CITY OF EDMONTON

SITE LOCATION STUDY

GARIEPY NEIGHBOURHOOD RENEWAL DESIGN

NE 16-052-25 W4M

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WSP PROJECT NO. 211-12305-00

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TABLE OF CONTENTS

1 INTRODUCTION

The City of Edmonton (the Proponent) retained WSP Canada Inc. (WSP) to complete a Site Location Study (SLS) for components (e.g., two timber walkways and Top of Bank Park upgrades) of the Gariepy Neighbourhood and Alley Renewal Project (the Project). The proposed Project is located within the Gariepy Neighbourhood (the Neighbo hood) within the NW 16-052-25 W4M, Edmonton Alberta, (Appendix A, Figure 1).

A portion of the Project resides within the North Saskatchewan River (NSR) Valley Area Redevelopment Plan boundary (Bylaw 7188 Area; City of Edmonton [COE], 1985). As the Project has been identified as a "Major Facility" (Community, Education, Recreational and Cultural Service Uses) as per the ARP (COE, 1985), an SLS will be required to support aspects of the Project, specifically enhanced walking connections and parks within the Gariepy Neighbourhood and Alley Renewal Project. Section 3.5.1 of the ARP states that "*major public facilities shall not be constructed or expanded unless their location within the North Saskatchewan River (NSR) is deemed essential and approved by City Council*" (COE, 1985).

The following SLS report was written pursuant to Appendix 1: *Guide to Completing a Site Location Study Report* within the *Gariepy Ravine SUP and Walkways EIA/SLS A Guide to Completing Environmental Impact Assessments* (Terms of Reference [TOR]) generated by the City of Edmonton's Network Integration Section of the Urban Form and Strategic Development department (Network Integration; Appendix B).

An Environmental Impact Assessment (EIA) report, as described in the Project TOR, which evaluates the potential effects associated with the construction, operation, and maintenance of the Project on select valued ecosystem components and historical resources, is being prepared and will be submitted under separate cover for the noted components of Project.

1.1 Property Description

The Project is located north of the NSR Valley within the Neighbourhood and aspects of the proposed renewal work will intersect the Bylaw 7188 Area. The Project will consist of the construction of two new pedestrian timber walkways and upgrades to the Top of Bank Park in the Gariepy Neighbourhood as a part of the Gariepy Neighbourhood and Alley Renewal Project. This neighbourhood was mainly constructed in the 1970s and 1980s, and the main transportation infrastructure is at a point where renewal is needed. While performing such extensive work it is an opportunity to improve the parks and all road elements to current standards and policies to create a safer, inclusive, and accessible neighbourhood that will accommodate future changes changes in transportation and the climate.

1.2 Project Background and Rationale

The City of Edmonton's Neighbourhood Renewal Program (the Program) is part of the Building Great Neighbourhoods (BGN) Branch. The purpose of the Program is to outline cost-effective and long-term strategic approaches to renew and rebuild infrastructure within mature neighbourhoods and along collector roadways. Building Great Neighbourhoods has a mandate to renew the neighbourhood to current standards and policies to last the next 30-50 years and support the needs of a more inclusive and diverse city. It is supported by public engagement and a diverse set of policies. The scope of work for general neighbourhood renewals typically includes the following elements:

- Replacement of sidewalks, local roadways and collector roadways
- Upgrading street lights and LED luminaires
- Construction of curb ramps and other intersection improvements
- Addressing missing links in the sidewalk and bike network

Opportunities to improve other City-owned areas, such as green spaces and parks, are also reviewed with the Neighbourhood Renewal (COE, 2023). The intention is to make upgrades and enhancements in coordination with the Program, while leverage other funding sources (if available).

Target projects are first initiated by the City of Edmonton's Life Cycle Management team following an infrastructure assessment that prioritizes neighbourhoods that are most in need of the Program. The Neighbourhood was identified for renewal enhancements to begin in 2024 and was awarded to WSP as the design consultant in 2021.

Currently, there are approximately 1,868 residents in the Neighbourhood and the percentage of seniors is higher than the City average with 20% compared to 11%. Residents here typically have much lower use of active modes than the City average and could benefit from additional connectivity to encourage mode shifts that reduce carbon intense travel options.

Through the Urban Design Analysis conducted for the Project, public engagement, and policy and standard reviews, many renewal opportunities were identified, including the two timber walkways and Top of Bank Park upgrades (COE, 2022). These components of the greater Project will serve the residents and align with City policies, standards, and best practices. The Urban Design Analysis report is available on the project webpage: edmonton.ca/BuildingGariepy.

This Project also includes an Alley Renewal component, but this does not interact with the Bylaw 7188 Area and will not be included in any discussion associated with this SLS or the EIA being prepared under separate cover.

1.3 Scope

The purpose of this document is to provide an overview of costs and social, environmental and institutional constraints associated with the Project, which demonstrate that locating these elements of within the Bylaw 7188 boundary is essential for the success of the greater neighbourhood renewal program.

2 PROJECT DESCRIPTION

The two proposed timber walkways will cross the Gariepy Ravine (the Ravine; a natural tree stand with an ephemeral swale starting at 72 Street NW to the west and ending on the Edmonton Country Club to the east between Gariepy Crescent NW and Lessard Drive NW) over existing undefined resident-created foot paths, approximately 150 m and 280 m east of 172 Street NW.

The Top of Bank Park upgrades will occur south of Lessard Rd NW and 53 Ave NW and include new pathways, hard surfaced gathering spaces, additional plantings (such as a naturalized boulevard with native wild flowers and grasses) and renewal of existing viewpoints (new concrete pads, benches, and plantings).

Both of these areas have walking connections that are incomplete and see users walking through the Ravine via informal dirt paths. Slopes in the Ravine and associated grassed surfaces are not considered accessible to all users' abilities. Refer to Appendix A, Figure 1 for the specific locations of the proposed Project upgrades.

The following sections describe the specific components of the Project within the Bylaw 7188 Area (Appendix A, Figure 1). Illustrative figures depicting the proposed components are present in Appendix C.

2.1 Project Components

2.1.1 Pedestrian Walkways

The two prefabricated pedestrian walkways over the Ravine serve multiple purposes and are supported by the following City policies as well as many more:

- The City Plan (COE, 2020), Connect Edmonton (2019-2028) (COE, 2019a)
- Climate Resilient Edmonton, Adaptation Strategy and Action Plan (COE, 2018)
- Access Design Guide, Version 4 (2021)
- Accessibility for People with Disabilities Policy (COE, 2019b)
- Active Transportation Policy No. C544 (COE, 2009)
- Breathe (COE, 2024)

The walkways make the space more accessible to all users and supports the ultimate goal of protecting the natural environment by providing a dedicated space for people and allowing for an opportunity to undertake native vegetation plantings to restore/enhance areas previously cleared. These informal crossings have been in use and encourage by dead-end concrete sidewalks since the neighbourhood was built over about 40 years ago and receive high use, both in observations and anecdotally from the public.

The two elevated pedestrian walkways will vary in lengths and widths. Both structures will be constructed out of galvanized steel, concrete and composite materials. The east structure will measure 26 m in length with a width of 4.8 m (measured from the outside of the handrails) to create a formal crossing. This component will:

- Accommodate multimodal travel and connect people walking, rolling, and biking from Callingwood Road at 170 Street and the Oleskiw neighbourhood to the Top of Bank Park and to Lessard Dr NW or the Donsdale Neighbourhood.
- Extensive native vegetation planting around the crossing to promote the naturalization of the area and 'encourage' the public to utilize the installed walkway.
- Provide separation of human traffic from the bottom of the Ravine, supporting vegetation regrowth.

The main driver for formalizing the west crossing is a to formalize current informal path. Currently there is no formal path to traverse the area from north to south and no detour available. This causes pedestrians to use the informal trails for mobility flow throughout the neighbourhood. If the closure was advanced, it is theorized (based on the negative public opinion received) that the area would undergo further degradation by trail braiding/ vegetation disturbances, as the public ignore the reclamation and continue to traverse the area.

The second structure, will cross the Ravine on the west, between Gariepy Crescent and Lessard Dr NW. This component will serve only walking and rolling travel at a reduced width of nearly 3.1 m (measured from the outside of the handrails) and a length of approximately 22 m, further enhancing the pedestrian connectivity goals noted above. This width was intentionally chosen to keep the footprint mostly to the area of the informal path/trail currently present and will not require extensive additional clearing for construction. An assemblage of native vegetation plantings will also be installed at this crossing location to mitigate the required woody vegetation removal, and promote similar functions as outlined for the eastern crossing. The formalization will provide a better platform for successful restoration around and below the proposed structure.

Both crossing structures have been designed with wildlife passage in mind and will consider, at a minimum, the optimum 'openness ratio of 0.4 for the Medium Ecological Design Group (EDG) (COE, 2010).

