Urban Design Brief
1242, 1250, 1260 Gordon Street and 9 Valley Road, City of Guelph

161413684

Prepared for:
Tricar Developments Inc.

Prepared by:
Stantec Consulting &
Kasian Architecture Ontario Inc.

Revision 3

April 16, 2020

URBAN DESIGN BRIEF
1242, 1250, 1260 GORDON STREET AND 9 VALLEY ROAD,
CITY OF GUELPH

April 16, 2020

Table of Contents

URBAN DESIGN BRIEF
1242, 1250, 1260 GORDON STREET AND 9 VALLEY ROAD,
CITY OF GUELPH

April 16, 2020

TABLE OF FIGURES

LIST OF APPENDICES

URBAN DESIGN BRIEF
1242, 1250, 1260 GORDON STREET AND 9 VALLEY ROAD,
CITY OF GUELPH

April 16, 2020

This Urban Design Brief has been prepared by Stantec Consulting Ltd. and Kasian Architecture Ontario Inc. on behalf of Tricar Properties Limited. in support of the development proposed on 1242, 1250, 1260 Gordon Street and 9 Valley Road in Guelph, Ontario. The purpose of the Design Brief is to outline the design approach for the proposed high-density residential buildings, and how the design conforms to City of Guelph guidelines and policies. The Design Brief has been prepared in accordance with the City of Guelph Urban Design Brief Terms of Reference (June, 2019) and provides clear direction on how the site should be developed. This has been submitted as part of a complete Zoning By-law Amendment application and is intended to be read in conjunction with other background reports.

Stantec

kasian

1.0 SITE'S PHYSICAL AND POLICY CONTEXT

This Urban Design Brief (UDB) has been prepared in support of a proposed Zoning By-law amendment application for 1242, 1250, 1260 Gordon Street and 9 Valley Road in Guelph, Ontario (herein referred to as 1250 Gordon Street).

A pre-consultation meeting was held with the City on March 29, 2018. An Urban Design Brief was requested by the City as a requirement for a complete application based on the proposed application for development.

This report is an analysis of the architectural and urban planning conditions currently in place in the City of Guelph; and demonstrates how the proposed development at 1250 Gordon Street offers design solutions that are sensitive to the site's location, articulates both public and private realms, and conforms with City's land use vision and design policy directions.

1.1 PHYSICAL CONTEXT

This section explores the physical context of the subject site, neighbouring properties, and the community-scale regarding existing built form, vegetation, street network, public and open views, pedestrian connectivity, and transportation system. These attributes are critical elements which have been considered and incorporated during the selection of the proposed site use, density, built form and design.

1.1.1 Site Definition

The subject site is made up of four separate properties, located at 1242, 1250, 1260 Gordon Street and 9 Valley Road, adjacent to the intersection of Gordon Street and Edinburgh Road South in Guelph, Ontario, as shown on **Figure 1**. The site is approximately 2.97 hectares in size, with residential dwellings situated on the western half of the site (some of which have been demolished) and the remainder of the site being vacant.

The site has approximately 121m of frontage onto Gordon Street, as well as 30m of frontage onto Valley Road, with a total area of approximately 3.1 hectares. The view from the south, looking north onto the property is shown in **Figure 2**. As defined in the City of Guelph Zoning By-law, where the Lot Line abuts two or more Street Lines, the "Front Lot Line" means the shorter of the two lines. From a legal perspective, as Valley Road is the shorter frontage, it is the legal frontage for the development. However, for the purpose of addressing Gordon Street, the development will treat, design, and landscape treatment of Gordon as the property frontage.

Figure 1: Site Location

Figure 2: Looking north from south of the Subject Site

1.1.2 On Site Attributes

The subject lands are comprised of four existing low-density residential lots. The single detached dwellings located on each have either been demolished or are proposed to be. Three of the lots front Gordon Street, while one fronts onto Valley Road. **Figure 3** shows the view of the subject site from Gordon Street.

Topography varies across the site, generally draining to the northeast and southwest, from a high point in the middle of the property. A tree inventory was completed May 17, 2017. The following tree species were inventoried: Norway Spruce, American Basswood, Scots Pine, Eastern White Cedar, Black Cherry, White Birch, White Ash, Hop Hornbeam, Sugar Maple, Red Maple, White Elm, Freeman's Maple, Apple, Hawthorn, Butternut, and Black Walnut. Where possible, trees will be maintained or transplanted, or compensation plantings will be provided in accordance with the City's Tree By-law.

Figure 3: Existing Condition of Subject Site (view from Gordon Street)

1.1.3 The Site in Context

To the immediate north of the subject site is single-detached low density residential. Recent medium/high-density residential developments have been constructed on Gordon Street to the south of the Subject Site, and to the north along Valley Road. To the east of the subject site is protected woodlot and to the west and southwest, a provincially significant wetland. The public access to these features will be enhanced through this proposal, as it is anticipated that

additional access points will be made accessible to the City-wide trail connection at the rear of the property.

The Tricar Group is proposing two 12-storey residential buildings to the south and southwest portion of the subject site. The development will be subject to a future site plan approval and plan of subdivision applications and, possibly, an application to develop a Plan of Condominium.

The Tricar Group is an experienced developer of high-rise buildings within the City of Guelph and proposes to construct a compact high-density residential development in the south end of Guelph. The proposed development aligns with and moves to meet the growth and intensification targets set for the City and enhance the existing Intensification Corridor along Gordon Street by contributing to the high-density vision for the Site.

The proposed buildings plan to contribute to this overall vision for Guelph by incorporating energy efficient design features into the final building and unit designs. The proposed development is also located adjacent to north-south bike lanes provided along Gordon Street, and within 50 metres of bus stops and routes, providing alternative transportation options for future tenants. Additionally, the subject site is located directly adjacent to a proposed municipal trail system, which will provide future residents with further options for connectivity and active transportation. **Figure 4** below illustrates the surrounding land use context.

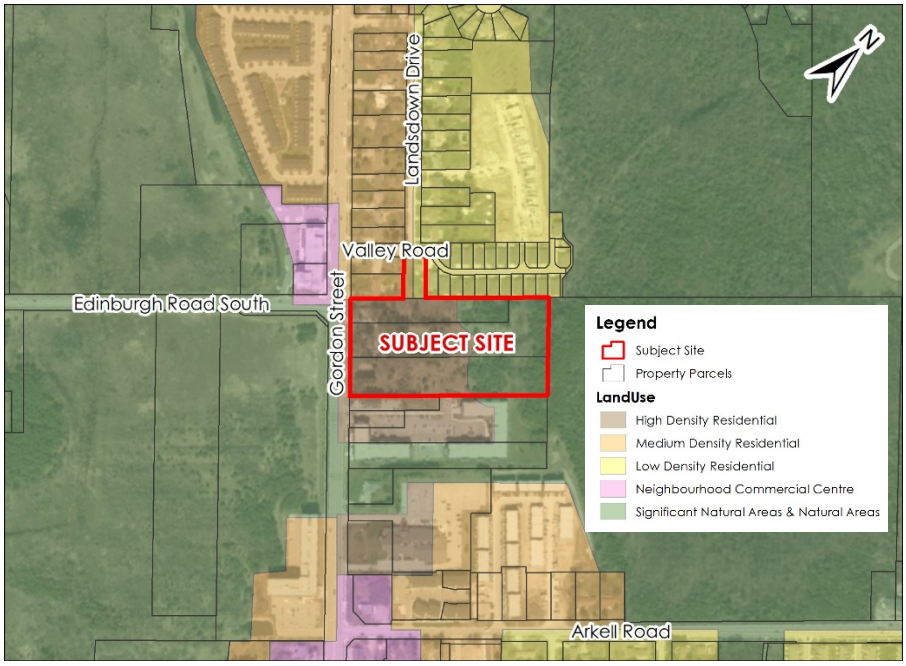


Figure 4: Surrounding Land Uses

1.2 RESPONSE TO POLICY CONTEXT

The design policies relevant to the proposed development are taken from the City of Guelph Official Plan (Section 3.6) (March 2018 Consolidation), urban design updates as amended by Official Plan Amendment No. 48, and the City of Guelph Urban Design Action Plan (2009).

The subject site is designated as High Density Residential in the City of Guelph Official Plan (OPA 48), Schedule 2: Land Use Plan. As it is situated along Gordon Street, the subject site is an Intensification Corridor, as identified in Schedule 1: Growth Plan Elements.

Accordingly, the site is designated to support the municipality's goals and objectives related to the provision of housing, in a manner that reflects context-sensitive urban design goals.

1.2.1 City of Guelph Official Plan (March 2018 Consolidation)

All residential designations of the Official Plan contain policies for facilitating the development of a full range of housing types, affordability, densities and tenures to meet a diversity of lifestyles and the social needs, health and well-being of current and future residents, throughout the city. Higher density developments, such as 1250 Gordon Street, are to be provided in appropriate locations to ensure that transit-supportive densities are achieved. Other important considerations for high density development are to ensure that compact urban form, walkable communities and energy efficiencies are achieved through a building's location, design and construction.

Urban design policies address the relationship between buildings, the spaces that surround them and the area's context. Section 8 of the Official Plan outlines policies and objectives for Urban Design, which seek to create a safe, functional, and attractive environment, contributing to the unique character of the City of Guelph. The development conforms to the following objectives:

- The subject property is located on Gordon Street, which is located within proximity of transit service, adjacent to bicycle lanes and provides for vehicular access. A sidewalk from the subject site to Gordon Street will accommodate a future pedestrian route to the node at the intersection of Clair and Gordon Street. The development will be well served by all forms of transportation (8 m);

- The proposed development has been designed to accommodate all persons, regardless of personal limitations (8 j, 8.19.2);

- The development contributes to a variety of housing types and forms, including both apartment and townhouse units (8 a);

- The building orientation, open spaces, and streets are designed to reflect the visual character and architectural/building material elements found in the older, established areas of the City (8 f & 8.6.1);

- Parking, amenity, and open space areas are located to provide for informal surveillance "eyes on the street". These areas are serviced by internal sidewalks and pathways which are visible and accessible (8.18);

- The development contributes to a variety of land use options along Gordon Street; is serviced by safe and accessible active and vehicular transportation; and creates a compact development (8.2.2);

- It is anticipated loading bays, storage areas and building utilities will be screened where appropriate, to the satisfaction of the City (8.13.6);

- The majority of parking for this development is proposed to be located underground. Surface parking is internalized and will be screened with landscaping to provide for an attractive streetscape (8.9.1 ii) & 8.12). A detailed landscape plan will be provided in concurrence with the Site Plan Application, and Section 2.1.2 below provides a comprehensive overview of the landscaping vision for the Subject Site.

The proposed development conforms to the above mentioned Urban Design policies as set out within the Official Plan by providing sustainable and compatible urban development to accommodate growth, minimize land-use conflict, utilize existing servicing and infrastructure, provide linkages for residents to nearby amenities and services, preserves natural heritage features, creates visual interest and adds character through the selection of building material elements, and encourages the use of public and active transit.

1.2.2 Official Plan Amendment Number 48: Envision Guelph – Official Plan Update

Updates to the City of Guelph Official Plan were completed through OPA 48 and are intended to ensure that the Official Plan is in conformity with the provincial legislation and plans, as well as the City plans and studies. These policy updates have been considered in the design of the proposed development and are addressed in Section 1.2.2 below.

Urban Design policies have been updated through OPA 48. The proposed development conforms to the new policies by:

- Creating neighbourhoods with diverse opportunities for living, working, learning, and playing;

- Building compact neighbourhoods that use land, energy, water, and infrastructure efficiently and encourage walking;

- Engaging in "place-making" by developing a building, spaces and infrastructure that are permanent, enduring, memorable, and beautiful, adaptable, flexible and valued;

- Improving conditions for greater personal security by incorporating Crime Prevention through Environment Design (CPTED);

- Design for choices of mobility including walking, cycling, transit, and driving; and

- Reducing energy and water demand utilizing alternative energy systems.

As required by all higher density forms of housing, new buildings shall address the street. The proposed buildings have front façades with entrances and windows that face the street and that reflect and, where appropriate, enhance the rhythm and frequency of the immediate vicinity (Section 8.6).

The apartments proposed within the development will conform to the policies for High-rise built form (Section 8.9) by ensuring tall buildings have a distinctive bottom, middle and top, include interesting architectural features, and parking is provided primarily below grade.

1.2.3 City of Guelph Urban Design Action Plan

The Urban Design Action Plan is based on 10 principles and a range of opportunity areas. The purpose of the plan is to highlight the importance of good urban design practices in all aspects of planning and development in the City of Guelph. The proposed development is consistent with the Urban Design Action Plan as outlined below, as it provides for:

- Variety of housing types and options along Gordon Street; located within close proximity to the business park and commercial/retail centre located at Clair and Gordon Street;

- Compact development with servicing provided by existing infrastructure;

- Aesthetic and visually interesting streetscape and architectural design;

- Choices for mobility, including public transit stops located at Clair and Gordon, bicycle lands available adjacent to the site along Gordon, and a proposed sidewalk connection to Gordon Street; and

- A range of architectural styles within the South Guelph planning area that brings interest and diversity while responding to scale and materiality of the local context.

1.2.4 Gordon Street Intensification Corridor

The City of Guelph Urban Design Concept Plans for the Gordon Street Intensification Corridor (April 2018) was employed to guide the process for site planning of the Subject Site. As Gordon Street is a central north-south corridor in the City, it has historically acted as a southern arterial road entranceway into the City of Guelph. Between Stone Road to just south of Clairfields Drive, the street is identified as an Intensification Corridor in the Official Plan because it can support mutli-modal transportation, a range of local services, and intensified, mixed-use areas. Future higher order transit is being considered for Gordon Street.

The Subject Site is located near the T-intersection of Gordon Street and Edinburgh Street South and is therefore part of Demonstration Site 4 in the Urban Design Concept Plans for the area. Specific site opportunities have been considered for this area, which are outlined as follows:

- Well-scaled residential intensification in keeping with the context of the Official Plan.
- Promote a range of housing options and building types within a consistent mid-rise to high-rise form along Gordon Street, which will be accommodated on the Subject Site through this mixed-density development that includes two-storey townhouses fronting onto Gordon Street, as well as two residential buildings supporting apartments.
- Provide pedestrian connections through the site, including direct access to the park and the Significant Natural Area from Gordon Street, which is anticipated to be accommodated by providing a main vehicular connection (with appropriate widths to support sidewalks) to a new public amenity area that provides visual connection and access to the neighbouring significant woodlot.
- Establish a sensitive transition to the adjacent woodlands with the appropriate buffers. Additional buffering than what was originally required has been incorporated into the site design.
- Create a logical network of new streets connecting to the existing street network, which will be provided by the extension of Edinburgh Street South that will loop around and meet an extension of Landsdowne Drive.
- Create a new public park for the community, taking advantage of the access to the neighbouring woodlot and trail, which is anticipated to be provided by the Park Block (0.212ha) that is being conveyed to the City.
- Provide a combination of underground and structured parking where possible, and pockets of well-designed surface parking for convenience.
- Create height transition from buildings along Gordon Street toward adjacent low-rise dwellings along Landsdowne Drive

- Locate amenity and open space areas in a manner that preserves existing trees
- Extend a new municipal road that connects to the existing Edinburgh Road.

South of Edinburgh Road is designated High Density Residential with multiple unit residential buildings, generally in the form of apartments. Overall, the proposed development closely matches the Concept Plan for Site 4 as it achieves the provision of a new roadway connection between Edinburgh Road and Landsdowne Drive with high-density development to the south, which provides appropriate transitions from the existing and planned medium and low density to the north, as well as supports the existing high density development to the south. The new public park would reinforce a connected network of green spaces and balance the development capacity of the area, creating enhanced visual and physical access to the natural heritage feature to the east.

