South Facility Phase ‘A’
Planning Rationale

Site Plan Control Submission

Moriyama & Teshima Architects + CS&P Architects in joint venture

May 29, 2019

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1 PROJECT OVERVIEW

1.1 Regulatory Analysis

INTRODUCTION & ZONING INFORMATION

The property at 3550 Prince of Wales Drive (herein referred to as the 'Subject Property') is designated as a General Urban Area as per Schedules A & B of the Official Plan. The Subject Property was formerly 55 Lodge Road and the applicant has applied and reached agreement with the City of Ottawa for a new civic address on Prince of Wales Drive.

The Subject Property is zoned "Minor Institutional" (I1A) in the City of Ottawa Zoning By-Law (2008-250) which allows the permitted use of a Municipal Service Centre.

There is no Official Plan or Zoning Plan Amendment being sought as part of this Site Plan Control Application as the proposed development is in line with the permitted uses and requirements

This Planning Rationale will demonstrate the various aspects of the proposal that support eh site plan control submission. The report will also demonstrate how the development will:

- Conform to the policies of the City of Ottawa Official Plan (including Official Plan Amendment 180 (2016))
- Conform to Secondary Plan (Formerly Nepean - South Nepean Urban Areas 4, 5 & 6)

The Subject Property is not located in an area governed by a Community Design Plan.

Project Address:
3505 Prince of Wales Drive
(Sector C)
Con 1 RF PT Lots 10 & 11
Ward 22

Project Description:
126,759 s.f. (11,776.3) / 3 storey detached South Facility building
Total Site 15 acres

Zoning By-Law 2008-250 Consolidation:
I1A (consolidated June 25, 2008)
Minor Institutional Zone

Permitted Uses:
Municipal Service Centre

Definition:
Municipal Service Centre: a client service centre operated by the City of Ottawa and including a Community Service Centre.

Institutional Zoning Provisions:
(Part 7, Section 170, Table 170A)
Table 170A – I1A Subzone Provisions
Abutting a Residential Zone in Area C in Schedule 1

- Min Lot width: 15 m
- Min Lot Area: N/A
- Min Front Yard Setback: 6 m
- Minimum Rear Yard Setback: 7.5 m
- Minimum Corner Side Yard Setback: N/A
- Maximum Height: 15 m (By-law 2017-303)

Proposed Building Height: 14.61 m
Maximum height has been calculated from the average final proposed grade at the perimeter of the building excluding the open-air parking garage.

Permitted projections above the Height Limit (Part 2, Section 64) include:

- mechanical and service equipment penthouse, elevator or stairway penthouses (By-law 2014-94)
- flag pole
- communication transmission and distribution towers forming part or all of a utility installation (By-law 2013-224)
- skylights and clearstoreys

Parking:
(Part 4, Section 101, Table 101 By-law 2016-249)
Per Area C in Schedule 1
203 Spaces Required (2 per 100 m2 of Gross Floor Area)
Proposed Parking Summary:

- Staff: 266
- Visitor: 20
- Total Parking: 286

Aisle and Driveways:
(Part 4, Section 107)
Driveways providing access to a parking lot or a parking garage have a minimum width of:

- 3.0 m for single lane of traffic
- 6.7 m for double traffic lane (Parking Lot)
- 6.0 m for double traffic lane (Parking Garage)

All driveways and aisles providing access to or located within a parking lot or parking garage have a minimum vertical clearance clear of obstructions such as signs and other structures of;

- 2.0 m (Parking Lot)
- Per Building Code (Parking Garage)

Bicycle Parking:
(Part 4, Section 111, Table 111A)

- 6 Bike Parking Spaces Required (1 per 500 m2 of Gross Floor Area for Municipal Service Centre & 1 per 1500 m2 for all other Non Residential uses)
- Proposed Bike Parking Spaces Provided: 32

Loading Areas:
(Part 4, Section 113)
A vehicle loading space may be located wholly or partly within a building or structure.

- 2 Loading Spaces Required (15,000 – 24999 m2 = 2 spaces)
- Two (2) Loading Spaces Provided

Landscaping Provisions for Parking Lots:
(Part 4, Section 110)
A minimum of 15% of the area of any parking lot, whether a principal or an accessory use, are provided as perimeter or interior landscaped area comprised of the following:

- a 3m wide landscaped buffer must be provided between the perimeter of the parking lot and a lot line as it is abutting a street. A driveway may cross the landscaped buffer; and
- in addition to the landscaped buffer, interior landscaping may be provided including various landscaped islands, landscaped medians, pedestrian pathways or public plazas to meet the minimum 15% requirement.

Setback from Watercourses:
(Part 2, Section 69)
No building or structure, including any part of a sewage system, which does not require plan of subdivision, or site plan control approval, shall be located closer than:

- 30 m to the normal high-water mark of any watercourse or waterbody, or
- 15 m to the top of the bank of any watercourse or waterbody, whichever is the greater

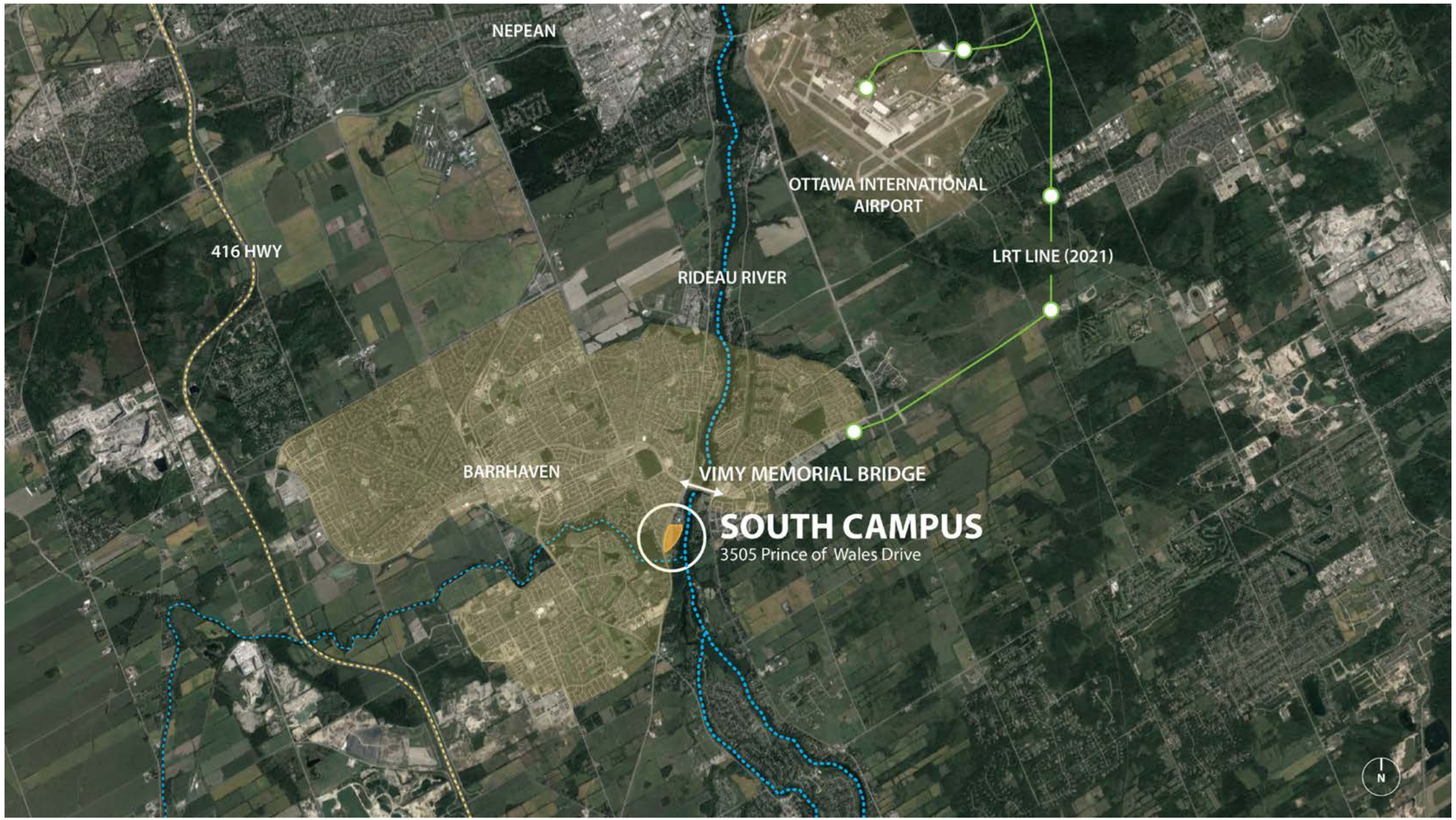
Limit of flood plain (Section 58) is located on the East side of Lodge Road. Proposed buildings are located 45.98m from the rear property line.

2 CONTEXTUAL ANALYSIS

2.1.1 OTTAWA SOUTH AND THE GROWING AREA OF BARRHAVEN

The South Facility is an important community-building initiative for the City of Ottawa, and will help deliver enhanced services to the fastest growing community in the city. By 2031, it is projected that Ottawa's population will grow to more than 1,100,000, and much of that growth is projected to happen in Barrhaven and surrounding communities.

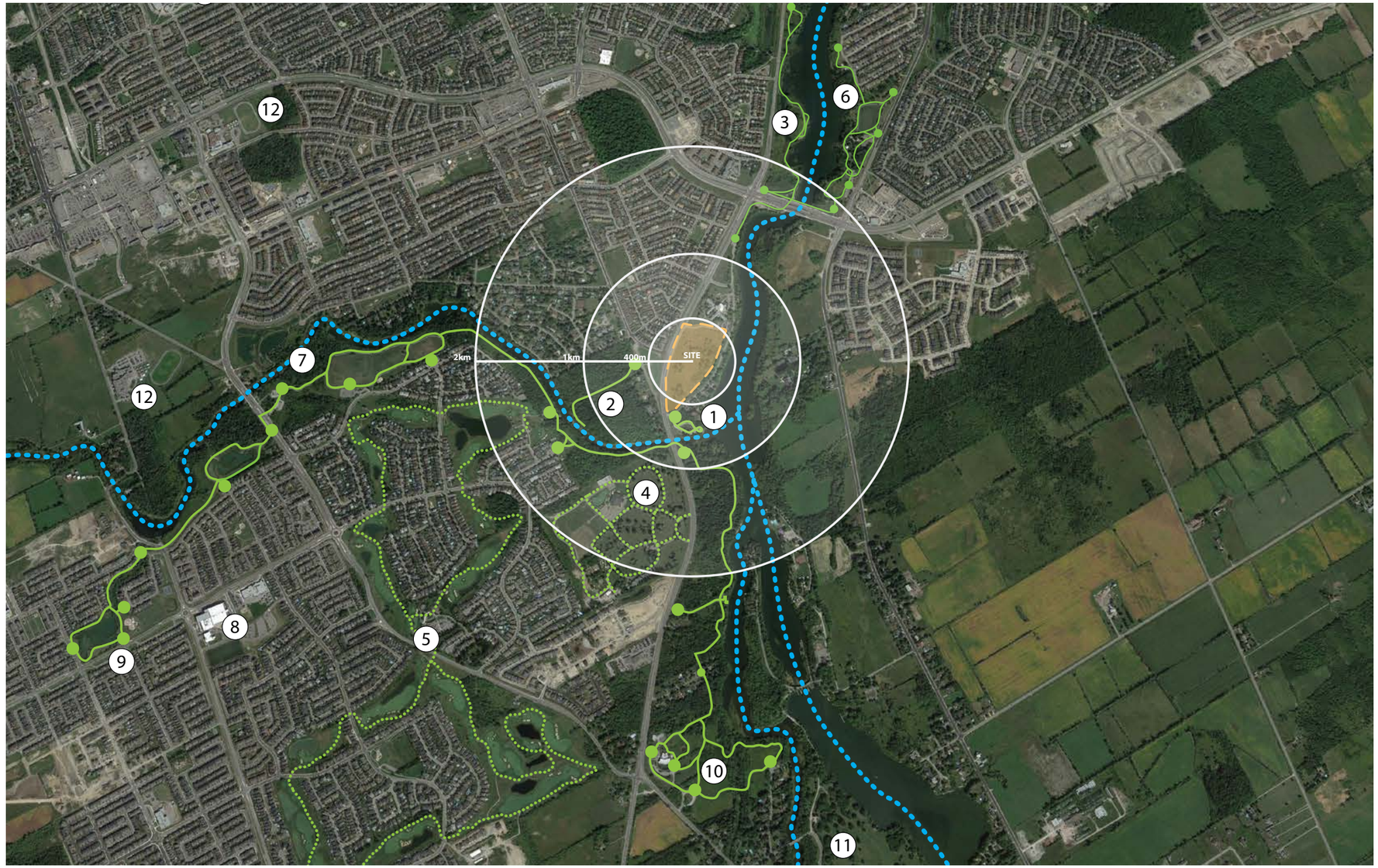
The Subject Property is designated as a General Urban Area as identified in Schedule B of the Official Plan - Section 3.11. The General Urban Area designation encourages a wide range of uses and the proposed development of a Municipal Service building that supports the public is a much needed addition.



2.1.2 SURROUNDING AMENITIES

The South Facility site was acquired from the City of Ottawa, and is located on Prince of Wales Drive, immediately South of Strandherd Drive. It sits beside the scenic Rideau River, near the outlet of the smaller Jock River tributary. The site is located in a predominantly low-density residential area, with access to a considerable number of recreational amenities. The diagram to the right demonstrates the numerous hiking, cycling and walking trails around the site, totalling over 15km in length. The majority of these trails run adjacent to the Rideau and Jock rivers, and include board walks, pedestrian bridges, and interpretive information and exhibits. Additionally, nearby amenities include the Minto Recreation Complex (8), the Stonebridge Golf Club (5) and the Rideau Valley Conservation Authority centre at Beryl Gaffney Park (10). Together, these amenities will provide staff and users with ample opportunities to better their health and well-being.