2.1.2 Top of Bank Park

The present Top of Bank Park only has an existing narrow curbside sidewalk that is not to current standard for portions of the northside and missing links on the westside. For example, the river viewpoints are currently not accessible to all users and abilities. Overall, the space is almost exclusively mowed grass that drains north, away from the top of bank and has some sections of wood fence on the current top of bank walkway that are deteriorating. Some existing barrels serve as waste bins.

The proposed renewal of the space will include the removal and replacement of the existing sidewalk with a 3 m shared path that will now fully connect to paths from Lessard Road, the Donsdale Breezeway, and up Lessard Drive to 172 Street and 57 Avenue (as well as through Gariepy Park). The new path will support mode shift and accessibility for users of all abilities and ages. The path only requires sod disruption and will not alter the current drainage observed. Impacts from an increase in impermeable surface/greater runoff associated with the path will be balanced by removing the existing walk and narrowing the adjacent road. The boulevard created between the path and the road will be restored with native grasses and wildflowers in a no-mow area. Additional trees and other plantings typically native to the NSR Valley will also be added to the overall space to break up sightlines and enhance the user experience. Two new seating areas will be constructed to provide additional gathering areas along the NSR Valley. They will be installed in areas zoned AP (Public Parks Zone) near the proposed path intersections. Some caragana (Caragana sp.) beds will be removed and replaced with more appropriate native shrub selections. New and additional waste bins will also be installed to reduce littering. All the current viewpoints will have new standard pads and benches. The most western viewpoint will be connected to the pathway via a shared pathway to provide full accessibility to all abilities. Additional plantings and boulders around all three viewpoints are proposed to enhance the viewscape and better blend each viewpoint into the surrounding landscape. This should promote a more inviting feel to these subcomponents of the Top of Bank Park.

No additional lighting is being considered and the path was strategically placed to benefit from existing street lighting and not further disturb wildlife movements and patterns.

3 LOCATION ANALYSIS AND JUSTIFICATION

Q1. What other locations were considered for this project including other river valley and non river valley locations?

Q2. Could the proposed project reasonably function at a location outside of the North Saskatchewan River Valley Area Redevelopment Plan boundary?

Q3. Is the project dependent on either the river valley and ravine location or the users of the park system?

Through an Urban Design Analysis all existing park spaces in and around the neighbourhood were evaluated to consider the opportunities and potential of the various sites. Various options were considered during the planning phase and are detailed below.

3.1 Pedestrian Walkways

3.1.1 Option 1 – Outside of the Bylaw 7188 Area

Other locations were not explored, as only the Gariepy Neighbourhood is part of the Project and the policies and standards, as well as public input and best practices, supported the improvements in these locations.

Based on the nature of the Project, all options discussed are dependent on the Bylaw 7188 Areas in question.

3.1.2 Option 2 – Retain Informal Crossings As Is

Due to the nature of the Project, a 'doing nothing' approach could have been considered for the target Project components. However, the foundation of the Program is to increase accessibility, fill in missing links and gaps to support a Healthy City and Climate Resilience through mode shift.

Currently, informal ravine crossings exist that have been established by the local residents and the general public to connect with Callingwood Road and the Oleskiw neighbourhood as there is no formal detour currently available. These informal links do not promote the full use by all ability groups and limits the current transportation and mobility network.

The public engagement feedback clearly indicated strong use of these informal crossings and were in general support of some form of crossing enhancement.

3.1.3 Option 3 – Remove the West Crossing with Naturalized Planting Barriers

This option had two versions, the one removed all existing sidewalk connections and restored the ravine crossing with plantings, the other retained the sidewalk on the southside to a naturalized seating node. Nearly 50% of respondents were not comfortable with closing the informal connection on the west and only 29% comfortable. From a survey that was only accessible through a Quick Response (QR) code on A-frame signs posted in the Ravine, the results were stronger, with 67-78% uncomfortable with the two options to close and only 22% comfortable. With these results, it became clear that any attempt to close the west crossing would have low compliance and continue to see people walking around any naturalized planting methods of closure. A What We Heard Report for this phase can also be found on the project webpage.

Based on the public response received, this option would result in a reduction in the functionality of the current pedestrian connectivity.

3.1.4 Option 4 – Hard-Surfaced Path Constructed Over a Culvert with Fill (East Location)

This option received good support through various phases of the Project and was only initially shown for the east crossing in an attempt to reduce impacts to the natural area while promoting greater connectivity for a larger demographic. However, due to the nature of the crossing type, the locale of the crossing would have to be significantly altered.

This option and the following option would enhance the functionality of the current informal crossings. However, the option of a hard surface path over a culvert limits the opportunities for enhanced naturalization along the ravine and would require a greater area of disturbance to install the culvert with fill to support the hard surface path.

3.1.5 Option 5 (Preferred) – Formal Pedestrian Walkways at Both Informal Crossings

In draft design, both informal crossing locations were included as having formal crossings structures, but without a specific decision on the actual design. In this survey, 74% of respondents where comfortable with the construction of some form of formal crossing structure at each location, showing a higher likelihood of compliance. In preliminary design, pedestrian walkways were selected as the preferred crossing strategy. This option will have the highest compliance with the founding City policies governing the Project; and the smallest construction footprint of the crossing structures considered for both locations. Formalized crossings once installed, would serve all users of various ability, support mode shift and decarbonization of our transportation system.

3.2 Top of Bank Park

3.2.1 Option 1 – Retain Park As Is

The current space is predominantly a mowed grass space that allows public users access to the top of the River Valley with three existing viewpoints of the NSR and areas for walking and other recreation. Current access is limited to all the amenities present and would be a difficult to access for users with mobility challenges. Leaving the Top of Bank park as is reduces the possible functionality of the general area. Therefore, this option was not considered.

3.2.2 Option 2 (Preferred) – Park Enhancements

The public was engaged on what amenities they would like to see, such as plazas, better connectivity, wider paths, seating, and other items. Through engagement, stakeholder consultation, and review of standards and policies, the enhancements detailed in Section 2.1.2 were proposed. The suggested design makes the space more functional and usable to more people with various abilities and supports a more vibrant City and connection with the River Valley.

4 OPPORTUNITIES AND CONSTRAINTS ANALYSIS

The SLS must identify potential constraints that relate to the project that make a NSR Valley location essential. According to Appendix One provided in the Project-specific TOR (Appendix B), the following questions must be addressed:

Q1. What are the financial constraints which limit the feasibility of locating the project outside of the river valley?

Q2. What are the social constraints which limit the feasibility of locating the project outside of the river valley?

Q3. What are the environmental constraints which limit the feasibility of locating the project outside of the river valley?

Q4. What are the institutional constraints which limit the feasibility of locating the project outside of the river valley?

4.1 Financial Opportunities and Constraints

Funding for neighbourhood renewal comes from a dedicated tax levy that all City of Edmonton property owners pay into. This provides a reliable funding source to manage aging neighbourhoods around the City in perpetuity (reconstruction cycle is currently every 30-50 years).

Neighbourhood renewal funding includes improving the neighbourhood to current standards as well as using 10% of the cost for growth elements. The renewal budget is supplemented through the use of the *Municipal Government Act* to collect a local improvement fee for 50% of the reconstruction costs for the sidewalk adjacent their property. The City also leverages funding from various other sources for missing links, bike routes, and open spaces funding as available.

Funding sources are secured or in the process of being secured for the elements outlined in this report. However, if the components are not supported and taken to construction, it is unlikely that additional funding will be granted at a later date.

4.2 Social Opportunities and Constraints

Through public engagement, the Project team learned that the residents and trail users value the existing informal Ravine crossings and use them in the Exploring Opportunities engagement phase. In Exploring Options and Tradeoffs portion of the engagement sessions conducted, the Project team proposed closing the west ravine crossing with planting restoration. This option was widely disliked, which indicated that any such effort would have low compliance and likely lead to further disturbance to the site. The east pedestrian walkway has been proposed as a crossing throughout the Project and has received favourable public support. When both the west and east crossings were proposed as formal crossings the public support was high. During the Draft Design public engagement, 74% of respondents where comfortable with some form of crossing being installed (the What We Heard Report is available on the project webpage at edmonton.ca/BuildingGariepy).

The public has expressed a high level of comfort for the upgrades to the Top of Bank in all engagement phases, with only a minority of respondents wishing to see it remain as it is.

Due to the nature of the proposed upgrades, all components proposed within Bylaw 7188 Areas will promote more opportunities for a wider demographic to navigate the neighbourhood, while enjoying the NSR valley system. Leaving the current infrastructure as is would be considered a social constraint.