1.3 URBAN DESIGN GOALS AND OBJECTIVES FOR THE SITE

1.3.1 Urban Design Goals and Objectives

The urban design goals and objectives for the site are as follows:

- Create a streetscape aesthetic along Gordon Street and within the site (along the private access road referred to as 'Street A') sympathetic to pedestrian environment with the opportunity to provide "eyes on the street".
- Provide exceptional placemaking elements through architectural treatments and detailing, landscaping and vegetation, ornamental features, and site furnishings.
- To build a compact energy efficient neighbourhood that provides diverse opportunities for living and working.
- Design a space that is accessible to all abilities and ages.
- Preserve and enhance protected public views and vistas of built and natural features, including those to the neighbouring woodlands.
- Design for a choice of mobility including walking, cycling, transit and driving.
- Protect and enhance the distinct character of the City of Guelph, and the sense of community of neighbourhoods.

Anticipated design of the site layout, architectural elements, and landscaping of the proposed development will reflect local precedents from the surrounding community but will

also strive to build on successful elements to create a new design model for future growth, as the design echoes successful past high-density residential developments of Tricar Group.

2.0 DEVELOPMENT CONCEPT AND DESIGN SOLUTIONS

2.1 DEVELOPMENT CONCEPT

2.1.1 Site Design

The overall design concept is to create an identifiable community, a recognizable "place" that is then connected back into the overall surrounding communities. The project consists of 2 buildings, one 12-storey residential building fronting Gordon Street and one 12-storey residential building adjacent to the south west boundary of the subject site (**Figure 5**).

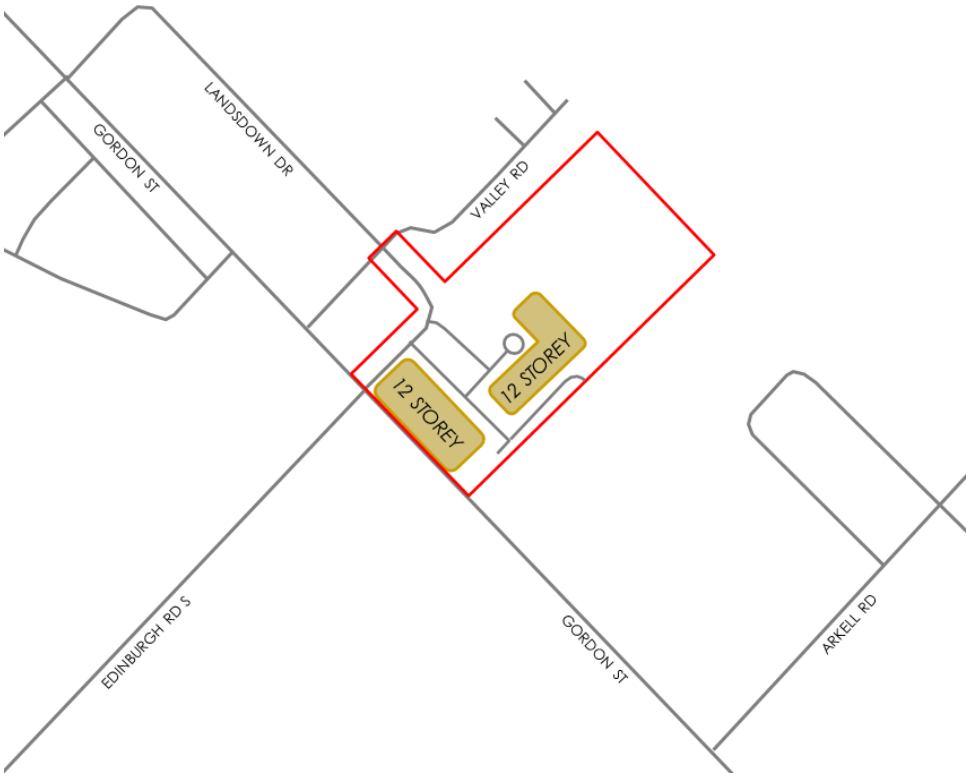


Figure 5: Building Height Zones

The design concept for the Site includes a main vehicular entrance to the property from the street where the extension of the two existing roads, Landsdowne Drive and Edinburgh Road S., meet. This focal entranceway will provide a central area between Residence 1 and Residence 2 to provide parking, landscaping and amenity areas for both residents and

visitors. The area will be hidden from Gordon Street, as shown in **Figure 6**, to provide privacy and enhanced views to the nearby wooded areas, and potential future park. A Conceptual Site Plan is provided in **Appendix A**.

The site renderings, provided in **Appendix B**, illustrate the visual impact of the proposed orientation of the two towers, and elevations of the proposed buildings are in **Appendix C**.

Figure 6: Overall Aerial of Site Design (view from northwest)

2.1.2 Landscaping

Landscape elements will be provided in accordance with City site plan requirements. A conceptual landscaping plan is provided as **Appendix D**. The proposed landscaping enhances the overall appearance of the development by softening building façades and hardscape areas. The landscape has been designed to complement the materials and rhythm of the building architecture and will be consistent with, and complimentary of the existing neighbourhood. Planting is provided to screen at grade parking to provide aesthetically pleasing views from the street.

Figure 7: Sample Tree Plantings along Sidewalks

Walkways to individual ground floor units from the sidewalk along Gordon Street provide for improved pedestrian connectivity. Decorative pavement to complement the building materials will be implemented to highlight pedestrian connections and enhance the public realm. The same decorative paving application will be reflected at the main entrances of Residence 1 and 2 to emphasize these connections. **Figures 7 and 8** show similar features to the types of plantings that are envisioned for this Site. Planting will also be used to highlight building entrances and entrances to the site, to creating welcoming and legible spaces.

Sustainable efforts will be employed throughout the site, including low maintenance, drought / urban tolerant plant material, as well as low-mow sod for turf areas. Native and pollinator friendly plant material will be implemented where possible. Year-round interest will be provided through the use of evergreens, plant material with a variety of foliage colours and textures, and flowering plants. The use of deciduous trees will provide shade, reducing the urban heat island effect.

The landscape design will provide for clear un-obstructed views of pedestrian and vehicular circulation routes, will comply with the requirements of AODA and employ CPTED principals. Landscape treatments will provide for improved wayfinding, create a strong sense of place for residents and blend the development with the surrounding neighbourhood.

Figure 8: Sample Plantings along Parking Lot

2.1.3 Amenity Facilities

The main outdoor amenity area, to the southeast of Residence 1, has been located along Gordon Street in order to provide residents with a connection to the active street frontage and to take advantage of the direct southern sun exposure. This parkette is intended to be formal in nature and will include a seating area with open air shelter. Accessible pedestrian connections will be provided to the street and internal to the site. Plant material will be provided to enhance the space and provide privacy from the adjacent high-density development to the east.

Two additional outdoor amenity spaces provide residents with unprogrammed open greenspace. One open space area is located to the west of Residence 2 and extends north to the existing woodlot. This open greenspace provides a direct connection to the proposed Park Block (by others – amenities to be determined through future stakeholder engagement) and to the existing woodlot. This space offers a large, peaceful open space for residents to enjoy surrounded by nature. Native deciduous and coniferous trees will provide shade for users and habitat for nearby wildlife. A second open greenspace has been provided behind Residence 2. This area takes advantage of southern sun exposure and has direct views to the woodlot.

2.1.4 Transitions

Along the Gordon Street site edge, Residence 1 has townhouses facing this street with the main tower set back 10.7 metres from the existing property line. From the extension of

Edinburgh Road, Residence 1 has a 6.4m setback. From both roads, patio spaces for each of the nine townhouse units extends closer to the right-of-way, providing a transition from the activities of the sidewalks to the residential units. The tower of Residence 1 is stepped at the fourth floor to push the highest portions back further away from the street. In doing so, an appropriate angular plane transition is incorporated into the design with a 60-degree transition between Residence 1 and Gordon Street.

To the north east, Residence 2 is set back approximately 51m from the property line to allow for a 2125m^2 open and treed green area transition and a 77-degree angular transition from the edge of the park block to Residence 2. Furthermore, the angular place for the low-rise condominiums in the same north easterly direction is 36.4 degrees. The placement of the proposed towers is such that the visual impact and the microclimate impact on the adjacent site is limited.

Section 2.1.11.2 has additional details and illustrations regarding the angular planes of the proposed residences.

2.1.5 Public Views/Vistas

From Gordon Street, the main public view will be along the tree lined and landscaped façade of Residence 1, including the view of the landscaped parkette space just east of Residence 1. The lowered building podium provides a human scale to the streetscape. Other significant public views will be from Street A (the extension of Edinburgh Road) towards the park block and the amenity space adjacent to the woodlot.

The public views to the proposed development will have a significant impact on the streetscape and enhance the pedestrian, cycling and vehicular experience of Gordon Street, as a main intensification corridor.

Figure 9 shows the view south, from the north of Gordon Street. The intersection has visual appeal and improved accessibility to the proposed park and significant natural features and trails to the rear of the property. **Figure 10** demonstrates the view driving south from Landsdowne Drive.

Figure 9: Public Vista 1 - View from corner of Gordon St. and Edinburgh Rd. S.

Figure 10: Public Vista 2 – Driving South on Landsdowne Drive

2.1.6 Parking

All residential parking is contained within the buildings either at grade or below. At grade parking is screened from the Gordon streetscape by Residence 1. Visitor parking is provided at grade, which allows for additional activity on the streets for Crime Prevention Through Environmental Design (CPTED) purposes as well as slowing the speed of traffic. It is also aligned with the design considerations of the Urban Design Concept Plan for Site 4 of the Gordon Street Intensification Corridor. Landscaping will further screen at grade parking from Street A.

2.1.7 Access, Accessibility, Circulation, Loading and Storage

The main access to the proposed development will be via the intersection of Street A (Edinburgh Road) and Landsdowne Drive. A service lane is also proposed to the southern edge of the property, to the rear of Residence 2. Residents will have underground parking in each of the two towers. The townhomes of Residence 1 will have ground floor private access, via patios that are adjacent to open space, facing the street. Grade changes and landscaped screening has been provided to limit the potential impacts from the roadways to the patio spaces of the townhomes.

The nearest bus stop is a short walk along Gordon near the corner of Valley Road, with many north and south bound options. A pedestrian network is intended to run along the east of Residence 1, connecting to a proposed sidewalk along Street A that connects to the existing sidewalk along Gordon Street. There will also be on-street shared cycling connecting throughout the site and along the proposed roadways.

2.1.8 Materials

The building will consist of precast concrete, brick veneer, window wall, and punched windows. The exact colours are to be determined.

2.1.9 Lighting and Signage

Given the nature of this development, street and pedestrian lighting will be included, particularly at street level to ensure the safety of residents and visitors alike. As the majority of this lighting will be on the building very little impact is envisioned on adjacent properties as the building itself will act as a screen.

Signage will be dealt with at the building face and care has been taken to ensure that the need for wayfinding for the site as a whole will be kept to a minimal by making it clear and obvious to navigate. Signage will be placed for visibility from the public realm and used to introduce the site, mark ingress/egress, and establish a sense of place. It will not compromise the safety of pedestrians or motorists by blocking sight lines.

2.1.10 Architectural Treatment

Both buildings have a similar colour and material palette, while including various combinations and articulations of these elements. Residence 1 uses different colours of brick and articulation of the façade at lower levels to create visual interest and variation. Residence 2 uses brick and frames to create another type of ground condition. Both building use balconies to further articulate the façade. The integration of window wall in certain locations adds to the vertical elements of the building, while individual punched windows maintain a steady rhythm for the scale of the building.

2.1.11 High Density Development

2.1.11.1 Built form

Both Residence 1 and 2 have similar overall massing to each other for continuity, while having different expressions of material and massing to respond to their adjacencies to either Gordon Street or the protected woodlot area. Residence 1 takes advantage of the grading of the site and the adjacency to Gordon Street by extending the ground floor with amenity spaces directly on the street frontage. Above, the massing steps back to allow for a level of town-house style units with patios. The building continues above in varying materials to break down the scale of the building. Residence 2 carries over some of the same material changes as Residence 1, while including frames to act as 'arches' at the lower levels.

2.1.11.2 Transitions

The buildings are situated on the site in order to keep the larger massing closer to both the street face and the southeast area, closer to other tall buildings. Angular planes have been used to assess the massing and height transition of the proposed development. The angle from Gordon Street to Residence 1 is 60 degrees. The angular plane from Street A to Residence 1 is 71-degrees. This is shown in **Figure 11**.

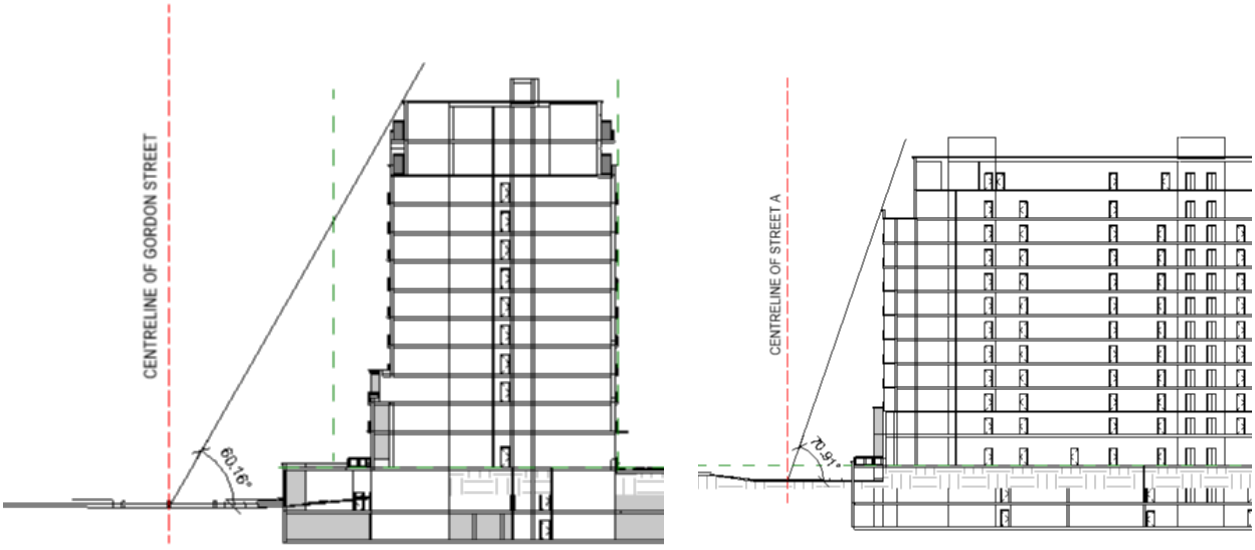


Figure 11: Angle from Gordon St to Residence 1 & Angle from 'Street A' to Residence 1

The angular plane provided from the lot line shared with the park have also been provided in **Figure 12.** The angle from the edge of the proposed park to Residence 2 at its closest façade is 77 degrees. From the edge of the proposed park to Residence 2 at its further façade, the angle is 47 degrees. **Figure 13** demonstrates the angular plane from Residence 2 to the rear lot line of the low-rise condominium properties located to the north-east, beyond the park block. The angular plane to these adjacent uses is 36.4 degrees.