1. Jock River Landing / boat launch
2. Heart's Desire Park / Forest
3. Chapman Mills Conservation Area
4. Capital Cemetery
5. Stonebridge Golf Club
6. Claudette Cain Park
7. WC Levesque Park
8. Minto Recreation Complex
9. Half Moon Bay Park
10. Beryl Gaffney Park
11. David Bartlett Park
12. Secondary School Outdoor Track & Field

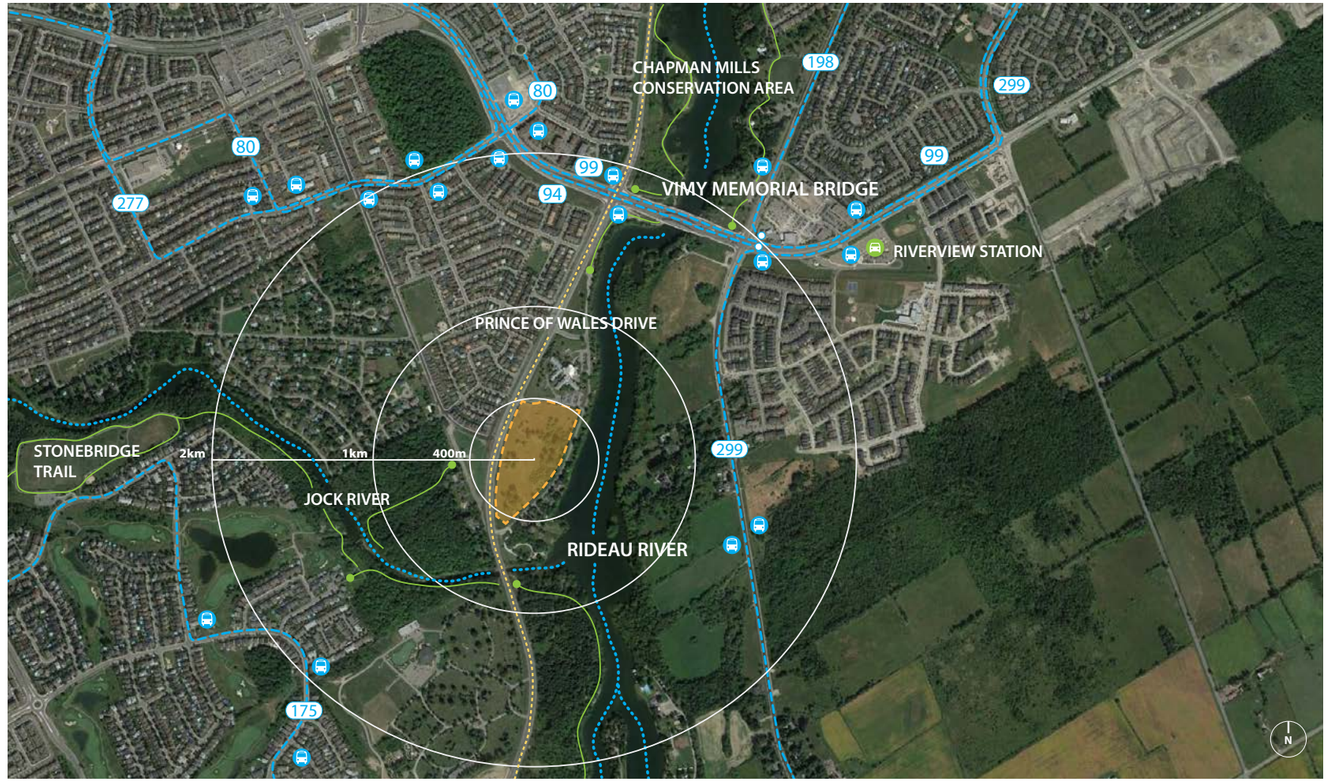


CONTEXTUAL ANALYSIS

2.1.3 NATURAL HERITAGE SYSTEM

The images on the right capture the variety of recreational amenities available within walking distance of the South Facility site.

The Subject Property is bounded by land designated as Major Urban Space to the East of Lodge Road.




Chapman Mills Conservation Area


Vimy Memorial Bridge


Stonebridge Trail


Stonebridge Trail


Jock River


Jock River Landing / Boat Launch

Legend

Trail Access Point | Waterways | Site Boundary | Major Park & Ride | Public Multi-use Trails | Bus Route | Bus Stop | 299 Bus Route Number

2.1.4 TRANSPORTATION SYSTEM

The South Facility site is located on Prince of Wales Drive, a main thoroughfare connecting Ottawa's South end to the downtown core approximately 20km north. Strandherd Drive accommodates East/West travel via Bus Rapid Transit (BRT), and provides a direct connection to Highway 416 approx. 8km west of the South Facility site (Official Plan (Schedule D)).

Although the site provides easy access by car, it is currently under-served by Public Transportation. OC Transpo bus service does not run on Prince of Wales Drive due to the 80km speed limit, making bus stops hazardous to both vehicles and disembarking pedestrians. Currently the closest bus routes to service South Facility have stops approx. 2km North and 2km South of the site at Strandherd. This provides a challenge to staff and visitors arriving by Public Transportation. OPS has opened a dialogue with OC Transpo and confirmed OC Transpo has no intent to expand service to the site.

In terms of rail service, the 2021 LRT Trillium Line Extension will terminate at the future Limebank Station located approximately 3km east of the site, providing additional travel options for staff and visitors to the South Facility.

2.1.5 NEIGHBOURS

The South Facility site is located in the South Ottawa community of Barrhaven, which is predominantly composed of low-density residential development. Opposite from the site, across Prince of Wales Drive, is a large single-family home subdivision known as Hearts Desire. To the South is another large housing development known as Stonebridge which circumnavigates the 18-hole Golf Course of the same name. In addition to these subdivisions, there exists two small pockets of mid-century homes, with (5) properties to the East of the site, and (6) to the West. These residents will be key stakeholders to the project as their properties face the site directly.

Immediately North of the site is the existing Carleton Lodge Seniors Residence, a large 2-storey complex built in 1960 owned and operated by the City of Ottawa. The building shares a legal parcel with the City of Ottawa-acquired portion of the site. The main visitor entrance and associated parking are located on the North side of the facility, however a private road provides access to the staff parking lot located on the South side of the lodge, adjacent to the South Facility portion of the property. This existing road will become a shared access route for the South Facility, upgrades are required to suit the types of vehicles accessing the site.

A Public Pre-Consultation Meeting was held on June 26, 2018 at the Rideau Valley Conservation Authority to allow neighbours and stakeholders to review the initial development proposal and it was well received.

Recreational Zone Residential Zone Carleton Lodge Property

CONTEXTUAL ANALYSIS

2.2.1 FOCAL POINTS & VIEWS

Prince of Wales Drive is a key arterial route linking major tourist, recreation, heritage and natural environment destinations in and beyond Ottawa. As such, the road has been identified as an Existing Arterial and designated a Scenic Entry Route as per the Official Plan (Schedule E & F). One of the primary goals of the designation is to maintain and enhance, where possible, existing views from Prince of Wales Drive to the historic Rideau River running parallel to the East. This was an important consideration for the site planning strategy on the South Facility property.

This particular stretch of Prince of Wales Drive is also considered by many to be the Southern gateway to the City of Ottawa. This feeling is enhanced by the impressive structure of the Vimy Memorial Bridge immediately to the North. Together with a prominent civic building such as SFPA, this corridor will surely feel like an arrival point for residents and visitors alike.

Although most people viewing the site will be travelling by car along Prince of Wales Drive, views from watercraft on the Rideau River during its busy boating season are also important to consider, refer to Section 3.6, page 20)

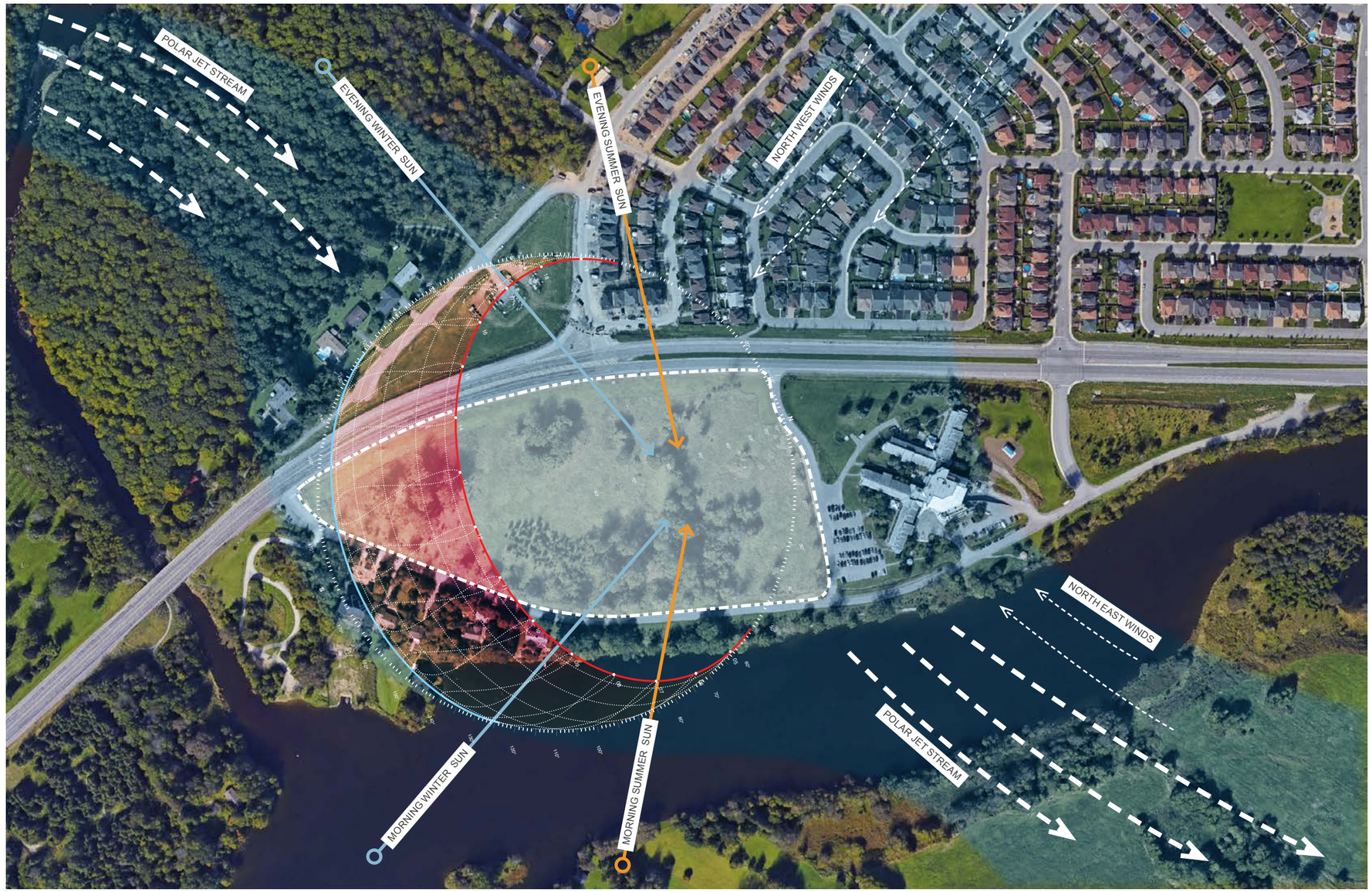
Views from the site are predominantly to the East towards the River, with secondary views to the South-West towards Hearts Desire Forest and the Jock River valley.

2.2.2 SITE EXPOSURE

The South Facility site is oriented North/South, approximately 20 degrees off true north. Due to its natural context and surrounding low-density development, the site receives excellent sun exposure year-round. Due to this fact, horizontal sun shading has been employed on south-facing facades. Morning sun may produce glare off the surface of the relatively wide Rideau River, and was considered in the design of the facility. Likewise, sun exposure from the West will be intense through the evening hours, and has been addressed in the design of the West facade, with the incorporation of vertical louvres.

Although an open site presents excellent daylighting possibilities, it can also present challenges in terms of wind exposure and related environmental effects such as snow-drifting, etc. As shown in the digram to the right, the wind blows predominantly from the North-West in the Ottawa Valley; this has been carefully considered on the public-facing side of the building.

As there are no existing buildings in immediate proximity to the Subject Property, there is no concern of shadowing or causing a snow drifting impact on adjacent properties per Policy 2 (h & i) of Section 4.11 of the Official Plan.



CONTEXTUAL ANALYSIS

2.2.3 TOPOGRAPHY

Although the site appears relatively flat from Prince of Wales Drive, it actually exhibits a considerable slope from west to east. At its widest point, the site slopes down over 5.5m (or 18ft) in total, presenting some unique challenges and opportunities to the creation of a significant facility - see page 26 for massing response to the natural topography of the site.

The proposed building is located over 45m from the rear property line to maintain a significant distance from the floodplains to the East. The flood plain limit does not exceed the top of bank, located on the adjacent property on the East side of Lodge Road.