Additional details regarding the engagement undertaken to date and can found in the various documents on the project webpage, edmonton.ca/BuildingGariepy, including the What We Heard Report, What We Decided and the Urban Design Analysis Reports.

4.3 Environmental Opportunities and Constraints

Locating the Project outside the Bylaw 7188 Area is constrained as the neighbourhood improvements are designed to specifically address user and residents' connectivity limitations and general concerns. Based on the results of the public consultation, respondents were not in favour of reducing the number of crossings through the Ravine through plantings and revegetation. The introduction of formal crossings will likely reduce ongoing impacts due to a lack of suitable detour and those that an informal trail system may represent at the east crossing. Additionally, a formal structure will make the west crossing more accessible for all potential users. Ensuring public accessibility on designated walkways will allow users the ability to enjoy the natural environment while allowing the ravine to remain less disturbed than its current state.

The proposed enhancements to the Top of Bank park will increase public enjoyment and the environmental impacts to undertake the work is considered minimal, as any vegetated areas impacted are extremely small and will be in previously manicured areas.

Potential adverse environmental effects that could occur, should the Project components discussed not be undertaken, may include continued impacts to the Ravine vegetation and degradation of wildlife habitat as a result of the public continuing to use the informal pathways to access different parts of the neighbourhood.

By undertaking the Project as proposed, it is expected that increased user enjoyment, and alignment with the City strategies to increase interactions with the NSR Valley while reducing effects to the environment from its current state. The design suggested for the various components will respect and lead to enhancement of previously disturbed areas through the native plantings proposed.

A more in-depth review of the Project-related environmental impacts and opportunities can be found in the EIA prepared under separate cover.

4.4 Institutional Opportunities and Constraints

As outlined throughout this report, the Urban Analysis Reports, and public engagement completed, neighbourhood renewal is the opportunity to make cost effective improvements to the neighbourhood with reliable funding sources to draw from. The renewal program will not return to the neighbourhood for another 30 to 50 years. These proposed improvements within elements of the Bylaw 7188 Area are supported by policies and standards that make the City more connected, healthy, vibrant, and climate resilient. To not leverage this opportunity would result in maintaining identified constraints to all potential public user types and be in direct contravention of the supporting policies and standards the City has developed to promote universal public use and renewals of aging neighbourhoods.

5 CONCLUSIONS

This SLS was completed following *Appendix One: Guide to undertaking a Site Location Study* provided in the Project-specific *North Saskatchewan River Valley Area Redevelopment Plan: A Guide to Completing Environmental Impact Assessments*. Analysis of location, financial, social, environmental, and institutional constraints to the feasibility of locating the Project outside of the NSR Valley was completed.

In order for the Project to achieve its purpose, it must be located in the proposed Bylaw 7188 Areas to allow full user access and to minimize environmental impacts occurring through pedestrian use with no formal walkway. Replacement outside the Bylaw 7188 Area is not an option for either the pedestrian walkways or top of bank park.

Analysis of opportunities and constraints identified substantial social and environmental risk and moderate financial and institution risk to the Proponent if the Project components discussed are not constructed at its proposed locations.

6 REFERENCES

City of Edmonton (1985). *North Saskatchewan River Valley Area Redevelopment Plan*. Bylaw No. 7188. Office of Consolidation, September 2017.

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City of Edmonton (2023). *Building Great Neighbourhoods – Gariepy*. Available at: https://www.edmonton.ca/transportation/on_your_streets/gariepy-neighbourhood-renewal.

City of Edmonton (2024). *Breathe*. https://www.edmonton.ca/city_government/initiatives_innovation/about-breathe

APPENDIX

A FIGURES

LEGEND

Project Footprint

0 50 100 150 200 250

1:3,000 Meters

Coordinate System: NAD 1983 UTM Zone 12N

NOTE(S)

REFERENCE(S)

1. IMAGERY SOURCE: ESRI IMAGERY SERVICE [2022]

CLIENT

CITY OF EDMONTON

PROJECT

SITE LOCATION STUDY
GARIEPY NEIGHBOURHOOD

TITLE

PROJECT OVERVIEW

CONSULTANT

wsp

YYYY-MM-DD	2023-08-18
REPORT BY	RF
DRAWN BY	JH
REVIEWED BY	RF
OFFICE	CALGARY

PROJECT NO.

CA-WSP-211-12305-00

FIGURE

1

APPENDIX

B TERMS OF REFERENCE

Gariepy Ravine SUP and Walkways EIA/SLS

Project EIA and/or SLS - Tentative Project Timeline

Timeline	Date	Action	Key Items	Who
-	February 2022	Background Information for the Project Scoping	Project Manager provided project background, concept design for River Valley ARP scoping evaluation for the proposed Project.	IIS, OSPD
-	April 3, 2023	River Valley Scoping Meeting	The consultant shared the project concept and provided project status including studies completed up to the project date. City reviewers provided feedback to the proposed concept plan.	City Departments/ Consultant
-	May 8, 2023	TORs sent to proponent	EIA Lite - Focus on soil conservation, wildlife, natural area protection, naturalization, etc.	River Valley ARP
Key requirements for similar projects include, but are not limited to, ***concept plan*** (preliminary stage drawing), **technical assessment** (e.g. historical, geotechnical, ecological, rare plant surveys) and ***site location study*** for impact analysis and mitigation (see TOR below). *Public consultation and participation processes are the responsibility of the proponent.				
1 week processing + 4-6 week review circulation	TBD	Draft EIA and/or SLS submission	There may be time specific (seasonal) requirements applied to this project (e.g. rare plant survey, migratory bird window, winter survey etc.) (conditional approval may applied based on the specific study and technical information if required)	River Valley ARP Team, Stakeholders, PM & Consultant
1 week processing + 2-4 week review circulation	TBD	Final EIA and/or SLS submission	4-6 weeks of initial circulation and 2-4 weeks of second round circulation once a complete package is received.	River Valley ARP Team, Stakeholders, PM & Consultant
1-3 days for processing	TBD	River Valley ARP sign off	Should the time, scale, or scope of the project change, recirculation and an amended sign-off will be required.	UPE and other City Departments/ EPCOR
-	TBD	Council Report Preparation and Approval (Internal Review)	Includes time to write a report, cut-off dates applied for review (both lead and other departments). Cut off dates applied for Branch manager/DCMO office/Presentation, Q&A, and Speaking notes.	TBD
-	TBD	Potential dates to present @ UPC	Council Report and presentation.	TBD
-	TBD	Potential dates to present @ EC	Council Report and presentation.	TBD
***These are the best case scenarios presented, a more accurate timeline could be provided following the RV scoping meeting.**				

North Saskatchewan River Valley Area Redevelopment Plan

A Guide to Completing Environmental Impact Assessments

Table of Contents

Introduction

The North Saskatchewan River Valley Area Redevelopment Plan (The River Valley Area Redevelopment Plan) protects, preserves, and enhances the North Saskatchewan River Valley and Ravine System as Edmonton's greatest asset and mitigates the impacts of development upon the natural functions and character of the river valley and ravine system.

The following guide has been developed to outline the process and content required for completing environmental impact assessments under Section 3.3.3 of the North Saskatchewan River Valley Area Redevelopment Plan. The aim is to provide a consistent approach to assessing impacts, to increase efficiency in report preparation and review, and to improve communication between the agencies and individuals involved.

This Guide is general in nature, applying to a range of projects including park master plans, park and facility development projects and utility and infrastructure projects. Proponents are advised that under Section 3.5.3 of the River Valley Area Redevelopment Plan a Site Location Study in addition to an environmental impact assessment that details costs, and social, environmental and institutional constraints which make a River Valley location essential must be prepared for City Council approval. The terms of reference and reporting requirements for the Site Location Study are included as Appendix 1 (Guide to undertaking a Site Location Study). The environmental impact assessment and site location study should be undertaken prior to Council committing funds for capital expenditure related to any project.

Project Specific Notes:

> **This project requires Administration approval.**
> **This project has received Council approval through the Neighbourhood Renewal process.**

Environmental Impact Assessment Guide

These guidelines provide a general framework in completing an environmental impact assessment in accordance with the requirements outlined in the North Saskatchewan River Valley Area Redevelopment Plan. Emphasis is placed on early consultation with the City of Edmonton and other review agencies (e.g. Province of Alberta). This helps to improve communication, identify issues and constraints at an early stage, avoid costly delays, and make efficient use of time and resources. On-going dialogue and reporting is expected throughout the process.

Prior to commencing work on the environmental impact screening assessment report, a pre-consultation, scoping and project review with City Planning is strongly advised.

The pre-consultation meeting for an environmental impact screening assessment will include staff from City Planning, other review agency staff where appropriate, the individual(s) preparing the environmental impact assessment, and, if desired, the project proponent. If the applicant has already retained a consultant to complete the environmental report, then the consultant should be included in this meeting. The purpose of the pre-consultation meeting will be to:

- Screen proposed projects to determine the type of environmental review required, and
- Identify preliminary ecological constraints and other issues requiring assessment.