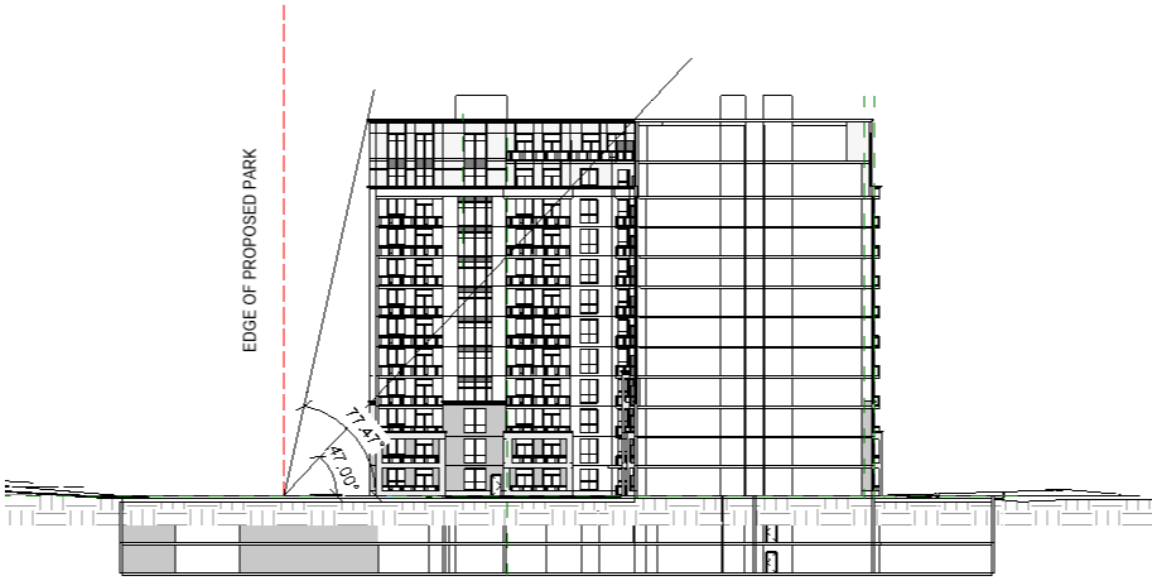


Figure 12: Angle from Park to Residence 2

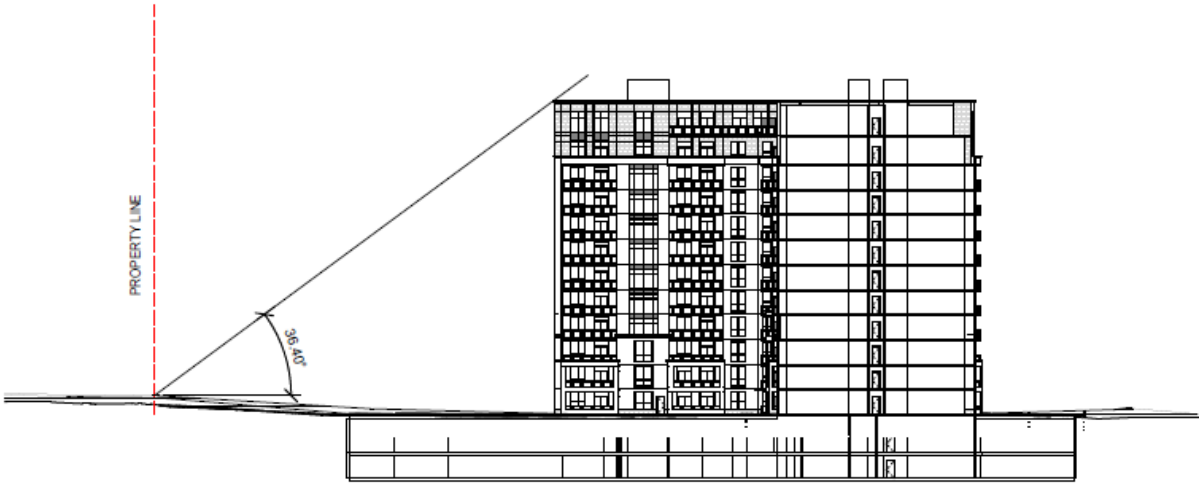


Figure 13: Angle from Rear of Properties to Northeast of Residence 2

2.1.11.3 Shadows

Diagrams illustrating shadows casted by the proposed buildings are provided in **Appendix E**. The shadows cast during the summer solstice have no impact on existing developments

adjacent to the site, and little impact on each other. Morning shadowing will primarily impact the parking areas during this time. The shadows cast during the spring/fall solstice have minor impacts on the existing developments adjacent to the site, primarily impacting the sites to the north during a short window in the morning hours. Before sunset, the property to the south may experience minor impacts from the proposed buildings. The shadowing impacts during the winter solstice may impact the properties to the north from sunset to around 3:00 pm.

2.1.11.4 Wind

A Pedestrian Wind Study (March 2, 2020) was completed by Rowan Williams Davies & Irwin Inc, **Appendix F**. It assesses the pedestrian wind conditions for the proposed 1250 Gordon Street development to provide a screening-level estimation of potential wind conditions. Wind conditions on and around the proposed building are discussed in the report, based on past experiences with wind tunnel testing of similar buildings. There are many positive design features, such as a tower setback, podiums (e.g. on the building fronting Gordon St.), canopies above entrances, and recessed entrances. Some wind mitigation measures are suggested in the area between both buildings, and on the patios, and for some of the common amenity areas.

2.2 INTEGRATION WITH THE PUBLIC REALM

2.2.1 Integration with the Streetscape

The ground level adjacent to Gordon Street is closer to the street than the neighbouring properties and creates a street wall to define the space. Also, the same level has amenity spaces directly on the street, so there can be visual interaction between passers-by and residents to provide for both interest and safety (eyes on the street). The façade is then stepped back to allow for townhouse style units and the floors above.

2.2.2 Publicly Accessible Open Space and Features

The redevelopment of this Site closer aligns with the vision for the area, as it is expressed in the Gordon Street Intensification Corridor Urban Design Concept Plan for the site-specific area. The site creates an opening to extend Edinburgh Road and create a visual access to the woodland at the rear of the existing properties and has the potential for improved trail connections to publicly accessible trails enhancing access to open spaces. The proposed road networks improve connectivity across the high-density area, and creates connections for cycling, walking and driving. The proposed development will increase the usability of the area, with improved lighting and increasing ‘eyes on the street’. Overall, features will be added to the site, such as seating and outdoor amenity areas for public enjoyment.

2.3 SUSTAINABLE URBAN DESIGN

2.3.1 General Environmental Sustainability

Sustainability measures for the proposed development include strategies listed below:

- Transit-friendly compact development with pedestrian and cyclist linkages
- Retention of existing vegetation where feasible & minimized surface parking
- Proposed installation of drought tolerant plants to be detailed at site plan
- Proposed planting of street trees that will contribute to overall canopy cover (details proposed at site plan through finalized landscape plan)
- Integration of tree planting systems
- Lighter coloured roofing/siding materials, which reduces cooling costs and urban heat island effect
- Low-flow faucets, toilets, and showerheads will be incorporated throughout the units to reduce water consumption
- Closed-looped heating and cooling systems
- Onsite full water infiltration will be incorporated on the building roofs to eliminate discharge from the site to surrounding waterways
- Energy efficient lighting
- Recycling and waste management
- High efficiency HVAC inside units (individual air handlers possibly with ERV's and individually controlled air conditioning)
- Individually metered units
- Well-constructed building to minimize future maintenance issues
- The use of natural light and natural ventilation in the building designs
- Utilization of local materials
- The Site is fully serviced by existing infrastructure

2.3.2 Energy

The Community Energy Initiative commitment letter provided by the Tricar Group has been provided in **Appendix G.**

April 16, 2020
2.12

CLOSING

This document has been prepared in collaboration by Stantec Consulting and Kasian Architecture. This information is respectfully submitted in support of the proposed two 12-storey apartment buildings on behalf of the Tricar Group.

Sincerely,

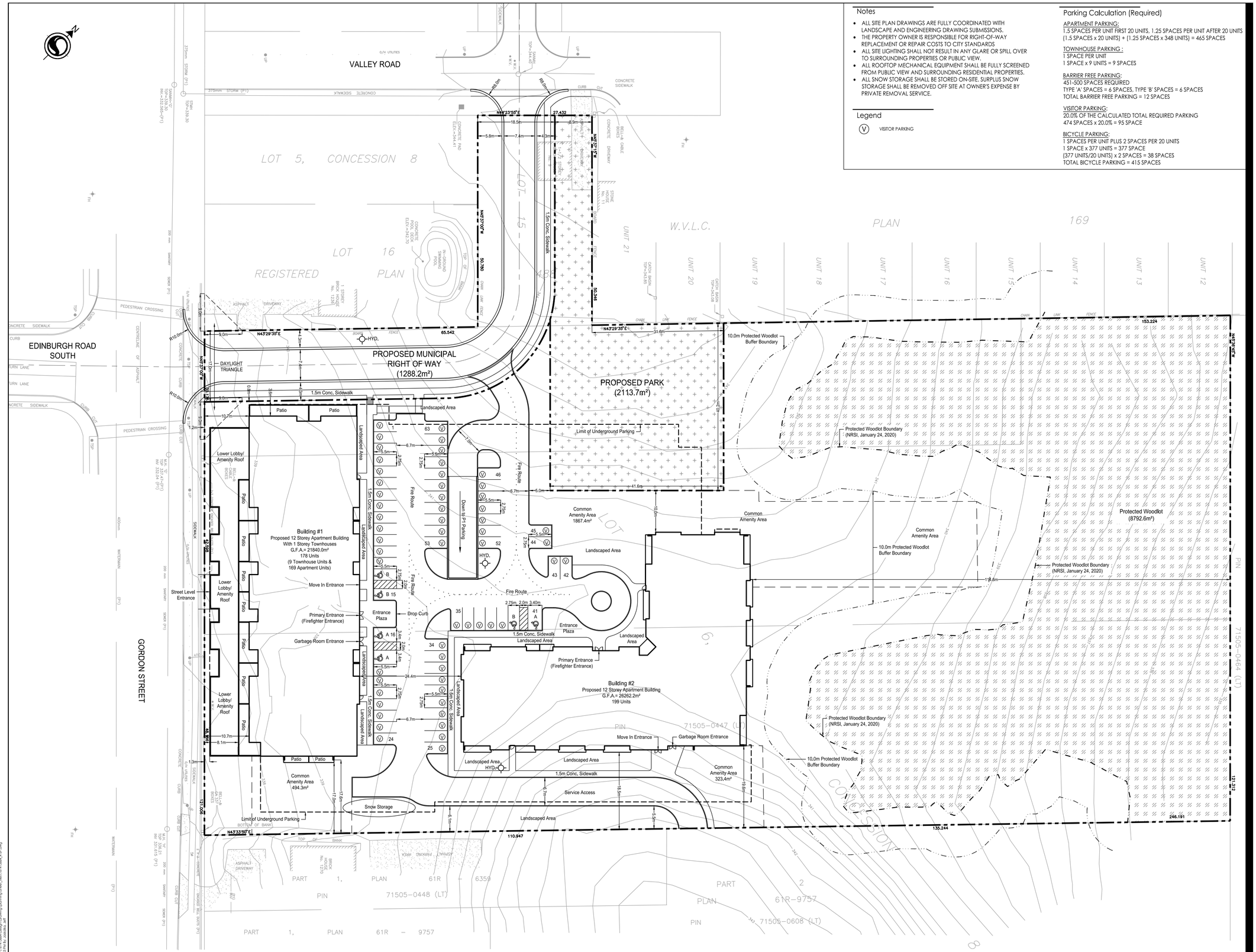
STANTEC CONSULTING LTD.

Amelia Sloan, MCIP, RPP
Planner, Community Development
600 - 171 Queens Ave, London, ON N6A 5J7
Phone: 519-675-6668
Amelia.Sloan@stantec.com

KASIAN ARCHITECTURE ONTARIO INC.

JP Thornton | Principal
RIBA, MRAIC, ENV SP, BA (Hons), Dip Arch
Toronto, ON, Canada | M6K 3S3
T 416.583.3633 | C 905.875.7302

Appendix A CONCEPTUAL SITE PLAN



Notes

- ALL SITE PLAN DRAWINGS ARE FULLY COORDINATED WITH LANDSCAPE AND ENGINEERING DRAWING SUBMISSIONS.
- THE PROPERTY OWNER IS RESPONSIBLE FOR RIGHT-OF-WAY REPLACEMENT OR REPAIR COSTS TO CITY STANDARDS
- ALL SITE LIGHTING SHALL NOT RESULT IN ANY GLARE OR SPILL OVER TO SURROUNDING PROPERTIES OR PUBLIC VIEW.
- ALL ROOFTOP MECHANICAL EQUIPMENT SHALL BE FULLY SCREENED FROM PUBLIC VIEW AND SURROUNDING RESIDENTIAL PROPERTIES.
- ALL SNOW STORAGE SHALL BE STORED ON-SITE. SURPLUS SNOW STORAGE SHALL BE REMOVED OFF SITE AT OWNER'S EXPENSE BY PRIVATE REMOVAL SERVICE.

Legend

Ⓥ VISITOR PARKING

Parking Calculation (Required)

APARTMENT PARKING:
1.5 SPACES PER UNIT FIRST 20 UNITS, 1.25 SPACES PER UNIT AFTER 20 UNITS
(1.5 SPACES x 20 UNITS) + (1.25 SPACES x 348 UNITS) = 465 SPACES

TOWNHOUSE PARKING :
1 SPACE PER UNIT
1 SPACE x 9 UNITS = 9 SPACES

BARRIER FREE PARKING:
451-500 SPACES REQUIRED
TYPE 'A' SPACES = 6 SPACES, TYPE 'B' SPACES = 6 SPACES
TOTAL BARRIER FREE PARKING = 12 SPACES

VISITOR PARKING:
20.0% OF THE CALCULATED TOTAL REQUIRED PARKING
474 SPACES x 20.0% = 95 SPACE

BICYCLE PARKING:
1 SPACES PER UNIT PLUS 2 SPACES PER 20 UNITS
1 SPACE x 377 UNITS = 377 SPACE
(377 UNITS/20 UNITS) x 2 SPACES = 38 SPACES
TOTAL BICYCLE PARKING = 415 SPACES

Stantec

Stantec Consulting Ltd.
600-171 Queens Avenue
London ON N6A 5J7
Tel: (519) 645-2007
www.stantec.com

Copyright Reserved

Key Map NTS.

Legal Description

Details of Development

SITE DETAILS		REQUIRED	PROVIDED
ZONING	R.4B - HIGH DENSITY APARTMENT ZONE		
SETBACKS	FY	6.0m	3.6m
	RY	49.2m	17.0m
	EXT. SY	6.0m	1.2m
	INT. SY	18.6m	114.6m
MINIMUM LOT AREA		650.0m²	26878.9m²
MINIMUM LOT FRONTAGE		15.0m	86.6m
MAXIMUM DENSITY		403 UNITS (150 UNITS/ha)	377 UNITS (140 UNITS/ha)
MAXIMUM BUILDING HEIGHT		10 STOREYS	12 STOREYS (37.2m)
BUILDING COVERAGE		N/A	5076.4m² (18.9%)
MINIMUM DISTANCE BETWEEN BUILDING		15.0m	24.4m
UNDERGROUND PARKING SETBACK FROM LOT LINE		3.0m	0.8m
IMPERVIOUS AREA		N/A	13.7% (3672.8m²)
MINIMUM LANDSCAPED OPEN SPACE		40.0% (7541.4m²)	67.4% (18129.7m²)
FLOOR SPACE INDEX		1.5	1.7
PARKING		474 SPACES	605 SPACES (AT GRADE = 63 SPACES P1 PARKING = 256 SPACES P2 PARKING = 286 SPACES)
BARRIER FREE PARKING		12 SPACES (TYPE 'A' = 6 SPACES TYPE 'B' = 6 SPACES)	12 SPACES (TYPE 'A' = 6 SPACES TYPE 'B' = 6 SPACES)
VISITOR PARKING		101 SPACES	57 SPACES
BICYCLE PARKING		442 SPACES	442 SPACES PROVIDED WITHIN UNDERGROUND PARKING AREA

		By	Appd	YYYY.MM.DD
2.	Revised as per New NRSI Woodlot Boundary	JJ	CH	2020.02.18
1.	Revised as per New Building Layout	JJ	CH	2020.01.07

Revision/Issue

File Name: 161413684_R-SP	JJ	JJ	CH	2020.01.07
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit-Seal

Client/Project

TRICAR DEVELOPMENTS INC.