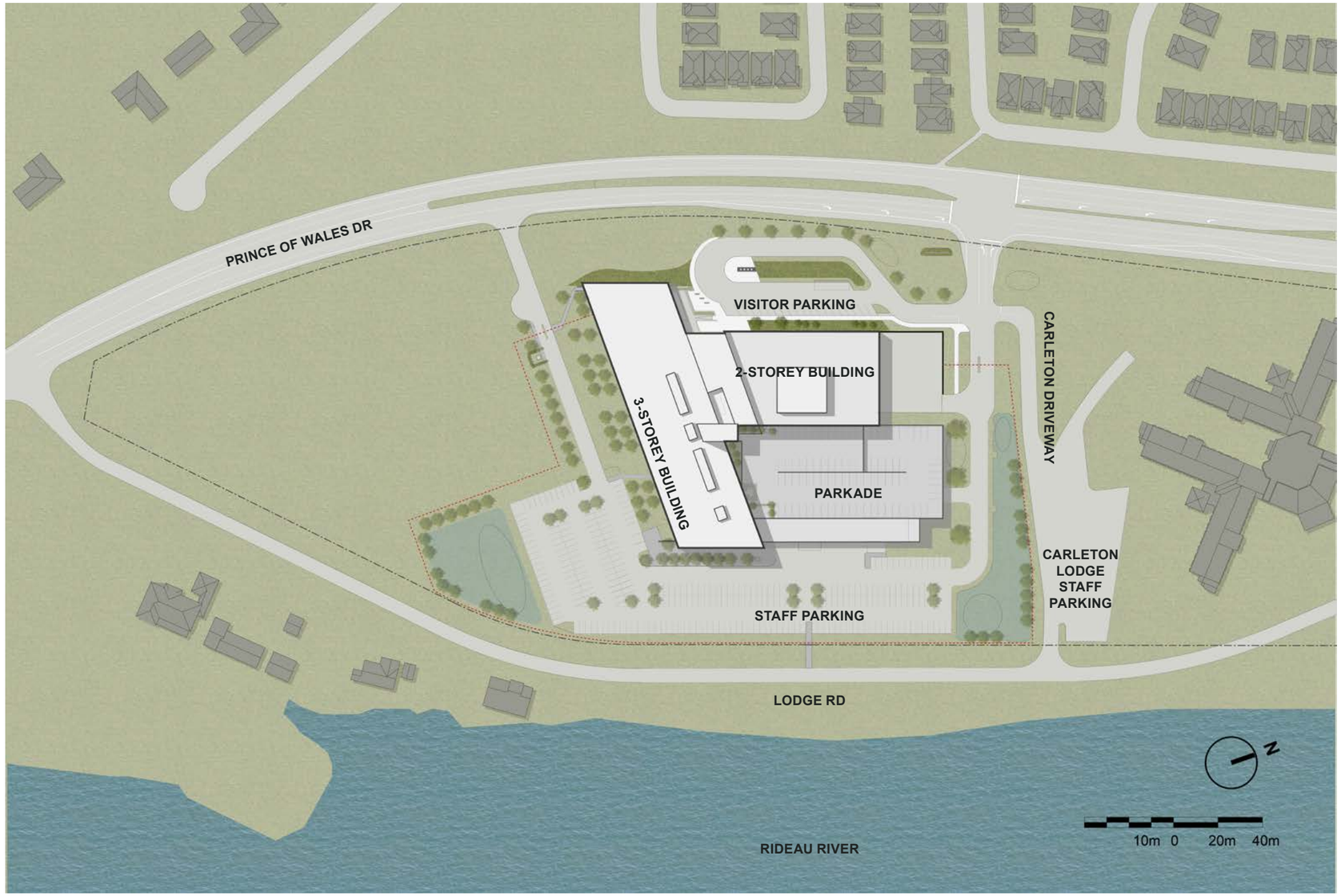
A Slope Stability Assessment prepared by Golder Associates Ltd, dated January 2018 provides an approximate limit of the hazard lands associated with the slope on the West bank of the Rideau River.

Site Slope

3 SITE DESIGN

The following key principles were integral to the creation of the proposed the South Facility site plan;

- Site Access
- Visitor Parking & Access
- Staff Parking & Access & Servicing
- Green Space
- Building Presence



3.2.1 VEHICULAR ACCESS

Two (2) Access Points have been proposed to be directly off the arterial road Prince of Wales Drive. The site design will minimize the potential for traffic on the minor street of Lodge Road to meet the intent of Policy 2(a & b) of Section 4.11 of the Official Plan. It was noted at the June 1, 2018 Pre-Consultation meeting with City Staff, that the use of Lodge Road should be avoided as it was not designed for increased traffic volumes. Upgrades would be the responsibility of the development.

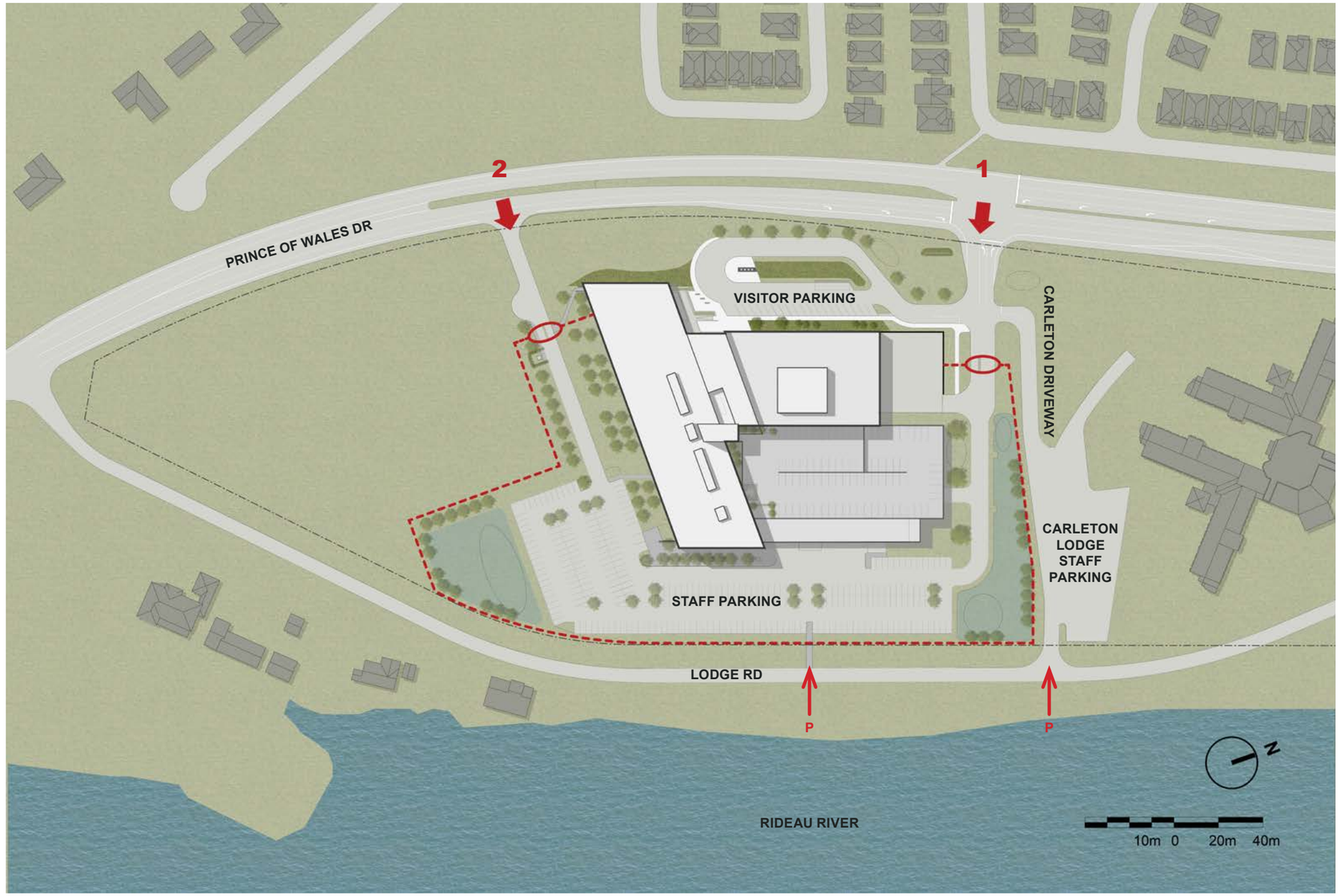
Access Point 1
A primary access intersection has been proposed at the location of the existing Carleton Lodge driveway. This primary access point will lead to an internal intersection that will mediate the various connections to other portions of the site. This intersection will also allow safe egress from the site in both north and south directions.

Access Point 2
A secondary intersection on Prince of Wales drive is allocated for staff access to the site, from which arriving vehicles can proceed to the staff zone. It is anticipated that this access point will be used mainly for exiting the site and travelling north towards the downtown core. This access point will accommodate right-in and right-out traffic flow only, and provides the site with redundancy.

3.2.2 PEDESTRIAN ACCESS

Pedestrian access to the site will be minimal by crosswalks at the unsignalized intersection (Access Point 1), and by sidewalks on the West side of Prince of Wales Drive connecting the site to the amenities and communities north of the South Facility.

Lodge Road is a popular recreational pedestrian and cycling route and connects the site to Rocky Hill Dr. as well as to the Vimy Memorial Bridge to the North.



Secure / Gated Entry Point

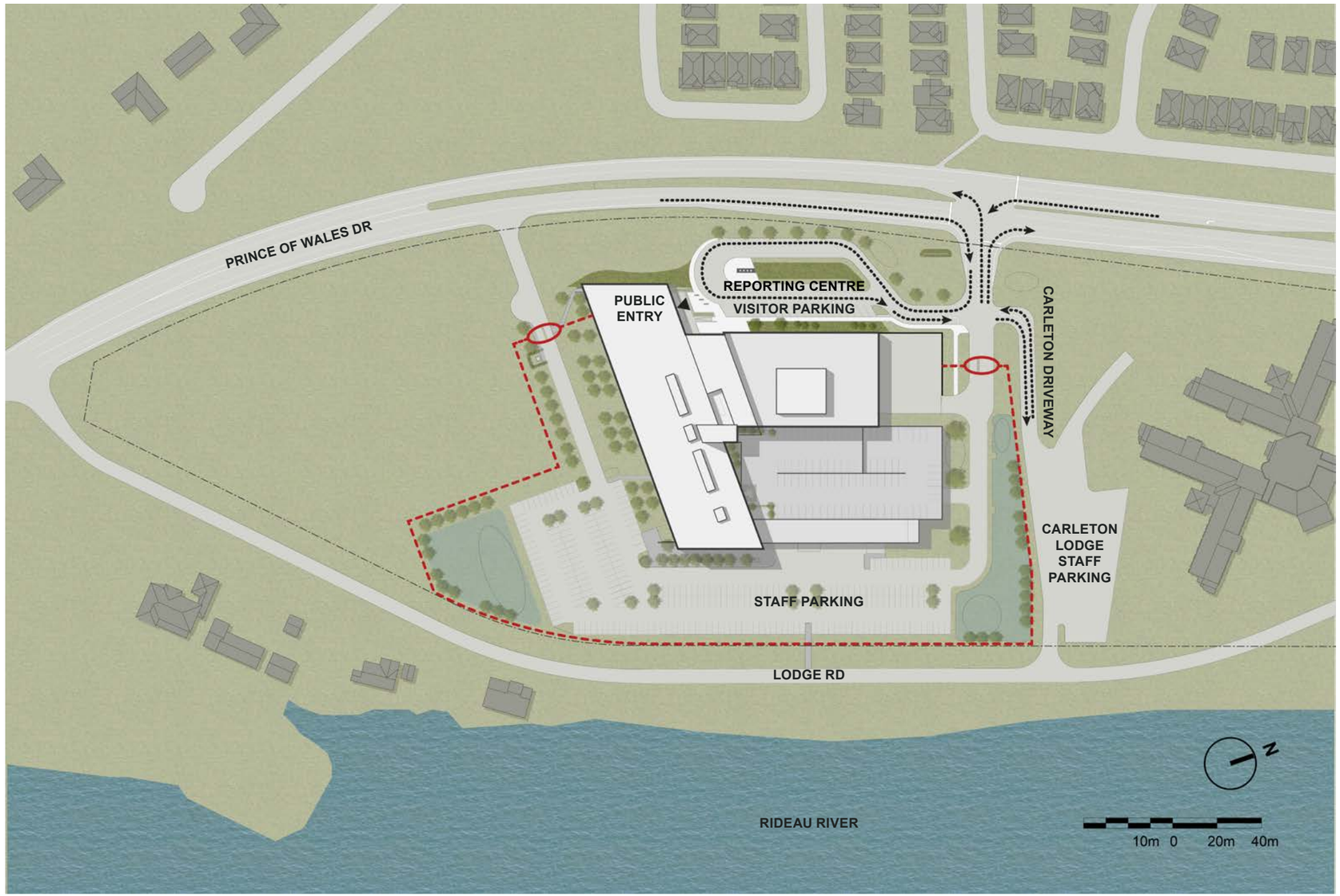
Security Fence

SITE DESIGN

3.3 VISITOR PARKING & ACCESS

The West side of the South Facility site has been allocated for public access, and includes 2 vehicular entries, a visitor parking lot, the Reporting Centre and the main public entry to the building. The Primary Site Access leads to an efficient vehicular “loop”, mitigating traffic congestion on the site. This loop has also been designed to meet all requirements of a fire route. The visitor parking lot and Reporting Centre adopt a one-way drive-through configuration which easily accommodates the turning radius of loaded tow-trucks and flat-bed trucks. The area has been covered and well-lit to facilitate remote photography of vehicles in all times-of-day and extreme weather conditions. Both of these functions are immediately adjacent to the main building entrance, promoting line of sight for ease of wayfinding.

The public entry has been carefully designed to mitigate security concerns, but has minimal perceived hardening, offering an open and welcoming experience.



