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Noise Feasibility Study
Proposed Mixed-Use Development,
1546 Scott Street, Ottawa, Ontario

Prepared for:

Agile Response Consulting Limited (ARC)
on behalf of Reid's Heritage Properties
85 Bathurst Street, Unit D,
Waterloo, ON N2V 1Z5

Prepared by

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HGC Project No: 02100643

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1 Introduction and Summary

HGC Engineering was retained by ARC on behalf of Reid's Heritage Properties to conduct a noise feasibility study for a proposed mixed-use development located at 1546 Scott Street, Ottawa, Ontario. The subject site is located on the south side of Scott Street, east of Holland Avenue and west of Parkdale Avenue and north of Bullman Street. The analysis includes an assessment of the effect of traffic noise on the proposed development in accordance to the Ministry of the Environment, Conservation and Parks (MECP) and the City of Ottawa guidelines. The study is required by the City of Ottawa as part of the planning and approvals process.

The primary source of noise was determined to be road traffic on Scott Street. Secondary sources of noise include road traffic on Holland Avenue, Parkdale Avenue and traffic on the LRT line to the north. Road traffic data was obtained from the City of Ottawa personnel and from the City of Ottawa noise guidelines. These were used in conjunction with the site plan to predict future traffic sound levels at the proposed façades and in outdoor living areas. The predictions were evaluated with respect to the guidelines of MECP and the City of Ottawa, and were used to develop noise control recommendations.

The results of this study indicate that with suitable noise control measures integrated into the design of the proposed building, it is feasible to meet the MECP guideline sound levels. Central air conditioning is required for all dwelling units, and upgraded building constructions are required for the façade directly exposed to Scott Street. Noise warning clauses are also recommended to inform future occupants of the traffic noise impact, to address sound level excesses and to inform the future occupants of the neighbouring commercial/office uses.

A computer model of the area was created to predict the sound levels at the facades of the proposed building due to off-site stationary noise sources from existing commercial/office uses to the west and southwest. The results indicate that the sound emissions of the nearby stationary noise sources are expected to be within the MECP guideline sound levels during a worst case operational scenario. Noise mitigation for the existing stationary noise sources is not required due to high background sound levels from road traffic. Some administrative controls are recommended for the commercial/office building loading area.

Given the suspension of the operation of LRT trains on Line 1, ground-borne vibration at the site could not be verified at this time.

2 Site Description and Noise Sources

Figure 1 is a context plan indicating the location of the proposed site. The site is at the south side of Scott Street, east of Holland Ave and west of Parkdale Ave and north of Bullman Street, specifically at 1546 Scott Street. Figure 2 shows the Site Plan prepared by Tregebov Cogan Architecture dated April 20, 2021. The proposed development will include one 25-storey residential building, three levels of underground parking, a ground level commercial use, third floor amenity, with residential uses from levels 3 to 25 and a rooftop mechanical penthouse. Preliminary floor plans and elevations are included in Appendix D.

Surrounding Area

A site visit was conducted by HGC Engineering personnel on September 29, 2021. Site inspections and noise measurements of the rooftop equipment on the adjacent commercial/office buildings to the west of the subject site were conducted.

To the north of the site are existing office uses. A beer store is currently located on the site which will be removed. There are existing low rise residential dwellings to the west of Holland Avenue and east of Parkdale Avenue. There are also existing residences to the south of the commercial site, and east and west of Hamilton Avenue North. There is an existing 9-storey residential building to the south of the existing commercial buildings.

The primary source of traffic noise in the area is road traffic on Scott Street. Secondary sources of traffic noise include Parkdale Avenue and Holland Avenue. Highway 417 is approximately 800 m to the south, too far in distance to be considered in the analysis.

LRT

A light rail transit (LRT) line operated by OC Transpo is located on the north side of Scott Street. The LRT line terminates at Tunney's Pasture station located to the northwest of Holland Avenue and Scott Street. Line 1 service is suspended until further notice. The proposed residential building is located within 75 m of the LRT right of way. The City of Ottawa requested the assessment of

vibration due to the LRT in their proximity guidelines. HGC Engineering will continue to monitor the operation of the LRT on this line. A separate memo will be prepared related to ground-borne vibration, as necessary.

3 Noise Level Criteria

Guidelines for acceptable levels of traffic noise impacting residential developments are given in the MECP publication NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", release date October 21, 2013, and are listed in Table I below. The study also follows the City of Ottawa "Environmental Noise Control Guidelines" dated January 2016. The City of Ottawa *Confederation Line Proximity Study* Guidelines were also reviewd. The values in Table I are energy equivalent (average) sound levels [L_{EQ}] in units of A-weighted decibels [dBA].

Table I: MECP Road Traffic Noise Criteria (dBA)

Area	Daytime L_{EQ} (16 hour) Road	Nighttime L_{EQ}(8 hour) Road
Outdoor Living Area	55 dBA	--
Inside Living/Dining Rooms	45 dBA	45 dBA
Inside Bedrooms	45 dBA	40 dBA

Daytime refers to the period between 07:00 and 23:00. Nighttime refers to the time period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace, or other area where passive recreation is expected to occur. Small balconies are not considered OLAs for the purposes of assessment. Terraces greater than 4 m in depth (measured perpendicular to the building façade) are considered to be OLAs.

The guidelines in the MECP publication allow the daytime sound levels in an Outdoor Living Area to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically, and administratively practical. The maximum acoustic fence height in the City of Ottawa is 2.5 m unless approved by the City, with a maximum combined berm and face height of 4.5 m. In the case that the guideline criterion of 55 dBA cannot be met, it must be demonstrated to the

City of Ottawa that it is not technically feasible to meet the 55 dBA criterion with a warning clause.

A central air conditioning system as an alternative means of ventilation to opening windows is required for dwellings where nighttime sound levels outside bedroom or living/dining room windows exceed 60 dBA or daytime sound levels outside bedroom or living/dining room windows exceed 65 dBA. Forced-air ventilation with ducts sized to accommodate the future installation of air conditioning is required when nighttime sound levels at bedroom or living/dining room windows are in the range of 51 to 60 dBA or when daytime sound levels at bedroom or living/dining room windows are in the range of 56 to 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of window nighttime sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise.

Warning clauses to notify future residents of possible noise excesses are also required when nighttime sound levels exceed 50 dBA at the plane of the bedroom or living/dining room window and daytime sound levels exceed 55 dBA in the outdoor living area and at the plane of the bedroom or living/dining room window due to road traffic.

4 Traffic Sound Level Assessment

4.1 Road Traffic Data

Ultimate traffic data for Scott Street and Parkdale Avenue were obtained from the City of Ottawa Environmental Noise Guidelines dated January 2016 based on the width of the roadway and number of lanes, and is provided in Appendix A.

Existing/current traffic volumes were also obtained from the City of Ottawa. The higher of the ultimate and projected data was used in the analysis to determine for future traffic sound levels.

Ultimate traffic volume of 8 000 vehicles per day, obtained from the City of Ottawa Environmental Noise Control Guidelines, was applied to Codd`s Road with a posted speed limit of 50 km/h. A commercial vehicle percentage of 7% medium trucks and 5% heavy trucks was used in the analysis. Day and night traffic are spit to 92%/8% by volume respectively. The ultimate traffic volumes used in the analysis are provided in Table II.

Table II: Ultimate Road Traffic Data

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
Scott Street (ultimate)	Daytime	19 430	1 104	1 546	22 000
	Nighttime	1 690	96	134	1 920
	Total	**21 120**	**1 200**	**1 680**	**24 000**
Holland Avenue (Ultimate)	Daytime	9 715	773	552	11 040
	Nighttime	845	67	48	960
	Total	**10 560**	**840**	**600**	**12 000**
Parkdale Avenue (ultimate)	Daytime	6 477	515	368	7 360
	Nighttime	563	45	32	640
	Total	**7 040**	**560**	**400**	**8 000**

4.2 LRT Traffic Data

Current LRT volumes at a station near Tunney's Pasture were obtained from the OC Transpo website, and are provided in Appendix B. The LRT traffic volumes have been escalated to the year 2031 assuming a conservative growth rate of 2.5% per year. The projected daytime and nighttime LRT volumes are listed in Table III.

Table III: 2031 Projected LRT Data

Location	Daytime Total Count	Nighttime Total Count	Speed (km/h)
LRT	545	61	80

4.3 Traffic Noise Predictions

To assess the levels of traffic noise which will impact the study area in the future, sound level predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix C.

Predictions of the traffic sound levels were made at representative locations around the proposed development. For residential units, sound levels were predicted at the top storey bedroom and/or living/dining room windows during daytime and nighttime hours to investigate ventilation requirements. Sound levels were also predicted at the 2nd floor terrace to investigate the need for acoustic barriers. Figure 2 shows the site plan with prediction locations. The results of these predictions are summarized in Table IV.

Table IV: Predicted Road Traffic Sound Levels [dBA], Without Mitigation

Prediction Location	Description	Daytime – in the OLA $L_{EQ-16\ hr}$	Daytime – at the Façade $L_{EQ-16\ hr}$	Nighttime – at the Facade $L_{EQ-8\ hr}$
A	North façade facing Scott Street	--	71	63
B	West façade, facing Holland Avenue	--	67	59
C	East façade, facing Parkdale Avenue	--	65	58
D	South façade	--	61	54
E	2nd floor outdoor terrace	66+	--	--

Note: + a minimum 1.07 m high solid parapet is included in the analysis

5 Discussion and Recommendations

The sound level predictions indicate that the future traffic sound levels will exceed MECP guidelines at the façades facing Scott Street, the LRT, Holland Avenue and Parkdale Avenue and will require noise mitigation measures. The following discussion outlines the recommendations for acoustic barrier requirements, ventilation requirements, upgraded building façade construction, and warning clauses to achieve the noise criteria stated in Table I.

5.1 Outdoor Living Areas

A large terrace is indicated on the second floor measuring greater than 4 m in depth (prediction location [E]). The predicted sound level in these terraces which are considered as outdoor living areas will be up to 66 dBA, 11 dBA in excess of the MECP limit of 55 dBA assuming a minimum 1.07 m solid parapet wall along the roof edge, facing north. A solid parapet wall 2.5 m in height at prediction location [E] would reduce sound levels in the OLAs to 59 to 60 dBA. The 4 to 5 dBA sound level excess is acceptable to the MECP if it is acceptable to the municipality with the use of a noise warning clause. Appendix D provides a sample tall acoustic barrier construction for an elevated OLA. Alternatively, these areas may be shortened to less than 4 m in depth and a traffic noise assessment will not be required.

As a general note, the solid parapet wall can be constructed from any material (including transparent materials) provided it is of a solid construction with a surface density of no less than 20 kg/m^2 and is free of gaps within or below its extent.

Individual balconies and terraces may be provided for the proposed dwelling units. These balconies and terraces are less than 4 m in depth they are not considered to be OLAs by the MECP and sound level predictions are not required.

There are no other common outdoor amenity areas indicated on the site plan.

5.2 Indoor Living Areas and Ventilation Requirements

Central Air Conditioning

The predicted future sound levels outside the living room/dining room and bedroom windows at the prediction location facing Scott Street and the LRT will be greater than 65 dBA during the daytime hours. To address these excesses, these units require to be equipped with central air conditioning systems so that windows can be kept closed. Window or through-the-wall air conditioning units are not recommended because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall sound insulating properties of the envelope. Acceptable units are those housed in their closet with an access door for maintenance. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-300.

5.3 Building Façade Constructions

The predicted sound levels of façade facing Scott Street or Parkdale Avenue will exceed 65 dBA daytime and/or 60 dBA nighttime and thus will require additional building design to conform to the noise criteria. MECP guidelines recommend that the windows, walls, and doors be designed such that the indoor sound levels comply with MECP criteria listed in Table I.

Calculations were preformed to determine the building envelope constructions likely to be required to maintain indoor sound levels within MECP guidelines. Exterior wall constructions meeting the requirement of the Ontario Building Code will provide sufficient sound insulation. The calculation methods were developed by the National Research Council (NRC). They are based on the predicted sound levels at the building facades and the area of the facade components (walls, windows and doors) relative to the floor area of the adjacent room determined from the floor plans and building elevations.

These calculations assume insignificant sound transmission through the walls in comparison with the

windows. Exterior walls that are not glazed should have sufficient acoustical insulation value such that the noise transmitted through is negligible in comparison with the windows. These aspects can be verified as part of the detail design of the envelope, as needed.

Detailed floor plans and building elevations were not available at the time of this report, but preliminary calculations have been performed to determine the building envelope constructions likely to be required to maintain indoor sound levels within MECP guidelines. The required Sound Transmission Class (STC) ratings for window glazing is summarised below in Table V.

Table V: STC Requirements

Location	Description	Space	STC Glazing Requirements
A	North façade facing Scott Street	Living/Dining	STC-34
		Bedroom	STC-32
B	West façade, facing Holland Avenue	Living/Dining	OBC
		Bedroom	OBC
C	East façade, facing Parkdale Avenue	Living/Dining	STC-30
		Bedroom	OBC
D	South façade	Living/Dining	OBC
		Bedroom	OBC

Notes:
* Based on window to floor area ratios of 80% for living/dining rooms and bedrooms (60% fixed and 20% operable)
OBC – Ontario Building Code

In an urban environment such as this, a sound transmission class (STC) rating of 33 is recommended as a minimum.

The glazing requirements can be met using fairly standard sealed units. Operable sections, including doors and operable windows, must be well-fitted and weather-stripped in order to achieve the upper range of target STC values. Acoustical criteria for different facades can be optimized as part of the detail design of the development, when floor plans and elevations for the buildings are available.

Sample window assemblies which may achieve the STC requirements are summarized in Table VI below. Note that acoustic performance varies with manufacture's construction details, and these are only guidelines to provide some indication of the type of glazing likely to be required; the STC requirements in Table IV are provided as a guideline based on the preliminary drawings. Acoustical test data for the selected assemblies should be requested from the supplier, to ensure that the stated acoustic performance levels will be achieved by their assemblies.

Table VI: Glazing Assemblies for STC Requirements

STC Requirement	Glazing Configuration (STC)
28 – 29	Any double glazed unit
30 – 31	3(13)3
32 – 33	4(10)4
34 – 35	6(10)6

In Table VI, the number outside parentheses indicate minimum pane thicknesses in millimeters and the number in parentheses indicates the minimum inter-pane gap in millimeters.

Alternative assemblies may be required for operable windows and doors to achieve the required performance values, depending on the nature of seals.

6 Stationary Source Assessment

Noise sources associated with industrial and commercial facilities are assessed separately from traffic sources under MECP guidelines. These facilities are considered to be Stationary Sources of Sound and criteria for their assessment are contained in the following section.