1250 GORDON STREET

GUELPH, ON

Title

SITE PLAN

Project No.
161413684

Scale
1:400
0 4 12 20m

Revision
2

Sheet
1 of 2

Drawing No.
SP-1

Appendix B RENDERINGS

Overall Aerial View
1250 GORDON STREET - MASTER
CITY, PROVINCE, COUNTRY

A-701
2020-03-10
PROJECT 201233

kasian

Gordon Street View (Res 1)
1250 GORDON STREET - MASTER
CITY, PROVINCE, COUNTRY

A-702
2020-03-10
PROJECT 201233

kasian

Landsdown Drive View
1250 GORDON STREET - MASTER
CITY, PROVINCE, COUNTRY

A-703
2020-03-10
PROJECT 201233

kasian

Parking Area View
1250 GORDON STREET - MASTER
CITY, PROVINCE, COUNTRY

A-704
2020-03-10
PROJECT 201233

kasian

Back View (Res 1 & Res 2)
1250 GORDON STREET - MASTER
CITY, PROVINCE, COUNTRY

A-705
2020-03-10
PROJECT 201233

kasian

Appendix C ELEVATIONS

EXTERIOR FINISH LEGEND

BR1	BRICK VENEER - DARK GREY
BR2	BRICK VENEER - LIGHT GREY
ST	STONE / PRECAST W. STONE PATTERN
PC	PRECAST CONCRETE - BEIGE
PW	PUNCHED WINDOWS - BLACK FRAMES
TG	TEMPERED GLASS RAILING
WW	WINDOW WALL - BLACK FRAMES
CS	CONCRETE SLAB - BEIGE
MC	METAL CANOPY - COLOUR T.B.D.
SG	SPANDREL GLASS - COLOUR T.B.D.

2 A-201 RES 1 WEST ELEVATION
SCALE: 1 : 200

1 A-201 RES 1 EAST ELEVATION
SCALE: 1 : 200

kasian

Kasian Architecture Ontario Incorporated
85 Hanna Avenue, Suite 300
Toronto, ON Canada M6K 3S3
T 416 583 3600 F 416 583 3610
www.kasian.com

REV.	YYYY-MM-DD	REVISION / DRAWING ISSUE	REVIEW

CONSULTANT

PERMIT STAMP

SEAL

PROJECT

1250 GORDON STREET - MASTER

CITY, PROVINCE, COUNTRY

DRAWING TITLE

RES 1 - EAST & WEST ELEVATIONS

DRAWING ISSUE

PROJECT NO.	PLOT DATE	DRAWN
201233	2020-02-10	Author
	SCALE: As indicated	REVIEWED: Checker

DRAWING NO. A-201 REVISION

2 A-202 RES 1&2 NORTH ELEVATION1
SCALE: 1 : 200

1 A-202 RES1& 2 SOUTH ELEVATION1
SCALE: 1 : 200

kasian

Kasian Architecture Ontario Incorporated
85 Hanna Avenue, Suite 300
Toronto, ON Canada M6K 3S3
T 416 583 3600 F 416 583 3610
www.kasian.com

REV.	YYYY-MM-DD	REVISION / DRAWING ISSUE	REVIEW

CONSULTANT

PERMIT STAMP

SEAL

PROJECT

1250 GORDON STREET - MASTER

CITY, PROVINCE, COUNTRY

DRAWING TITLE

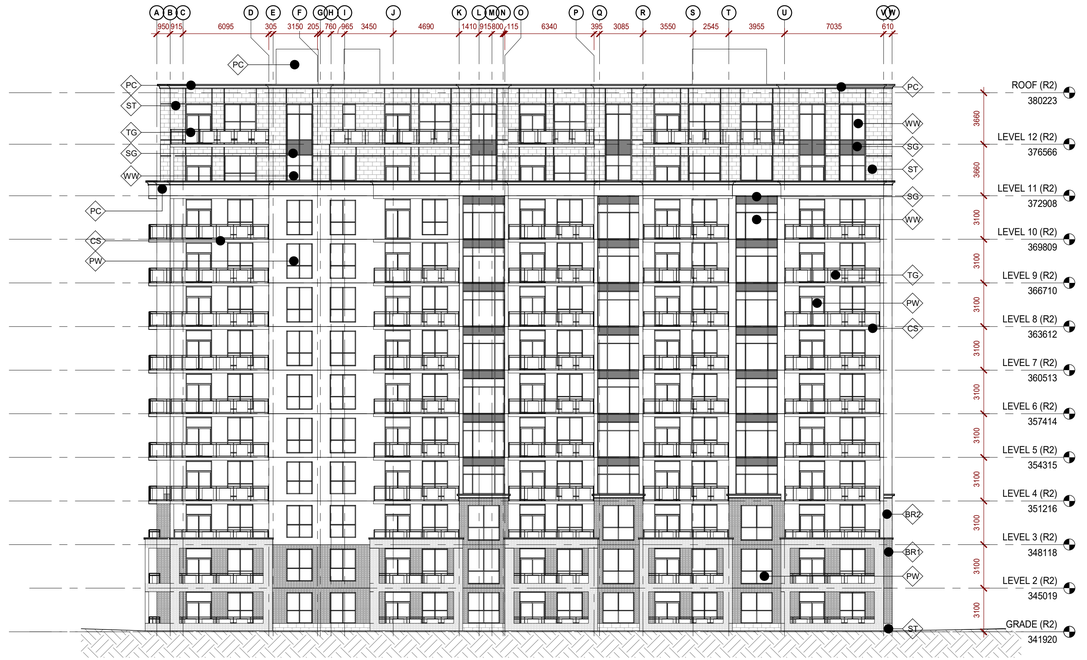
RES 1& 2 - NORTH & SOUTH ELEVATIONS

DRAWING ISSUE

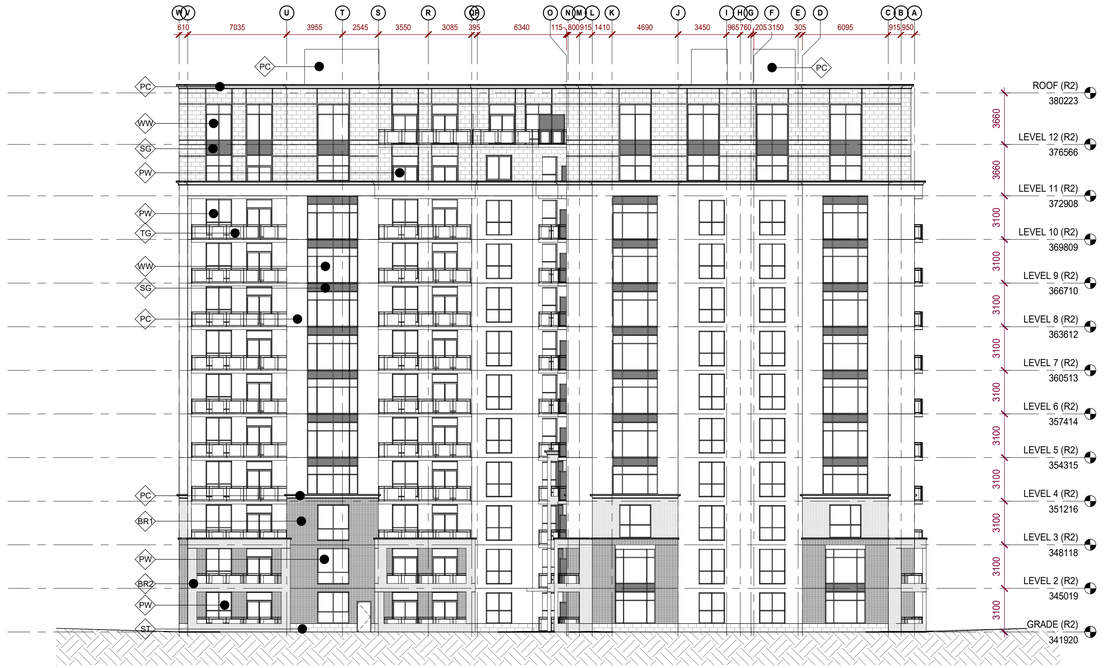
PROJECT NO.	PLOT DATE	DRAWN
201233	2020-02-10	Author
	SCALE 1 : 200	REVIEWED Checker
DRAWING NO. A-202		REVISION

EXTERIOR FINISH LEGEND

BR1	BRICK VENEER - DARK GREY
BR2	BRICK VENEER - LIGHT GREY
ST	STONE / PRECAST W. STONE PATTERN
PC	PRECAST CONCRETE - BEIGE
PW	PUNCHED WINDOWS - BLACK FRAMES
TG	TEMPERED GLASS RAILING
WW	WINDOW WALL - BLACK FRAMES
CS	CONCRETE SLAB - BEIGE
MC	METAL CANOPY - COLOUR T.B.D.
SG	SPANDREL GLASS - COLOUR T.B.D.



2 A-203 RES 2 EAST ELEVATION
SCALE: 1 : 200



1 A-203 RES 2 WEST ELEVATION
SCALE: 1 : 200

kasian

Kasian Architecture Ontario Incorporated
85 Hanna Avenue, Suite 300
Toronto, ON Canada M6K 3S3
T 416 583 3600 F 416 583 3610
www.kasian.com

REV.	YYYY-MM-DD	REVISION / DRAWING ISSUE	REVIEW

CONSULTANT

PERMIT STAMP

SEAL

PROJECT

1250 GORDON STREET - MASTER

CITY, PROVINCE, COUNTRY

DRAWING TITLE

RES 2 - EAST AND WEST ELEVATIONS

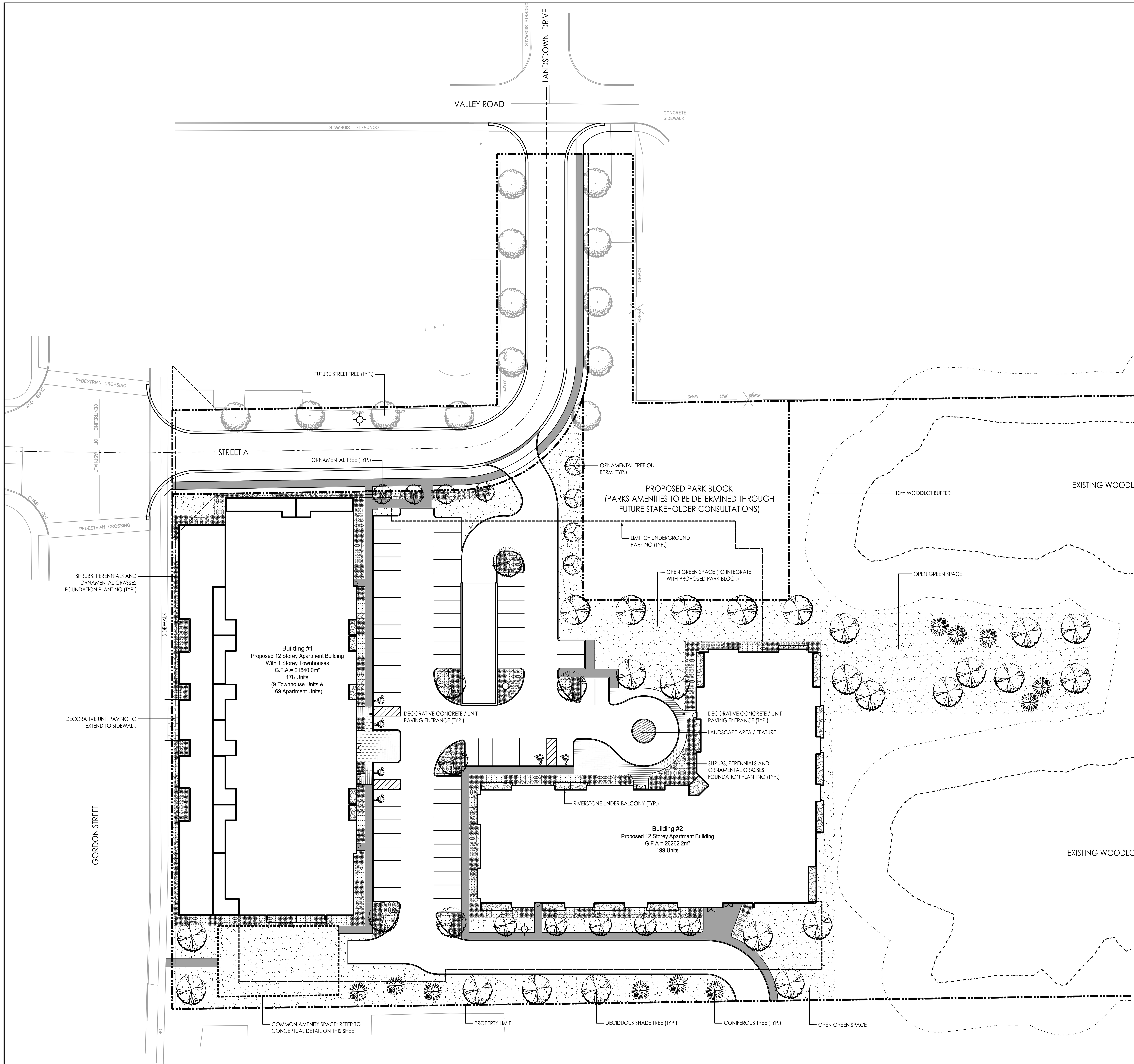
DRAWING ISSUE

PROJECT NO.	PLOT DATE	DRAWN
201233	2020-02-10	Author
	SCALE: As indicated	REVIEWED: Checker

DRAWING NO. A-203

REVISION

Appendix D LANDSCAPE CONCEPT PLAN



NOTE:

1. CONSIDERATION FOR SPECIES AND BERMING WILL BE GIVEN TO TREES PROPOSED ON TOP OF UNDERGROUND PARKING DURING DETAIL DESIGN.

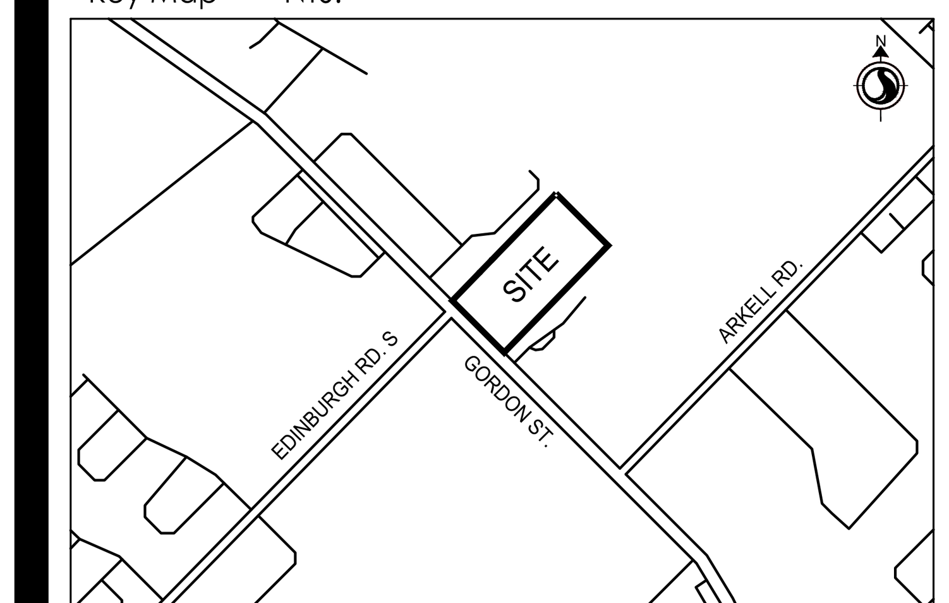
LD 1 COMMON AMENITY AREA CONCEPTUAL DETAIL
N.T.S.