Secure / Gated Entry Point

Security Fence

Path of Travel - Visitor Vehicles

Building Entrance - Visitors

SITE DESIGN

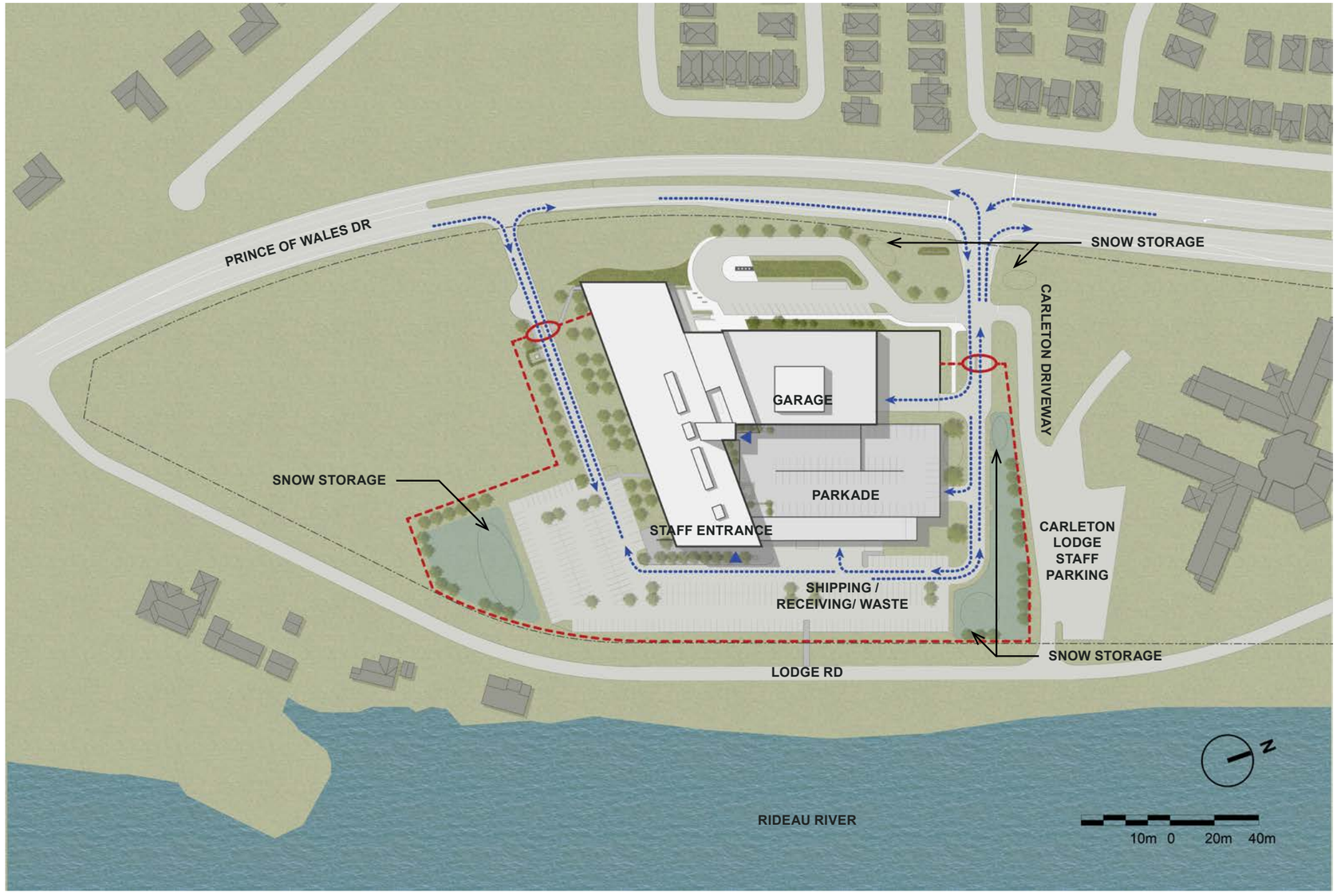
3.4.2 STAFF VEHICLES

Staff and personnel arriving to the site in personal vehicles will arrive through Access Points 1&2, directly into the at-grade parking lot located on the East side of the site. Surface parking has been located here due to its low visibility from Prince of Wales Drive, which satisfies both security needs as well as municipal planning recommendations to meet Section 4.11 of the Official Plan (Policy 2c). The staff parking lot is fenced and will be well-lit due to 24/7 operations and shift work. A staff entry atrium is located on the east side of the building, directly accessible and visible from the staff parking lot.

3.4.3 SERVICING

A critical component of the South Facility site plan is the consideration of uninterrupted, 24-hour operations and service provisions. It is critical that operations and maintenance activities do not conflict or inhibit operations on site and that the equipment and technology specified will be reliable and easily expandable/ replaceable. In order to satisfy this functional requirement, the Service Court has been carefully located far from staff vehicle traffic flows and public zones. Situated on the east side of the building, the court is accessed through the staff parking lot through a vehicle gate accessed from the West side via Prince of Wales Drive. The service court provides direct access to the shipping and receiving bay, refuse storage and exterior transformer banks. The area will accommodate small delivery vehicles, as well as garbage and recycling trucks, and dedicated parking will be provided for contractor and maintenance personnel vehicles. To address Policy 2(e) of Section 4.11 of the Official Plan, the Loading and Service areas have been located out of view from the main Scenic Route of Prince of Wales Drive. Other maintenance and building support equipment have been enclosed within the building envelope to minimize visibility from the Rideau River.

The design of the interior roads and staff and visitor parking lots have considered the ease in which snow can be collected and stored on-site. A series of snow-piling zones have been designated on all four (4) sides of the building.

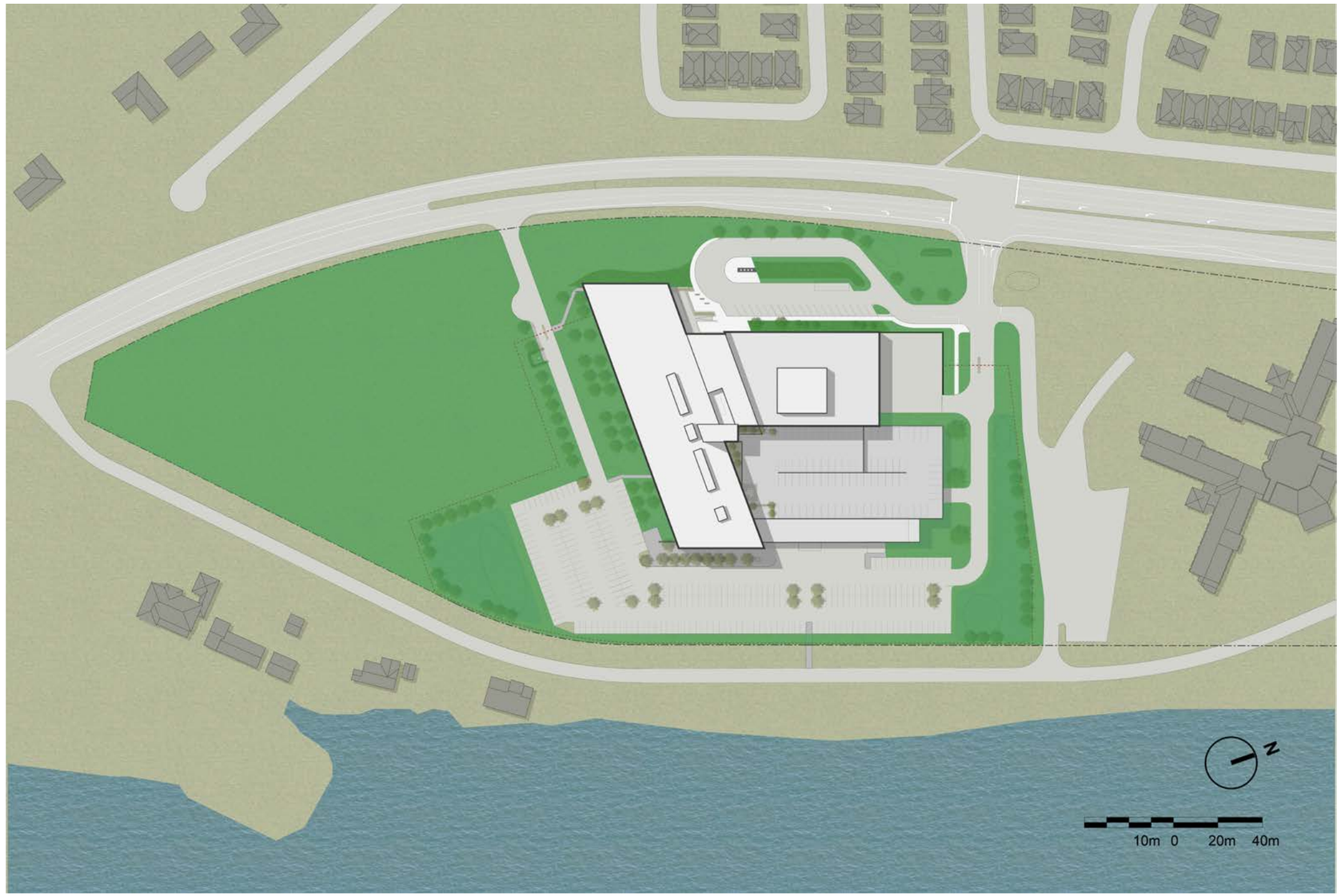


SITE DESIGN

A primary goal in the development of the proposed master-plan was the conservation and preservation of green space on the site. A multi-storey administration building and a ramped parking structure achieved considerable savings in land use on the site, providing more area for landscape buffers and open space. A generous landscape buffer has been maintained between the building and Prince of Wales Drive, and buffers were also maintained along the North and East extents of the facility. These buffers will accommodate sidewalks, trees, planting beds, dry retention ponds and open space to create an open and inviting realm for both users and members of the general public. They will also promote connection between various points of interest and neighbourhoods in the area.

The South portion of the site has been preserved as an amenity for staff. There are currently no plans for future development of the Southern portion of the site. The use of landscaped buffers are in response to Policy 2(d) of Section 4.11 of the Official Plan.

For additional details on the landscaping response to the site, refer to Section 5.1, page 25.



Green Space and/or Landscaped Areas

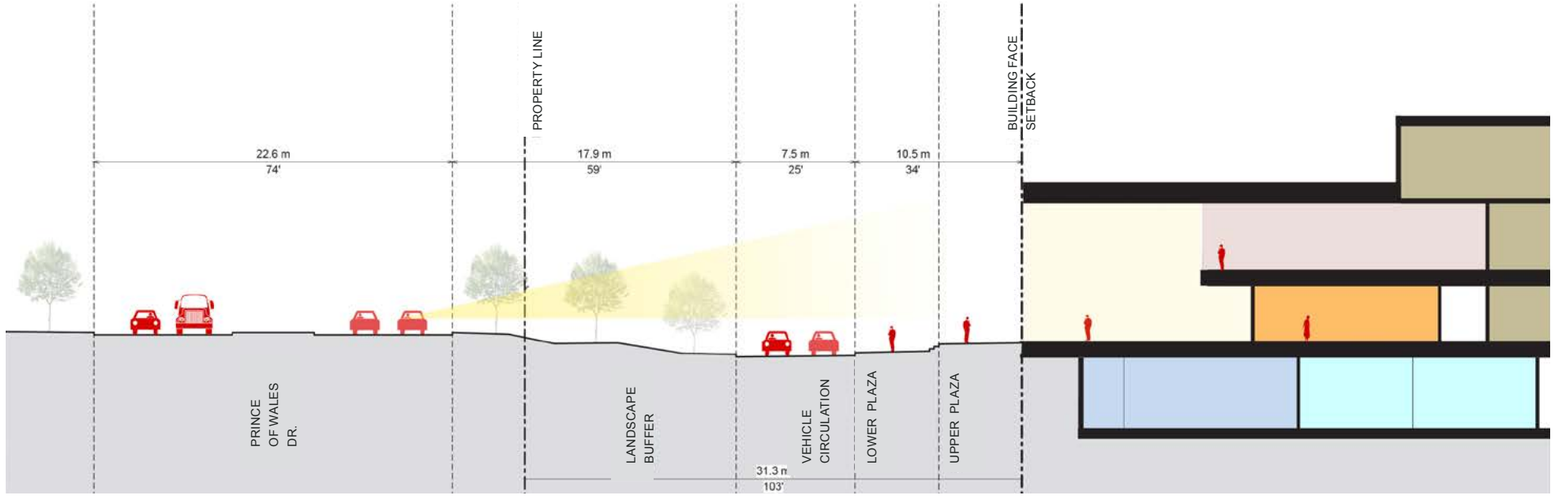
3.6.1 PRESENCE FROM MAIN STREET

As Prince of Wales Drive is designated as an existing arterial road (Official Plan - Schedule E). City staff provided confirmation that a 40m right-of-way from the centreline of the road is required.

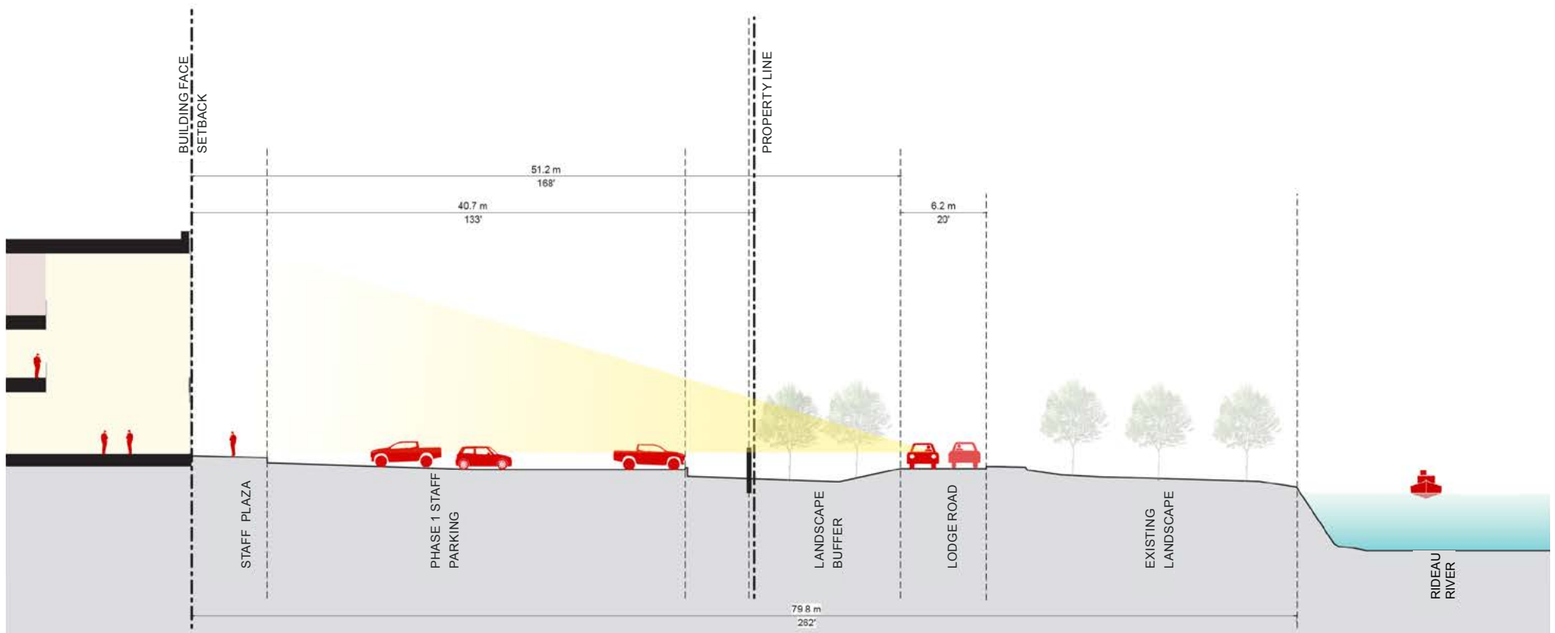
The development was sited an appropriate distance from the roadway to accommodate the right-of-way. The building face was setback an additional buffer distance of approximately 100' to meet security requirements. The building profile consists of two low-rise (Official Plan Section 4.11, Policy 7a) volumes that take advantage of the sloping site and are set into the slope.

Policy 9 (c) (Section 3.6.1 of the Official Plan) states that "Main buildings are situated so as to occupy the site's street frontage". The main front elevation of the 2-storey North Block runs parallel to Prince of Wales Drive and connects to the 3-storey South Block that extends down the slope, opening up towards the Rideau River.

