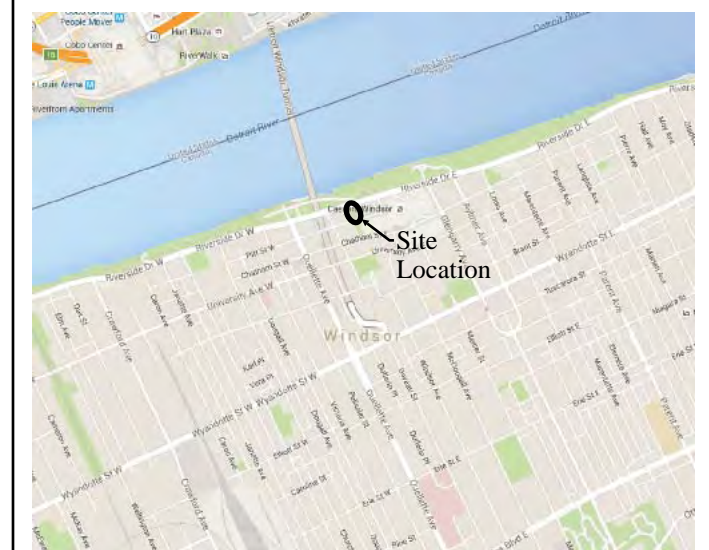


Figure 1: Site Location - Site 2
(2015 Google Earth Air Photo)



0 1,000
Scale 1:50,000
Key Plan

Legend:

Key	Common Name	Botanical Name
Ap	Norway Maple	<i>Acer platanoides</i>
Gt	Honeylocust	<i>Gleditsia triacanthos</i>
Ma	White Mulberry Std.	<i>Morus alba</i>
Pn	Austrian Pine	<i>Pinus nigra</i>

Print on 11X17, Landscape Orientation

0 20

Scale 1:1000
December 2015



Photo 1