ORIGINAL SHEET - ANSI D

Stantec
600-171 Queens Avenue
London ON N6A 5J7
Tel. 519-645-2007

Consultants

Key Map NTS.



Legend

- PROPERTY LIMIT
- DECIDUOUS TREE
- ORNAMENTAL TREE
- CONIFEROUS TREE
- SHRUBS, PERENNIALS & ORNAMENTAL GRASSES
- FUTURE STREET TREE
- LIMIT OF MULCHED PLANT BEDDING
- SOD
- NATURAL CONCRETE PAVING
- DECORATIVE CONCRETE / UNIT PAVING
- RIVERSTONE
- COMMON AMENITY SPACE

Notes

1. ALL DRAWINGS SHOULD BE REVIEWED WITH REFERENCE TO COMPLETE CONTRACT DOCUMENTS.
2. DRAWINGS NOT INTENDED FOR CONSTRUCTION

Revision	By	Appd.	YY.MM.DD

Issued	By	Appd.	YY.MM.DD
1. ISSUED FOR ZONING BYLAW AMENDMENT	SU	HE	20.03.19

File Name: 161413684_l-lc	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	SU	HS	HS	20.03.13

Permit-Seal

PRELIMINARY
NOT FOR CONSTRUCTION

Client/Project

TRICAR DEVELOPMENTS INC.

1250 GORDON STREET

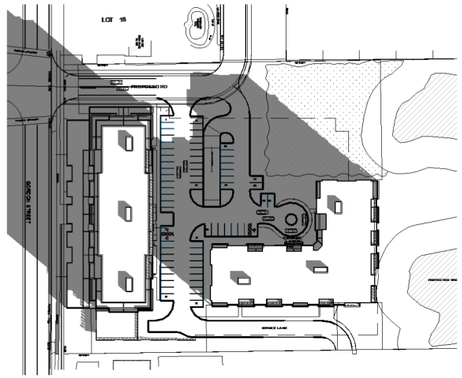
Guelph, ON Canada

Title

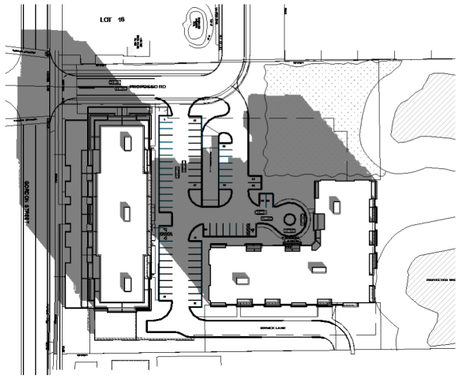
LANDSCAPE CONCEPT

Project No.	Scale	
161413684	1 : 400 (4 0 8m)	
Drawing No.	**Sheet**	**Revision**
L-1	1 of 1	0

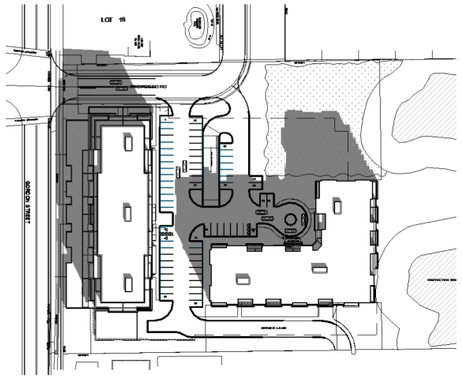
Appendix E SHADOW STUDY



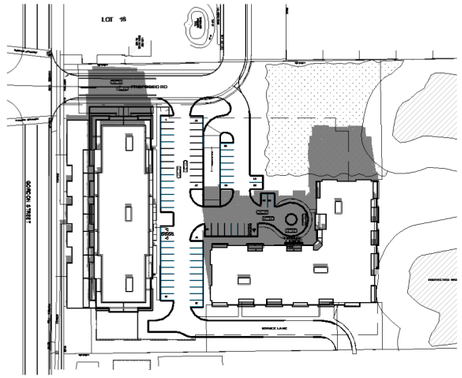
JUN 07:09 (1.5 HR AFTER SUNRISE)



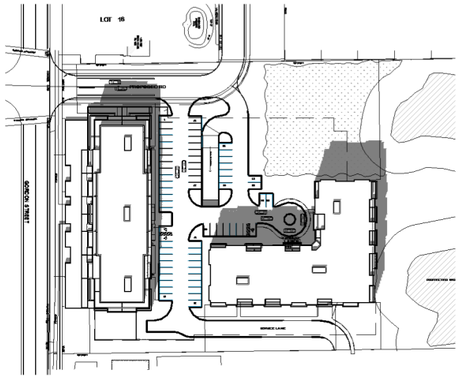
JUN 08:09



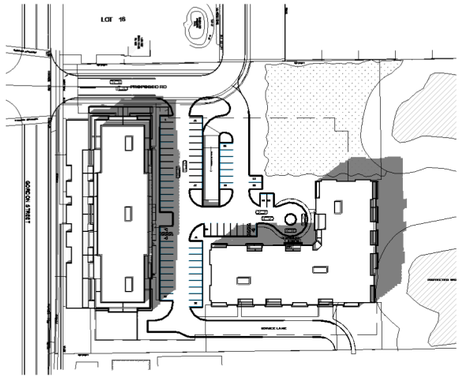
JUN 09:09



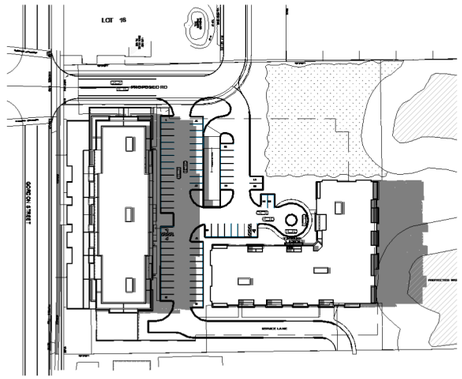
JUN 10:09



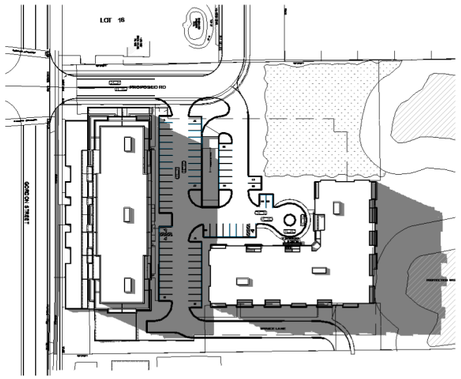
JUN 11:09



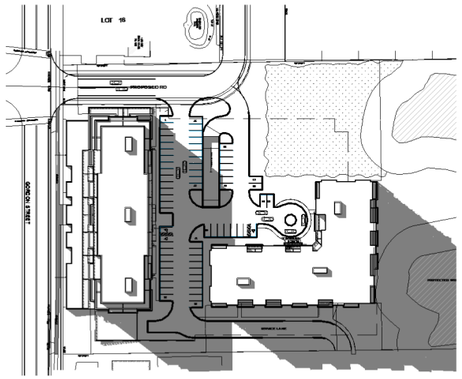
JUN 12:09



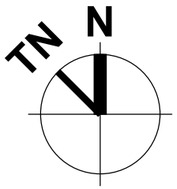
JUN 13:22 (SOLAR NOON)



JUN 14:35



JUN 15:35



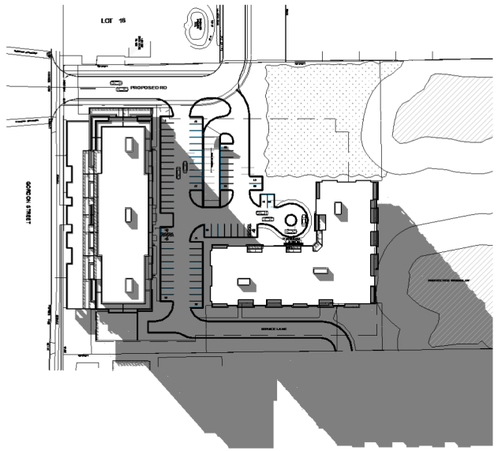
Sunrise	5:39 am
Sunset	9:05 pm
Solar Noon	1:22 pm

Latitude, Longitude: 43.516610, -80.200970

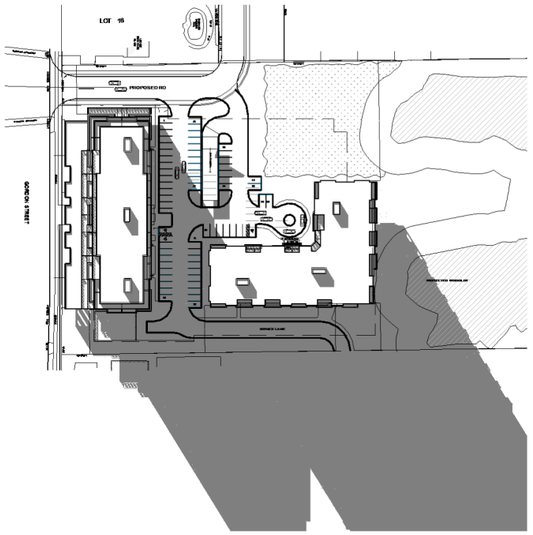
SUMMER SOLSTICE_1
1250 GORDON STREET - MASTER
CITY, PROVINCE, COUNTRY

A-809
2020-02-26
PROJECT 201233

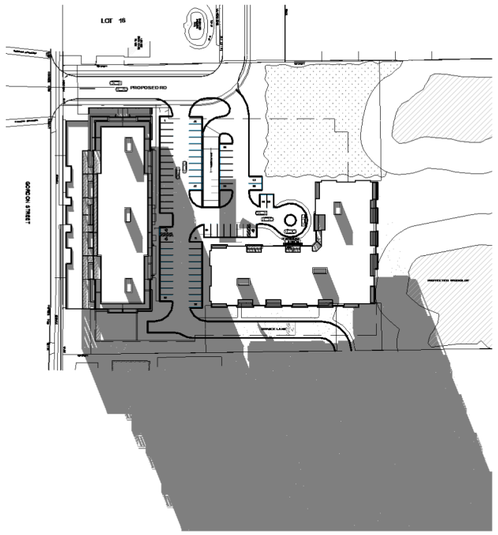
Kasian



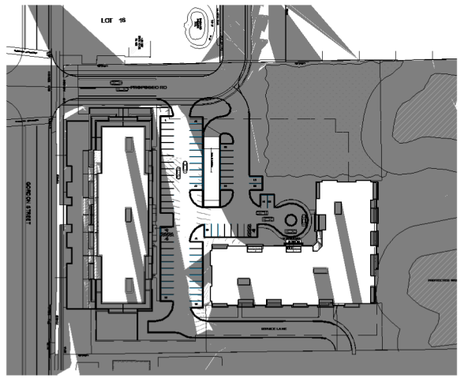
JUN 16:35



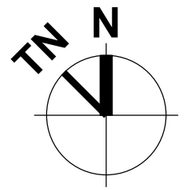
JUN 17:35



JUN 18:35



JUN 19:35 (1.5 HR BEFORE SUNSET)



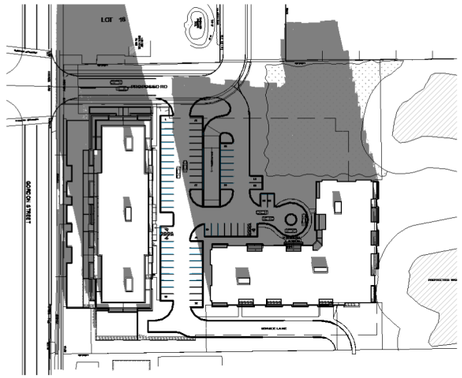
Sunrise	5:39 am
Sunset	9:05 pm
Solar Noon	1:22 pm

Latitude, Longitude: 43.516610, -80.200970

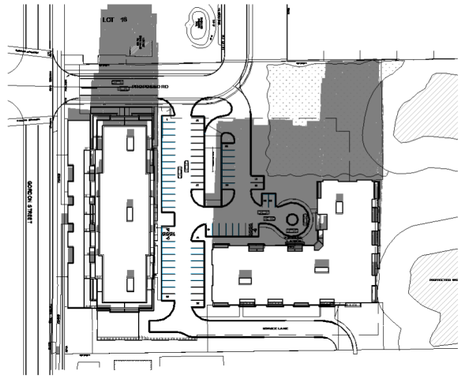
SUMMER SOLSTICE_2
1250 GORDON STREET - MASTER
CITY, PROVINCE, COUNTRY

A-810
2020-02-26
PROJECT 201233

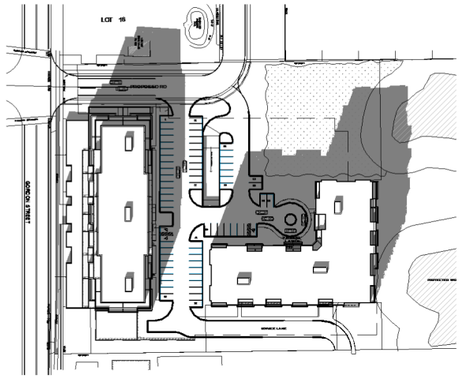
kasian



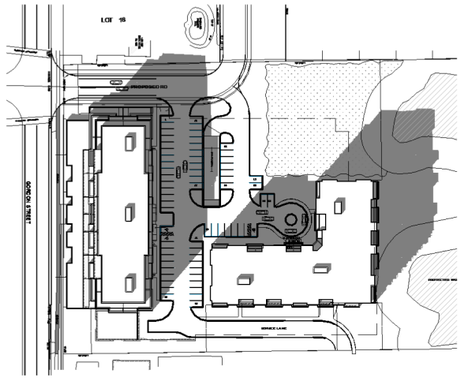
SEP 08:36 (1.5 HR AFTER SUNRISE)



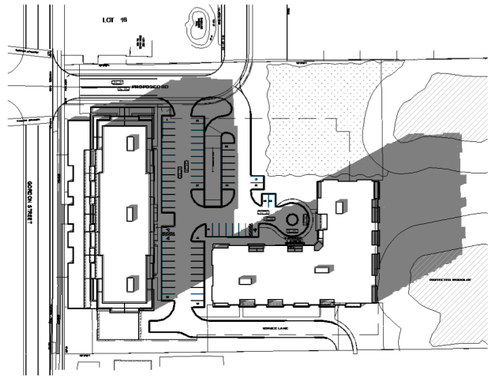
SEP 09:36



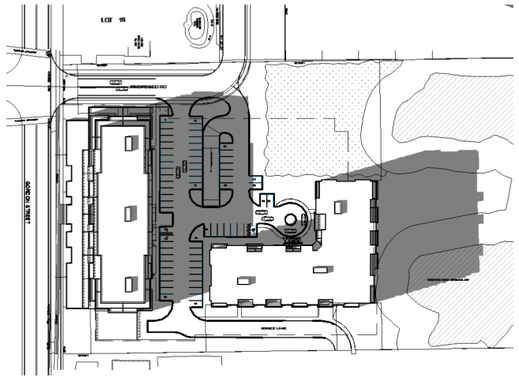
SEP 10:36



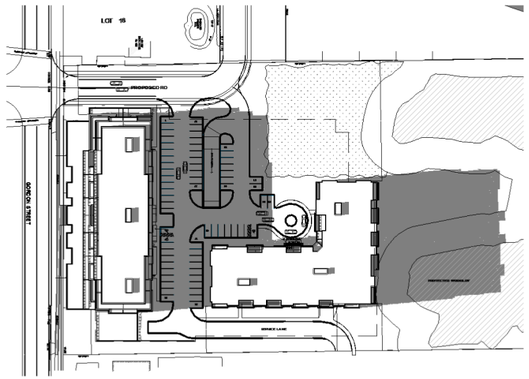
SEP 11:36



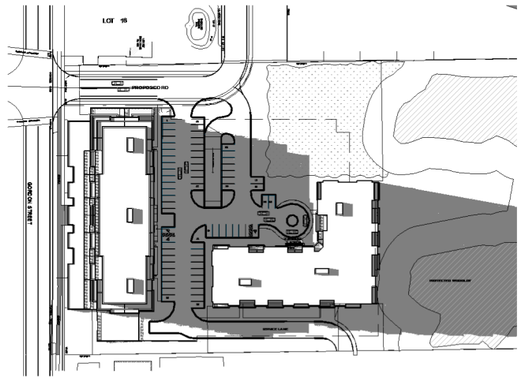
SEP 12:36



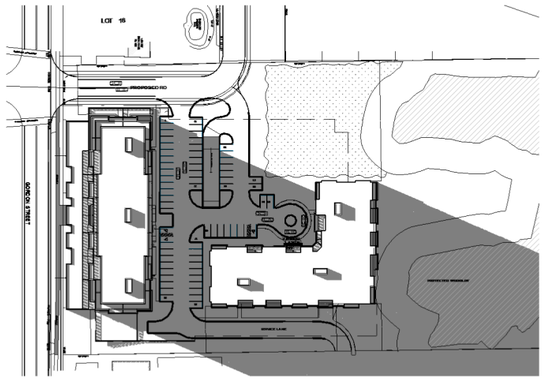
SEP 13:14 (SOLAR NOON)