6.1 Criteria Governing Stationary Noise Sources

An industrial or commercial facility is classified in MECP guidelines as a stationary source of sound (as opposed to sources such as traffic or construction, for example) for noise assessment purposes. The proposed development is located in an urban acoustical environment classified as Class I according to MECP guidelines, which can be characterized by the background sound level being dominated by traffic and human activity.

The façade of a residence, or any associated usable outdoor area, is considered a sensitive point of reception. NPC-300 stipulates that the exclusionary minimum sound level limit for a stationary noise source in an urban Class 1 area is 50 dBA during daytime (07:00 to 19:00) and evening (19:00 to 23:00) hours, and 45 dBA during nighttime hours (23:00 to 07:00). If the background sound levels due to road traffic exceed the exclusionary minimum limits, then the background sound level becomes the criterion. The background sound level is defined as the sound level that is present when the stationary source under consideration is not operating, and may include traffic noise and natural sounds.

Elevated background sound levels due to road traffic on the surrounding roadways (Scott Street, Parkdale Avenue, Holland Avenue and the LRT) is considerable especially at the façade adjacent to and with exposure to the traffic noise sources. Minimum background sound levels were calculated using the basic road element included in Cadna/A, which follows the German guideline RLS-90 for road traffic noise predictions. The higher of the minimum background sound levels due to road traffic on the surrounding roadways and the exclusionary minimum sound levels at the façades of the proposed building are shown in Figures 3a/b.

Commercial activities such as the occasional movement of customer vehicles, occasional deliveries, and garbage collection are not of themselves considered to be significant noise sources in the MECP guidelines. Accordingly, these sources have not been considered in this study, with the exception of truck loading activities near the receiving area of the traffic safety equipment supplier directly west of the site area. Noise from safety equipment (e.g. back-up beepers) are also not considered as stationary noise sources and therefore are not considered.

The MECP guidelines stipulate that the sound level impact during a "predicable worst case hour" be considered. This is defined to be an hour when a typically busy "planned and predictable mode of operation" occurs at the subject facility or facilities, coincident with a period of minimal background sound. Compliance with MECP criteria generally results in acceptable levels of sound at residential receptors although there may still be residual audibility during periods of low background sound.

6.2 Stationary Source Noise Predictions

Predictive noise modelling was used to assess the sound impact of the nearby stationary sources at the most critically impacted façades of the proposed building in accordance with MECP guidelines. The noise prediction model was constructed based on a review of the proposed site plan, site visit to the adjacent commercial/office rooftops, satellite aerial photos, and estimates of sound emission levels of stationary sources taken from manufacturer's data, sound measurements and similar past HGC Engineering project files.

Table VII: Source Sound Power Levels [dB re 10-12 W]

Source	Octave Band Centre Frequency [Hz]								Overall [dBA]
	63	125	250	500	1k	2k	4k	8k	
EngAir FW1058 (2 on each roof)	96	95	90	90	94	76	76	75	90
Tower Tech CT	83	82	85	85	82	77	72	68	86
Lennox LGH240	87	83	65	54	50	47	49	41	68
Exhaust Fan	--	79	76	71	72	64	59	55	75
Tractor Trailer Reefer	112	105	96	95	93	91	95	77	98
Tractor Trailer passby	101	100	94	96	97	95	91	86	101
EngAir FWE755	85	85	88	85	80	79	41	65	85

The above data were inputted into a predictive computer model. The software used for this purpose (*Cadna-A version 2021, build: 183.5110*) is a computer implementation of ISO Standard 9613-2.2 "Acoustics - Attenuation of Sound During Propagation Outdoors." The ISO method accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures such as barriers.

The following information and assumptions were used in the analysis.

- Rooftop mechanical equipment were assumed to be EngAir models on the roof of the commercial/office buildings, at height of 2.0 m above the roof (including an acoustic screen 4 m high, open to the above), exhaust fans and other mechanical equipment at a height of 1.0 m above the roof.
- There is a delivery area (loading bay) at the east of the commercial/office building. One tractor trailer was observed during the site visit with a reefer (but not operating). Tractor trailers were assumed to access the loading dock. Any reefer units and engines were assumed to not idle in the loading dock area.
- Sound data for the above sources was obtained from past HGC Engineering project files of similar facilities, which were either originally obtained from the manufacturer (for HVAC equipment) or measured at similar facilities.
- Location of stationary noise sources are shown in Figure 4. Rooftop HVAC units, exhaust fans, and truck paths are shown as green crosses and lines.

In this impact assessment, we have considered typical worst-case (busiest hour) scenarios for each time period to be as follows:

Assumed day worst-case scenario:

- All rooftop equipment on the roof of the commercial/office buildings operating continuously at 67% capacity (40 minutes out of an hour). Remaining rooftop equipment operating continuously at 50% capacity (30 minutes out of an hour).
- One tractor trailer accessing the loading area entering in and out at a speed of 10 km/h.
- No truck engine idling or reefer units on, at the loading area.

Assumed night worst-case scenario:

- All rooftop equipment operating at a 25% duty cycle to account for on/off cycling. The commercial/office buildings are closed and do not operate during the nightitme hours.
- No deliveries during the nighttime hours at the loading area.

6.3 Results

The unmitigated sound levels due to stationary noise sources impacting the façades of the proposed building are summarized in Table VIII, and presented graphically in Figures 5a and 5b.

Table VIII: Predicted Sound Levels from the Existing Commercial/Office Facilities on the Proposed Building [dBA]

		Daytime (07:00 – 23:00)	Nighttime (23:00 – 07:00)	Criteria (Daytime / Nighttime)
R1	NW façade	48	44	61/5
R2	West façade	50	45	60/50
R3	SW façade	50	46	57/47
R4	South façade	48	41	48/45

The results of the calculations indicate that the predicted sound levels due to the operation of the nearby stationary sources of noise during a worst-case operational scenario are expected to be within MECP limits at the façades of the proposed mixed-use building. Mitigation is not required. Figure 6a and 6b indicate the sound level contours.

Administrative Controls

The loading area to the south of the proposed building has the potential for sound level excesses at the south façade of the proposed building, if tractor trailer engines are allowed to idle or if any reefer units on trucks are allowed to run while the trucks are docked at the loading area.

Engines and reefer units are recommended to be turned off while at the loading area to minimize noise intrusions at future residential units, especially along the south façade.

6.4 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements and offers of purchase and sale for all lots with anticipated traffic sound level excesses. The following noise warning clauses are required for specific dwellings as indicated in Table IX.

Suggested wording for future dwellings which have minor sound level excesses is given below.

Type A:

> Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic and LRT traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks.

Suggested wording for future dwellings that would require central air conditioning is given below.

Type B:

> This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality's and the Ministry of the Environment, Conservation and Parks' noise criteria.

Suggested wording for future dwellings that would require central air conditioning is given below.

Type C:

> Purchasers/tenants are advised that due to the proximity of this development to nearby retail/commercial facilities, sound levels from these facilities may at times be audible.

These sample clauses are provided by the MECP as examples, and can be modified by the Municipality as required.

7 Impact of the Development on the Environment

Sound levels from stationary (non-traffic) sources of noise such as rooftop air-conditioners, cooling towers, exhaust fans, etc. should not exceed the minimum one-hour L_{EQ} ambient (background) sound level from road traffic, at any potentially impacted residential point of reception (on or off site), to comply with City of Ottawa noise bylaws. Typical minimum ambient sound levels in the area are expected to be up to 55 to 60 dBA during the day and about 5 - 10 dB less at night, at nearby residential receptors. Thus, any electro-mechanical equipment associated with this development (e.g. cooling towers, fresh-air handling equipment, etc.) should be designed such that they do not result in noise impact beyond these ranges. The proposed building will be higher than the existing neighbouring residential buildings and the mechanical equipment is proposed to be housed inside a mechanical penthouse, thus noise from the mechanical equipment on the roof of this building are not expected to substantially impact the neighbouring residential buildings.

8 Impact of the Development on Itself

Section 5.8.1.1 of the Ontario Building Code (OBC), released on January 1, 2020, specifies the minimum required sound insulation characteristics for demising partitions of dwelling units, in terms of Sound Transmission Class (STC) or Apparent Sound Transmission Class (ASTC) values. In order to maintain adequate acoustical privacy between separate suites in a multi-tenant building, inter-suite walls must meet or exceed STC-50 or ASTC-47. Suite separation from a refuse chute, or elevator shaft, must meet or exceed STC-55. In addition, it is recommended that the floor/ceiling constructions separating suites from any amenity, commercial or other mechanical spaces also meet or exceed STC-55. Tables 1 and 2 in Section SB-3 of the Supplementary Guideline to the OBC provide a comprehensive list of constructions that will meet the above requirements.

Tarion's Builder Bulletin B19R requires the internal design of condominium projects to integrate suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services in the development on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself is maintained within acceptable levels.

9 Summary and Recommendations

The following list and Table X summarize the recommendations made in this report. The reader is referred to previous sections of the report where these recommendations are applied and discussed in more detail.

1. The second floor terrace adjacent to and with exposure to Scott Street requires an acoustic barrier to mitigate transportation noise levels. Refer to Section 5.1.

2. Central air conditioning will be required for proposed building. The location, installation and sound rating of the outdoor condensing units must be compliant with MECP Guideline NPC-300, as applicable

3. Upgraded glazing construction will be required for north façade, as indicated in Table V and X. Minimum building constructions are recommended in an urban area such as this.

4. The use of warning clauses in the property and tenancy agreements is recommended to inform future residents of traffic noise issues and to indicate the presence of the nearby commercial/office uses.

Table X: Summary of Noise Control Requirements and Noise Warning Clauses

Prediction Location	Acoustic Barrier	Ventilation Requirements*	Type of Warning Clause	STC Glazing Requirements
A North façade	--	Central A/C	A, B, C	LR/DR: STC-34 BR: STC-33
B West facade	--	Central A/C	A, B, C	LR/DR: STC-33 BR: STC-33
C East façade	--	Central A/C	A, B, C	LR/DR: STC-33 BR: STC-33
D South facade	--	Central A/C	A, B, C	LR/DR: STC-33 BR: STC-33

Notes:
* The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.
-- no specific requirement
OBC – Construction meeting the Ontario Building Code
LR/DR: Living room/Dining room
BR: Bedroom

9.1 Implementation

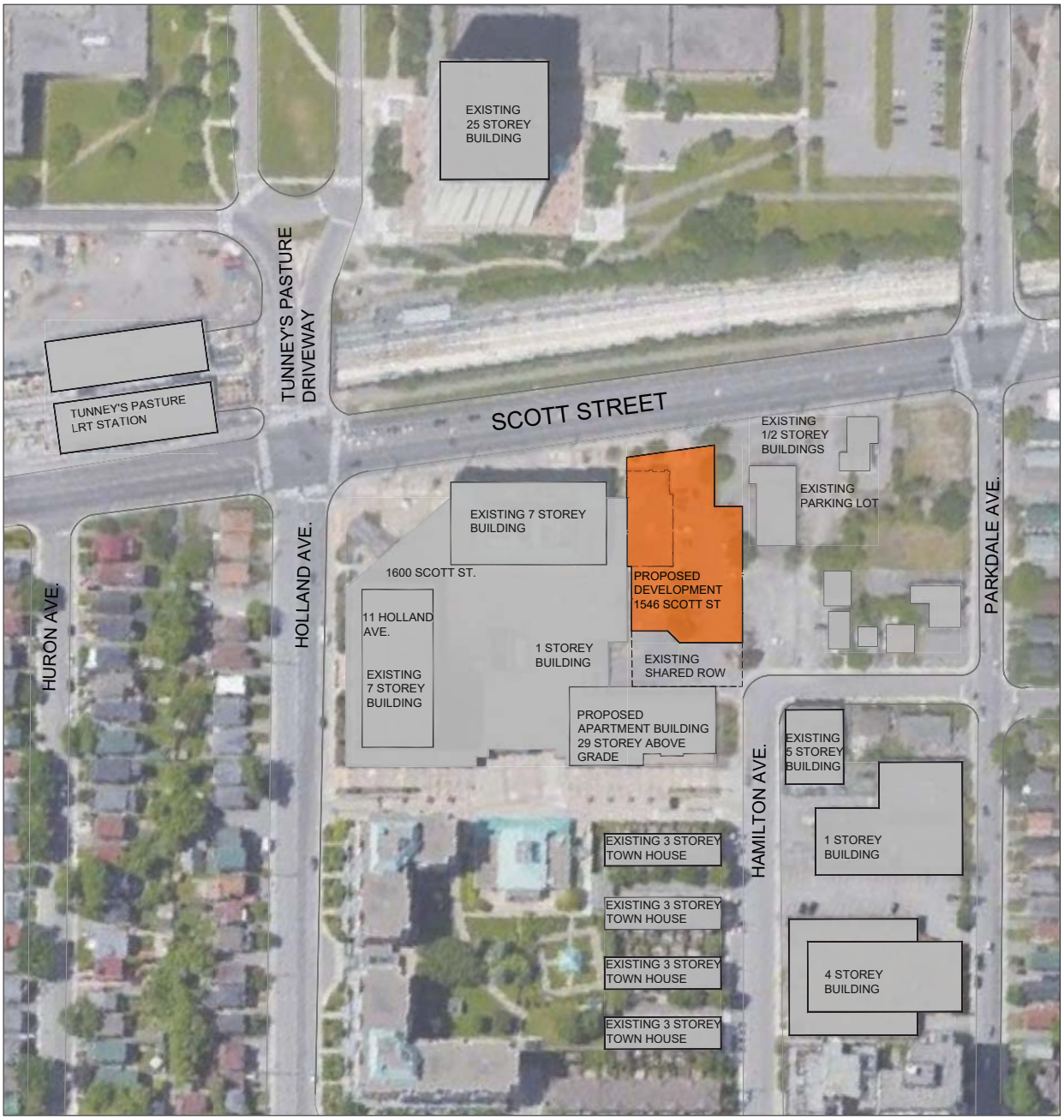
To ensure that the noise control recommendations outlined above are properly implemented, it is recommended that:

1. Prior to the issuance of building permits for this development, the Municipality's building inspector or a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should review the proposed glazing specifications to confirm that these meet the necessary STC values as specified in the noise report.