Based on the outcomes of the meeting, a preliminary scope of work for the environmental report will be determined and will depend on the following:

- The scale and the nature of the proposed development or site alteration;
- The character of the natural environment and its associated ecological functions;
- The site's setting within the landscape and/or watershed;
- The availability of previous studies and information; and,
- Any social or socio-economic considerations.

Some specific study requirements for the environmental report, such as breeding bird surveys or field investigations of potential species at risk and their habitats, may be identified and agreed upon during pre-consultation, based upon the known natural features and ecological functions that could be affected by the proposed project.

Once the preliminary scope of the environmental impact assessment has been determined, the author of the report can proceed to gather information from available background

sources and/or original field studies, confirm the scope of the report with the City, conduct the impact assessment and report on the study findings.

Specifications for field investigations are provided in Section Two. In general, however, applicants and their consultants should be aware that at least one site visit is required for every environmental impact assessment report regardless of scope. An environmental impact assessment without direct, personal observations of the site will be considered incomplete. Site visit(s) will occur during the growing season rather than in the winter, when snow cover and normal seasonal dormancy severely limit potential observations. Multiple site visits may be required to provide an adequate understanding of the existing conditions at the site; in these cases, winter site visits may be acceptable for the purpose of investigating seasonal wildlife or locating certain nests more easily seen when the trees are bare of leaves.

The initial site visit for the environmental impact assessment should occur prior to any clearing of natural vegetation, or intrusive site investigations (e.g. installation of test wells or boreholes). If, during this initial site visit, any potential areas of constraints are identified where intrusive surveys could result in negative impacts on significant natural features or ecological functions, recommendations to avoid or minimize these impacts will be required.

Ongoing dialogue between applicants, their consultants and City staff is expected during the completion of the environmental impact assessment. Concerns or questions may be raised with staff at any time. Recommended points of contact with City staff include:

- Following the background information review and field study, to confirm the scope of the environmental impact assessment and discuss any environmental constraints identified; and,
- During the impact assessment, to discuss potential impacts, options for mitigation, and possible monitoring requirements.

In some cases, it may be beneficial to hold such discussions at the site, with other agency staff included where appropriate.

Once the environmental impact assessment report is complete it is submitted to City Planning. Electronic submission (PDF) of reports is sufficient to facilitate the review process. Applicants should be aware that the environmental impact assessment report, along with other supporting materials, may be posted on the City's website as part of the public consultation process.

Once the report is submitted, City Planning will coordinate a review of the report and supporting information. A number of civic departments, as well as external agencies may be part of the review depending on the context and potential impacts of the proposed project. A minimum three weeks is required to complete the review and prepare comments

to be forwarded to the proponent. Based on the results of the review, an environmental impact assessment may be accepted as written, or it may require revision to address comments and concerns raised by the reviewers or changes to the proposed project arising during the application review process. The resolution of comments or concerns may be achieved through discussions or meetings, or may in some cases require additional research or field investigations, with subsequent revision to the report. Open, ongoing communications between the report author and the City during the preparation of the environmental impact assessment should significantly reduce the likelihood of substantial revisions being required.

Section One: The Property

At the outset of the process, existing legislation, plans and studies should be reviewed as a means of understanding the legislative restrictions, land-use history, and ecological landscape of the area in question. Recent and historic air photos for the project area and its surrounding environment should be reviewed and included in the report.

Basic information on the property to be referenced in the environmental report include:

- Land ownership;
- Location of the property (municipal address and legal address);
- Current zoning;
- Description of existing and historic land uses and reference to current and historic air photos;
- Summary of federal, provincial and municipal regulatory requirements that apply to the project area.

In cases where a master plan project is being undertaken, or where a project encompasses multiple properties, the Property Description will identify the entire project area.

In some cases a Phase I Environmental Site Assessment, or other applicable environmental assessment may be required. Requirements for Environmental Site Assessments are generally determined through pre-consultation prior to commencing work on the environmental report. If required, approval of the Environmental Site Assessment shall precede environmental approval as per the North Saskatchewan River Valley Area Redevelopment Plan.

Section Two: Environmental Context

The description of the subject site and its environmental context provides the basis for the assessment. This description should consider the lands adjacent to the site, not just the site itself. The level of detail required will vary based on the scale and complexity of the project. It is recognised that lack of access to adjacent lands may result in less detailed information. The environmental report should include an introductory overview that establishes the environmental setting for the proposed project relative to any known significant natural features on or adjacent to the site, followed by more detailed discussions of the various environmental components as outlined below. An environmental sensitivities map that clearly illustrates the key features (assets and threats) associated with the site will be required to accompany the environmental report. The use of photographs to illustrate and accompany the environmental report is encouraged.

If the area in question has been assessed through a previous project/report please reference the project/report and include the relevant information as an appendix.

Depending on the location of the site, City staff may be able to provide background information and/or mapping resources.

2.1. Surface Water, Groundwater and Fish Habitat (Desktop analysis sufficient)

Water features connect and contribute to the significance of natural system features and functions. While a detailed description of surface water, groundwater and fish habitat may not be required for all environmental reports, the following information must be identified:

- Delineation of the 1:100 year floodplain;
- Runoff characteristics. Runoff characteristics are relevant to identify locations where the buildup of moisture could potentially cause concern over a long period of time;
- Depth of the water table. The depth of water table is an indicator of areas that are developable/undevelopable.

2.2. Geology/Geomorphology and Soils

While a brief description of the physical characteristics of the site is always relevant, detailed information on soils and geology may not be required for all environmental reports. The need for this information will be determined through pre-consultation

meetings with staff from City Planning and other city departments as required. For all projects the geomorphological boundary and relevant geomorphological features must be included to highlight the location of steep slopes, floodplains, hills, ravine channels and any other relevant features.

The presence of modifying factors will influence the potential for slope movement and should be considered as part of project development. Modifying factors include:

- Presence of slope failure (active/inactive/recurrent);
- Evidence of river erosion;
- Potential for high water table;
- Previous mining activity;
- Presence of slip-off slope

Where modifying factors are present, additional studies may be required in order to adequately inform the assessment of geotechnical risk, potential impacts from erosion, sedimentation and changes in local hydrogeology. Site-specific studies conducted in support of development proposals (e.g. hydrogeological and terrain analyses, geotechnical studies and/or slope stability analyses) should be referenced, when available.

The Genetic Class of materials should be included in the site's description as it relates to soil classification. This description should include a brief description of soils on the site and surrounding area and shall include information on the following:

- Potential run-off: Involves the analysis of the slope and the infiltration capacity of the soil unit. Soil that has low or moderate-low runoff characteristics may pose a constraint.
- Erosion potential: Involves the analysis of the slope along with the infiltration capacity and erodibility rating of the soil unit.

If additional site-specific information is required, this background data should be supplemented with further soil characterization resulting from Ecological Land Classification field studies or other investigations (e.g. geotechnical studies). Where relevant, shallow and poorly drained soils should be indicated.

2.3. Vegetation

The report should include a description of the area’s vegetation, in order to assess habitat and biodiversity value, develop mitigation/management strategies, and strengthen the post-development ecological network. The need for specific field

surveys may be identified during pre-consultation. The environmental report will include:

- Identification of vegetation community types present using classifications consistent with those in use by the City of Edmonton (i.e. Urban Primary Land and Vegetation Inventory). If an alternative classification system is used to provide supplementary information, please reference and describe the system as required.
- Description of native plant diversity (e.g. number of species, evenness, etc.).
- List of rare or unique species or communities. This includes those species that are listed as:
    - Threatened or Endangered under the provincial Wildlife Act
    - Sensitive, May be At Risk under the General Status of Alberta Wild Species
    - S1, S2 or S3 by the Alberta Conservation Information Management System (ACIMS).

  Unique species are those that may not be listed as rare but are considered to be ecologically underrepresented in the Edmonton area.
- Description of the presence and distribution of invasive, non-native species or noxious/prohibited weed species.

2.4. Wildlife

As with vegetation cover, a thorough review of available background information on wildlife is expected as part of the environmental review. Incidental observations will be the minimum standard required for fieldwork. The need for specific field studies of taxonomic groups (e.g. breeding bird surveys, etc.) may be identified during pre-consultation. The environmental report will include:

- Lists of species observed, reported or expected to occur on or adjacent to the site, presented in tabular format (as an appendix) with notes on the species' relative abundance at the site, its residency status (i.e. is it present year-round, seasonally or only periodically; does it live on the property, forage there or use it as part of a movement corridor) and the evidence supporting its inclusion on the list (e.g., sighting, tracks previously reported);
- Description and mapping of any "wildlife trees" (i.e. tree with visible nests, or large trees with cavities) or other features that could provide nesting or den sites;
- An assessment of the site's suitability for any significant species (including species at risk - ANHIC, FWMIS, database research results on the potential presence of listed species at risk, species of special status or rare communities).