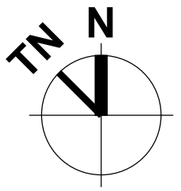
SEP 13:50



SEP 14:50



SEP 15:50



Sunrise	7:06 am
Sunset	7:20 pm
Solar Noon	1:14 pm

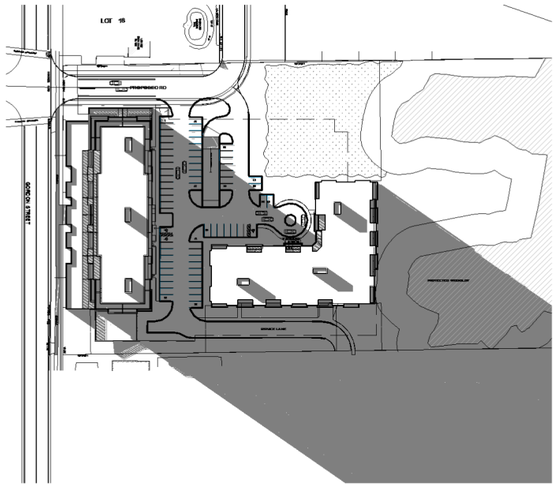
Latitude, Longitude: 43.516610, -80.200970

SPRING / FALL EQUINOX_1

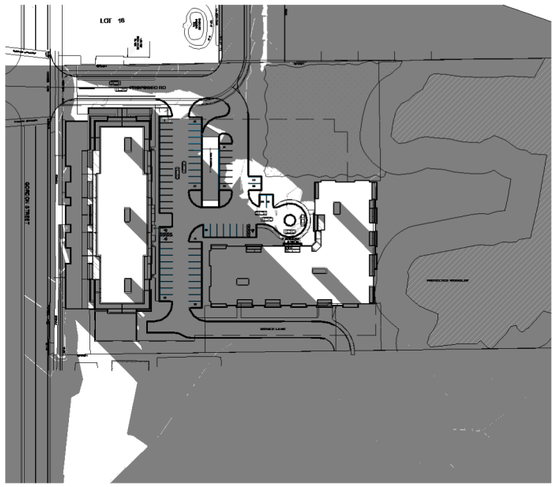
1250 GORDON STREET - MASTER
CITY, PROVINCE, COUNTRY

A-811
2020-02-26
PROJECT 201233

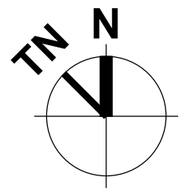
Kasian



SEP 16:50



SEP 17:50 (1.5 HR BEFORE SUNSET)



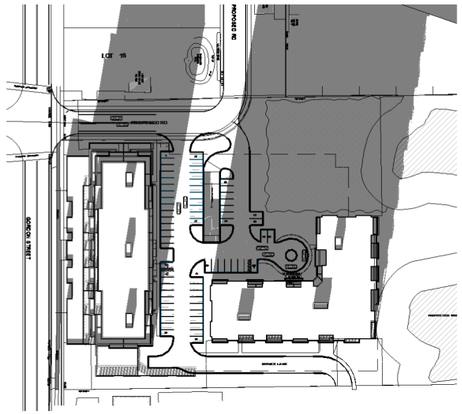
Sunrise	7:06 am
Sunset	7:20 pm
Solar Noon	1:14 pm

Latitude, Longitude: 43.516610, -80.200970

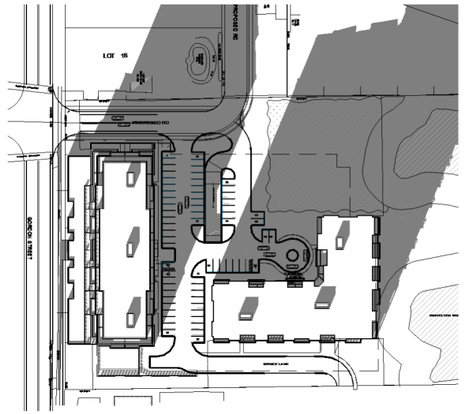
SPRING / FALL EQUINOX_2
1250 GORDON STREET - MASTER
CITY, PROVINCE, COUNTRY

A-812
2020-02-26
PROJECT 201233

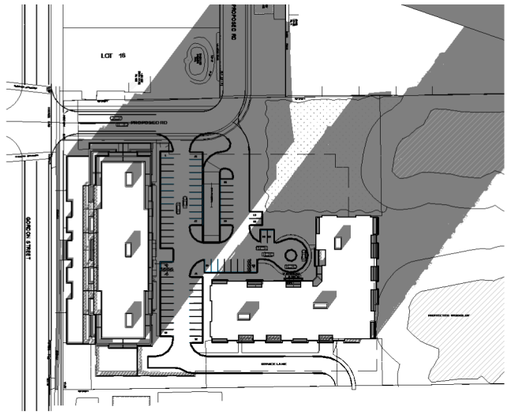
Kasian



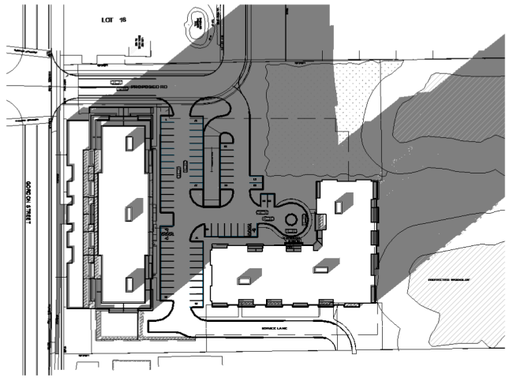
DEC 09:20 (1.5 HR AFTER SUNRISE)



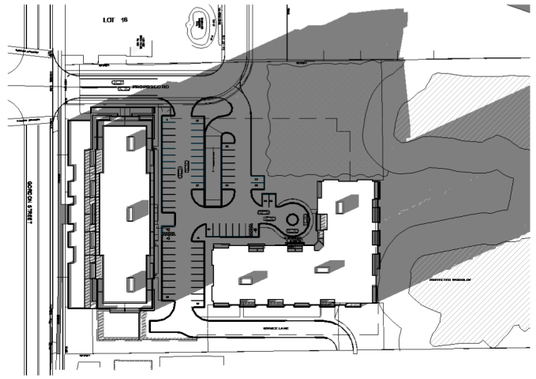
DEC 10:20



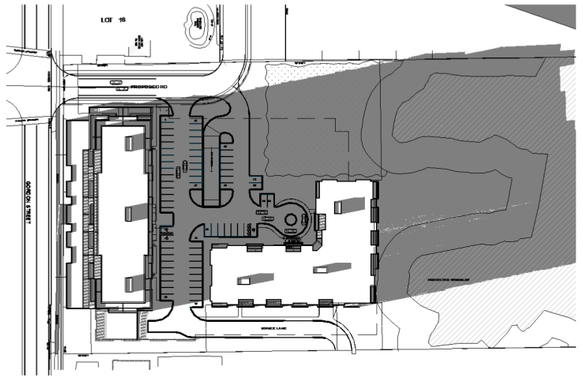
DEC 11:20



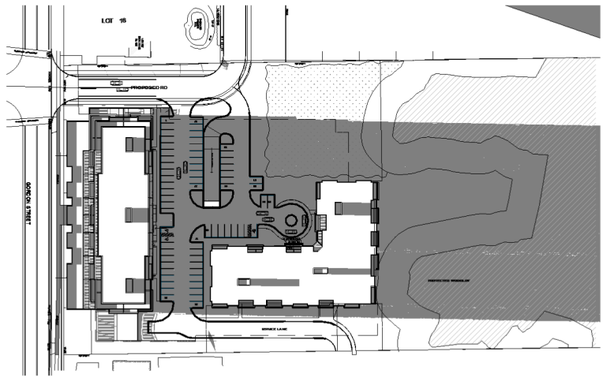
DEC 12:18 (SOLAR NOON)



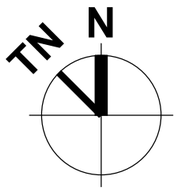
DEC 13:17



DEC 14:17



DEC 15:17 (1.5 HR BEFORE SUNSET)



Sunrise	7:50 am
Sunset	4:47 pm
Solar Noon	12:18 pm

Latitude, Longitude: 43.516610, -80.200970

WINTER SOLSTICE

1250 GORDON STREET - MASTER

CITY, PROVINCE, COUNTRY

A-813

2020-02-26

PROJECT 201233

Kasian

Appendix F PEDESTRIAN WIND STUDY

REPORT

1250 GORDON STREET

GUELPH, ON

PEDESTRIAN WIND STUDY

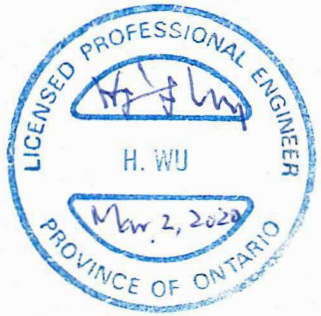
PROJECT #2002369

MARCH 2, 2020

SUBMITTED TO

Chris Leigh
Director of Construction & Development
cleigh@tricar.com

Tricar Developments Inc.
3800 Colonel Talbot Road
London, ON N6P 1H5
T: 519.652.8900 x 107



SUBMITTED BY

Frank Kriksic, BES, CET, LEED AP
Microclimate Consultant, Principal
Frank.Kriksic@rwdi.com

Hanqing Wu, Ph. D, P.Eng.
Senior Technical Director / Principal
Hanqing.Wu@rwdi.com

Peter Soligo
Project Manager
Peter.Soligo@rwdi.com

Rowan Williams Davies & Irwin Inc. (RWDI)
600 Southgate Drive
Guelph, ON N1G 4P6
T: 519.823.1311
F: 519.823.1316

rwdi.com

1. INTRODUCTION

Rowan Williams Davies & Irwin Inc. (RWDI) was retained by Tricar Developments Inc. to assess the pedestrian wind conditions for the proposed 1250 Gordon Street development in Guelph, ON (see Image 1). This assessment is based on the following:

- a review of regional long-term meteorological data from Waterloo-Wellington International Airport;
- design drawings received from Tricar Developments Inc. on February 5 and 18, 2020;
- wind-tunnel studies undertaken by RWDI for similar building projects;
- our engineering judgement and knowledge of wind flows around buildings[1-3]; and,
- use of 3D software developed by RWDI (Windestimator[2]) for estimating the potential wind conditions around generalized building forms.

This approach provides a screening-level estimation of potential wind conditions. Conceptual wind control measures to improve wind comfort are recommended, where necessary. In order to quantify these conditions or refine any conceptual mitigation measures, physical scale-model tests in a boundary-layer wind tunnel would be required at a later date.

Note that other wind issues, such as those related to cladding and structural wind loads, air quality, door operability, snow drifting and loading, etc., are not considered in the scope of this assessment.

Image 1: 3D View of the Proposed Project (View from West)

1. H. Wu and F. Kriksic (2012). "DeLocal Climate", *Journal of Wind Engineering and Industrial Aerodynamics*, vol.104-106, pp.397-407.
2. H. Wu, C.J. Williams, H.Asigning for Pedestrian Comfort in Response to. Baker and W.F. Waechter (2004), "Knowledge-based Desk-Top Analysis of Pedestrian Wind Conditions", *ASCE Structure Congress 2004,* Nashville, Tennessee.
3. C.J. Williams, H. Wu, W.F. Waechter and H.A. Baker (1999), "Experience with Remedial Solutions to Control Pedestrian Wind Problems", *10th International Conference on Wind Engineering*, Copenhagen, Denmark.

2. BUILDING AND SITE INFORMATION

The proposed development is located at 1250 Gordon Street, at the intersection with Edinburgh Road South (see Image 2). The site is currently occupied by single family homes.

The immediate surroundings include low rise residential or commercial buildings and empty lands in all directions (Image 2). A few mid-rise residential buildings exist to the south and west of this site.

The proposed development will consist of two residential buildings (Buildings A and B in Image 1) of 12-storeys.

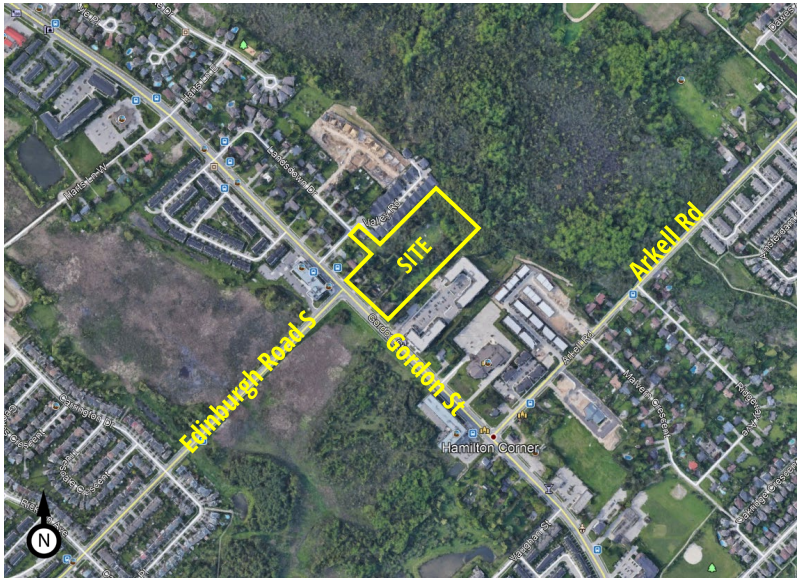


Image 2: Aerial View of Existing Site and Surrounding *(Courtesy of Google™ Earth)*

Pedestrian accessible areas on and around the site include sidewalks, building entrances, Level 1 patios and a ground level common amenity area.