The clearstoreys and mechanical penthouse are permitted to extend above the maximum height of 15.0m. The main Building height of 14.6m provides the building with a prominence on Prince of Wales Drive. This orientation of the building ensures the building is a Civic presence from both the Scenic Entry Route and the Rideau River (designated UNESCO World Heritage Site in 2007)



SECTION THROUGH MAIN ENTRANCE AND PRINCE OF WALES



SECTION THROUGH STAFF ENTRANCE AND LODGE ROAD

SITE DESIGN

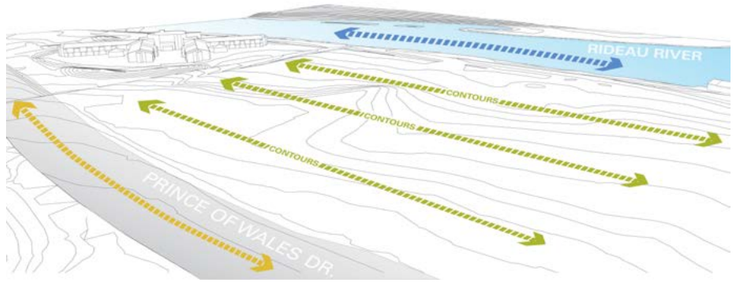
4 ARCHITECTURE

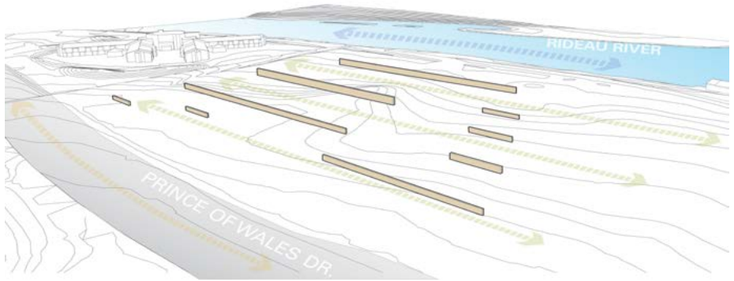
4.1.1 PARTI DEVELOPMENT

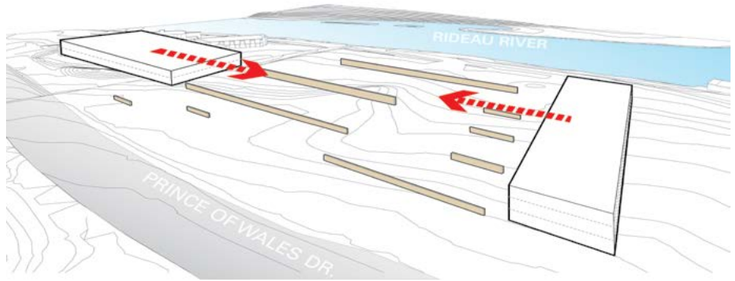
The topography of the Subject Property slopes significantly towards the Rideau River.

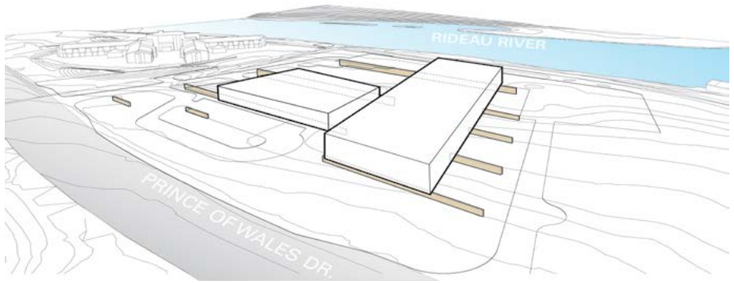
As a response to the natural features of the site, the building was designed to be a series of long low extended walls oriented parallel to the slope.

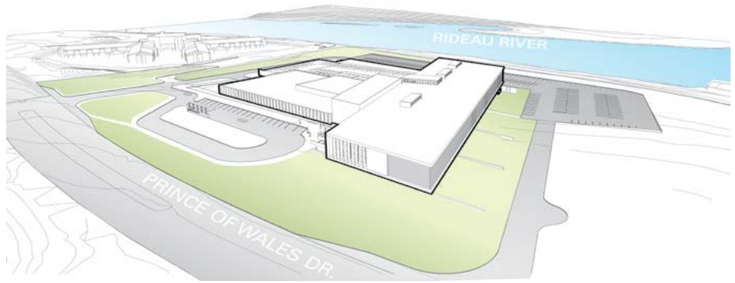
The main South Block facade has been configured with a significant elevation directly south to take advantage of the daylighting opportunities.











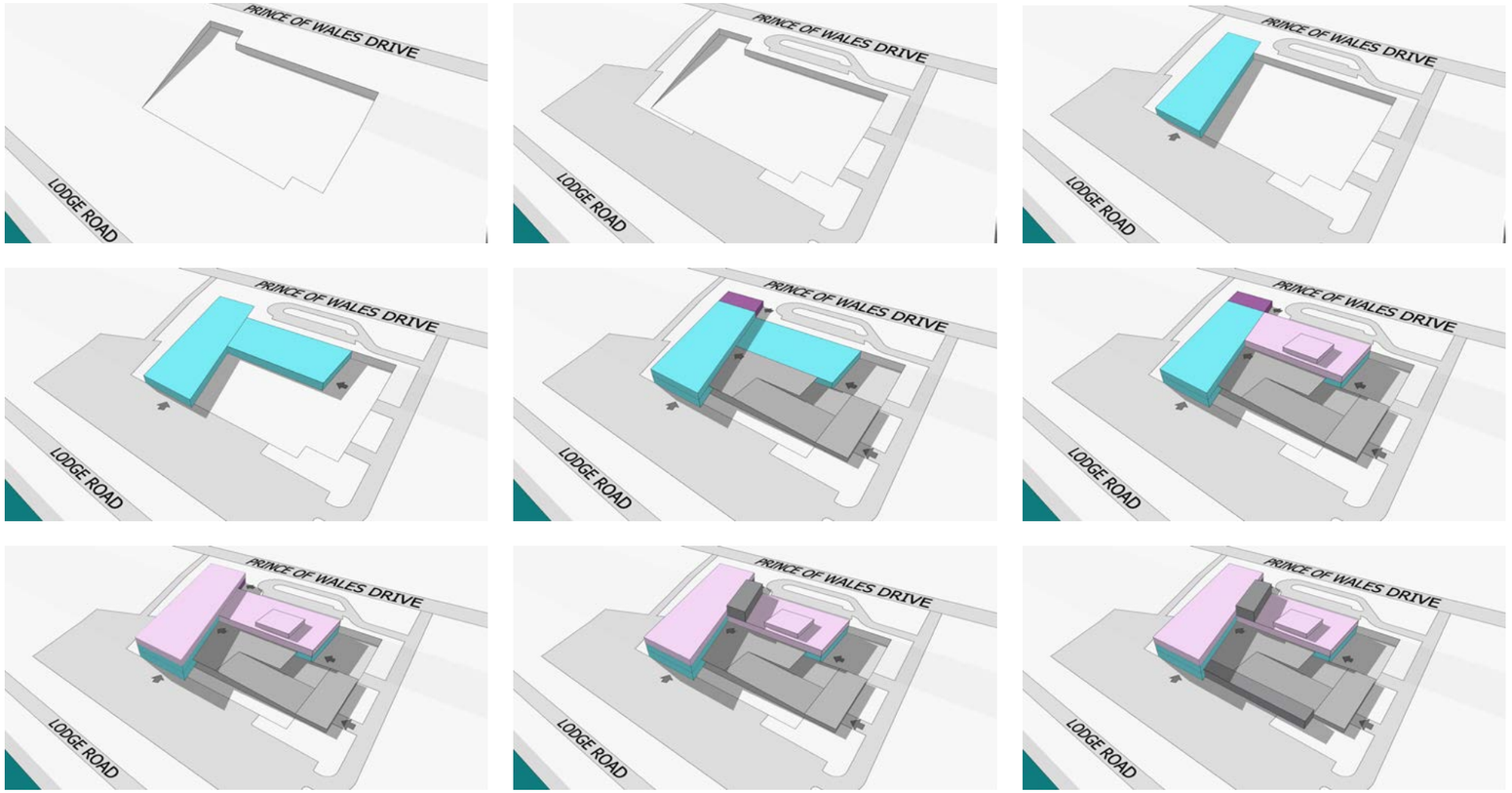
ARCHITECTURE

4.2.1 MASSING DEVELOPMENT

Policy 9 (d) (Section 3.6.1 of the Official Plan) states that “The visual impact of outdoor storage or parking on adjacent uses and from the street will be minimized through appropriate means”. The design of the building shields view of the service area activities of the facility from the main road.

The visual impact of a significant portion of the parking has been reduced by creating a 2-storey parkade that is located lower and behind the main feature building. From the Rideau, the cladding of the parkade will be screened with vegetation.

The staff atrium is located at the east end of the South Block. The full height of the 3-storey east elevation will be a prominent facade looking towards the Rideau.



5 LANDSCAPE

The purpose of this report is to provide a general overview of the landscape philosophies that will be implemented at SFPA. This is a continually developing document that reflects comments and input from the Architectural team, the larger design team, and the client groups.

The South Facility landscape design requires a thoughtful blend of landscape resiliency, transparency and security. The location of the site dictates sensitivity to environmental concerns, while the facility being designed requires a certain level of security. The critical relationship between the street, site and river must be explored. The landscape design will be aligned with the goals of the South Facility Master Plan, including Pedestrian Pathways and Building Access, Security, Green Space, Environment and Wellness, and Sustainable Development. The design will focus on the core principles of CPTED, Accessibility, Environmental Stewardship including water conservation, heat island effect reduction and biodiversity through a number of strategies.

The site has been used as a tree nursery and these existing trees can be utilized as part of the new design in order to reduce the need for new trees to be imported to the site.

5.1.1 EXISTING CONDITIONS

This site has been used as tree nursery, resulting in resources that can be reused. In the area of the parking lot, a large number of native trees have been allowed to mature, resulting in many useable specimens which can be integrated into the landscape plan and site development.

5.1.2 CPTED

Crime Prevention through Environmental Design (CPTED) reduces the fear of, and incidence of crime through design and effective use of environmental conditions. This is critical for the protection of the users of the South Facility site. Landscapes must be clearly defined as private and public spaces with access controlled appropriately. Landscape planting & features must be aligned to provide clear lines of sight for pedestrians. In-obtrusive site lighting will provide all weather and lowlight clarity for pedestrian accessible areas while respecting dark sky principles and will have to be coordinated with the lighting designer.

5.1.3 LANDSCAPE FEATURES + SITE SECURITY

The use of strategically placed aesthetic landscape features such as bollards, decorative stone or raised planter beds can serve dual-purpose roles. They will not only accent the architecture of the new building but integrate into the overall security design of the site. These features can define pedestrian and vehicular spaces and could also be rated to deny vehicular access to sensitive areas if required. .

5.1.4 WAYFINDING + UNIVERSAL ACCESSIBILITY

Providing appropriate signage and other wayfinding clues will contribute to site security and a feeling of user comfort. The proper implementation of signage can serve to help ‘brand’ the site and enhance the critical connection between the street and the river. By ensuring that site access, pathways, courtyards and gathering spaces are designed to AODA accessibility standards, a truly inclusive space will be created. Looped pathways that take advantage of the entire site will contribute to workplace health and fitness goals for site users

5.1.5 SITE FURNITURE

Although commercial grade site furniture has a higher capital cost than lower quality units, the low maintenance costs and longevity of each piece reduces long term investment. Several models feature the use of recycled content, which can contribute to environmental leadership goals. Properly placed site furniture contributes to accessibility and workplace health in the ability to rest outside, potentially away from the bustle of a busy facility. Properly placed site furniture can also act as a training aid for fitness goals as part of a circuit training program.

5.1.6 LOW MAINTENANCE DROUGHT TOLERANT PLANTINGS

One advantage to the proximity to the water table is the general availability of groundwater for plant materials. Typically, drought resistant species have deep root systems which may be able to reach available ground water supplies.
By choosing species that are tolerant to drought and pests, we can further reduce the need to provide any supplemental watering and maintenance. Many native species endemic to the region are well-suited to low water availability and could be used on this site. Eliminating the need for irrigation reduces the potable water consumed locally and reduces the energy consumed to purify water at the treatment facility.

5.1.7 BIODIVERSITY

The landscape design will promote native species that provide ecosystem benefits particularly suited to our environment. A variety of plantings will be chosen to support a range of native pollinators. Pollinators are crucial to biodiversity as they provide benefits across trophic levels of the ecosystem, whether it is pollinating various plants and crops or acting as food sources for various predators.

5.1.8 WATER CONSERVATION

Bioswales and stormwater management features can be used to capture water, provide re-charge groundwater to allow vegetation to survive drought and reduce stormwater leaving the site. The use of these features can also contribute to quality controls for runoff allowed to leave the site, particularly important due to the proximity of the Rideau River. Although the site is near to the water table, the detention of water on site for short periods of time will reduce the need for irrigation and allow for a greater diversity of planting solutions.

5.1.9 HEAT ISLAND EFFECT

Large areas of darkly paved surfaces absorb solar radiation and tend to release it over time, artificially increasing local temperatures, known as the heat island effect.

Introducing shade over parking areas can reduce this effect. This can be achieved with the introduction of trees in parking lot islands where feasible and around the perimeter of the lot.

Low albedo surfaces and pavements can reflect, rather than absorb solar radiation and assist in the reduction of the heat island effect.

5.2.1 LANDSCAPE ANALYSIS

The site is delineated by the Prince of Wales Drive to the East, Lodge Road to the South and East, and the Carleton Lodge driveway and parking lot to the north.

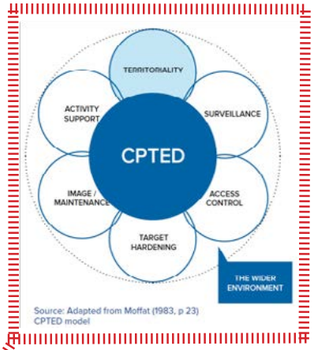
The site naturally falls towards the Rideau River, allowing generous views downslope. The site is largely treed along it's eastern edge, with a spine of trees pointing westward two thirds of the way to its' northern boundary.