PARKING	
LEVEL	PARKING SPACES
F1	12
P1	29
P2	57
P3	57
TOTAL	155

AREAS			
LOT AREA	2,525 m²		
FSI	6.02		
LEVEL	AREA	SELLABLE	GFA
P1	2,254 m²	0	0
P2	2,254 m²	0	0
P3	1,110 m²	0	0
F1	846 m²	261 m²	261 m²
F2	1,411 m²	0	0
TOWER LEVELS	750 m²	650 m²	650 m²
SUITES AVG	10/FLOOR	65 m²/SUITE	230 SUITES
F3-F25	17,250 m²	14,950 m²	14,950 m²
TOTAL	25,124 m²	15,211 m²	15,211 m²

SITE INFORMATION



CONTEXT PLAN

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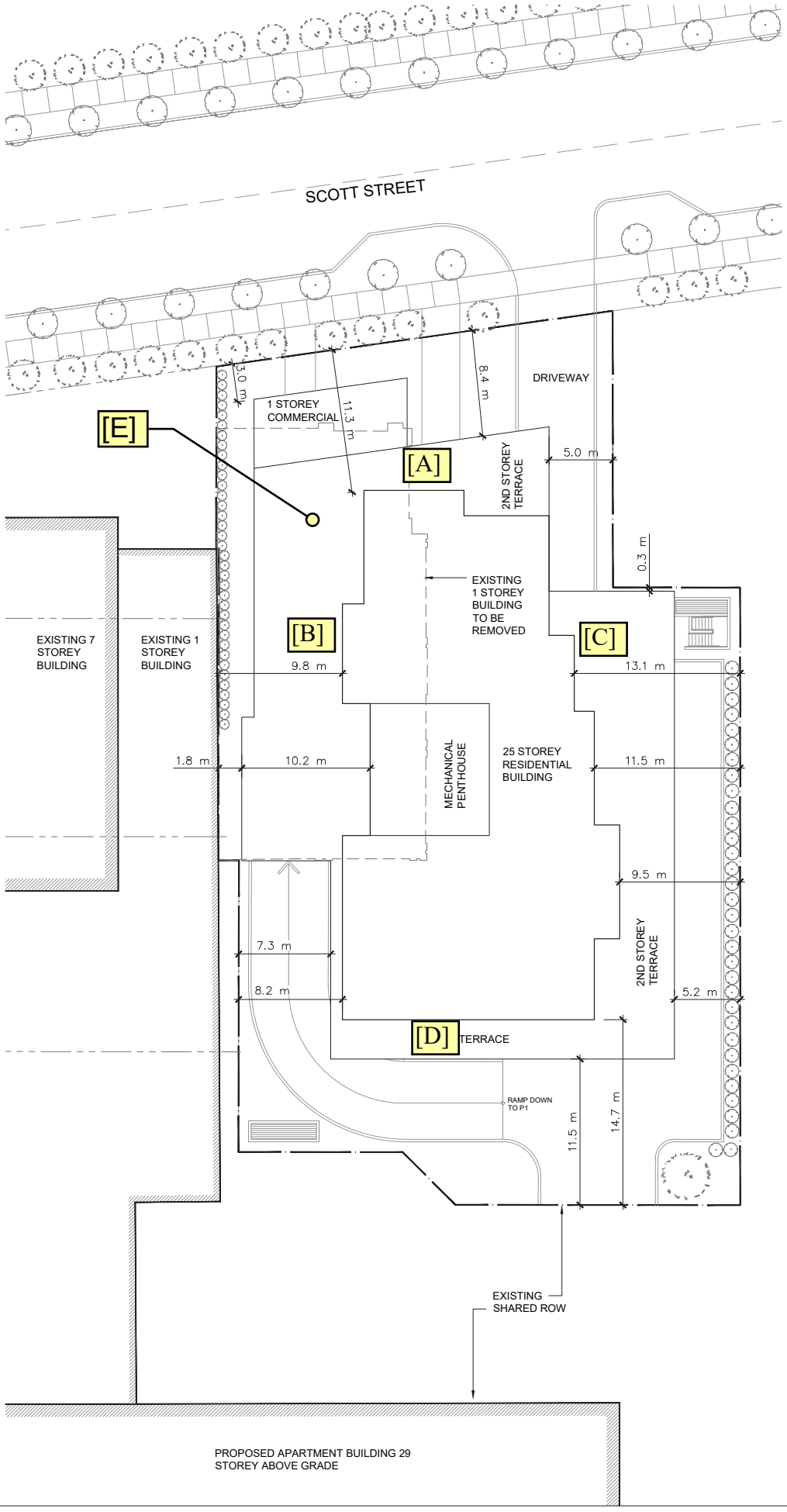
40 St. Clair Avenue East, Suite 303
Toronto, ON M4T 1M9
office@tcarchitecture.ca
647-352-3350