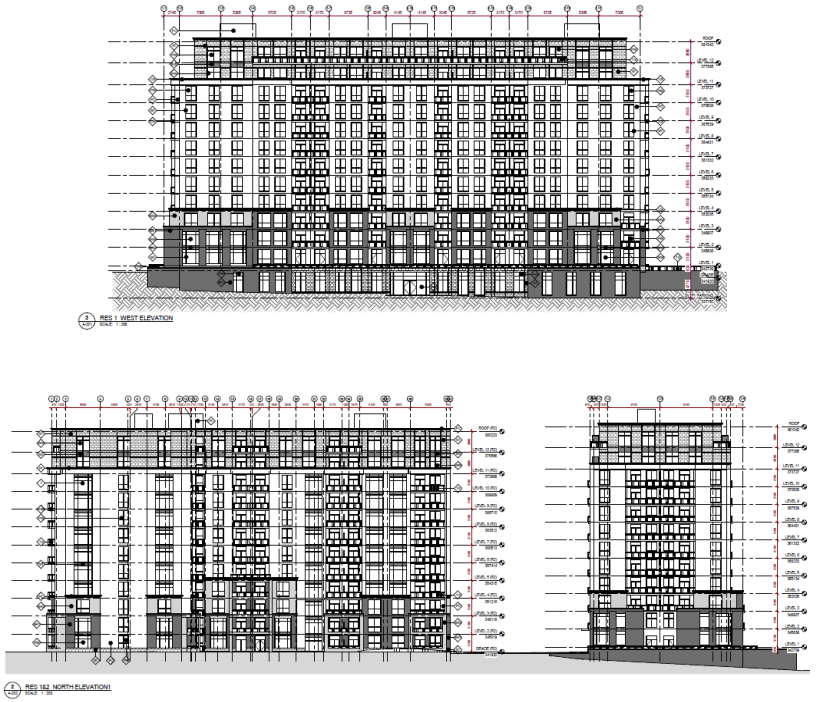


Image 3: Building A West Elevation (top), Building A and B North Elevations (bottom)

3. METEOROLOGICAL DATA

Meteorological data from Waterloo-Wellington International Airport recorded between 1988 and 2017 were used as reference for wind conditions. This is the nearest weather station with long-term wind data.

The distributions of wind frequency and directionality for summer (May through October) and winter (November through April) seasons are shown in the wind roses in Image 4.

When all winds are considered (regardless of speed), winds from the southwest through northwest and east directions are predominant during both summer and winter.

Strong winds of a mean speed greater than 30 km/h measured at the airport (at an anemometer height of 10m) occur more often in the winter than in the summer.

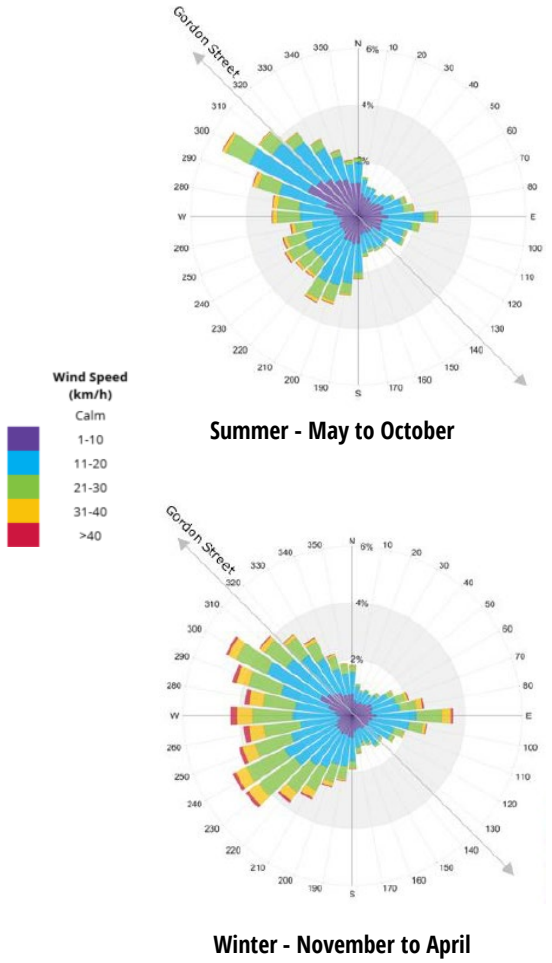


Image 4: Directional Distribution of Winds Approaching Waterloo-Wellington International Airport (1988-2017)

4. PEDESTRIAN WIND CRITERIA

The RWDI pedestrian wind criteria are used in the current study. These criteria have been developed by RWDI through research and consulting practice since 1974. They have also been widely accepted by municipal authorities and by the building design and city planning community, including the City of Guelph. The criteria are described as follows:

Comfort Category	GEM Speed (km/h)	Description
Sitting	≤ 10	Calm or light breezes desired for outdoor restaurants and seating areas where one can read a paper without having it blown away
Standing	≤ 15	Gentle breezes suitable for main building entrances, bus stops, plazas, and other places where pedestrians may linger
Walking	≤ 20	Relatively high speeds that can be tolerated if one's objective is to walk, run or cycle without lingering
Uncomfortable	> 20	Strong winds of this magnitude are considered a nuisance for all pedestrian activities, and wind mitigation is typically recommended

Safety Criterion	Gust Speed (km/h)	Description
Exceeded	> 90	Excessive gust speeds that can adversely affect a pedestrian's balance and footing. Wind mitigation is required.

Image 5: Wind Comfort and Safety Criteria (taken from *City of Guelph – Pedestrian Level Wind Studies Terms of Reference, May 2019*)

Notes:

1) GEM speeds are equal to the gust speed divided by 1.85, or the mean speed (whichever is larger); and,
2) GEM speeds listed above are based on a seasonal exceedance of 20% of the time between 6:00 and 23:00.

Wind conditions are considered suitable for sitting, standing, or walking if the associated mean wind speeds are expected for at least four out of five days (80% of the time). Wind control measures are typically required at locations where winds are rated as uncomfortable or they exceed the wind safety criterion.

Note that these wind speeds are assessed at the pedestrian height (i.e., 1.5 m above grade or the concerned floor level), typically lower than those recorded in the airport (10 m height and open terrain).

These criteria for wind forces represent average wind tolerance. They are sometimes subjective and regional differences in wind climate and thermal conditions as well as variations in age, health, clothing, etc. can also affect people's perception of the wind climate.

For the current development, wind speeds comfortable for walking are appropriate for sidewalks; and lower wind speeds comfortable for standing are required for building entrances where pedestrians may linger. Wind speeds comfortable for sitting are appropriate for outdoor patios and terraces during the summer, when these areas will be mainly used.

5. PEDESTRIAN WIND CONDITIONS

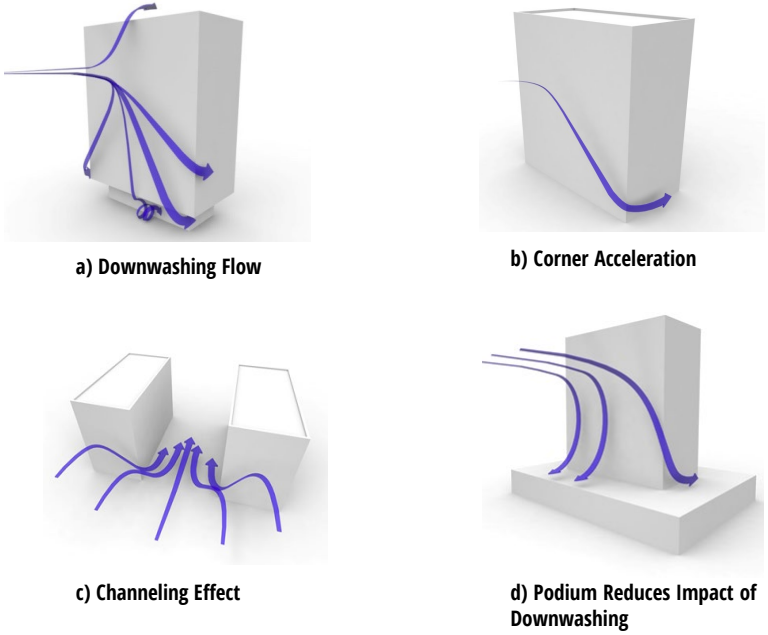
5.1 Background

Predicting wind speeds and occurrence frequencies is complicated. It involves building geometry, orientation, position and height of surrounding buildings, upstream terrain and the local wind climate. Over the years, RWDI has conducted thousands of wind-tunnel model studies regarding pedestrian wind conditions around buildings, yielding a broad knowledge base. This knowledge has been incorporated into RWDI's proprietary software that allows, in many situations, for a qualitative, screening-level numerical estimation of pedestrian wind conditions without wind tunnel testing.

The proposed development is taller than its surroundings and exposed to the prevailing winds in all directions. Tall buildings tend to intercept the stronger winds at higher elevations and redirect them to the ground level. Such a *Downwashing Flow* (Image 6a) is the main cause for increased wind activity around tall buildings at the grade level. When oblique winds are deflected down by a building, a localized increase in the wind activity or *Corner Acceleration* can be expected around the downwind building corner at pedestrian level (Image 6b). If these building/wind combinations occur for prevailing winds, there is a greater potential for increased wind activity.

When two buildings are situated side by side, wind flows tend to accelerate through the space between the buildings due to *Channeling Effect* (Image 6c). Building setbacks and podiums will reduce the direct impact of downwashing wind flows at grade (see Image 5d); however, while higher wind activities can be expected on the podiums themselves.

Detailed discussions on the potential wind comfort conditions at key pedestrian areas are provided in the following sections.



a) Downwashing Flow

b) Corner Acceleration

c) Channeling Effect

d) Podium Reduces Impact of Downwashing

Image 6: General Wind Flow Patterns

5.2 Existing Wind Conditions

Wind conditions around the existing site are expected to be comfortable for sitting or standing during the summer, and for walking or better during the winter, which is appropriate for the intended use. No exceedance of the safety criteria is likely to exist on this site.

5.3 Proposed Conditions

The introduction of the proposed project will increase wind speeds on the site. Even with this increase we do not expect any winds that exceed the wind safety criterion, however, some areas are expected to have less than desirable conditions. Images 7 and 8 present the predicted wind comfort conditions for the summer and winter seasons respectively.

5.3.1 Walkways

Building A, is closest to Gordon St and has a significant tower setback creating a podium along the west side of the tower. This feature is expected to mitigate wind impacts on the Gordon St sidewalk (see Image 5d) however, the Level 1 patios on top of this podium would benefit from some wind control. Conditions along the Gordon St sidewalk are expected to be appropriate on a year-round basis (see Images 7 and 8).

The sidewalks along the proposed Street A are expected to be comfortable for walking or better.

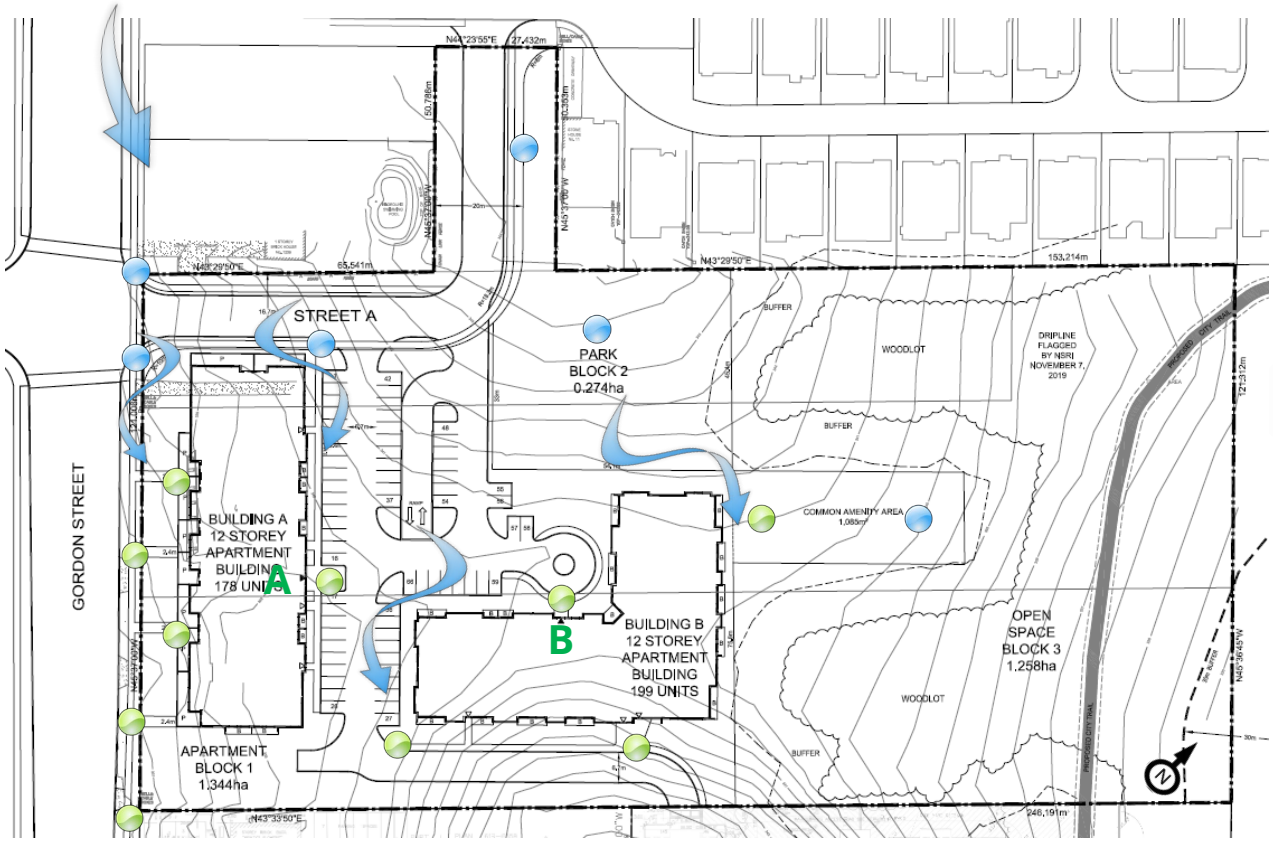
The on-site walkways are for the most part expected to have appropriate wind conditions. The exception is the south corner of Building B where uncomfortable winds are predicted in the winter (see Image 8). These would result from the strong northwesterly winds accelerating around Building A (see Image 6b) and then channeling between Buildings A and B (see Image 6c). To mitigate this condition would require introducing a canopy / trellis feature and/or planting coniferous / marcescent trees and/or installing vertical wind screens to provide local wind protection.

5.3.2 Building Entrances

The main entrance to Building A (location A in Images 7 and 8) is on the leeward side of the tower and conditions are predicted to be comfortable for standing in summer and walking in winter. The winter walking conditions (see Image 7) are not ideal for an entry area and it would benefit from being recessed into the façade or the addition of coniferous / marcescent landscaping or vertical porous wind screens to the north of this entrance area.

Location B in Images 7 and 8 is the main entrance to Building B. This entrance is predicted to be comfortable for standing in both summer and winter due primarily to the canopy above this entry (as shown in the renderings). This canopy feature will be important for wind protection and should be preserved in the design.