- An assessment of whether or not any significant wildlife habitat is present on or adjacent to the site.

2.5. Historical Resources

The identification of historical/archeological sites within the River Valley and Ravine System does not indicate the existence of an environmental hazard. However, it does provide the location of potential areas to be preserved when future development/redevelopment is being proposed.

In accordance with Section 37(2) of the *Alberta Historical Resources Act*, the Minister of Alberta Culture and Tourism may require that any proposed activity that is likely to threaten the integrity of a historic resource be preceded by a Historic Resources Impact Assessment. In determining whether a Historic Resources Impact Assessment is required, the proponent should submit a Historic Resources Application to Alberta Culture.

Historic Resource Impact Assessments and related mitigation strategies are paid for by the person or company (proponent) undertaking or proposing to undertake the project or activity. Professional private-sector archaeologists, paleontologists, historians and traditional use consultants perform the required work.

For additional information visit the Historic Resource Impact Assessments website for the Government of Alberta.

2.6. Environmental Sensitivities Map

The environmental sensitivities map illustrating the areas environmental sensitivities and identified development constraints will support the descriptive overview for the subject site. The map will include a key map to show the subject site's location in relation to the surrounding major roads and other landmarks. The use of recent aerial photography as a base for the natural environment is strongly encouraged. The map will:

- Illustrate the property boundary or project area included in the scope of the assessment;
- Be drawn to scale, with standard mapping elements such as a scale bar, north arrow, date and legend;
- Identify all of the aquatic, terrestrial, and geomorphological features, natural ecosystems and vegetation communities on the site as referenced in the descriptive report and identified in Sections 2.1 - 2.5 of this report;

- Identify all of the terrestrial and aquatic natural features, natural ecosystems and vegetation communities in the surrounding area that might be affected by the proposed development or site alteration;
- Include topographic information (i.e. elevation contours) at a level of detail sufficient to show general slope trends and specific topographic features.
- Outline the site-specific Environmental Sensitivity Class based on consideration of environmental assets (vegetation, wildlife, aquatic habitat, unique landforms) and environmental constraints (slope, flood risk and cultural resources) in accordance with the City of Edmonton's Environmental Sensitivity Mapping database (Table One).

Table One: Environmental Sensitivity Class

Environmental Sensitivity Class	**Description of Sensitivity**	**Best Practices**	**Ribbon of Green Equivalent**
Extremely high	These sites are mostly found in the River Valley, its tributary ravines and near Big Lake.. Sites are often dominated by native vegetation, and have multiple ecological and physical assets and steep slopes or other physical or cultural constraints that would limit development activities. Threats due to land use or aquatic impacts to these sites are minimal. Many of these sites are already protected, particularly in the River Valley and at Big Lake, but will require management of surrounding lands to ensure connectivity, and buffer from adjacent land use.	Planning for building infrastructure in these areas is not recommended due to the abundance of assets. These areas should be protected from future development. Buffering such sites through conservation or restoration of lower sensitivity sites will help sustain their assets, and minimize impacts due to adjacent land use. Opportunities to maintain or enhance connectivity of these sites to other sensitive sites should be assessed across the City and implemented through the development and planning process. Develop strategic initiatives to engage developers or residents in conservation, restoration and stewardship of these sites and adjacent lands, to promote broader awareness and support for their conservation.	Protection
Very high	These areas are found in the River Valley, in and near its tributary ravines and at Big Lake.. They too are often dominated by native vegetation and have multiple ecological assets and/or cultural or physical constraints, and less likely to be affected by land use or aquatic threats.	Planning for building infrastructure in these areas is not recommended due to the abundances of assets. Limiting land use to passive recreation and development to low impact infrastructure will best protect the resources in these areas. Buffering these sites by conserving or restoring adjacent sensitive sites and maintaining connectivity, as recommended for extremely high sensitive sites will be important to sustain ecological function.	Protection

		Similarly, strategic initiatives to raise awareness of the need for conservation and stewardship of these areas, as recommended above, will help develop community support and cooperation in conservation and site stewardship.	
High	High sensitivity sites are found across the City and range in size from relatively small sites up to larger sites found in the River Valley, Big Lake, Beaver Hills moraine and Devon Dunes areas. These sites have various combinations of ecological and physical assets, and may also be affected by threats. Vegetation could include some non-native vegetation communities, but would mainly comprise native communities. In the River Valley, these sites could contain any one or a combination of ecological or physical and/or cultural or development constraints.	Conservation and protection of these sites can add to the ecological network. These areas require the greatest scrutiny and study at the site level, as combinations of assets may vary and sites may be contiguous with those of other sensitivities. Detailed evaluation is needed to ensure appropriate planning and land use for the assets at a given site. Limited development may be possible at some sites in the river valley, depending on the assets present. Where threats exist, management may reduce their effect. Explore opportunities to buffer these sites, enhance connectivity or restore key ecological functions within the site and in adjacent sensitive sites. This could include stewardship activities on private lands, encouraged through engagement programs targeting local residents and businesses.	Conservation
Moderate	These sites are the most abundant type of sensitive site in the City and are distributed across the City. They support fewer assets than higher sensitivity sites, and are more likely to include non-native vegetation. They are located in areas that are influenced by human land use. Larger sites lie within unique landscapes that may have limited development in the past. Such sites may contain ecological assets that are limited distribution or are easily disturbed by development (e.g., sandy soils, wetlands). These areas often have strong restoration potential that can benefit surrounding ecological assets, as well as sustaining their own ecological value. They also often lie within connective habitat and play a role in linking other sensitive areas.	Retention or enhancement of these sites can add to the ecological network, by buffering higher sensitivity sites or enhancing connectivity. Opportunities to conserve all or part of these sites should be explored during the land development or redevelopment planning process, or as part of open space planning. Where public lands will be dedicated or retaining (in the case of development) and the proposed land use is compatible with conservation of natural areas, site specific conservation or restoration may be possible. Where these sites lie within existing developed lands under private ownership, City-sponsored habitat enhancement and stewardship programs could enhance ecological functions (e.g. planting native trees or shrubs, managing weedy species, minimizing pesticide or herbicide use).	Conservation Restoration/ Stewardship
Low	These sites are also found across the City, and range from moderately large to quite small sites. They may include	Development and redevelopment proposals should consider how to retain or enhance the contributions of these	Conservation Restoration/

	both native and non-native vegetation communities, which may be their sole environmental asset. Such sites can play an important role in ecological connectivity or in buffering adjacent higher sensitivity lands, despite a lack of other ecological or physical assets. They are likely affected by land use or aquatic threats, an effect that can be reversed through land management and appropriate stewardship. Some sites are located in public lands such as the Transportation Utility Corridor and other transportation or utility rights-of-way, and have some level of protection through limitations on land development.	sites to the ecological network. Appropriate recommendations will require site survey and site-specific plans that consider site context, site assets and local connectivity. As noted above, options to maintain, restore or enhance natural areas may existing on private and public land. Depending on the site, opportunities to buffer other higher sensitivity sites, or enhance connectivity may exist. City sponsored habitat enhancement and stewardship programs could help to retain ecological function of these sites, as well as adjacent lands. Some low sensitivity sites include naturalized stormwater facilities and associated upland areas, as well as naturalized parks. Consider how creation of such features might be incorporated into development and redevelopment plans, to add to the ecological network.	Stewardship
Intensive Use	Existing developed areas, with land uses ranging from open space/recreational area to transportation, commercial, industrial and residential.	Intensive use areas are private or public lands adjacent to or surrounding many of the sensitive sites identified above, and can influence the ecological health of those sites. Stewardship options to reduce threats will be critical to long term sustainability of sensitive sites. Programs targeting City corporate operations (e.g., drainage, transportation, parks) and the public can help reduce impact of key threats, by promoting naturalization, minimal use of herbicide and pesticide and removal of invasive species.	Intensive Use

2.7. Spatial Data Delivery (Not required)

If requested at the pre-consultation, scoping and project review stage, spatial information collected during the production of the environmental impact assessment is to be delivered electronically to the City, and shall consist of a series of export files in ArcGIS 9.3 or GeoMedia format (with associated metadata). The projection of the data for Edmonton is 3TM, NAD83.