1546 SCOTT STREET
OTTAWA

CONTEXT PLAN
SCALE: 1:1500
DATE: APRIL 20, 2021

Figure 1 - Context Plan



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1546 SCOTT STREET
OTTAWA

SITE PLAN
SCALE: 1:300
DATE: APRIL 20, 2021

Figure 2 - Site Plan

Figure 3a: Daytime Background Sound levels

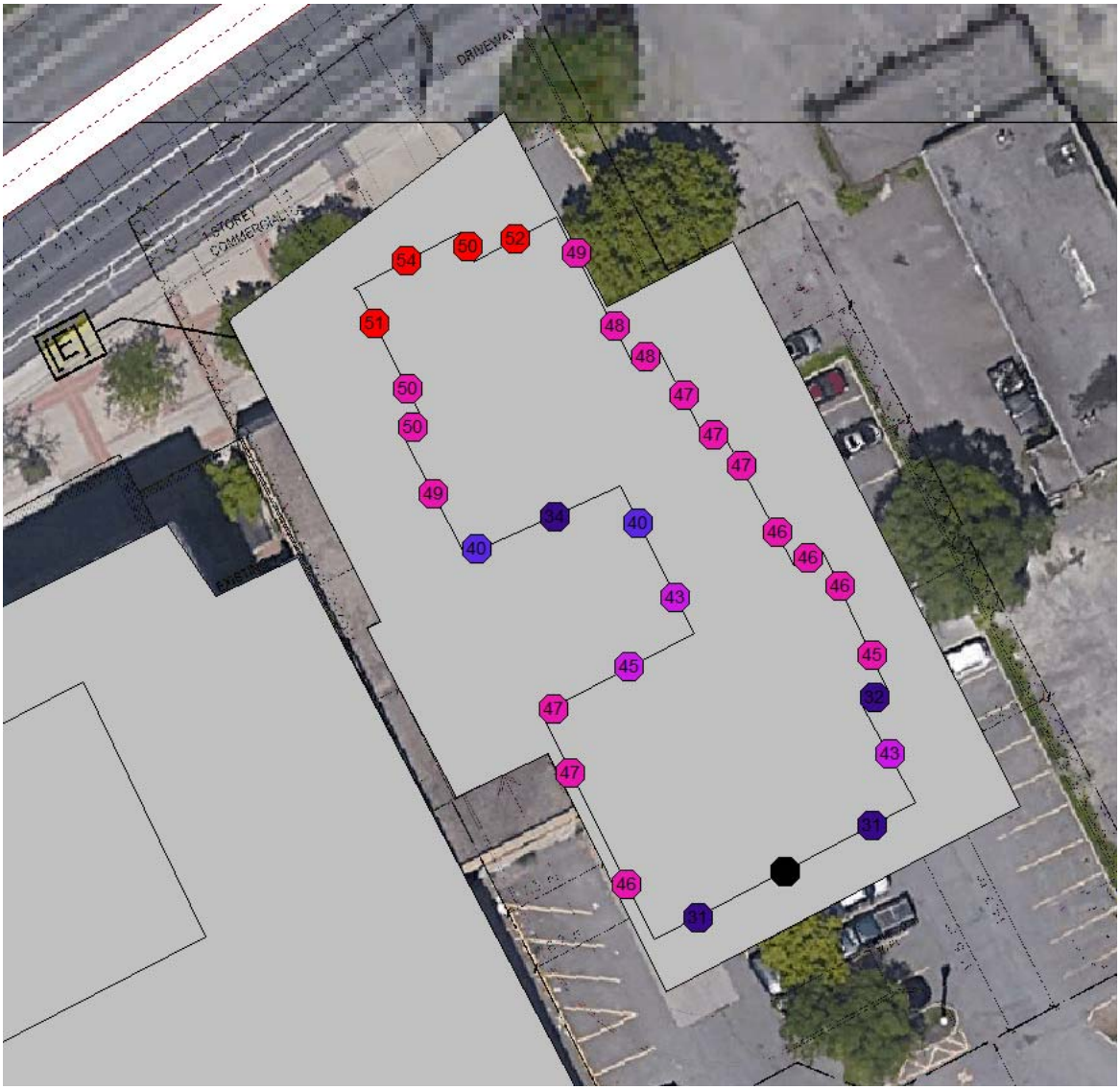


Figure 3b: Nighttime Background Sound Levels

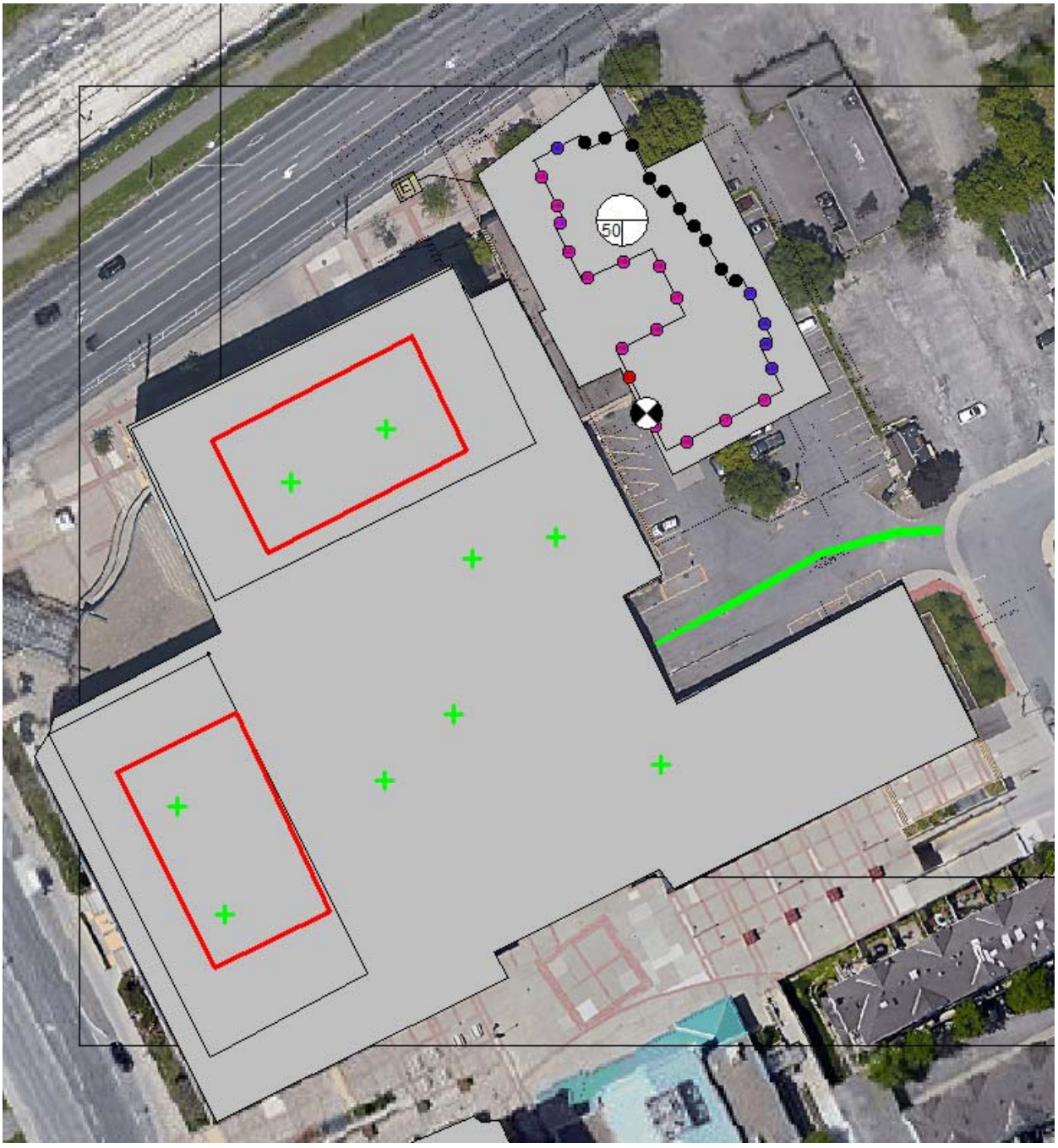


Figure 4: Noise Sources Associated with the Commercial/Office Buildings

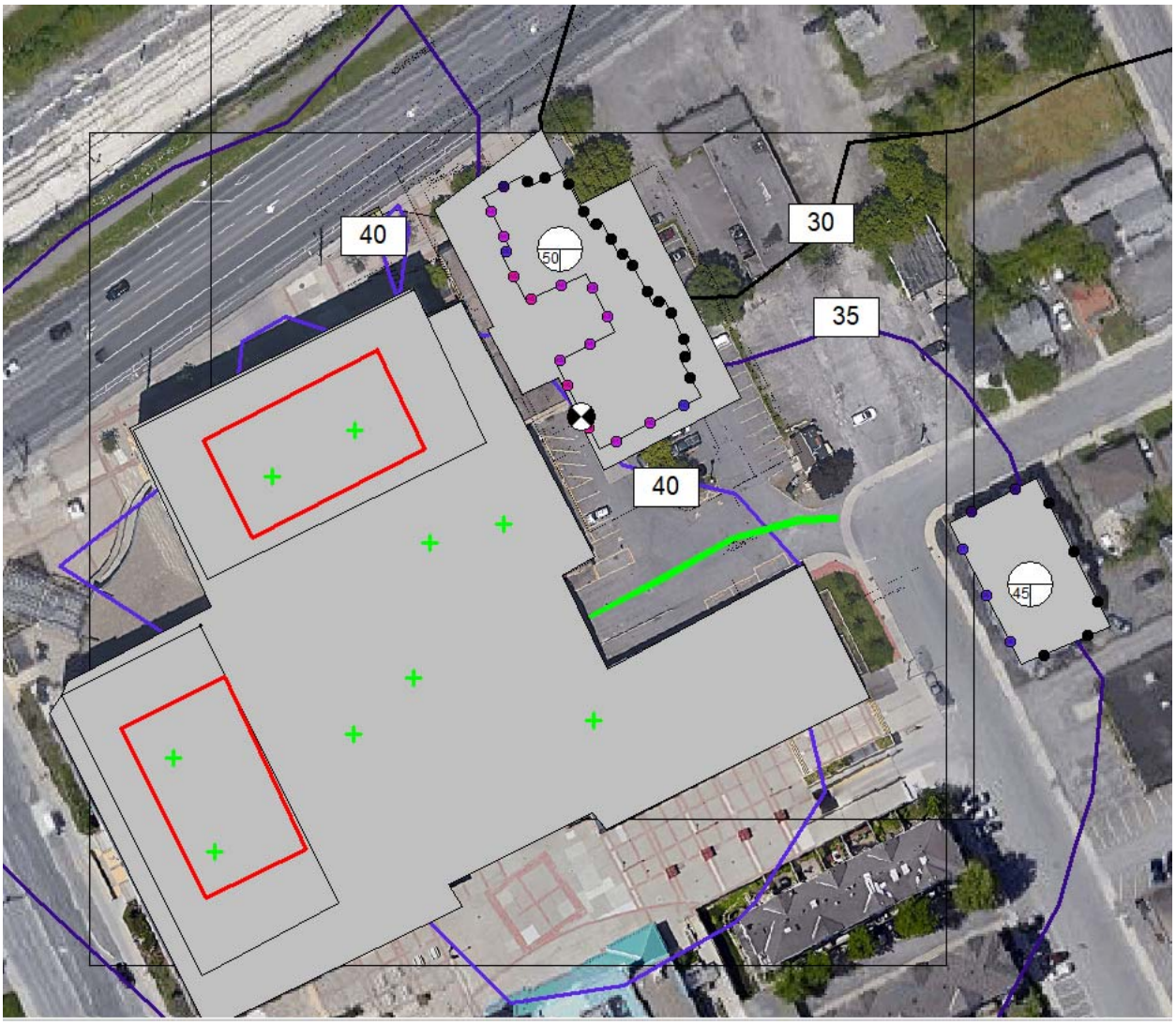


Figure 5a: Predicted Daytime Sound levels at Proposed Building, dBA

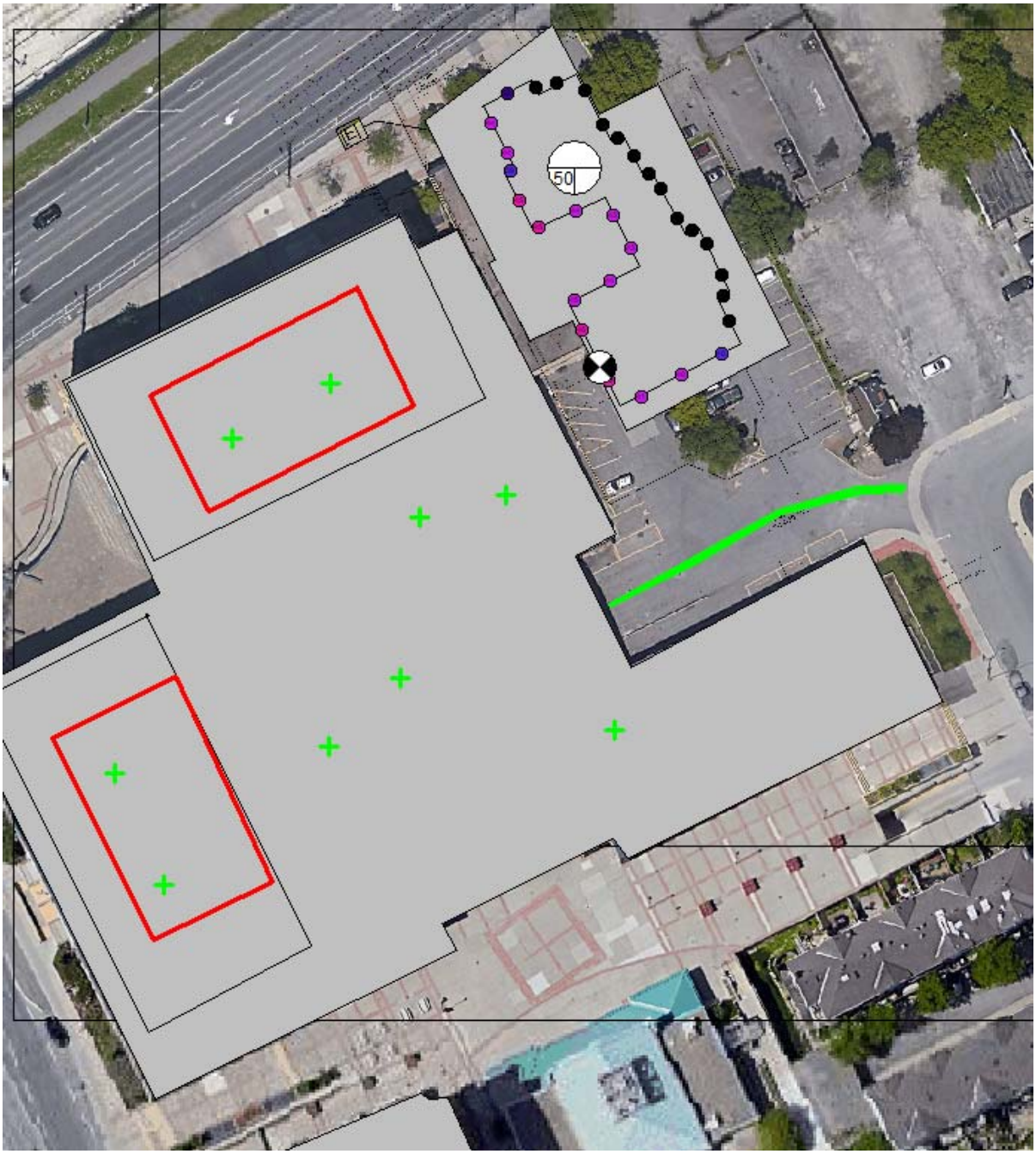


Figure 5b: Predicted Nighttime Sound Levels at Proposed Buildings, dBA

Appendix A

Road Traffic Information

Appendix B: Table of Traffic and Road Parameters To Be Used For Sound Level Predictions

Table B1 Traffic And Road Parameters To Be Used For Sound Level Predictions

Row Width (m)	Implied Roadway Class	AADT Vehicles/Day	Posted Speed Km/Hr	Day/Night Split %	Medium Trucks %	Heavy Trucks % [1]
NA [2]	Freeway, Queensway, Highway	18,333 per lane	100	92/8	7	5
37.5-44.5	6-Lane Urban Arterial-Divided (6 UAD)	50,000	50-80	92/8	7	5
34-37.5	4-Lane Urban Arterial-Divided (4-UAD)	35,000	50-80	92/8	7	5
23-34	4-Lane Urban Arterial-Undivided (4-UAU)	30,000	50-80	92/8	7	5
23-34	4-Lane Major Collector (4-UMCU)	24,000	40-60	92/8	7	5
30-35.5	2-Lane Rural Arterial (2-RAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Urban Arterial (2-UAU)	15,000	50-80	92/8	7	5
20-30	2-Lane Major Collector (2-UMCU)	12,000	40-60	92/8	7	5
30-35.5	2-Lane Outer Rural Arterial (near the extremities of the City) (2-RAU)	10,000	50-80	92/8	7	5
20-30	2-Lane Urban Collector (2-UCU)	8,000	40-50	92/8	7	5

[1] The MOE Vehicle Classification definitions should be used to estimate automobiles, medium trucks and heavy trucks.

[2] The number of lanes is determined by the future mature state of the roadway.

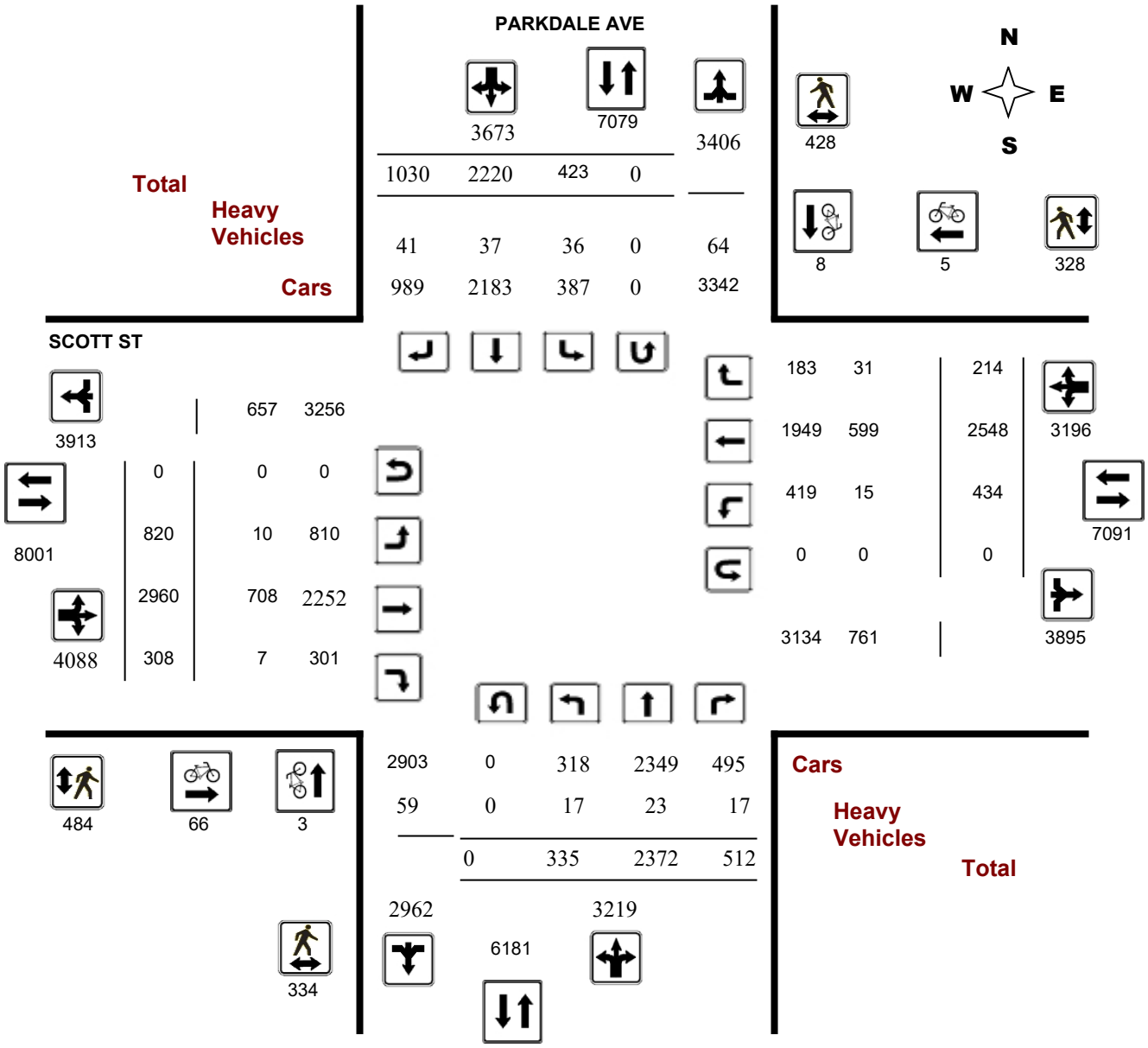
Transportation Services - Traffic Services

Turning Movement Count - Study Results

PARKDALE AVE @ SCOTT ST

Survey Date: Wednesday, November 29, 2017
Start Time: 07:00
WO No: 37314
Device: Miovision

Full Study Diagram



Appendix B

LRT Information

TUNNEY'S PASTURE O-TRAIN EAST / EST	BAYVIEW O-TRAIN EAST / EST	PIMISI O-TRAIN EAST / EST	LYON O-TRAIN EAST / EST	PARLIAMENT / PARLEMENT O-TRAIN EAST / EST	RIDEAU O-TRAIN EAST / EST	UOTTAWA O-TRAIN EAST / EST	LEES O-TRAIN EAST / EST	HURDMAN O-TRAIN EAST / EST	TREMBLAY O-TRAIN EAST / EST	ST-LAURENT O-TRAIN EAST / EST	CYRVILLE O-TRAIN EAST / EST	BLAIR O-TRAIN

The next service change is on Sunday, December 19.

Schedule times are based on typical driving conditions and may vary. Please arrive at your stop a few minutes early to allow for any fluctuations in schedule.

Wed, Sep 29

1 Blair

TUNNEY'S PASTURE O-TRAIN EAST / EST	BAYVIEW O-TRAIN EAST / EST	PIMISI O-TRAIN EAST / EST	LYON O-TRAIN EAST / EST	PARLIAMENT / PARLEMENT O-TRAIN EAST / EST	RIDEAU O-TRAIN EAST / EST	UOTTAWA O-TRAIN EAST / EST	LEES O-TRAIN EAST / EST	HURDMAN O-TRAIN EAST / EST	TREMBLAY O-TRAIN EAST / EST	ST-LAURENT O-TRAIN EAST / EST	CYRVILLE O-TRAIN EAST / EST	BLAIR O-TRAIN
								05:02	05:04	05:07	05:09	05:11
04:56	04:58	05:00	05:02	05:04	05:06	05:08	05:10	05:12	05:14	05:17	05:19	05:21
05:04	05:06	05:08	05:10	05:12	05:14	05:16	05:18	05:20	05:22	05:25	05:27	05:29
05:11	05:13	05:15	05:17	05:19	05:21	05:23	05:25	05:27	05:29	05:32	05:34	05:36
05:19	05:21	05:23	05:25	05:27	05:29	05:31	05:33	05:35	05:37	05:40	05:42	05:44
05:27	05:29	05:31	05:33	05:35	05:37	05:39	05:41	05:43	05:45	05:48	05:50	05:52
05:35	05:37	05:39	05:41	05:43	05:45	05:47	05:49	05:51	05:53	05:56	05:58	06:00
05:43	05:45	05:47	05:49	05:51	05:53	05:55	05:57	05:59	06:01	06:04	06:06	06:08
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05:59	06:01	06:03	06:05	06:07	06:09	06:11	06:13	06:15	06:17	06:20	06:22	06:24
										06:24	06:26	06:28
06:07	06:09	06:11	06:13	06:15	06:17	06:19	06:21	06:23	06:25	06:28	06:30	06:32
										06:32	06:34	06:36
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06:38	06:40	06:42	06:44	06:46	06:48	06:50	06:52	06:54	06:56	06:59	07:01	07:03