Groves of mature Silver maple, Poplar and Willow occur as islands in a cultural prairie landscape. A number of other species including both deciduous and coniferous species populate the forested areas. Native and invasive shrubs occupy under-storey zones. A dilapidated historic structure sits to the north of the site, along with a remnant concrete pad.

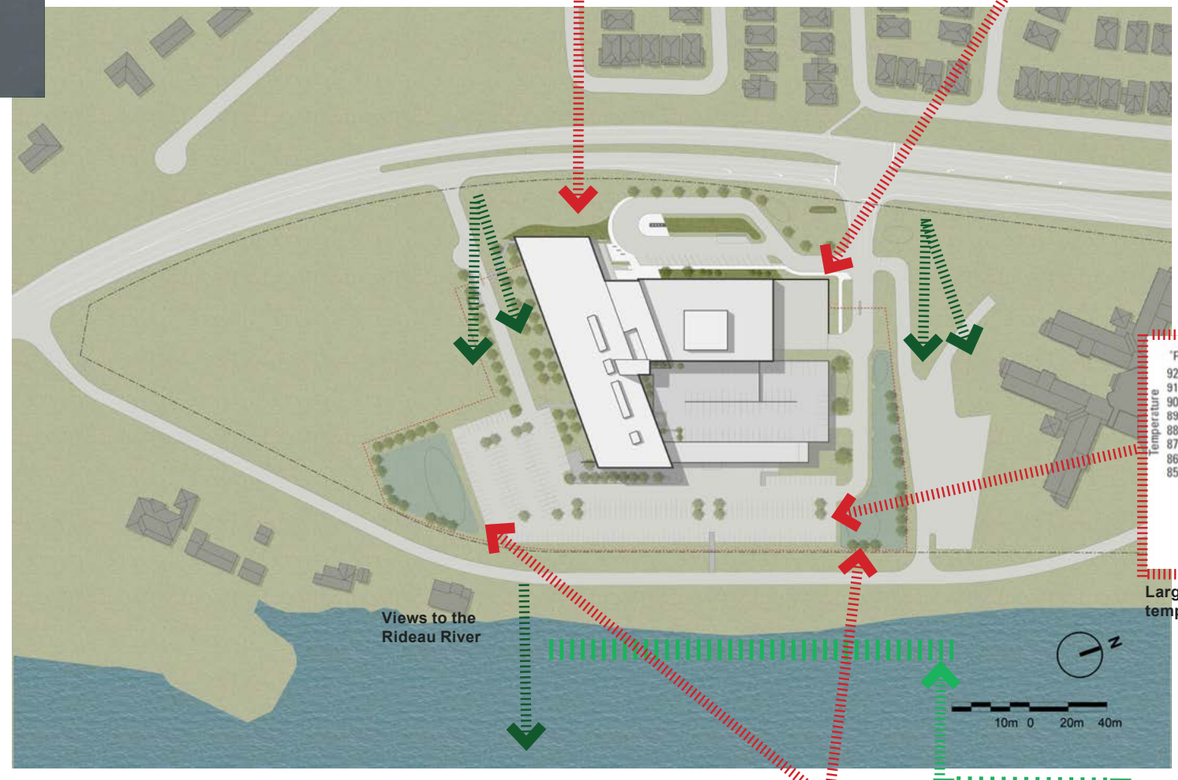
A number of young trees exist in a nursery-like condition on the eastern edge of the central portion of the site and could be transplanted as part of the site development.

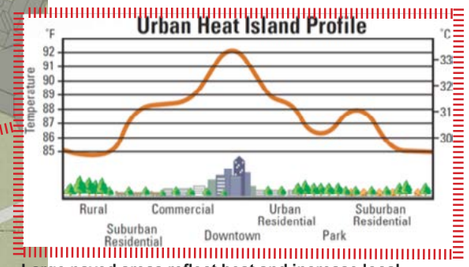
Traffic noise is readily apparent across the site, which buffers residences to the south and east. Lodge Road separates the site from the Rideau River.

Landscape features can directly contribute to site security



Landscape design to respect principles of CPTED





Large paved areas reflect heat and increase local temperatures

Stormwater runoff can be controlled by the use of superficial ponds and swales, which also increase the potential diversity of habitats for both flora and fauna

Rideau River riparian zone/ buffer

LANDSCAPE

6 APPENDIX

Draft Integrated Environmental Review Statement

Prepared by Golder Associated Ltd. dated May 2019

REPORT

Draft Integrated Environmental Review Statement

Ottawa Police Services - South Facility

Submitted to:

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May 2019

Distribution List

1 e-copy - Ottawa Police Services

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1 e-copy - Golder Associates Ltd.

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APPENDICES

1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by Ottawa Police Service (OPS) to prepare an Integrated Environmental Review Statement (IERS) for the proposed Ottawa Police Services South Facility project, to be located at 3505 Prince of Wales Drive, Ottawa, Ontario (the Site) (Figure 1).

The proposed project will include **...Please insert brief one paragraph summary...**(Drawing A-021). Further details about the proposed development are included in Section 3.0.

1.1 Integrated Environmental Review Statement

The requirements for an IERS are outlined in Section 4.7.1 of the Official Plan Consolidation (OP) with amendments for the City of Ottawa (the City), which states (City of Ottawa, 2003):

> **Policy 4.7.1 (1)**
>
> *Subdivision, and site plan and rezoning applications requiring an Environmental Impact Statement, Tree Conservation Report or landform feature assessment, will be accompanied by an integrated environmental review statement demonstrating how all the studies in support of the application influence the design of the development with respect to effects on the environment and compliance with the appropriate policies of Section 4. The appropriate policies and studies will be identified through pre-consultation at the beginning of the design and review process.*
>
> **Policy 4.7.1 (2)**
>
> *The integrated environmental review statement will provide:*
>
> a) *A brief overview of the results of individual technical studies and other relevant environmental background material;*
>
> b) *A graphic illustration, such as an air photo, summarizing the spatial features and functions (e.g. natural vegetation, watercourses, significant slopes or landform features, recharge/infiltration areas) as identified in the individual studies;*
>
> c) *A summary of the potential environmental concerns raised, the scope of environmental interactions between studies, and the total package of mitigation measures, including any required development conditions and monitoring, as recommended in individual studies;*
>
> d) *A statement with respect to how the recommendations of the support studies and the design with nature approach have influenced the design of the development;*
>
> e) *An indication that the statement has been reviewed and concurred with by the individual sub consultants involved in the design team and technical studies; and,*
>
> f) *A description of how the proposed development maximizes the energy efficiency of development and to promote sustainable design that reduces consumption, energy use and carbon footprint of the built environment. A sustainable design checklist will be prepared to assist in this description* (i.e., Green Checklist included in the Site Plan Control Application).

As per Section 4.7 of the OP, land development must follow the City's objectives related to forest cover, water quality, surface water flows, fish and wildlife habitat, hydrological areas and resource management. As well, development must be based on design with nature principles. Table 1 below presents the range of environmental studies required by the City as part of a development application, outlines when they are required and summaries the studies conducted by OPS for the proposed development of the Site.

Table 1: Studies Completed in Support of the Proposed Development in Accordance with Ottawa OP Section 4.7

Ottawa OP Section	Studies/Assessments Required	Where Required	Studies Conducted for the Proposed Development
4.7.1	Integrated Environmental Review to assess development applications	Subdivision, site plan and rezoning applications requiring an Environmental Impact Statement, or Tree Retention and Protection Plan or Landscape Feature Assessment.	This report
4.7.2	Tree Conservation Report	All plans of subdivision, plans of condominiums, and site plans.	Tree Conservation Report (Golder March 2018b; Lashley 2018)
4.7.3	Determine appropriate setback from rivers, lakes, streams and other surface and water features	Adjacent to rivers, lakes, streams, and other surface water features.	Geotechnical Investigation (Golder May 2017; 2019) and Slope Stability Assessment (Golder, January 2018)
4.7.3	Erosion and sediment control plan	All development proposals.	Stormwater Management Report (Novatech, 2019b)
4.7.3	Demonstrate no negative impact on fish habitat; if there is impact - review by Department of Fisheries and Oceans (or the delegated authority)	In or adjacent to fish habitat.	Environmental Impact Statement (EIS; Golder, March 2018a)
4.7.4	Environmental Impact Statement to demonstrate no impact on the habitat of endangered and threatened species or on its ecological functions	On lands adjacent to habitat of endangered and threatened species.	EIS (Golder, March 2018a)
4.7.5	Groundwater impact assessment	Groundwater resources areas (to be defined in future studies).	Well Water Impact Study (Golder, TBD)
4.7.5	Wellhead protection study	Wellhead Protection Area designated on Schedule K.	Not applicable as per Schedule K of the OP
4.7.6	Stormwater site management plans	Site plan, subdivision and zoning applications.	Stormwater Management Report (Novatech, 2019b)

Ottawa OP Section	Studies/Assessments Required	Where Required	Studies Conducted for the Proposed Development
4.7.7	Assessment of landform feature / environmental impact statement to demonstrate no negative impact on earth science areas of natural and scientific interest	Geomorphic, geological and landform features / earth science ANSIs (designated on Schedule K).	Not applicable as per Schedule K of the OP
4.7.8	Environmental Impact Statement	On or adjacent to elements of the natural heritage system, as required in Section 2.4.2, or to designated Significant Wetlands, Natural Environment Areas, Urban Natural Features and Rural Natural Features as required in Sections 3.2.1 through 3.2.4.	EIS (Golder, March 2018a)

Additional studies were completed for the proposed project, as discussed throughout the text of this report.

2.0 DESCRIPTION OF THE SITE

The following site description incorporates language and terminology directly from the referenced technical reports, to accurately describe the Site as observed by the individual sub consultants.

The Site consists of 6.1 ha of open and semi-treed habitats. The Site is bounded on the west by Prince of Wales Drive, to the south by the intersection of Lodge Road and Prince of Wales Drive, to the east by Lodge Road, and Carleton Lodge Retirement Residence to the north. The Rideau River is located immediately east of Lodge Road, along with some private residences.

The Site is in the Lower Rideau River Subwatershed, and the Hogs Back Catchment Area (Golder, 2018). This catchment drains an area of 38 km^2 and is highly developed through residential and agricultural uses. Forest cover in this catchment is 13%. There are no surface water features on the Site, but the Rideau River is located within 30 m of the eastern edge of the Site. According to the RVCA (2012), water quality in this stretch of the Rideau River is fair to good based on several indicators. Fish sampling in this area has identified a warm/cool water recreational and baitfish fishery with forty species encountered (RVCA, 2012).

The topography of the existing Site drops approximately 6m from Prince of Wales Drive along the western limit of the property to Lodge Road to the east (Novatech, 2019a). There is also a relatively steep vegetated slope adjacent to the Rideau River east of the Site. Under existing conditions, the Site generally sheet drains from west to east towards the roadside ditch along Lodge Road (Novatech, 2019b).

No significant wetlands, significant woodlands, or Areas of Natural and Scientific Interest (ANSI) are present on, or within proximity of the Site (Golder, March 2018a). The banks of the Rideau River, adjacent to the Site, are considered significant valleylands and the river itself represents fish habitat (Golder, March 2018a).

Several endangered or threatened species were recorded or presumed present at the Site (Golder, March 2018a). Barn swallow (*Hirundo rustica*), tri-coloured bat (*Perimyotis subflavus*) and Myotis species (*Myotis* spp.) were recorded foraging in the airspace above the Site, but were not determined to be using the Site itself. Blanding's turtle (*Emydoidea blandingii*) may utilize the Site given the proximity of the Site to the Rideau River. The Site may also provide suitable habitat for three species of conservation concern: monarch (*Danaus plexippus*), northern map turtle (*Graptemys geographica*), and snapping turtle (*Chelydra serpentina*).

The following figures provide additional information on the Site:

- **Figure 1: Key Plan** depicts the location of the Site.
- **Figure 2: Environmental Features** depicts the ELC delineated vegetation communities and any significant natural heritage features present on the Site or in the vicinity.

3.0 PROPOSED UNDERTAKING

Please insert detailed description of the project. Please refer to Drawing A-021F – Site Plan.

4.0 SUMMARY OF TECHNICAL STUDIES

This section provides an overview of the technical studies that were completed in support of the development of the Site. These studies fall into three groups: engineering studies, planning studies and environmental studies.

A summary describing the existing environmental conditions and identified potential environmental effects related to the proposed development is presented for each study, as required in Section 4.7 of the OP. Each summary uses the exact language and wording in the technical study when possible. The studies required for this project were determined through consultation with the City.

4.1 Engineering Studies

4.1.1 Site Servicing Report

A Draft Site Servicing Report was prepared for the project by Novatech (May 2019a), which expanded upon the Site Serviceability Study (Parsons, 2017). The objective of the site servicing design is to provide proper sewage outlets, a suitable domestic water supply and to ensure that appropriate fire protection is provided for the proposed development. The servicing criteria, the expected sewage flows, and water demands are to conform to the requirements of the City municipal design guidelines for sewer and water distribution systems.

The proposed development will be serviced by a private on-site sanitary pump station and forcemain. The outlet will be the municipal sanitary sewer in Willow Creek Circle on the west side of Prince of Wales Drive. The sanitary sewage system will be sized to service possible future development to the south.

The proposed development will be serviced by a looped 200mm diameter watermain network with connections to the municipal watermain in Willow Creek Circle and the existing 200mm diameter watermain currently supplying water to the Carleton Lodge. On-site hydrants will provide the necessary water for fire-fighting purposes.

The proposed grading and drainage design take advantage of the existing topography by sheet draining runoff from the landscaped areas and internal roadways into grass swales and/or directly into the dry ponds, thus reducing the need to pipe all of the stormwater runoff.

The proposed stormwater management design will include both on-site stormwater quantity and quality control, prior to releasing flows from the Site. Stormwater management at the Site is discussed in further detail in Section 4.1.2.

It is anticipated that a Ministry of the Environment, Conservation and Parks (MECP) Environmental Compliance Approval (ECA) will be required for both the proposed on-site sanitary pump station and forcemain and the on-site stormwater management system.

Mitigation recommendations made in this report are presented in Section 5.0.

4.1.2 Stormwater Management / Erosion and Sediment Control Plan

A Stormwater Management Report was prepared for the project by Novatech (May 2019b).