Spatial outputs requested may include shape files associated with the requirements outlined above which could include, but not be limited to:

- Study Area and area of construction impact (Section 1.0);

- Delineation of 1:100 year floodplain (Section 2.1);
- Geomorphic features of the site (Section 2.2);
- Homogeneously mapped vegetation community types updated to the most recent year of available aerial photography (Section 2.3)
    - Note: The City's urban Primary Land and Vegetation Inventory (uPLVI) was last updated for the entire City (plus a 3.2 km buffer) in 2015
    - These uPLVI base files are available for use by the applicant from which to update vegetation mapping, increase resolution to an appropriate size for the study area, and align vegetation mapping with the City's existing data sets;
    - For more information, please see the following:
        - Greenlink, 2016. *Primary land and vegetation inventory for urban environments (Urban PLVI). 2015 edition*. Prepared for: The City of Edmonton, Alberta –Parks and Biodiversity, Sustainable Development. Prepared by: Greenlink Forestry Inc. Edmonton Alberta.
        - Greenlink, 2016. *Primary land and vegetation inventory for urban environments (Urban PLVI). Interpretation Manual.* Third edition. Prepared for: The City of Edmonton, Alberta –Parks and Biodiversity, Sustainable Development. Prepared by: Greenlink Forestry Inc. Edmonton Alberta;
- Locations (points and routes) of vegetation community types and weed locations that were verified in the field (Section 2.3);
- Locations (points) of wildlife observed (include date of observation and common and scientific name in spatial file) (Section 2.4); and/or
- Environmental Sensitivities Map (Section 2.5)
    - Note: in 2016, City Planning completed a City-wide Environmental Sensitivities Mapping Project
    - These Environmental Sensitivity spatial files are available for use by the applicant from which to update the Environmental Sensitivity Mapping, increase resolution to an appropriate level for the study area in questions, and align environmental sensitivity analysis with the City's existing work.
    - For more information, please see the following:
        - Solstice, 2016. *Environmental Sensitivity Project, Model data.* Prepared for: The City of Edmonton, Alberta –Parks and Biodiversity, Sustainable Development. Prepared by: Solstice Canada. Edmonton Alberta.
        - Solstice, 2016. *Environmental Sensitivity Project, draft final report.* Prepared for: The City of Edmonton, Alberta –Parks and Biodiversity, Sustainable Development. Prepared by: Solstice Canada. Edmonton Alberta.

As part of any geodatabase compilation, the applicant is requested to ensure that the data is cleaned and corrected for:

- Overlapping polygons
- over-/under shoots
- dangling arcs
- duplicates or near duplicates removed
- short spikes removed
- polygons are closed
- sliver polygons
- gaps/holes
- no polygons without attributes

The applicant may submit preliminary datasets for examination. All requested spatial files are to be submitted for review to the Urban Analysis Unit of City Planning upon first submission of the Environmental Impact Assessment.

Section Three: The Project

In order to assess the environmental impacts of the proposed project on the identified natural features and functions on and adjacent to the site, a clear understanding of the project is required. ***Environmental sensitivities should be identified prior to beginning concept design, to the extent possible, to ensure the project is designed to avoid existing environmentally sensitive areas.***

The project description must include information about all phases of the project, including site preparation, construction, landscaping and intended use of the property once the construction work is completed, and (in some cases) decommissioning, if this information is available. Any related off-site works by the proponent should also be included in the project description and impact assessment. This section of the report should also describe how any environmental constraints identified in Section 2 have been considered and mitigated. Consideration of project alternatives justifying why a location within the boundaries of the North Saskatchewan River Valley Area Redevelopment Plan is essential shall be submitted as part of a Site Location Study (Appendix One).

The level of detail should reflect the size and complexity of the development or site alteration. The description must be accompanied by one or more graphical representations of the project.

3.1. Concept Plans and Drawings

The use of actual concept plans, development plans, site plans or other figures to illustrate and support the project description is required. At a minimum, the environmental report must include one or more plans showing the proposed development, park master plan or site alteration as an overlay applied to the environmental sensitivities map. The following information should be included in the plan(s), to the extent possible:

- Location of all existing and proposed lot lines, building envelopes and structures, fences, driveways, parking areas, roads, trails and pathways and any other park amenities;
- Services, including stormwater management facilities and drainage systems, public infrastructure and utilities;
- Erosion and sediment control measures;
- Grading limits and post grading contours; and,
- Natural features and areas of vegetation that will be removed or impacted. May require a permit through the Tree Protection Bylaw.

Where vegetation impacts are anticipated including construction or project activity within five meters of a City-owned tree, a Tree Protection or Preservation Plan shall be required as per the Public Tree Bylaw. The Plan will outline how project work will be accomplished while protecting public trees. Urban Foresters with the City of Edmonton can provide assistance in drafting the necessary tree protection plans.

It is recognized that this level of detail will not be available nor appropriate for all projects and that additional information may still be in development. The results of the environmental review will (and should) inform and be incorporated into the final plans for the project.

Section Four: Project Impacts and Mitigation Measures

Once an understanding of both the existing environment and the proposed project has been established, the identification and assessment of impacts can begin. Assessing impacts and recommending appropriate mitigation measures is the most difficult and important task of the environmental impact assessment. In some cases Provincial and Federal approvals may be required in addition to City approval as part of Bylaw 7188. This section should also highlight any relevant Provincial and Federal approval requirements.

It is important to provide a clear assessment methodology that will lead to specific recommendations. Tools should be employed that will provide demonstrable rationale for recommending specific mitigation measures. Examples include but are not limited to matrix evaluation, checklist evaluation, ecological land classification and valued ecosystem components. Assessment methodology should include the following:

- Approach to the assessment;
- Scoping the assessment;
- Spatial and temporal extents;
- Assessment of effects;
- Determining the significance of effects; and
- Cumulative effects Assessment: A description of potential positive and negative environmental, social, economic and cultural impacts of the proposed activity, including cumulative, regional, temporal and spatial considerations.

4.1. Assessing Impacts

This section further describes the project, the associated impacts and related mitigation. Details on the interactions between the specific project components identified and elements of the environment where there is a potential to result in an impact (positive or negative) should be identified.

The proponent will classify the potential environmental effects into negative impacts and positive environmental effects, and characterize them using standard criteria, including, but not limited to::

- Nature of Impact: Is it direct, such as the loss of a feature, or indirect, such as an increase in downstream sedimentation?
- Magnitude: What is the severity of the impact, especially as compared with available benchmarks or targets?

- Geographic extent: How large an area will be affected?
- Duration and timing: Is the impact temporary or permanent? Is it seasonal?
- Likelihood: What is the probability that the impact will occur?
- Potential for cumulative impacts: What is the potential for interacting impacts as a result of previous or future development or site alteration?

4.2. Identifying Cumulative Impacts

Cumulative impacts are compound environmental effects that may result due to multiple or successive development or site alteration activities (e.g. implementation of a park master plan which includes multiple elements). Cumulative impacts may affect natural features or their ecological functions, water quality or quantity, sensitive surface or groundwater features, and their related hydrologic functions. They are an important consideration in any environmental review.

Potential cumulative impacts are estimated by considering project effects within an expanded geographic area as well as a longer timeframe. For example, a cumulative impacts analysis should consider a reasonable and ecologically relevant area within which the proposed development is located. Development in the recent past and probable development activities in the future should be described, and if relevant, mapped.

4.3. Mitigation Measures

Mitigation measures must be identified for each potential negative impact, to eliminate or reduce the impact to the extent possible. Preferred mitigation measures avoid or minimize impacts, and may be supported by compensatory measures such as site rehabilitation or restoration.

Avoiding or eliminating impacts through design (or redesign where necessary) is the preferred approach, and should always be considered as a first step. Designing around the feature is the only option when significant wetlands or significant habitat for endangered and threatened species occur within a proposed project's boundaries. Recommendations for the preservation of natural features within or adjacent to the project area must be accompanied by recommendations regarding appropriate setback distance(s) and any buffer required to protect the feature and its ecological functions from impact.

Minimizing impacts to the extent possible is expected when avoidance is not feasible. Examples include the establishment of strict limits on the extent of vegetation clearing, or the use of specific timing windows for construction to reduce

impacts on wildlife by avoiding sensitive life stages such as breeding seasons or hibernation. The supporting rationale for these measures is to be included in the environmental report.

Compensation may be required in circumstances where impacts cannot be avoided or minimized. This includes consideration for the City of Edmonton's Corporate Tree Management Policy (C456A). Restoration and enhancement may also be recommended in the absence of such legal requirements, to support the long-term conservation of the City's natural systems.

In proposing mitigation measures, the environmental report should refer to recent science and/or guidelines, where necessary, to demonstrate that the measures will be sufficient to minimize impacts or replace lost habitat. The environmental report will include the following:

- A full description of proposed mitigation measures, including recommendations for timing windows or other specifications for implementation, for all potential negative impacts;
- For each negative impact, an indication of whether there will be any residual impact following implementation of the recommended mitigation measure(s);
- A description of proposed restoration or enhancement plans to compensate for impacts that cannot be avoided or minimized;
- Maps and/or drawings (if relevant) depicting the location, extent, and design details of proposed mitigation measures.