TUNNEY'S PASTURE O-TRAIN EAST / EST	BAYVIEW O-TRAIN EAST / EST	PIMISI O-TRAIN EAST / EST	LYON O-TRAIN EAST / EST	PARLIAMENT / PARLEMENT O-TRAIN EAST / EST	RIDEAU O-TRAIN EAST / EST	UOTTAWA O-TRAIN EAST / EST	LEES O-TRAIN EAST / EST	HURDMAN O-TRAIN EAST / EST	TREMBLAY O-TRAIN EAST / EST	ST-LAURENT O-TRAIN EAST / EST	CYRVILLE O-TRAIN EAST / EST	BLAIR O-TRAIN	/	BLAIR O-TRAIN
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TUNNEY'S PASTURE O-TRAIN EAST / EST	BAYVIEW O-TRAIN EAST / EST	PIMISI O-TRAIN EAST / EST	LYON O-TRAIN EAST / EST	PARLIAMENT / PARLEMENT O-TRAIN EAST / EST	RIDEAU O-TRAIN EAST / EST	UOTTAWA O-TRAIN EAST / EST	LEES O-TRAIN EAST / EST	HURDMAN O-TRAIN EAST / EST	TREMBLAY O-TRAIN EAST / EST	ST-LAURENT O-TRAIN EAST / EST	CYRVILLE O-TRAIN EAST / EST	BLAIR O-TRAIN	BLAIR O-TRAIN
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TUNNEY'S PASTURE O-TRAIN EAST / EST	BAYVIEW O-TRAIN EAST / EST	PIMISI O-TRAIN EAST / EST	LYON O-TRAIN EAST / EST	PARLIAMENT / PARLEMENT O-TRAIN EAST / EST	RIDEAU O-TRAIN EAST / EST	UOTTAWA O-TRAIN EAST / EST	LEES O-TRAIN EAST / EST	HURDMAN O-TRAIN EAST / EST	TREMBLAY O-TRAIN EAST / EST	ST-LAURENT O-TRAIN EAST / EST	CYRVILLE O-TRAIN EAST / EST	BLAIR O-TRAIN	/	BLAIR O-TRAIN
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13:41	13:43	13:45	13:47	13:49	13:51	13:53	13:55	13:57	13:59	14:02	14:04			14:06
13:46	13:48	13:50	13:52	13:54	13:56	13:58	14:00	14:02	14:04	14:07	14:09			14:11
13:51	13:53	13:55	13:57	13:59	14:01	14:03	14:05	14:07	14:09	14:12	14:14			14:16
13:56	13:58	14:00	14:02	14:04	14:06	14:08	14:10	14:12	14:14	14:17	14:19			14:21
14:01	14:03	14:05	14:07	14:09	14:11	14:13	14:15	14:17	14:19	14:22	14:24			14:26
										14:25	14:27			14:29
14:06	14:08	14:10	14:12	14:14	14:16	14:18	14:20	14:22	14:24	14:27	14:29			14:31
14:11	14:13	14:15	14:17	14:19	14:21	14:23	14:25	14:27	14:29	14:32	14:34			14:36
14:16	14:18	14:20	14:22	14:24	14:26	14:28	14:30	14:32	14:34	14:37	14:39			14:41
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14:26	14:28	14:30	14:32	14:34	14:36	14:38	14:40	14:42	14:44	14:47	14:49			14:51
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14:35	14:37	14:39	14:41	14:43	14:45	14:47	14:49	14:51	14:53	14:56	14:58			15:00
14:39	14:41	14:43	14:45	14:47	14:49	14:51	14:53	14:55	14:57	15:00	15:02			15:04
14:43	14:45	14:47	14:49	14:51	14:53	14:55	14:57	14:59	15:01	15:04	15:06			15:08
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14:51	14:53	14:55	14:57	14:59	15:01	15:03	15:05	15:07	15:09	15:12	15:14			15:16
14:55	14:57	14:59	15:01	15:03	15:05	15:07	15:09	15:11	15:13	15:16	15:18			15:20
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15:04	15:06	15:08	15:10	15:12	15:14	15:16	15:18	15:20	15:22	15:25	15:27			15:29
15:09	15:11	15:13	15:15	15:17	15:19	15:21	15:23	15:25	15:27	15:30	15:32			15:34
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15:17	15:19	15:21	15:23	15:25	15:27	15:29	15:31	15:33	15:35	15:38	15:40			15:42
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TUNNEY'S PASTURE O-TRAIN EAST / EST	BAYVIEW O-TRAIN EAST / EST	PIMISI O-TRAIN EAST / EST	LYON O-TRAIN EAST / EST	PARLIAMENT / PARLEMENT O-TRAIN EAST / EST	RIDEAU O-TRAIN EAST / EST	UOTTAWA O-TRAIN EAST / EST	LEES O-TRAIN EAST / EST	HURDMAN O-TRAIN EAST / EST	TREMBLAY O-TRAIN EAST / EST	ST-LAURENT O-TRAIN EAST / EST	CYRVILLE O-TRAIN EAST / EST	BLAIR O-TRAIN	/	BLAIR O-TRAIN
														15:51
15:30	15:32	15:34	15:36	15:38	15:40	15:42	15:44	15:46	15:48	15:51	15:53			15:55
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15:38	15:40	15:42	15:44	15:46	15:48	15:50	15:52	15:54	15:56	15:59	16:01			16:03
15:43	15:45	15:47	15:49	15:51	15:53	15:55	15:57	15:59	16:01	16:04	16:06			16:08
15:47	15:49	15:51	15:53	15:55	15:57	15:59	16:01	16:03	16:05	16:08	16:10			16:12
15:52	15:54	15:56	15:58	16:00	16:02	16:04	16:06	16:08	16:10	16:13	16:15			16:17
15:56	15:58	16:00	16:02	16:04	16:06	16:08	16:10	16:12	16:14	16:17	16:19			16:21
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16:04	16:06	16:08	16:10	16:12	16:14	16:16	16:18	16:20	16:22	16:25	16:27			16:29
16:09	16:11	16:13	16:15	16:17	16:19	16:21	16:23	16:25	16:27	16:30	16:32			16:34
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16:21	16:23	16:25	16:27	16:29	16:31	16:33	16:35	16:37	16:39	16:42	16:44			16:46
16:26	16:28	16:30	16:32	16:34	16:36	16:38	16:40	16:42	16:44	16:47	16:49			16:51
16:30	16:32	16:34	16:36	16:38	16:40	16:42	16:44	16:46	16:48	16:51	16:53			16:55
16:35	16:37	16:39	16:41	16:43	16:45	16:47	16:49	16:51	16:53	16:56	16:58			17:00
16:39	16:41	16:43	16:45	16:47	16:49	16:51	16:53	16:55	16:57	17:00	17:02			17:04
16:43	16:45	16:47	16:49	16:51	16:53	16:55	16:57	16:59	17:01	17:04	17:06			17:08
16:47	16:49	16:51	16:53	16:55	16:57	16:59	17:01	17:03	17:05	17:08	17:10			17:12
16:52	16:54	16:56	16:58	17:00	17:02	17:04	17:06	17:08	17:10	17:13	17:15			17:17
16:56	16:58	17:00	17:02	17:04	17:06	17:08	17:10	17:12	17:14	17:17	17:19			17:21
17:00	17:02	17:04	17:06	17:08	17:10	17:12	17:14	17:16	17:18	17:21	17:23			17:25
17:04	17:06	17:08	17:10	17:12	17:14	17:16	17:18	17:20	17:22	17:25	17:27			17:29
17:09	17:11	17:13	17:15	17:17	17:19	17:21	17:23	17:25	17:27	17:30	17:32			17:34
17:13	17:15	17:17	17:19	17:21	17:23	17:25	17:27	17:29	17:31	17:34	17:36			17:38
17:17	17:19	17:21	17:23	17:25	17:27	17:29	17:31	17:33	17:35	17:38	17:40			17:42
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17:35	17:37	17:39	17:41	17:43	17:45	17:47	17:49	17:51	17:53	17:56	17:58			18:00
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17:43	17:45	17:47	17:49	17:51	17:53	17:55	17:57	17:59	18:01	18:04	18:06			18:08
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18:11	18:13	18:15	18:17	18:19	18:21	18:23	18:25	18:27	18:29	18:32	18:34			18:36
18:16	18:18	18:20	18:22	18:24	18:26	18:28	18:30	18:32	18:34	18:37	18:39			18:41

TUNNEY'S PASTURE O-TRAIN EAST / EST	BAYVIEW O-TRAIN EAST / EST	PIMISI O-TRAIN EAST / EST	LYON O-TRAIN EAST / EST	PARLIAMENT / PARLEMENT O-TRAIN EAST / EST	RIDEAU O-TRAIN EAST / EST	UOTTAWA O-TRAIN EAST / EST	LEES O-TRAIN EAST / EST	HURDMAN O-TRAIN EAST / EST	TREMBLAY O-TRAIN EAST / EST	ST-LAURENT O-TRAIN EAST / EST	CYRVILLE O-TRAIN EAST / EST	BLAIR O-TRAIN	/	BLAIR O-TRAIN
														18:46
18:26	18:28	18:30	18:32	18:34	18:36	18:38	18:40	18:42	18:44	18:47	18:49			18:51
18:31	18:33	18:35	18:37	18:39	18:41	18:43	18:45	18:47	18:49	18:52	18:54			18:56
18:36	18:38	18:40	18:42	18:44	18:46	18:48	18:50	18:52	18:54	18:57	18:59			19:01
18:41	18:43	18:45	18:47	18:49	18:51	18:53	18:55	18:57	18:59	19:02	19:04			19:06
18:47	18:49	18:51	18:53	18:55	18:57	18:59	19:01	19:03	19:05	19:08	19:10			19:12
18:51	18:53	18:55	18:57	18:59	19:01	19:03	19:05	19:07	19:09	19:12	19:14			19:16
18:56	18:58	19:00	19:02	19:04	19:06	19:08	19:10	19:12	19:14	19:17	19:19			19:21
19:01	19:03	19:05	19:07	19:09	19:11	19:13	19:15	19:17	19:19	19:22	19:24			19:26
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19:16	19:18	19:20	19:22	19:24	19:26	19:28	19:30	19:32	19:34	19:37	19:39			19:41
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19:26	19:28	19:30	19:32	19:34	19:36	19:38	19:40	19:42	19:44	19:47	19:49			19:51
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19:36	19:38	19:40	19:42	19:44	19:46	19:48	19:50	19:52	19:54	19:57	19:59			20:01
19:42	19:44	19:46	19:48	19:50	19:52	19:54	19:56	19:58	20:00	20:03	20:05			20:07
19:46	19:48	19:50	19:52	19:54	19:56	19:58	20:00	20:02	20:04	20:07	20:09			20:11
19:51	19:53	19:55	19:57	19:59	20:01	20:03	20:05	20:07	20:09	20:12	20:14			20:16
19:56	19:58	20:00	20:02	20:04	20:06	20:08	20:10	20:12	20:14	20:17	20:19			20:21
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20:31	20:33	20:35	20:37	20:39	20:41	20:43	20:45	20:47	20:49	20:52	20:54			20:56
20:37	20:39	20:41	20:43	20:45	20:47	20:49	20:51	20:53	20:55	20:58	21:00			21:02
20:41	20:43	20:45	20:47	20:49	20:51	20:53	20:55	20:57	20:59	21:02	21:04			21:06
20:46	20:48	20:50	20:52	20:54	20:56	20:58	21:00	21:02	21:04	21:07	21:09			21:11
20:51	20:53	20:55	20:57	20:59	21:01	21:03	21:05	21:07	21:09	21:12	21:14			21:16
20:56	20:58	21:00	21:02	21:04	21:06	21:08	21:10	21:12	21:14	21:17	21:19			21:21
21:01	21:03	21:05	21:07	21:09	21:11	21:13	21:15	21:17	21:19	21:22	21:24			21:26
21:06	21:08	21:10	21:12	21:14	21:16	21:18	21:20	21:22	21:24	21:27	21:29			21:31
21:11	21:13	21:15	21:17	21:19	21:21	21:23	21:25	21:27	21:29	21:32	21:34			21:36
21:16	21:18	21:20	21:22	21:24	21:26	21:28	21:30	21:32	21:34	21:37	21:39			21:41
21:21	21:23	21:25	21:27	21:29	21:31	21:33	21:35	21:37	21:39	21:42	21:44			21:46
21:26	21:28	21:30	21:32	21:34	21:36	21:38	21:40	21:42	21:44	21:47	21:49			21:51
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21:36	21:38	21:40	21:42	21:44	21:46	21:48	21:50	21:52	21:54	21:57	21:59			22:01

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													22:06
21:46	21:48	21:50	21:52	21:54	21:56	21:58	22:00	22:02	22:04	22:07	22:09	22:11
21:51	21:53	21:55	21:57	21:59	22:01	22:03	22:05	22:07	22:09	22:12	22:14	22:16
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23:44	23:46	23:48	23:50	23:52	23:54	23:56	23:58	00:00	00:02	00:05	00:07	00:09
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00:29	00:31	00:33	00:35	00:37	00:39	00:41	00:43	00:45	00:47	00:50	00:52	00:54
00:44	00:46	00:48	00:50	00:52	00:54	00:56	00:58	01:00	01:02	01:05	01:07	01:09
00:59	01:01	01:03	01:05	01:07	01:09	01:11	01:13	01:15	01:17	01:20	01:22	01:24

Appendix C

Sample STAMSON 5.04 Output

```
STAMSON 5.0        NORMAL REPORT        Date: 27-10-2021 18:59:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: north.te             Time Period: Day/Night 16/8 hours
Description:  Daytime and nighttime sound levels at the North façade
facing Scott Street, prediction location [A]

Road data, segment # 1: Scott EB (day/night)
----------------------------------------------
Car traffic volume  : 19430/1690  veh/TimePeriod  *
Medium truck volume :  1104/96    veh/TimePeriod  *
Heavy truck volume  :  1546/134   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  24000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :   7.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Scott EB (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Road data, segment # 2: Scott WB (day/night)
----------------------------------------------
Car traffic volume  :  9715/845   veh/TimePeriod  *
Medium truck volume :   773/67    veh/TimePeriod  *
Heavy truck volume  :   552/48    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

```
Data for Segment # 2: Scott WB (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  31.00 / 31.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Road data, segment # 3: Holland (day/night)
-------------------------------------------
Car traffic volume  :  9715/845   veh/TimePeriod  *
Medium truck volume :   773/67    veh/TimePeriod  *
Heavy truck volume  :   552/48    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Holland (day/night)
-----------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 125.00 / 125.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Road data, segment # 4: Parkdale (day/night)
--------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
```

```
    24 hr Traffic Volume (AADT or SADT):   8000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Parkdale (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 120.00 / 120.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Results segment # 1: Scott EB (day)
-----------------------------------

Source height = 1.63 m

ROAD (0.00 + 69.24 + 0.00) = 69.24 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.00  71.28   0.00  -2.04   0.00   0.00   0.00   0.00
69.24
-------------------------------------------------------------------------
---