Under existing conditions, the Site generally sheet drains from west to east towards the roadside ditch along Lodge Road. The existing grade drops approximately 6.0m from Prince of Wales Drive down to Lodge Road. Stormwater runoff from the Lodge Road roadside ditches outlets to the Rideau River via an existing 750mm dia. culvert located south of the Carleton Lodge, approximately 115m north of the Site. There are four existing major drainage outlets for the Site (Outlets 'A' through 'D').

On-site stormwater management, including both stormwater quantity and water quality control measures will be provided in accordance with the requirements of the City, RVCA and MECP. The stormwater management storage system consists of two dry ponds and underground arch-type Stormtech Chambers (Model SC-310), which link the ponds into a single storage system. The outlet structure will be located at the outlet of the north dry pond, and will outlet to the roadside ditch along Lodge Road and ultimately to the Rideau River. A 5m wide overflow weir will be located along the east side of the north dry pond. During the 100-year storm event, flows will overtop the weir.

Stormwater quantity control will be achieved by the construction of the dry ponds and the use of an inlet control device (ICD) within the storm sewer outlet structure. Post-development flows will be over-controlled to less than the pre-development conditions.

The total post-development flow directed to Outlet 'A' will increase by approximately 65.1 L/s because of the proposed roadside ditch modifications along Prince of Wales Drive. This increase is minimal when compared to the capacity of Culvert No. 1.

The total post-development flow directed to Outlet 'B' will increase by approximately 103.0 L/s because of the proposed roadside ditch modifications along Prince of Wales Drive. This increase represents an increase of approximately 3% when compared to current conditions.

The total post-development flow directed to Outlet 'C' will decrease by approximately 26.7 L/s because of the proposed roadside ditch modifications along Prince of Wales Drive.

The total post-development flow directed to Outlet 'D' will decrease by as much as 360 L/s during the 100-year event and by approximately 72.3 L/s during the 5-year event. This represents a significant improvement when compared to current conditions.

Stormwater quality control will be achieved using a treatment train of grass bottom drainage swales, flat-bottom dry ponds and an oil and grit separator (OGS) type treatment unit. The shallow flat grass swales and flat-bottom dry ponds on-site will provide additional stormwater quality control by reducing flow velocities and thus promoting infiltration and the removal of suspended solids. An oil / grit separator unit (Vortechs 4000) will provide an 'Enhanced' Level of Protection for water quality control prior to discharging stormwater from the developed portion of the Site into the roadside ditch along Lodge Road and ultimately into the Rideau River.

To mitigate erosion and to prevent sediment from entering the storm drainage system, temporary erosion and sediment control measures will be implemented on-site during construction in accordance with the "Guidelines on Erosion and Sediment Control for Urban Construction Sites" (Ontario, May 1987). These measures are provided in Section 5.0.

4.1.3 Geotechnical Study / Slope Stability Study

Geotechnical investigations and a slope stability study were undertaken for the Site by Golder (May 2017; January 2018; April 2019). The ground surface at the Site gently slopes down to the east, with ground surface elevations ranging from about 89 metres at Prince of Wales Drive to about 83 metres at the Rideau River. In general, the subsurface conditions on this Site consist of a surficial layer of topsoil/fill, overlying a thick deposit of sensitive silty clay underlain by glacial till. The upper portion of the silty clay (or the entire deposit at some locations) has been weathered to a grey brown crust. The weathered zone is of a very stiff consistency and extends to depths ranging from about 4 to 7.6 metres (elevations ranging from about 77.6 to 85.0 metres) below the existing ground surface. Where present, the sensitive silty clay below the depth of weathering is grey in colour and of a firm to very stiff consistency. The silty clay deposit is underlain by a thick deposit of glacial till at depths ranging from about 4 to 15.5 metres below the ground surface (elevations ranging from about 69.5 to 85.0 metres). Where glacial till was

fully penetrated, bedrock was encountered (and proven) at depths ranging from about 28 to 35.3 metres (elevations ranging from about 51.8 to 56.9 metres). Measured groundwater levels ranged from about 0.3 to 3.2 metres below ground surface (elevations ranging from about 82.5 to 87.2 metres). The groundwater levels were measured in February 2017 and January 2019.

The lands along the eastern part of the Site are considered hazard lands since they do not meet the minimum standard slope stability requirements. Subsequently, a minimum set-back distance of 17 metres was suggested for the proposed development (in accordance with the MNR guidelines) from the crest of the slope along Rideau River. The set-back distance (i.e., the Limit of Hazard Lands), includes a "Stable Slope Allowance" to protect the proposed development from being impacted by a slope failure, and an "Erosion Allowance", to account for future movement of the slope toe in the direction of the proposed development as a result of bank erosion (assuming that erosion protection will not be provided).

Overall, from a geotechnical perspective, the Site is considered suitable for the proposed development with the implementation of the geotechnical engineering guidelines and recommendations outlined in the referred Geotechnical Investigation Reports (Golder, May 2017; January 2018; April 2019). These measures are provided in Section 5.0.

4.1.4 Water Well Impact Study

This report is currently being prepared by Golder Associates Ltd. and was not available at the time of authoring this report.

4.1.5 Traffic and Environmental Noise Study

A Traffic and Traffic and Environmental Noise Study was prepared for the project (SOAA Inc., 2019) and had two objectives to assess:

1) The environmental noise impact from the mechanical equipment located at the new proposed building to be located at 3505 Prince of Wales Drive in Ottawa, Ontario to other noise sensitive areas in the surrounding area to meet the City Noise Bylaw limit of 50 dBA during the day and the City Environmental Noise Control Guidelines (ENCG) limit of 45 dBA at night; and,

2) The traffic noise impact on the exterior envelope of the building from nearby traffic noise sources in order to determine whether the current exterior assemblies for walls and windows are acceptable to meet ENCG maximum road noise levels for indoor areas and propose recommendations to improve the sound isolation if necessary. Both analyses are being completed at an early stage of design and therefore certain assumptions regarding equipment and partition assemblies must be made and may require updates at a later stage of design.

Environmental Noise Impact

The sound pressure levels were reviewed in a 3D acoustical model of the new mechanical and electrical equipment at the new building to be located at the Site. It was found that given the mechanical equipment layout, the noise levels do not exceed the City Environmental Noise Control Guidelines limit of 50 dBA during the day or 45 dBA at night to neighbouring properties. It should be noted however that equipment selections are still being finalized and that representative data was used for mechanical intake and exhaust louvres and the cooling tower to be able to obtain an idea of potential noise issues to the surrounding area. Provided that noise levels discussed in the report are not exceeded for mechanical equipment, no noise issues are anticipated however once equipment selections are finalized, it is recommended that the calculations are revised to ensure this is still the case.

Traffic Noise Impact

The traffic noise from Prince of Wales Drive near the new building was also analyzed. It was found that the traffic noise from this source was greater than 55 dBA at the nearest plane of window point of the development and warranted an AIF analysis of the exterior building components. This analysis showed that the planned exterior wall assembly for the boardroom and lobby was acceptable and minimum glazing requirements were provided in the Traffic and Environmental Noise Study (SOAA Inc., 2019). No changes are required in order to meet City ENCG 2016 indoor noise levels.

Mitigation recommendations made in these reports are presented in Section 5.0.

4.2 Planning Studies

4.2.1 Cultural Heritage Impact Statement

Although the Site is vacant, the City required that a Cultural Heritage Impact Statement (CHIS) be completed prior to site plan approval since the property is adjacent to the Rideau Canal and Rideau River (a UNESCO World Heritage Site, National Historic Site of Canada and Canadian Heritage River) The CHIS was prepared for the Site by Golder (December 2017).

Following guidelines provided by the Ministry of Tourism, Culture and Sport (MTCS), the City, and Canada's Historic Places *Standards and Guidelines for the Conservation of Historic Places in Canada* (2010), the Cultural Heritage Impact Statement identifies the heritage policies applicable to the new development, summarizes the geography and history of the area around the proposed development, and provides description the property's landscape features. Based on this understanding of the property, the potential adverse impacts resulting from the proposed development on the adjacent Rideau Canal/Rideau River were assessed, and future conservation actions recommended.

The CHIS concluded that:

- There is low risk that the proposed development will adversely impact the character-defining elements of the Rideau Canal.
- The proposed development could have a beneficial impact for appreciation of, and connectivity to, the Canal through the provision of new views of the waterway from buildings on the Site.

Mitigation recommendations made in this report are presented in Section 5.0.

4.2.2 Stage 1 and 2 Archaeological Resources Assessment

A combined Stage 1 and Stage 2 Archaeological Resources Assessment report was prepared for the Site (Golder, December 2016). The Stage 1 study included a review of historic maps as well as relevant archaeological, historical and environmental documentation. Previous archaeological assessments in the area were also consulted and the MTCS database, Past Portal was queried.

From the data gathered for the Stage 1 portion of this report it was determined that the study area had archaeological potential and that a Stage 2 assessment would be necessary. Archaeological potential was determined due to the study area's proximity to the Rideau River, as well as the historic Lodge Road. The City's Archaeological Resource Potential Mapping Study (ASI & GII), completed in 1999, also identified archaeological potential for the study area.

The Stage 2 assessment took place on September 28th and 29th, 2016. The assessment consisted of test pits being hand excavated on a five-meter grid across the study area, with the contents of each test pit screened through mesh, and then examined. There were no archaeological resources of cultural heritage significance identified in the assessment.

This assessment has provided the basis for the following recommendation:

- That no additional archaeological assessment of the property is required.

No recommendations relating to remediation or mitigation were recommended as part of this report.

4.3 Environmental Studies

4.3.1 Phase I and II Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) was prepared for the Site in accordance with Ontario Regulation (O.Reg.) 153/04 (as amended) in September 2016 to assess the likelihood of soil and/or groundwater contamination resulting from historic or present activities at the Site (Golder, January 2017). The Site at the time of the investigation was vacant land overgrown with vegetation and trees, but was historically used for agriculture and a retirement home building (Carleton Lodge Retirement Home). Based on the information collected as part of the Phase One ESA, one Area of Potential Environmental Concern (APEC) was identified on the Site: a heating oil underground storage tank (UST) associated with the original Carleton Lodge retirement home. The exact location of the UST was unknown at the time of the Phase I ESA. Given that an APEC was identified on the Site during the Phase I ESA, a Phase II ESA was recommended to be carried out to investigate the potential for subsurface impacts associated with the heating oil UST.

A Phase II ESA investigation in accordance with Ontario Regulation (O.Reg.) 153/04 (as amended) was completed between November 2, 2016 and December 7, 2016 (Golder, March 2017). The Phase II ESA investigated the APEC identified in the Phase I ESA. A geophysical survey was completed to attempt to locate the precise location of the UST, and several large anomalies which correlated with the reported former UST location were found. Three boreholes, each outfitted as monitoring wells, were advanced in the vicinity of the APEC, and soil and groundwater testing was conducted. The analytical results from the soil and groundwater sampling and analysis program indicated that the reported concentrations of the contaminants of potential concern in all soil and groundwater samples were below the applicable site condition standards (MECP Table 2) as of the certification date (December 7, 2016).

No recommendations relating to remediation or mitigation were recommended as part of these reports.

4.3.2 Tree Conservation Report

The clearing of the Site in advance of the placement of infrastructure, grading and development of the Site will result in the loss of some trees. Many of the trees and shrubs on the Site are either planted or spread from historic planting on, and in the vicinity of, the Site (Golder, March 2018b). A total of 69 trees and tree groupings were identified on the Site, 18 of which will be retained post-development of the Site (Lashley, 2018). The trees and tree groupings that must be removed are in direct conflict with site infrastructure, underground utilities, new parking lots, and a new building. Site grading will also require the removal of several trees.

Some trees and/or tree groupings have the potential to be transplanted to new site features during construction. Further, 102 trees are recommended for planting at the Site, the majority of which are native to Ontario (e.g., native maples, oaks, birch, hickory, dogwood and serviceberry).

Mitigation recommendations made in these reports are presented in Section 5.0.

4.3.3 Environmental Impact Statement

Development of the Site could result in the removal of habitat, changes in landform or features, loss of biodiversity, changes to surface flows and groundwater regimes, as well as direct and indirect impacts to natural features (Golder, March 2018a).

As noted in Section 2.0, two plant communities were delineated on the Site as part of the ELC assessment. These communities are shown on Figure 2 and described in Table 2. All of the plant communities on the Site are typical in the region and for the conditions on the Site, and none have been assigned provincial rarity ranks.

Table 2: Plant Communities on the Site

Plant Community Type	Description
CUM1-1 Mixed Cultural Meadow	This community included much of the western and northern portions of the Site. It was a mix of grasses and forbs such as smooth brome (*Bromus inermis*) and Canada goldenrod (*Solidago canadensis*). There were small low-lying areas where moisture tolerant species such as reed canary grass (*Phalaris arundinacea*) and purple loosestrife (*Lythrum salicaria*) persisted.
CUW – Deciduous Cultural Woodland	This community included much of the eastern portion of the Site, and a small patch on the western side. It was a mix of dense thicket areas interspersed with small stands and scattered immature to semi-mature trees. There was a diversity of tree and shrub species such as sugar maple (*Acer saccharum*), green ash (*Fraxinus pennsylvanica*), Tartarian honeysuckle (*Lonicera tatarica*), and red raspberry (*Rubus idaeus*). Several of the tree and shrub species were planted on the Site, and have since become naturalized. Snags, cavity trees, and downed woody debris were rare.

Generally, there was a mix of native and alien species in all plant communities, and several species were likely planted and introduced onto the Site. No SAR, provincially rare, or regionally significant plants or plant communities were observed on the Site. The wildlife observed at the Site are consistent with those typically present in an urban or semi-urban setting. Endangered and threatened wildlife observed or recorded foraging in the airspace over the Site included barn swallow, Myotis species and tricolored bat, and it was determined that Blanding's turtle has potential to utilize the Site. Three species of conservation concern were identified as having potential to occur within the study area: monarch, northern map turtle, and snapping turtle.

There are no surface water features on the Site. The Rideau River lies within 30 m of the eastern boundary of the Site. According to the RVCA (2012), water quality in this stretch of the Rideau River is fair to good based on several indicators. Fish sampling in this area has identified a warm/cool water recreational and baitfish fishery with forty species encountered (RVCA, 2012). No fish SAR have been encountered in this section of the river.

No significant woodlands, wetlands or ANSI are present at the Site. The adjacent banks of the Rideau River represent significant valleylands and a natural linkage, and the Rideau River itself represents fish habitat (Figure 2).