Section Five: Environmental Monitoring

Where impacts have been avoided or minimized through the environmental review process, monitoring may not be needed. In cases where negative impacts have not been eliminated, or where innovative solutions are being used, monitoring may be required to measure impacts over time. The environmental report must identify any monitoring needs associated with the project, and should provide recommendations regarding the design and implementation of the required monitoring program. Consultation with City staff will be required to establish the scope of all monitoring programs, and to ensure that recommendations are feasible and appropriate.

Monitoring will usually be site-specific and may be required during the pre-construction, construction, and/or post-construction periods. The environmental report should:

- Clearly differentiate between monitoring recommendations aimed at ensuring effectiveness of mitigation, and any monitoring required for legal compliance (e.g. to meet conditions of a Certificate of Approval);
- Specify the appropriate stage(s), schedule and duration for the monitoring program;
- Propose appropriate thresholds or benchmarks for monitoring purposes;
- Identify who will be responsible for monitoring, and the reporting structure required to ensure that results are acted upon as needed; and,
- Outline contingency plans if an impact is detected or if the proposed thresholds are not met.

Section Six: Public Consultation

Open and transparent public involvement is required for all projects. The proponent should demonstrate that the affected public and other stakeholders have been given the opportunity to become involved in reviewing the project, and should indicate how the proponent has considered or addressed any resultant questions and concerns. The opportunity for public involvement benefits citizens most when they take an active role at an early stage in the process, and clearly articulate their specific questions or concerns.

Information on public consultation should include:

- A completed Public Involvement Plan;
- A summary of consultation sessions including a summary of the information collected; and
- A statement as to how public feedback has been incorporated into the project.

Section Seven: Conclusions and Supporting Information

The environmental report must include a concise summary that addresses major points and highlights any issues of concern. Limitations of the study should be clearly identified (e.g. assumptions, timing, context).

This section must include a conclusion based on the results of the impact analysis. The report author's professional opinion must be stated, responding to the following questions:

- Provided that the recommended mitigation measures are implemented as planned, will there be any residual negative impacts on natural features or ecological functions as a result of the proposed project?
- What is the significance of any such residual negative impacts to ecological function(s)?
- Can the proposed project be accepted as planned, or should it be (further) revised to prevent, eliminate or reduce impacts? If so, what specific changes are recommended to the proposal?

If the environmental report concludes that the project will have a residual negative impact on one or more of the values or functions of the triggering feature(s), then a recommendation to proceed with the project must be accompanied by a rationale for proceeding that is based upon the provisions of the existing City of Edmonton statutory plans, policies etc. Projects with residual negative impacts to significant natural features or ecological functions may not be supported.

Supporting Information

Supporting information may include:

- Literature cited;
- A list of subject matter experts or other individuals contacted during the study, along with their title and agency affiliation, where applicable, and the subject(s) on which they were consulted;
- Species lists;
- Geotechnical reports;
- Public Involvement Plan;
- Previous studies or reports that may apply to the subject site.

Appendix 1: Guide to Completing a *Site Location Study Report*

Pursuant to the North Saskatchewan River Valley Area Redevelopment Plan, all proposals for the development of a major facility that is publicly owned or is developed on public lands shall be subject to a Site Location Study detailing costs, and social, environmental and institutional constraints which make a River Valley location essential. The following identifies the information and reporting requirements for completing a Site Location Study.

When completing the Site Location Study report please be as thorough and descriptive as possible. The Site Location Study shall stand as a separate document in support of the accompanying Environmental Impact Assessment and will be forwarded to City Council for review.

The Site Location Study and related Environmental Impact Assessment shall require approval by City Council. If Council approval has already been obtained via another avenue (i.e. neighbourhood renewal design or otherwise), please provide confirmation.

Site Location Study Report:
Table of Contents

Gariepy Ravine SUP and Walkways EIA/SLS

Executive Summary:

The Project Name should be the same as that referenced in the Environmental Impact Assessment.

Project Description:

Describe the project including location and surrounding context. This information can be copied directly from the accompanying Environmental Impact Assessment report. Where relevant, please include supporting maps.

Project Scope:

Identify what is included as part of this project. The Site Location Study should only reference project components that meet the definition of a Major Facility as defined in the North Saskatchewan River Valley Area Redevelopment Plan:

A MAJOR FACILITY is defined as any permanent or temporary development or use which is included in the Zoning Bylaw (12800) under the following use class definition:

- Basic service
- Community, educational, recreational, cultural services
- Natural resource development

Where relevant, please include supporting plans and drawings which illustrate project components included as part of the Site Location Study.

A discussion of construction methodology or mitigation measures identified in the Environmental Impact Assessment is not required as part of the Site Location Study.

Location Analysis and Justification

The following questions must be addressed within this section of the report:

1. What other locations were considered for this project including other river valley and non river valley locations?
2. Could the proposed project reasonably function at a location outside of the North Saskatchewan River Valley Area Redevelopment Plan boundary?
3. Is the project dependent on either the river valley and ravine location or the users of the park system?

Please describe any relevant Bylaws/Plans/Policies which support the project's location within the North Saskatchewan River Valley Area Redevelopment Plan boundary.

Constraints Analysis

The Site Location Study must identify potential constraints that relate to the project that make a river valley location essential. Do the constraints (financial, social, environmental, institutional) limit the feasibility of locating the project outside of the river valley?

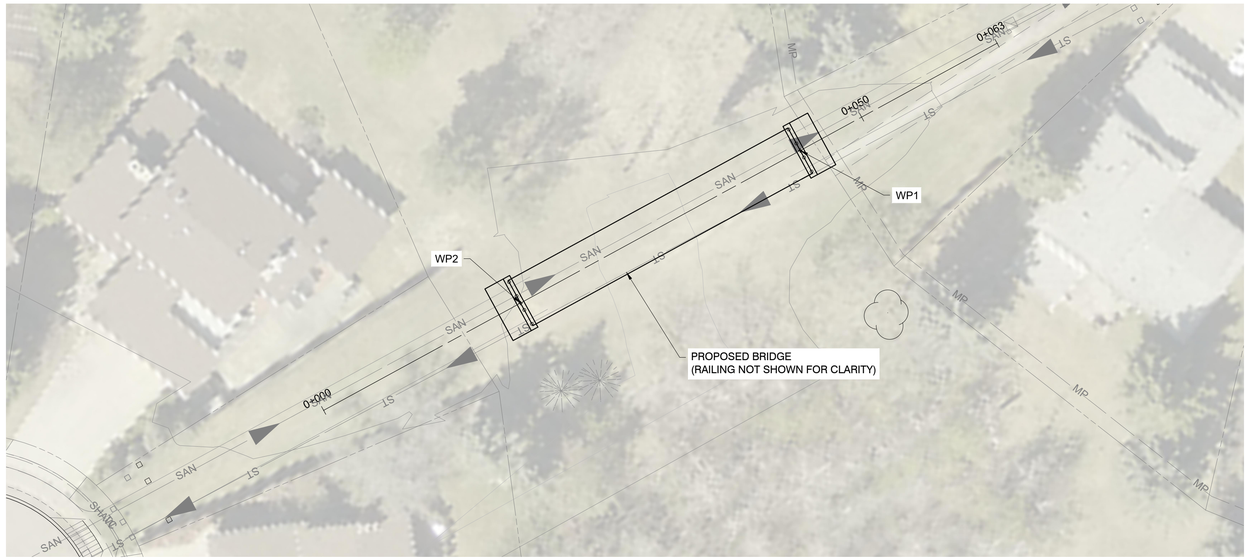
If the project includes multiple *'Major Facility'* components, each component must be assessed separately to address the following questions:

1. What are the financial constraints which limit the feasibility of locating the project outside of the river valley?
2. What are the social constraints which limit the feasibility of locating the project outside of the river valley?
3. What are the environmental constraints which limit the feasibility of locating the project outside of the river valley?
4. What are the institutional constraints which limit the feasibility of locating the project outside of the river valley?