Segment Leq : 69.24 dBA

Results segment # 2: Scott WB (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 62.56 + 0.00) = 62.56 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.00  65.72   0.00  -3.15   0.00   0.00   0.00   0.00
62.56
-------------------------------------------------------------------------
---

Segment Leq : 62.56 dBA
```

```
Results segment # 3: Holland (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 53.50 + 0.00) = 53.50 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     0     90   0.00  65.72   0.00  -9.21  -3.01   0.00   0.00   0.00
53.50
-------------------------------------------------------------------------
---

Segment Leq : 53.50 dBA

Results segment # 4: Parkdale (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 51.91 + 0.00) = 51.91 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90      0   0.00  63.96   0.00  -9.03  -3.01   0.00   0.00   0.00
51.91
-------------------------------------------------------------------------
---

Segment Leq : 51.91 dBA

Total Leq All Segments: 70.24 dBA

Results segment # 1: Scott EB (night)
-------------------------------------

Source height = 1.63 m

ROAD (0.00 + 61.63 + 0.00) = 61.63 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.00  63.67   0.00  -2.04   0.00   0.00   0.00   0.00
61.63
-------------------------------------------------------------------------
---

Segment Leq : 61.63 dBA
```

```
Results segment # 2: Scott WB (night)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 54.97 + 0.00) = 54.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.00  58.12   0.00  -3.15   0.00   0.00   0.00   0.00
54.97
-------------------------------------------------------------------------
---

Segment Leq : 54.97 dBA

Results segment # 3: Holland (night)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 45.90 + 0.00) = 45.90 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     0     90   0.00  58.12   0.00  -9.21  -3.01   0.00   0.00   0.00
45.90
-------------------------------------------------------------------------
---

Segment Leq : 45.90 dBA

Results segment # 4: Parkdale (night)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 44.32 + 0.00) = 44.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90      0   0.00  56.36   0.00  -9.03  -3.01   0.00   0.00   0.00
44.32
-------------------------------------------------------------------------
---

Segment Leq : 44.32 dBA

Total Leq All Segments: 62.64 dBA
```

```
RT/Custom data, segment # 1: LRT (day/night)
-----------------------------------------
1 - 4-car SRT:
Traffic volume    :   545/61    veh/TimePeriod
Speed             :    80 km/h

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  55.00 / 55.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Results segment # 1: LRT (day)
------------------------------

Source height = 0.50 m

RT/Custom (0.00 + 58.99 + 0.00) = 58.99 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  64.64  -5.64   0.00   0.00   0.00   0.00  58.99
-------------------------------------------------------------------------

Segment Leq : 58.99 dBA

Total Leq All Segments: 58.99 dBA

Results segment # 1: LRT (night)
--------------------------------

Source height = 0.50 m

RT/Custom (0.00 + 52.49 + 0.00) = 52.49 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  58.14  -5.64   0.00   0.00   0.00   0.00  52.49
-------------------------------------------------------------------------

Segment Leq : 52.49 dBA

Total Leq All Segments: 52.49 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.56
                           (NIGHT): 63.04
```

```
STAMSON 5.0        NORMAL REPORT        Date: 27-10-2021 19:00:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: west.te              Time Period: Day/Night 16/8 hours
Description:    Daytime and nighttime sound levels at the West façade,
facing Holland Avenue, prediction location [B]

Road data, segment # 1: Scott EB (day/night)
----------------------------------------------
Car traffic volume  : 19430/1690  veh/TimePeriod  *
Medium truck volume :  1104/96    veh/TimePeriod  *
Heavy truck volume  :  1546/134   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  24000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :   7.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Scott EB (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  31.00 / 31.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Road data, segment # 2: Scott WB (day/night)
----------------------------------------------
Car traffic volume  :  9715/845   veh/TimePeriod  *
Medium truck volume :   773/67    veh/TimePeriod  *
Heavy truck volume  :   552/48    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

```
Data for Segment # 2: Scott WB (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  40.00 / 40.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Road data, segment # 3: Holland (day/night)
------------------------------------------
Car traffic volume  :  9715/845   veh/TimePeriod  *
Medium truck volume :   773/67    veh/TimePeriod  *
Heavy truck volume  :   552/48    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Holland (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 115.00 / 115.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Results segment # 1: Scott EB (day)
-----------------------------------

Source height = 1.63 m

ROAD (0.00 + 65.12 + 0.00) = 65.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90      0   0.00  71.28   0.00  -3.15  -3.01   0.00   0.00   0.00
65.12
```

```
--------------------------------------------------------------------------
---

Segment Leq : 65.12 dBA

Results segment # 2: Scott WB (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 58.45 + 0.00) = 58.45 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
--------------------------------------------------------------------------
---
   -90      0   0.00  65.72   0.00  -4.26  -3.01   0.00   0.00   0.00
58.45
--------------------------------------------------------------------------
---

Segment Leq : 58.45 dBA

Results segment # 3: Holland (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 56.87 + 0.00) = 56.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
--------------------------------------------------------------------------
---
   -90     90   0.00  65.72   0.00  -8.85   0.00   0.00   0.00   0.00
56.87
--------------------------------------------------------------------------
---

Segment Leq : 56.87 dBA

Total Leq All Segments: 66.47 dBA

Results segment # 1: Scott EB (night)
-------------------------------------

Source height = 1.63 m

ROAD (0.00 + 57.51 + 0.00) = 57.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
--------------------------------------------------------------------------
---
   -90      0   0.00  63.67   0.00  -3.15  -3.01   0.00   0.00   0.00
57.51
```

```
------------------------------------------------------------------------
---

Segment Leq : 57.51 dBA

Results segment # 2: Scott WB (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 50.85 + 0.00) = 50.85 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
------------------------------------------------------------------------
---
   -90      0   0.00  58.12   0.00  -4.26  -3.01   0.00   0.00   0.00
50.85
------------------------------------------------------------------------
---

Segment Leq : 50.85 dBA

Results segment # 3: Holland (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 49.27 + 0.00) = 49.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
------------------------------------------------------------------------
---
   -90     90   0.00  58.12   0.00  -8.85   0.00   0.00   0.00   0.00
49.27
------------------------------------------------------------------------
---

Segment Leq : 49.27 dBA

Total Leq All Segments: 58.86 dBA

RT/Custom data, segment # 1: LRT (day/night)
--------------------------------------------
1 - 4-car SRT:
Traffic volume    :   545/61    veh/TimePeriod
Speed             :    80 km/h

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  62.00 / 62.00  m
```

```
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Results segment # 1: LRT (day)
------------------------------

Source height = 0.50 m

RT/Custom (0.00 + 55.46 + 0.00) = 55.46 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  64.64  -6.16  -3.01   0.00   0.00   0.00  55.46
-------------------------------------------------------------------------

Segment Leq : 55.46 dBA

Total Leq All Segments: 55.46 dBA

Results segment # 1: LRT (night)
--------------------------------

Source height = 0.50 m

RT/Custom (0.00 + 48.96 + 0.00) = 48.96 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  58.14  -6.16  -3.01   0.00   0.00   0.00  48.96
-------------------------------------------------------------------------

Segment Leq : 48.96 dBA

Total Leq All Segments: 48.96 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.80
                           (NIGHT): 59.29
```

```
STAMSON 5.0        NORMAL REPORT        Date: 27-10-2021 19:00:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: east.te              Time Period: Day/Night 16/8 hours
Description:  Daytime and nighttime sound levels at the East façade,
facing Parkdale Avenue, prediction location [C]

Road data, segment # 1: Scott EB (day/night)
----------------------------------------------
Car traffic volume  : 19430/1690  veh/TimePeriod  *
Medium truck volume :  1104/96    veh/TimePeriod  *
Heavy truck volume  :  1546/134   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  24000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.00
    Heavy Truck  % of Total Volume     :   7.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Scott EB (day/night)
------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  47.00 / 47.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Road data, segment # 2: Scott WB (day/night)
----------------------------------------------
Car traffic volume  :  9715/845   veh/TimePeriod  *
Medium truck volume :   773/67    veh/TimePeriod  *
Heavy truck volume  :   552/48    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
```

```
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Scott WB (day/night)
------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  54.00 / 54.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Road data, segment # 3: Parkdale (day/night)
--------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Parkdale (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 110.00 / 110.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Results segment # 1: Scott EB (day)
-----------------------------------

Source height = 1.63 m
```

```
ROAD (0.00 + 63.31 + 0.00) = 63.31 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     0     90   0.00  71.28   0.00  -4.96  -3.01   0.00   0.00   0.00
63.31
-------------------------------------------------------------------------
---

Segment Leq : 63.31 dBA

Results segment # 2: Scott WB (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 57.14 + 0.00) = 57.14 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     0     90   0.00  65.72   0.00  -5.56  -3.01   0.00   0.00   0.00
57.14
-------------------------------------------------------------------------
---

Segment Leq : 57.14 dBA

Results segment # 3: Parkdale (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 55.30 + 0.00) = 55.30 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.00  63.96   0.00  -8.65   0.00   0.00   0.00   0.00
55.30
-------------------------------------------------------------------------
---

Segment Leq : 55.30 dBA

Total Leq All Segments: 64.77 dBA
```

```
Results segment # 1: Scott EB (night)
-----------------------------------

Source height = 1.63 m

ROAD (0.00 + 55.70 + 0.00) = 55.70 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     0     90   0.00  63.67   0.00  -4.96  -3.01   0.00   0.00   0.00
55.70
-------------------------------------------------------------------------
---

Segment Leq : 55.70 dBA

Results segment # 2: Scott WB (night)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 49.54 + 0.00) = 49.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     0     90   0.00  58.12   0.00  -5.56  -3.01   0.00   0.00   0.00
49.54
-------------------------------------------------------------------------
---

Segment Leq : 49.54 dBA

Results segment # 3: Parkdale (night)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 47.71 + 0.00) = 47.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.00  56.36   0.00  -8.65   0.00   0.00   0.00   0.00
47.71
-------------------------------------------------------------------------
---

Segment Leq : 47.71 dBA
```

```
Total Leq All Segments: 57.16 dBA

RT/Custom data, segment # 1: LRT (day/night)
-----------------------------------------
1 - 4-car SRT:
Traffic volume    :   545/61    veh/TimePeriod
Speed             :    80 km/h

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  81.00 / 81.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Results segment # 1: LRT (day)
------------------------------
Source height = 0.50 m

RT/Custom (0.00 + 54.30 + 0.00) = 54.30 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  64.64  -7.32  -3.01   0.00   0.00   0.00  54.30
-------------------------------------------------------------------------

Segment Leq : 54.30 dBA

Total Leq All Segments: 54.30 dBA

Results segment # 1: LRT (night)
--------------------------------
Source height = 0.50 m

RT/Custom (0.00 + 47.80 + 0.00) = 47.80 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.00  58.14  -7.32  -3.01   0.00   0.00   0.00  47.80
-------------------------------------------------------------------------

Segment Leq : 47.80 dBA

Total Leq All Segments: 47.80 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.14
                           (NIGHT): 57.64
```

```
STAMSON 5.0        NORMAL REPORT        Date: 27-10-2021 19:00:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: south.te             Time Period: Day/Night 16/8 hours
Description:   Daytime and nighttime sound levels at the south façade,
prediction location [D]

Road data, segment # 1: Holland (day/night)
-------------------------------------------
Car traffic volume  :  9715/845   veh/TimePeriod  *
Medium truck volume :   773/67    veh/TimePeriod  *
Heavy truck volume  :   552/48    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  12000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Holland (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 130.00 / 130.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Road data, segment # 2: Parkdale (day/night)
--------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):   8000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
```

```
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Parkdale (day/night)
------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 116.00 / 116.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
Elevation                 :  72.00 m
Reference angle           :   0.00

Results segment # 1: Holland (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 53.33 + 0.00) = 53.33 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90      0   0.00  65.72   0.00  -9.38  -3.01   0.00   0.00   0.00
53.33
-------------------------------------------------------------------------
---

Segment Leq : 53.33 dBA

Results segment # 2: Parkdale (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 52.06 + 0.00) = 52.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     0     90   0.00  63.96   0.00  -8.88  -3.01   0.00   0.00   0.00
52.06
-------------------------------------------------------------------------
---

Segment Leq : 52.06 dBA

Total Leq All Segments: 55.75 dBA
```

```
Results segment # 1: Holland (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 45.73 + 0.00) = 45.73 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90      0   0.00  58.12   0.00  -9.38  -3.01   0.00   0.00   0.00
45.73
-------------------------------------------------------------------------
---

Segment Leq : 45.73 dBA

Results segment # 2: Parkdale (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 44.47 + 0.00) = 44.47 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
     0     90   0.00  56.36   0.00  -8.88  -3.01   0.00   0.00   0.00
44.47
-------------------------------------------------------------------------
---

Segment Leq : 44.47 dBA

Total Leq All Segments: 48.16 dBA

RT/Custom data, segment # 1: LRT (day/night)
--------------------------------------------
1 - 4-car SRT:
Traffic volume    :   545/61    veh/TimePeriod
Speed             :    80 km/h

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  55.00 / 55.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      3       (Elevated; no barrier)
```

```
Elevation                 :  72.00 m
Reference angle           :   0.00

Results segment # 1: LRT (day)
------------------------------

Source height = 0.50 m

RT/Custom (0.00 + 58.99 + 0.00) = 58.99 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  64.64  -5.64   0.00   0.00   0.00   0.00  58.99
-------------------------------------------------------------------------

Segment Leq : 58.99 dBA

Total Leq All Segments: 58.99 dBA

Results segment # 1: LRT (night)
--------------------------------

Source height = 0.50 m

RT/Custom (0.00 + 52.49 + 0.00) = 52.49 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  58.14  -5.64   0.00   0.00   0.00   0.00  52.49
-------------------------------------------------------------------------

Segment Leq : 52.49 dBA

Total Leq All Segments: 52.49 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.68
                           (NIGHT): 53.85
```

```
STAMSON 5.0        NORMAL REPORT        Date: 27-10-2021 19:01:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola2.te              Time Period: 16 hours
Description:  Daytime sound levels at the 2nd floor outdoor terrace,
prediction location [E] with minimum 1.1 m high solid parapet

Road data, segment # 1: Scott EB
--------------------------------
Car traffic volume  : 19430 veh/TimePeriod  *
Medium truck volume :  1104 veh/TimePeriod  *
Heavy truck volume  :  1546 veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: Scott EB
--------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  21.00 m
Receiver height           :   1.50 m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :   1.10 m
Elevation                 :   4.00 m
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   4.00 m
Barrier elevation         :   4.00 m
Reference angle           :   0.00

Road data, segment # 2: Scott WB
--------------------------------
Car traffic volume  :  9715 veh/TimePeriod  *
Medium truck volume :   773 veh/TimePeriod  *
Heavy truck volume  :   552 veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: Scott WB
--------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  28.00 m
Receiver height           :   1.50 m
```

```
Topography                 :      4       (Elevated; with barrier)
Barrier angle1             : -90.00 deg   Angle2 : 90.00 deg
Barrier height             :   1.10 m
Elevation                  :   4.00 m
Barrier receiver distance  :   3.00 m
Source elevation           :   0.00 m
Receiver elevation         :   4.00 m
Barrier elevation          :   4.00 m
Reference angle            :   0.00

Results segment # 1: Scott EB
------------------------------

Source height = 1.63 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.63 !        1.50 !        0.95 !         4.95

ROAD (0.00 + 64.67 + 0.00) = 64.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.00  71.28   0.00  -1.46   0.00   0.00   0.00  -5.15
64.67
-------------------------------------------------------------------------
---

Segment Leq : 64.67 dBA

Results segment # 2: Scott WB
------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        1.50 !        1.07 !         5.07

ROAD (0.00 + 58.00 + 0.00) = 58.00 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
```

```
   -90     90   0.00  65.72   0.00  -2.71   0.00   0.00   0.00  -5.01
58.00
-------------------------------------------------------------------------
---

Segment Leq : 58.00 dBA

Total Leq All Segments: 65.52 dBA

RT/Custom data, segment # 1: LRT
--------------------------------
1 - 4-car SRT:
Traffic volume    :   545 veh/TimePeriod
Speed             :    80 km/h

Data for Segment # 1: LRT
-------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  51.00 m
Receiver height           :   1.50 m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :   1.10 m
Elevation                 :   8.00 m
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   8.00 m
Barrier elevation         :   8.00 m
Reference angle           :   0.00

Results segment # 1: LRT
------------------------

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !        1.50 !        0.97 !         8.97

RT/Custom (0.00 + 54.23 + 0.00) = 54.23 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  64.64  -5.31   0.00   0.00   0.00  -5.10  54.23
-------------------------------------------------------------------------
```

```
Segment Leq : 54.23 dBA

Total Leq All Segments: 54.23 dBA

TOTAL Leq FROM ALL SOURCES:       65.83
```

```
STAMSON 5.0        NORMAL REPORT        Date: 27-10-2021 19:01:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola2m.te             Time Period: 16 hours
Description:    Daytime sound levels at the 2nd floor outdoor terrace,
prediction location [E], with mitigation (2.5 m high solid
barrier/parapet)

Road data, segment # 1: Scott EB
--------------------------------
Car traffic volume  : 19430 veh/TimePeriod  *
Medium truck volume :  1104 veh/TimePeriod  *
Heavy truck volume  :  1546 veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: Scott EB
------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  21.00 m
Receiver height           :   1.50 m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :   2.50 m
Elevation                 :   4.00 m
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   4.00 m
Barrier elevation         :   4.00 m
Reference angle           :   0.00

Road data, segment # 2: Scott WB
--------------------------------
Car traffic volume  :  9715 veh/TimePeriod  *
Medium truck volume :   773 veh/TimePeriod  *
Heavy truck volume  :   552 veh/TimePeriod  *
Posted speed limit  :    40 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: Scott WB
------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  28.00 m
```