The significant natural features and functions identified on and directly adjacent to the Site included potential habitat of endangered and threatened species (Blanding's turtle), and the presence the adjacent Rideau River (significant valleyland and fish habitat). Based on the various mitigation measures discussed in this report (see Section 5.0), no net impacts to these significant natural features or their functions are anticipated to result from the proposed development. This conclusion as it relates to Blanding's turtle at the Site was confirmed through submission of an Information Gathering Form to the Ministry of Natural Resources and Forestry (MNRF) (MNRF, March 2018).

Mitigation recommendations made in this report are presented in Section 5.0.

5.0 POTENTIAL EFFECTS, MITIGATION MEASURES AND IMPLEMENTATION OF COMMITMENTS

The various studies summarized in Section 4.0 have described existing environmental conditions and identified potential environmental effects related to the proposed development.

5.1 Mitigation Measures and Implementation of Commitments

Table 3 below summarizes the specific recommendations and commitments from the support studies and presents how they will be implemented in the project. The items are presented by potential environmental concern.

Table 3: Summary of Recommendations, Mitigation Measures and Monitoring Commitments

No.	Potential Environmental Concern	Description of the Recommendation, Mitigation Measure or Commitment	Implementation Stage
1	Air and Noise Quality	■ For emergency equipment (generators) silencers for the gas exhaust as well as additional mitigation measures for the intake and exhaust are recommended. Provided that these recommendations are followed, the sound levels at each POR will be below the 55 dBA MOE limit for emergency equipment. (SOAA Inc., 2019)	**TEAM – Please fill out this column by identifying if the commitment is ongoing, underway, implemented, etc. e.g. "Ongoing – Recommendation carried forward into contracting documents"**
2	Geology and Soil	■ Include a minimum set-back distance of 17 metres from the crest of the slope along Rideau River to the edge of the proposed development (Golder, January 2018).	
3	Geology and Soil	■ The silty clay on this Site is potentially sensitive to water depletion by trees of high water demand during periods of dry weather (Golder, May 2017). Trees which have a high water demand should not be planted closer to structures than the ultimate height of the tree. This restriction could potentially be relaxed if it can be relaxed if it can be shown that the soils have a low shrinkage potential.	
4	Groundwater	■ The groundwater level monitoring devices installed at the Site will require decommissioning at the time of construction in accordance with Ontario Regulation 903 (Golder, May 2017).	

No.	Potential Environmental Concern	Description of the Recommendation, Mitigation Measure or Commitment	Implementation Stage
5	Groundwater	■ Based on the groundwater information collected during the investigation, it is considered unlikely that a PTTW would be required during construction for this project (Golder, May 2017). ■ The requirement for registration (i.e., if more than 50,000 litres per day is being pumped) can be assessed at the time of construction.	
6	Surface Water and Aquatic Ecology	■ Regular inspection and maintenance of the on-site storm sewer system, including the ICD, OGS treatment unit and dry ponds is recommended to ensure that the storm drainage system is clean and operational (Novatech, May 2019a).	
7	Surface Water and Aquatic Ecology	■ Temporary Sediment and Erosion Control Measures (Novatech, May 2019b): ■ Filter bags / catchbasin inserts (sediment sacks) will be placed under the grates of nearby catchbasins and manholes and they will remain in place until vegetation has been established and construction is completed. ■ Silt fencing will be placed per OPSS 577 and OPSD 219.110 along the surrounding construction limits. ■ Mud mats will be installed at the Site entrances. ■ Street sweeping, and cleaning will be performed, as required, to suppress dust and to provide safe and clean roadways adjacent to the construction site. ■ On-site dewatering is to be directed to a sediment trap and/or gravel splash pad and discharged safely to an approved outlet as directed by the engineer. ■ Temporary rock flow check dams as per OPSD 219.211 are to be installed as indicated on the plans. ■ The temporary erosion and sediment control measures will be implemented prior to construction and will remain in place during all phases of construction. ■ Regular inspection and maintenance of the erosion control measures will be undertaken.	
8	Surface Water and Aquatic Ecology	■ Permanent Sediment and Erosion Control Measures (Novatech, May 2019b): ■ Shallow flat-bottom grass drainage swales and dry ponds. ■ Rip-rap will be provided at the storm inlets, outfall and overflow weir per OPSD 810.010. ■ A Vortechs type Oil/Grit Separator will be installed to provide water quality control prior to releasing stormwater from the Site.	

No.	Potential Environmental Concern	Description of the Recommendation, Mitigation Measure or Commitment	Implementation Stage
9	Surface Water and Aquatic Ecology	■ Best practices for working near water (DFO, 2017 as referenced in Golder, March 2018a) should be incorporated into the construction plan, including but not limited to: ▪ Ensure that machinery arrives on-site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds. ▪ Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water. ▪ Install effective erosion and sediment control measures before starting work to prevent sediment from entering the water body. ▪ Implement measures for managing water flowing onto the Site, as well as water being pumped/diverted from the Site such that sediment is filtered out prior to the water entering a waterbody. ▪ Regular inspection and maintenance of erosion and sediment control measures and structures during the course of construction, and repairs as necessary.	
10	Terrestrial Ecology	■ The following protection measures must be implemented for retained trees, both on-site and on adjacent sites, prior to any tree removal or site works. Protection measures are to be maintained for the duration of construction (Golder, March 2018b; Lashley, 2019): ▪ Under the guidance of a landscape architect, erect a fence at the critical root zone (CRZ) of trees where the CRZ is established as being 10 centimetres from the trunk of a tree for every centimetre of trunk diameter at breast height. The CRZ is calculated as DBH x 10cm; ▪ When trees to be removed overlap with the CRZ of trees to be preserved: cut roots at the edge of the CRZ and grind down stumps after tree removals, do not pull out stumps. Ensure there is not root pulling or disturbance of the ground within the CRZ; ▪ If roots must be cut, roots 20mm or larger should be cut at right angles with clean, sharp horticultural tools without tearing, crushing, or pulling. Refer to City of Ottawa Specification S.P. F-8011 Tree Protection, Excavation of Root Zone;	

No.	Potential Environmental Concern	Description of the Recommendation, Mitigation Measure or Commitment	Implementation Stage
		▪ Hand work is preferred within the CRZ, and use of machinery in this zone should be supervised by an arborist; ▪ Do not place any material or equipment within the CRZ of any tree; ▪ Do not attach any signs, notices or posters to any tree; ▪ Do not disturb, raise or lower the existing grade within the CRZ without approval; ▪ Only tunnel or bore when digging within the CRZ of a tree; ▪ Do not damage the root system, trunk, or branches of any tree; and, ▪ Ensure that exhaust fumes from all equipment are directed away from any tree canopy.	
11	Terrestrial Ecology	■ Wherever tree planting is to take place on the Site, first consideration should be given to the native species that occur in the local landscape, such as: sugar maple (*Acer Saccharum*), hackberry (*Celtis occidentalis*), and red oak (*Quercus macrocarpa*). Cultivars of native species designed for urban conditions can be used as deemed suitable. Alien non-invasive species and cultivars should only be used where it is not reasonable to use native species or native cultivars. Alien invasive species such as Norway maple (*Acer platanoides*) or lilac species (*Syringa* spp.) should not be used in any circumstance. (Golder, March 2018b).	
12	Terrestrial Ecology	■ Transplant trees from within the construction envelope to areas of the Site that will remain undisturbed, if feasible (Lashley, 2019)	
13	Terrestrial Ecology	■ Clearly demarcate the construction envelope. No storing or disposal of materials outside of the construction envelope (Golder, March 2018a)	
14	Terrestrial Ecology (Wildlife)	■ Install turtle exclusion fencing around the construction area in early April prior to the commencement of construction, and in accordance with the "Species at Risk Branch Best Practices Technical Note: Reptile and Amphibian Exclusion Fencing" (MNRF, 2013). Remove exclusion fencing at the completion of the project (Golder, March 2018a)	
15	Terrestrial Ecology (Wildlife)	■ Provide a Worker Awareness Package to all construction staff to educate them on identifying Blanding's turtle and the appropriate response in case of encounter (Golder, March 2018a)	

No.	Potential Environmental Concern	Description of the Recommendation, Mitigation Measure or Commitment	Implementation Stage
16	Terrestrial Ecology (Wildlife)	■ Daily sweeps to ensure no SAR present at the work site during the activity. If a SAR is encountered, work will cease immediately and a biologist/or environmental monitor will be called on-site. Work will cease until the species has left the Site and/or the biologist has protected the species from harm/harassment (this will be done without causing harm or harassment in the process) and the MNRF will be notified (Golder, March 2018a)	
17	Terrestrial Ecology (Wildlife)	■ Wildlife should be allowed the opportunity to leave the construction area safely by ensuring gaps in construction boundary fencing are maintained until vegetation clearing is complete (Golder, March 2018a)	
18	Terrestrial Ecology (Wildlife)	■ No removal of vegetation during the active season for breeding birds (April 1 – August 15) (Golder, March 2018a)	
19	Terrestrial Ecology (Wildlife)	■ The City of Ottawa Protocol for Wildlife Protection during Construction (Ottawa, 2015b) must be reviewed by the contractor and adhered to (Golder, March 2018a)	
20	Cultural Heritage	■ The Rideau Canal and the natural strip of land between Lodge Road and the Rideau Canal should be clearly marked on project mapping and communicated to all project personnel for avoidance during construction phases of the project (Golder, December 2017)	

6.0 INTEGRATION OF DESIGN WITH NATURE PRINCIPLES

As outlined in Section 4.7 of the OP (City of Ottawa, 2003), an IERS should describe how the development has incorporated design with nature principles and how it supports the following environmental objectives:

- Increasing forest cover across the city;
- Maintaining and improving water quality;
- Maintaining base flows and reducing peak flows in surface water;
- Protecting and improving the habitat for fish and wildlife in stream corridors;
- Protecting springs, recharge areas, headwater wetlands and other hydrological areas; and,
- Managing resources by using low-maintenance, natural solutions.

Design with nature principles are defined by the City (City of Ottawa, 2003) as follows:

"An approach that utilizes natural methods during site design to work with the terrestrial, aquatic, and biological characteristics of the Site and the relationship between them. These measures may serve to reduce the reliance on technological solutions, which may be expensive, energy- or management-intensive, and less environmentally sensitive. This may include:

- Retention of natural vegetation on slopes to reduce erosion;
- Conservation of as many existing trees as feasible;
- Use of appropriate natural infiltration techniques on-site to reduce the need for stormwater management ponds;
- Orientation of streets to maximise opportunities for passive solar heating and reflection of natural contours; and,
- Protection of natural stream corridors and incorporation of natural features into open spaces."

The proposed development responds to these principles and objectives as follows:

MORIYAMA & TESHIMA ARCHITECTS to insert

7.0 INTEGRATION OF ENERGY EFFICIENCY AND SUSTAINABLE DESIGN

As per Section 4.7.1 of the OP, an IERS is required to consider Objective 7 of Section 2.5.1 of the OP and the associated principles. Objective 7 and its associated principles state:

Objective 7

"To maximize energy-efficiency and promote sustainable design to reduce the resource consumption, energy use, and carbon footprint of the built environment."

Principles

"Design should:

- Orient development to maximize opportunities for passive solar gain, natural ventilation, and use energy efficient development forms and building measures.
- Consider use of renewable energy and alternative energy systems.
- Maximize opportunities for sustainable transportation modes (walking, cycling, transit facilities and connections).
- Reduce hard surfaces and maximize landscaping and site permeability on-site.
- Consider use of innovative green spaces such as green roofs, and measures that will reduce the urban heat island effect.
- Maximize re-use and recycling of resources and materials.
- Utilize green building technologies and rating systems such as Leadership in Energy and Environmental Design (LEED).
- Utilize advanced water conservation and efficiency measures."

The proposed development includes efficient and sustainable design principles as follows:

MORRISON HERSHFIELD (Chris Yates) to insert

The sustainable design checklist (now known as the green checklist) was considered and the responses are provided in Table 4.

Table 4: City of Ottawa Site Plan Control Application Green Checklist

ID	Question	Response
1a	Does the project proponent intent to seek LEED certification for this project?	Yes
1b	If yes, which level of LEED certification is the project intended or designed to meet?	Certified
1c	Will this project be seeking certification under another third-party green building rating system?	No
2	Will this project include renewable energy facilities and pursue a FIT or MicroFIT contract under the Ontario Power Authority's Feed-in Tarrif program?	No
3	Which features is the project designed to incorporate?	Bicycle parking in excess of the minimum required by the Zoning By-law

8.0 CONCURRENCE OF STUDY TEAM

This IERS has been reviewed and concurred with by the individual sub consultants involved in the design team and technical studies, as well as by Ottawa Police Services. Signatures of individuals on the sub consultants are provided in Appendix A.

9.0 CLOSURE

We trust this report satisfies your current requirements. If you have any questions regarding this report please contact the undersigned.

Golder Associates Ltd.

Gwendolyn Weeks, H.B.Sc.Env.
Senior Ecologist

Michael Snow, P.Eng., ing., M.A.S.C.
Principal, Senior Geotechnical Engineer

GAW/
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APPENDIX A

Concurrence of the Study Team

DRAFT

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Ottawa Police Services

I have reviewed and concur with the content and recommendations of this IERS.

Date: _____

Signature: _____

Pauline Dicaire, Senior Project Manager Capital Projects, Police Facilities
P.O. Box 9634, Station T, Ottawa, ON K1G 6H5

State of the Art Acoustik Inc.

I have reviewed and concur with the content and recommendations of this IERS.

Date: _____

Signature: _____

Patrick Richard, M.Sc.E., Acoustic Consultant
43-1010 Polytek Street, Ottawa, ON K1J 9J3

Novatech

I have reviewed and concur with the content and recommendations of this IERS.

Date: _____

Signature: _____

François Thauvette, P. Eng., Senior Project Manager
Suite 200, 240 Michael Cowpland Drive, Kanata, ON K2M 1P6

Date: _____

Signature: _____

Michael Petepiece, P. Eng., Engineering Intern Senior Project Manager
Suite 200, 240 Michael Cowpland Drive, Kanata, ON K2M 1P6

Lashley and Associates

I have reviewed and concur with the content and recommendations of this IERS.

Date: _____

Signature: _____

Ryan Paliga, Landscape Architect, Arborist
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