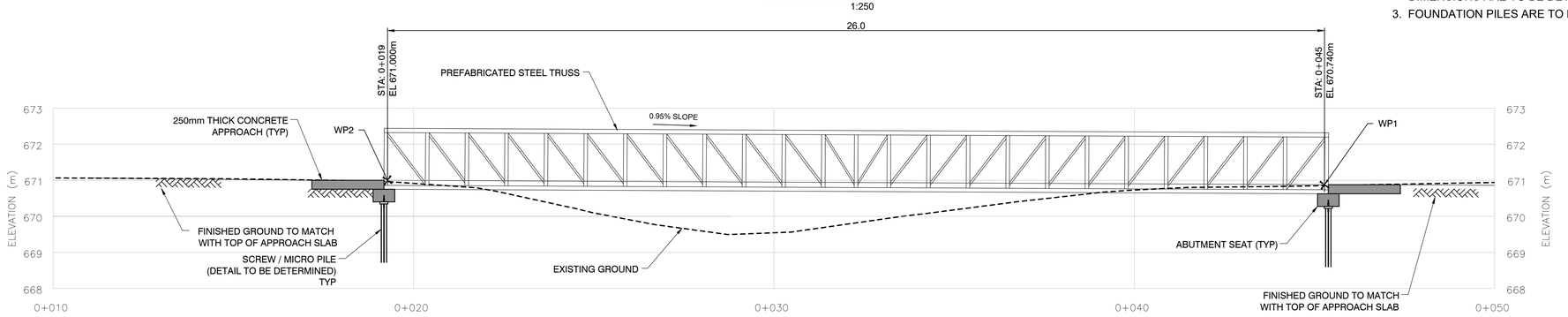
Conclusion

APPENDIX

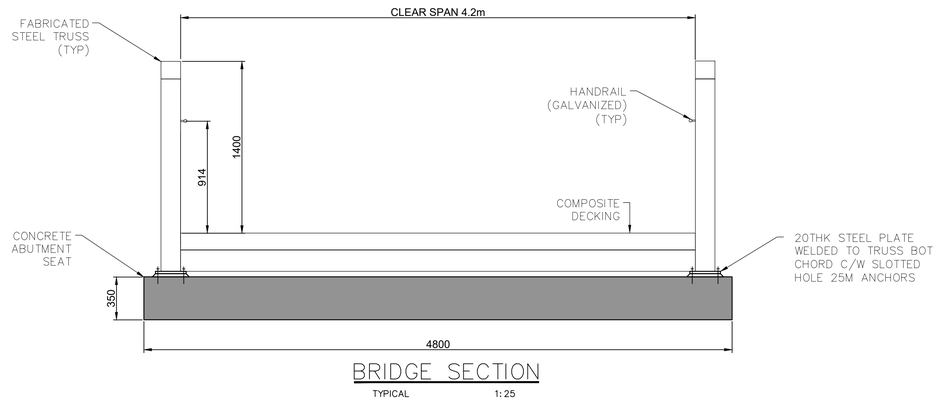
C DESIGN DRAWINGS



PLAN VIEW
1:250



BRIDGE ELEVATION
LOOKING NORTHEAST - SCALE 1:75



BRIDGE SECTION
TYPICAL 1: 25

KEYPLAN
1:2000

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. TRUSS COMPONENTS ARE SHOWN FOR ILLUSTRATION PURPOSE, ACTUAL SIZE AND DIMENSIONS ARE TO BE DETERMINED AT THE TIME OF DETAIL DESIGN.
3. FOUNDATION PILES ARE TO BE RECONFIRMED AFTER GEOTECHNICAL INVESTIGATION.

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CITY OF Edmonton
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ENGINEERING SERVICES

PROJECT
GARIEPY
NEIGHBOURHOOD AND ALLEY RENEWAL
EAST BRIDGE (COMPOSITE WALKWAY)

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GARI 241 EB

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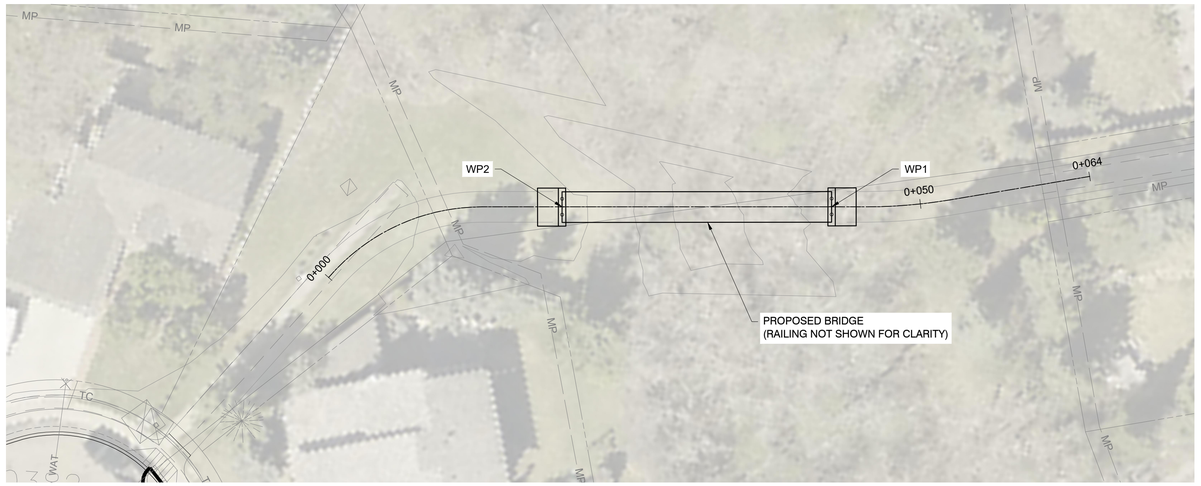

PLAN VIEW
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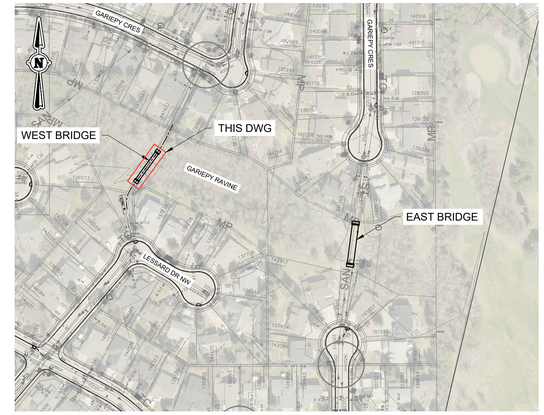

KEYPLAN
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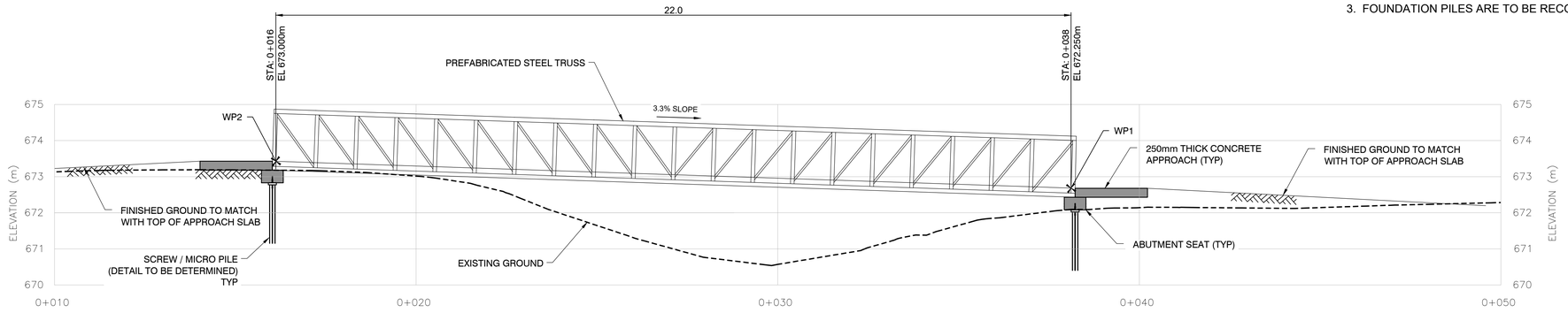
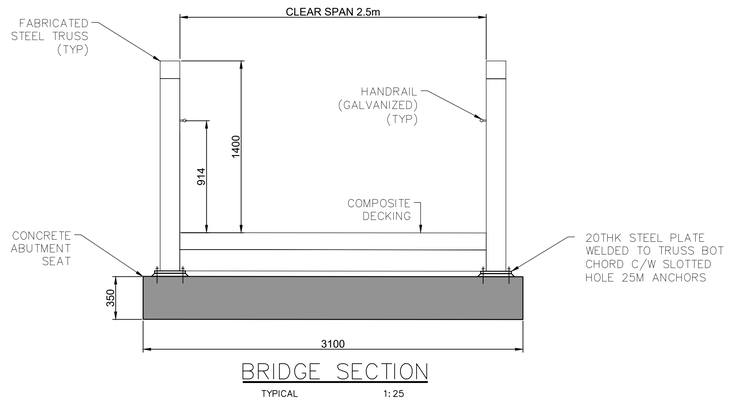


BRIDGE ELEVATION
LOOKING NORTHEAST - SCALE 1:75



BRIDGE SECTION
TYPICAL 1: 25

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