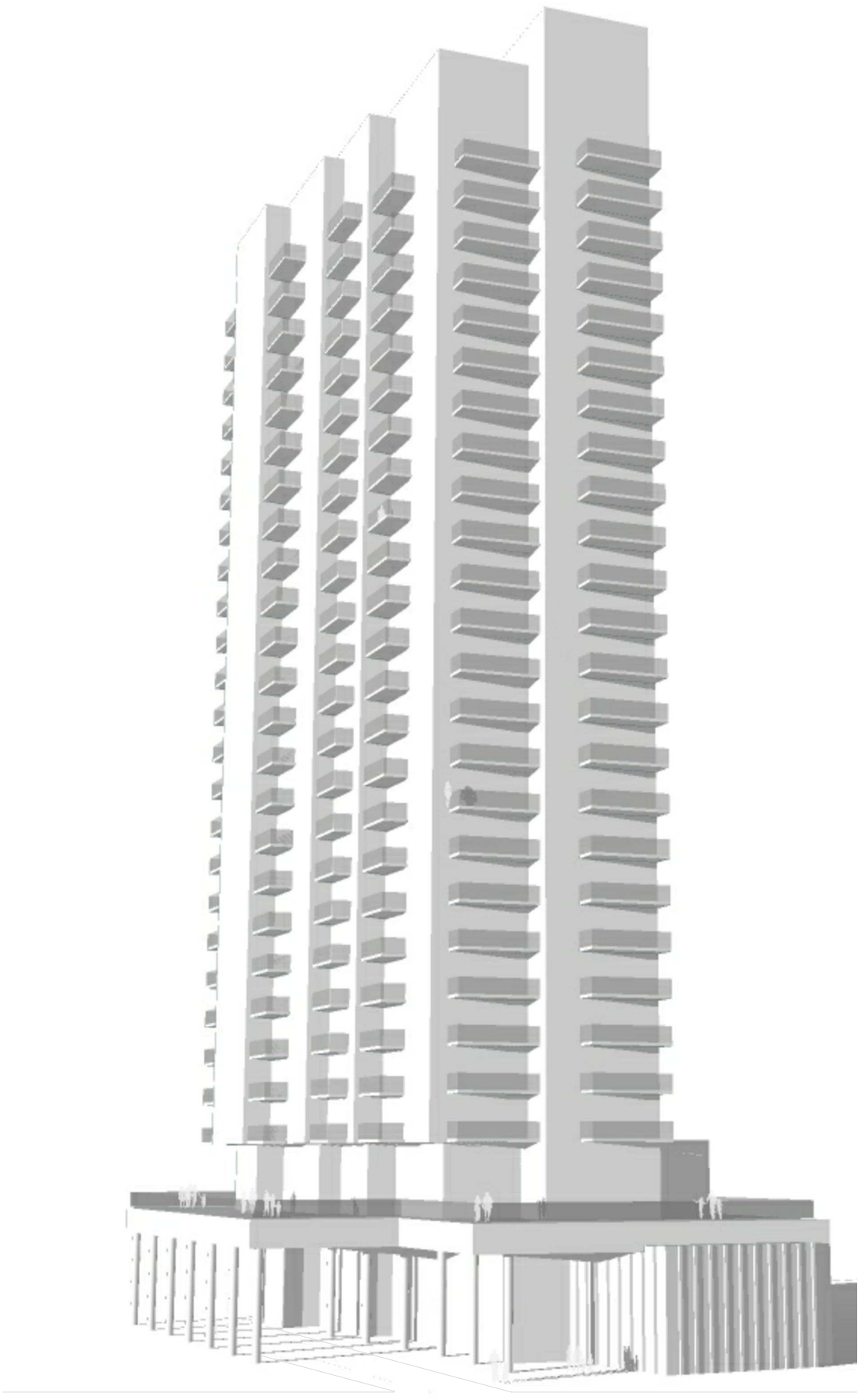
```
Receiver height           :   1.50 m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :   2.50 m
Elevation                 :   4.00 m
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   4.00 m
Barrier elevation         :   4.00 m
Reference angle           :   0.00

Results segment # 1: Scott EB
------------------------------

Source height = 1.63 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.63 !        1.50 !        0.95 !         4.95

ROAD (0.00 + 58.71 + 0.00) = 58.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
---
   -90     90   0.00  71.28   0.00  -1.46   0.00   0.00   0.00 -11.11
58.71
-------------------------------------------------------------------------
---

Segment Leq : 58.71 dBA

Results segment # 2: Scott WB
------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        1.50 !        1.07 !         5.07

ROAD (0.00 + 52.48 + 0.00) = 52.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
```

```
-------------------------------------------------------------------------
---
   -90     90   0.00  65.72   0.00  -2.71   0.00   0.00   0.00 -10.53
52.48
-------------------------------------------------------------------------
---

Segment Leq : 52.48 dBA

Total Leq All Segments: 59.64 dBA

RT/Custom data, segment # 1: LRT
--------------------------------
1 - 4-car SRT:
Traffic volume    :   545 veh/TimePeriod
Speed             :    80 km/h

Data for Segment # 1: LRT
-------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  51.00 m
Receiver height           :   1.50 m
Topography                :      4       (Elevated; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :   2.50 m
Elevation                 :   8.00 m
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   8.00 m
Barrier elevation         :   8.00 m
Reference angle           :   0.00

Results segment # 1: LRT
------------------------

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !        1.50 !        0.97 !         8.97

RT/Custom (0.00 + 48.56 + 0.00) = 48.56 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  64.64  -5.31   0.00   0.00   0.00 -10.76  48.56
```

```
--------------------------------------------------------------------------------

Segment Leq : 48.56 dBA

Total Leq All Segments: 48.56 dBA

TOTAL Leq FROM ALL SOURCES:       59.96
```

Appendix D

Supporting Drawings



TREGEBOV COGAN *ARCHITECTURE*
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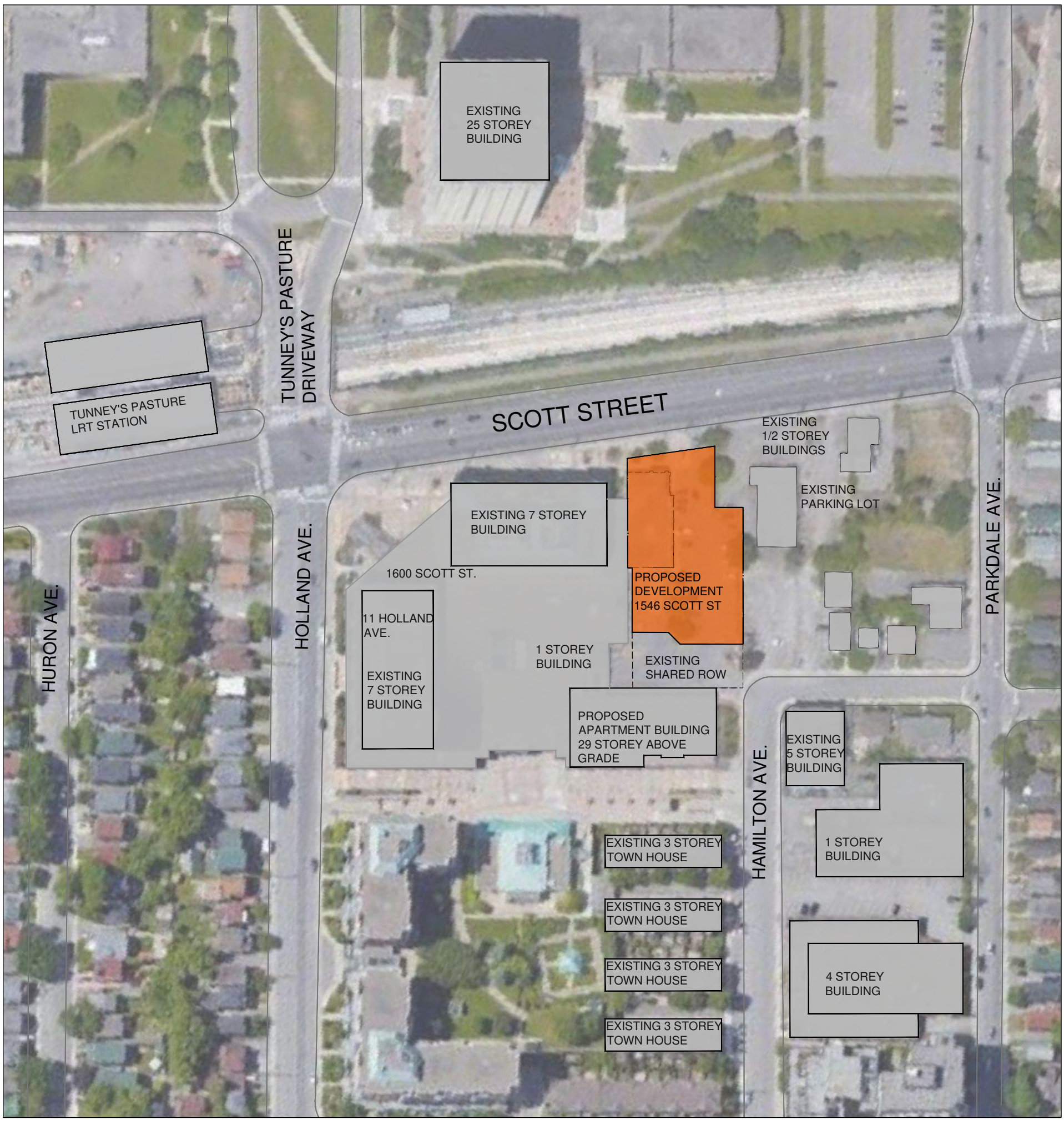
1546 SCOTT STREET
OTTAWA

APRIL 20, 2021

PARKING	
LEVEL	PARKING SPACES
F1	12
P1	29
P2	57
P3	57
TOTAL	155

AREAS			
LOT AREA	2,525 m²		
FSI	6.02		
LEVEL	AREA	SELLABLE	GFA
P1	2,254 m²	0	0
P2	2,254 m²	0	0
P3	1,110 m²	0	0
F1	846 m²	261 m²	261 m²
F2	1,411 m²	0	0
TOWER LEVELS	750 m²	650 m²	650 m²
SUITES AVG	10/FLOOR	65 m²/SUITE	230 SUITES
F3-F25	17,250 m²	14,950 m²	14,950 m²
TOTAL	25,124 m²	15,211 m²	15,211 m²