5. PEDESTRIAN WIND CONDITIONS



Predicted *SUMMER* Wind Conditions

- Sitting / Standing
- Standing / Walking
- Uncomfortable

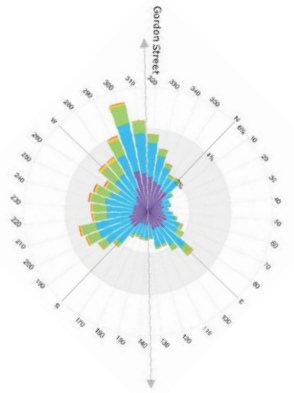
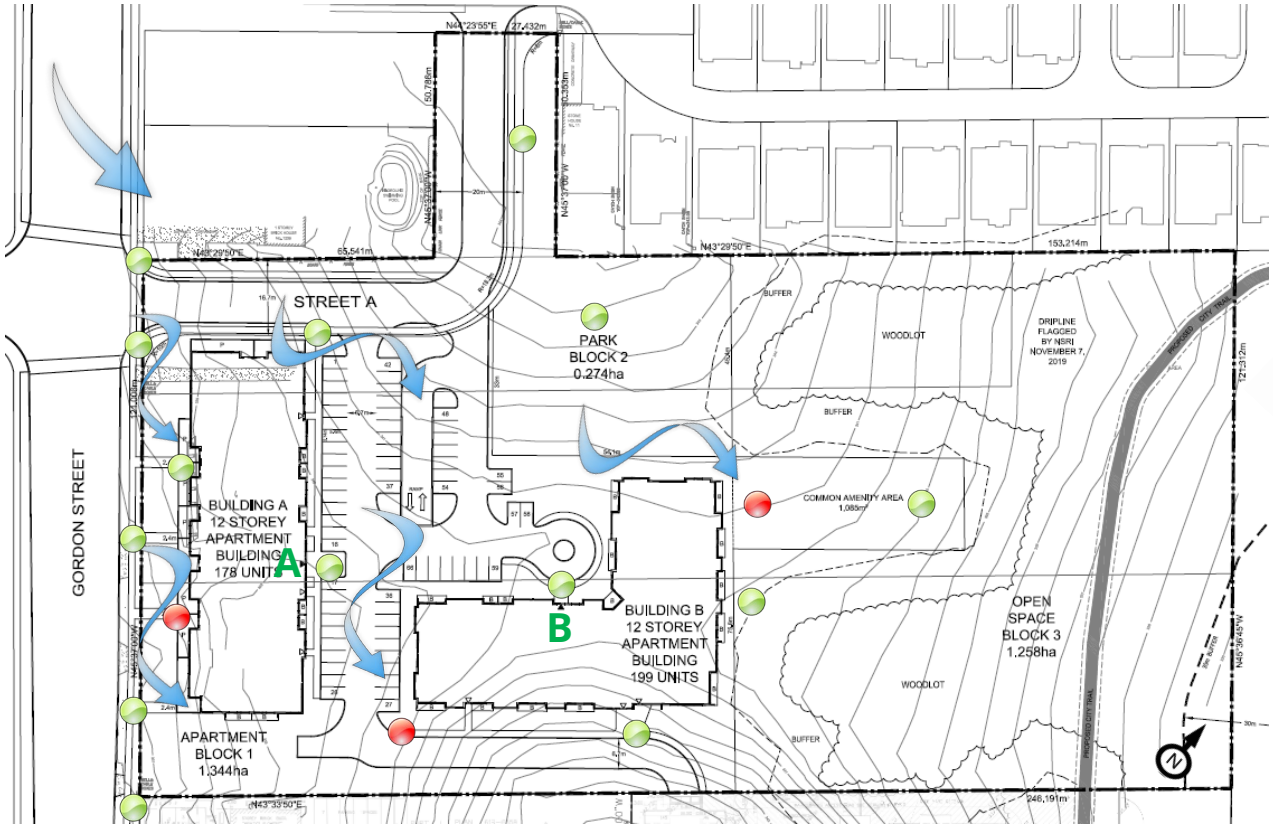


Image 7: Predicted *SUMMER* Wind Conditions (Ground Level)

5. PEDESTRIAN WIND CONDITIONS



Predicted *WINTER* Wind Conditions

- Sitting / Standing
- Standing / Walking
- Uncomfortable

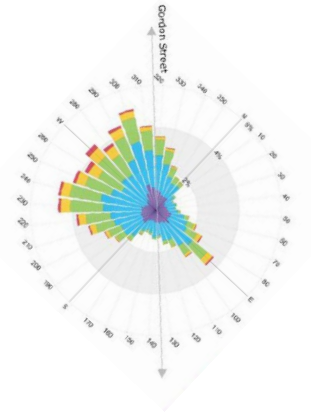


Image 8: Predicted *WINTER* Wind Conditions (Ground Level)

The Level 1 entrances to the townhouses along Gordon St are well situated in recessed pockets in the tower façade. These features will provide additional wind protection and conditions are expected to be acceptable.

5.3.3 Level 1 Patios

As described in section 5.3.1 the Level 1 patios on Building A will be exposed to strong westerly and northwesterly winds being redirected by the tower façade and onto this podium level as per Images 6a and 6b. Summer conditions will likely comfortable for walking which is less than ideal for the intended passive pedestrian use. Wind conditions are likely to be uncomfortable in the winter, especially at the patios closer to the south end of the tower. To improve these conditions would require a combination of overhead canopies / trellises to protect from downwashing winds (Image 6a) and vertical porous wind screens / planters installed perpendicular to the tower façade to provide localized wind protection for each of the patios. Image 9 provides some design guidelines for design of vertical wind screens and Image 10 provides some examples.

The patios at the north end of Building A are likely to have better wind conditions but would still benefit from overheard canopies / trellises to protect from downwashing winds.

5.3.4 Common Amenity Area

As shown in Images 7 and 8, this amenity area will be vulnerable to winds accelerating around the north corner of Building B resulting in conditions comfortable for walking in summer and uncomfortable in winter. The summer conditions are not ideal and can be mitigated by relocating this amenity space away from the building corner or incorporating trees and/or vertical screens to provide areas of localized wind protection (see Images 6b, 9 and 10).

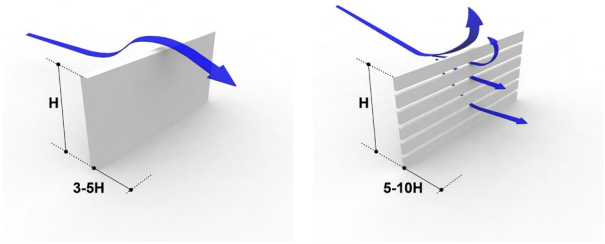


Image 9: Design Guidelines for Solid and Porous Windscreens

6. EXAMPLES OF WIND CONTROL STRATEGIES

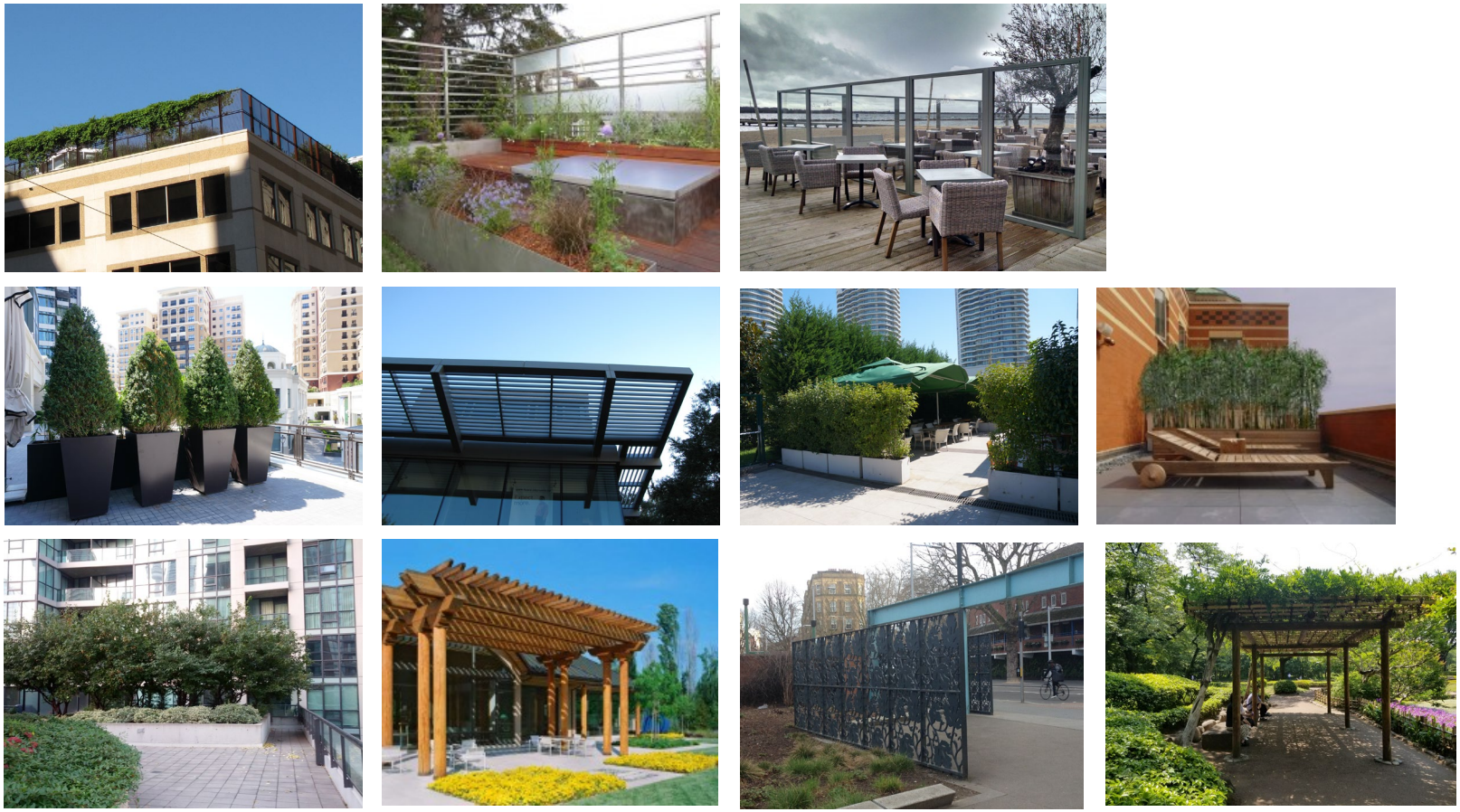


Image 10: Examples of Mitigation Measures for Patios and Terraces

7. SUMMARY

Wind conditions on and around the proposed 1250 Gordon St. development in Guelph, ON are discussed in this report, based on the local wind climate, surrounding buildings and our past experience with wind tunnel testing of similar buildings.

The proposed development has a number of positive design features such a tower setback and podium on the Building A, canopies above entrances and recessed entrances.

Appropriate wind conditions are expected at the sidewalks along Gordon St. within most of the site. An exception exists in the area between Buildings A and B where wind mitigation is suggested. Also, the patios on Level 1 and the common amenity area are predicted to have less than ideal wind conditions where wind control suggestions have been suggested.

Given the risk of uncomfortable winds at some ground level locations and the Level 1 patios, we recommend that wind tunnel testing of a scale model be carried out at a later date to confirm and quantify these conditions, and develop wind control strategies where required.

8. APPLICABILITY OF RESULTS

The assessment presented in this report are for proposed 1250 Gordon St. development in Guelph, ON based on the design drawings and documents received from Tricar Developments Inc. on February 5 and 18, 2020.

In the event of any significant changes to the design, construction or operation of the building or addition of surroundings in the future, RWDI could provide an assessment of their impact on the pedestrian wind conditions discussed in this report. It is the responsibility of others to contact RWDI to initiate this process.

Appendix G COMMMUNITY ENERGY INITIATIVE

SITE SUSTAINABILITY OVERVIEW

Urban Development	A dense and well utilized site serviced by vehicular and active transportation to the downtown core. Integrates an active pedestrian connection between new and existing development.
Existing and Proposed Trees	New trees on site and in the public right of way will contribute to the urban canopy, and new growth will add to the overall rejuvenation of the urban forest. It will provide a pleasant visualization for the existing adjacent buildings, as well as occupants of the proposed.
Site Lighting	Site lighting will be designed to direct to the ground and not to the sky.
Alternative Transportation	The site is adjacent to public transportation routes, pedestrian and cycling networks and has on-site bicycle storage. Future residents will have many active transportation choices, and the site is served by nearby retail and commercial uses within walking distance. The active pedestrian connection provides residents ease of access to the commercial/retail core.
Carbon Dioxide	The design and construction of the building will take into consideration the electrical and natural gas consumption for each major plant and electrical systems. Design will be balanced to provide more efficient equipment. Part of the design exercise will be to target larger electrical loads and the selection of the most efficient solution.
Landscape and Exterior Design	The proposed open space area exceeds the zoning requirement, at 40%. The landscaped areas will provide for an aesthetically enhanced streetscape, façade, and entrance design to the building. A large open public space area is proposed central to the site.
Heat Island	The building proposes light-colored building materials which have proven effective in reflecting more light. The roof will use lighter-coloured surfaces compared to a typical asphalt roof, which does not reflect a lot of solar radiation.
Exterior Design	Through responsible building design, mixes of building materials will be evaluated and selected to decrease the heat island effect and be energy efficient. The design of the new building will be subject to the recently amended Ontario Building Code requirements, particularly by energy modeling design evaluation approach, which largely influences the percentage of glazing, glazing type, building opening's orientation, etc. By the use of a responsible balance of materials and orientation, an

	energy efficient design will be synergized in an aesthetically pleasing and sustainable structure.
Building Sustainability	The building design, materials, and equipment have been selected and will be incorporated such that the building is sustainable in the long term. Sections of window walls will be designed in compartments to reduce the overall large expansion and contraction properties attributed with glass. The use of precast exterior wall panels and coating provides improved life cycle façade with minimal fading or delamination as found in other materials.
Stormwater Management	Stormwater management will be designed to capture and recharge the existing groundwater system. It is estimated that 80% of the runoff volume will be directed to groundwater.

WATER EFFICIENCY

Water Efficient Landscaping	Drought resistant landscape material will be specified as much as possible.
Reduced Water Consumption - Domestic Use	Low-flow faucets, toilets, and showerheads will be incorporated throughout the units to reduce water consumption. The intent is for hot water domestic supply to come via condensing boiler systems. Heated storage tanks will be utilized to reduce fluctuations in the requirement for hot water under peak demand. Allowing for on-site storage reduces the amount of time required by residents to wait for hot water to come from centralized systems.
Reduced Water Consumption - Heating & Cooling	Through the integration of high efficiency chiller/cooling tower systems and condensing boilers, the heating and cooling systems will be completely closed looped systems. The evaporation losses and energy efficiencies will be minimalized, even more than a conventional heating and cooling system.

ENERGY & ATMOSPHERE

Design Features – Mechanical Systems	The buildings HVAC system is centralized, individual controls will be provided in units for heating, cooling and lighting. The use of condensing boilers will be installed. Variable speed pumps for heating and cooling will be incorporated with integrated building controls. Low E windows will be used.
Design Features – Electrical	Energy efficient lighting will be utilized throughout the building. High efficiency florescent lighting will be utilized in most common areas which require 100% illumination at

	all time (parking garage, corridors, and stairs), and consideration for motion detection devices and/or LED lighting will be taken into consideration. Natural light is accommodated in all units and common areas to reduce the need for electrical consumption. Energy efficient appliances will be the standard inclusion for all units.
Electrical Metering and Controls	Utilities will be separately metered for individual units making residents aware of energy consumption. The building manager will be responsible for common areas and to monitor and reduce energy consumption. Common areas to be separately metered for electrical and natural gas.

MATERIALS & RESOURCES

Regional Materials	The vast majority of materials are available locally (800km radius as defined in LEED standard), limiting environmental impact of source supply transportation.
Low Emitting Materials	Low VOC materials will be used where possible, including, membranes, soy based polyurethane insulation, paints, carpeting, etc.
Collection of Recyclables	Collection of recyclables will be in accordance with City by-laws. A collection room will be located in the base of the building with ample room for additional bins.
Building Materials	High recycled content material to be specified where possible. Renewable finishes (such as flooring) will be offered as choices to purchasers of residential units.
Construction Waste Management	A construction waste diversion program will be in effect during the construction period. On-site concrete washing out will not be done on-site, back washing of the concrete truck will be done at the batching plant.

INDOOR ENVIRONMENT QUALITY

System Controllability	Each unit will have access to individual controls for heating, cooling, lighting, and ventilation.
Natural Ventilation	Operatable windows are provided for every unit and individual balcony.
Low VOC emitting Materials	Low VOC materials will be utilized where possible.
Natural Light	The building provides natural light to all regularly utilized spaces, other than the below grade parking garage.

INNOVATION & DESIGN PROCESS

Sustainable Consultants	The building and units will be designed and developed with input from accredited sustainable consultants. The building will be constructed to SB10 of the Ontario Building Code, energy modeling will be completed and applied to the building design to exceed the requirements of SB10.