SITE INFORMATION



CONTEXT PLAN

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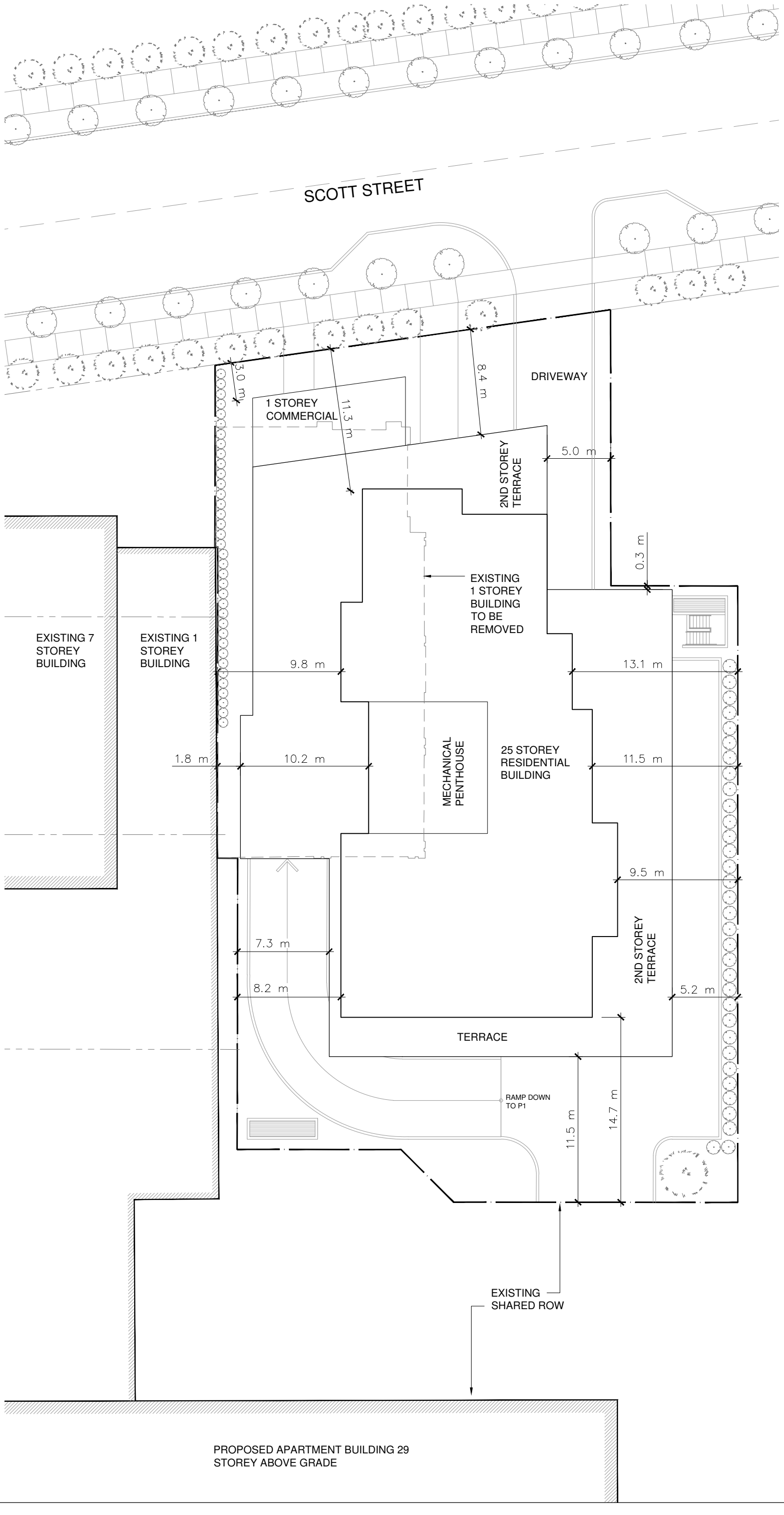
1546 SCOTT STREET
OTTAWA

CONTEXT PLAN
SCALE: 1:1500
DATE: APRIL 20, 2021



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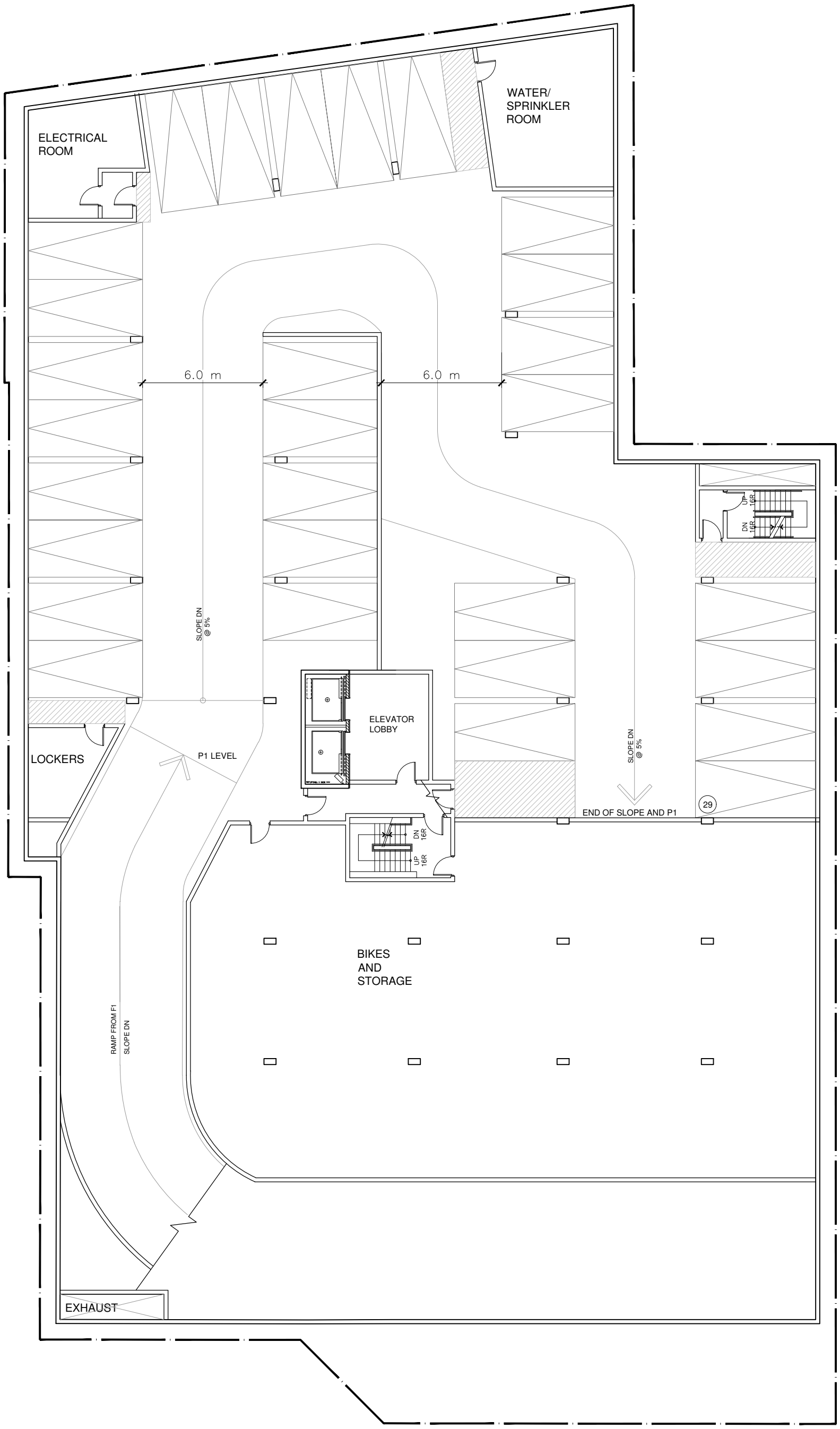
1546 SCOTT STREET
OTTAWA

SITE PLAN

SCALE: 1:300

DATE: APRIL 20, 2021



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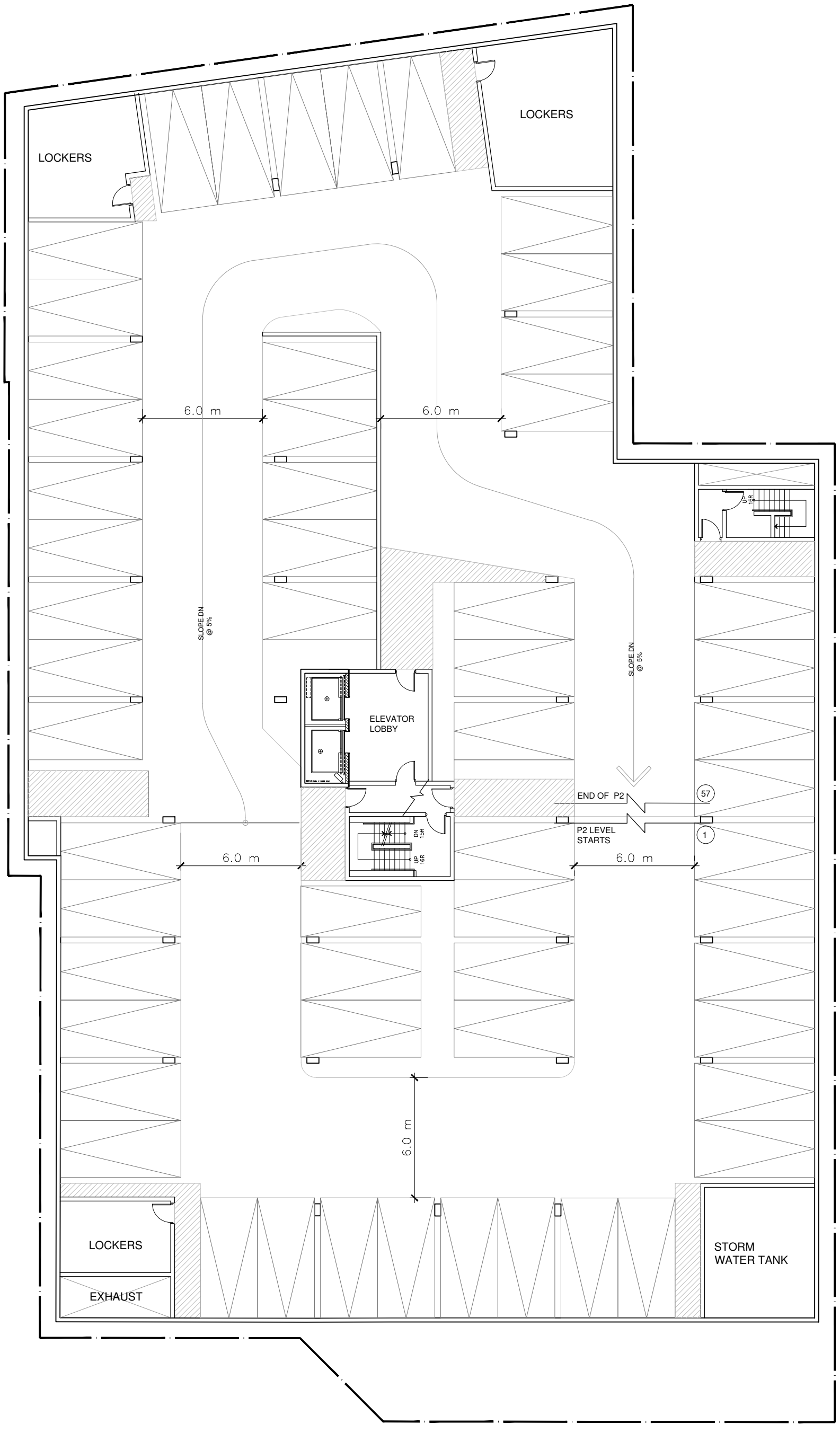
1546 SCOTT STREET
OTTAWA

P1

SCALE: 1:200

DATE: APRIL 20, 2021



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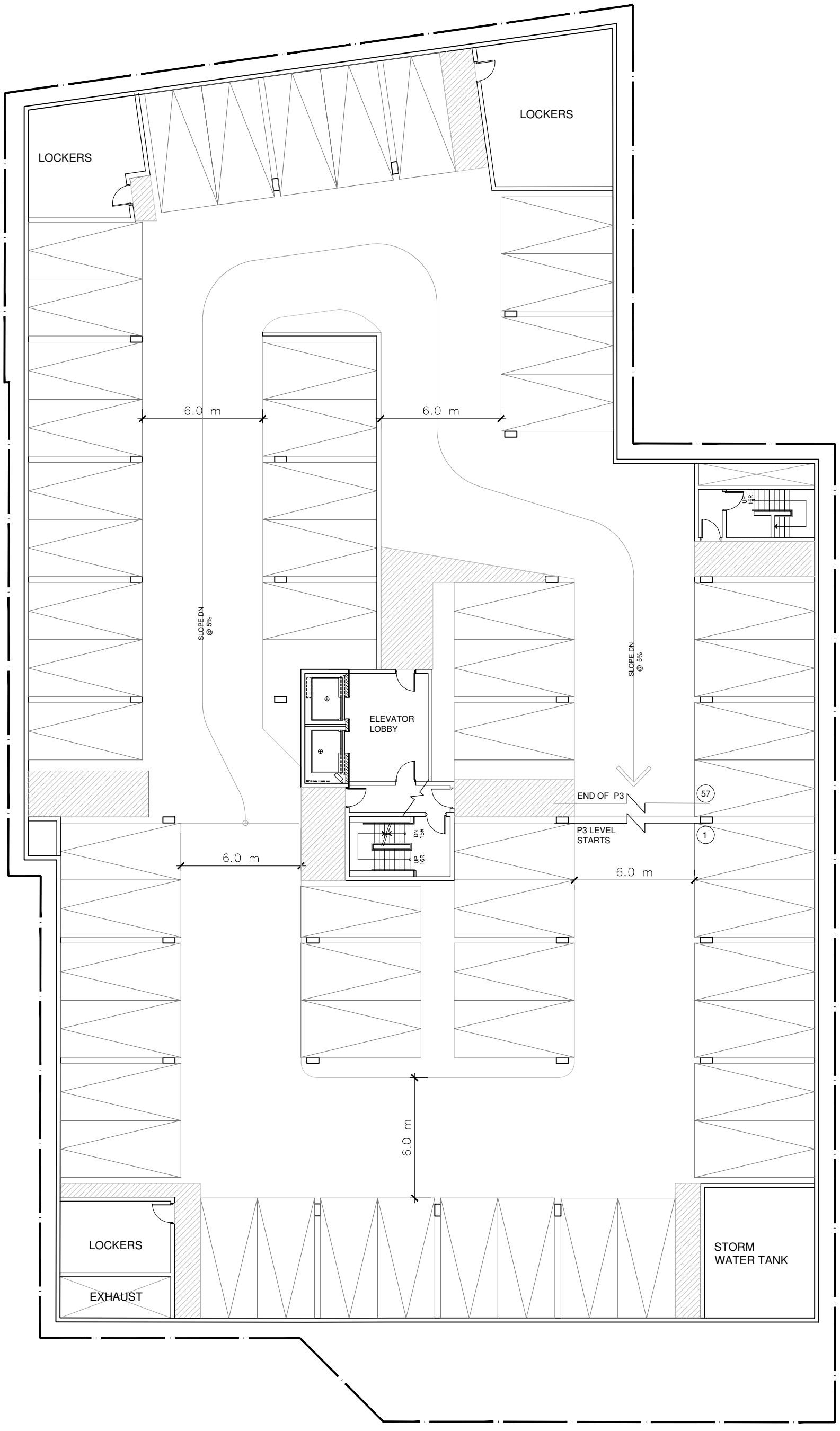
1546 SCOTT STREET
OTTAWA

P2

SCALE: 1:200

DATE: APRIL 20, 2021



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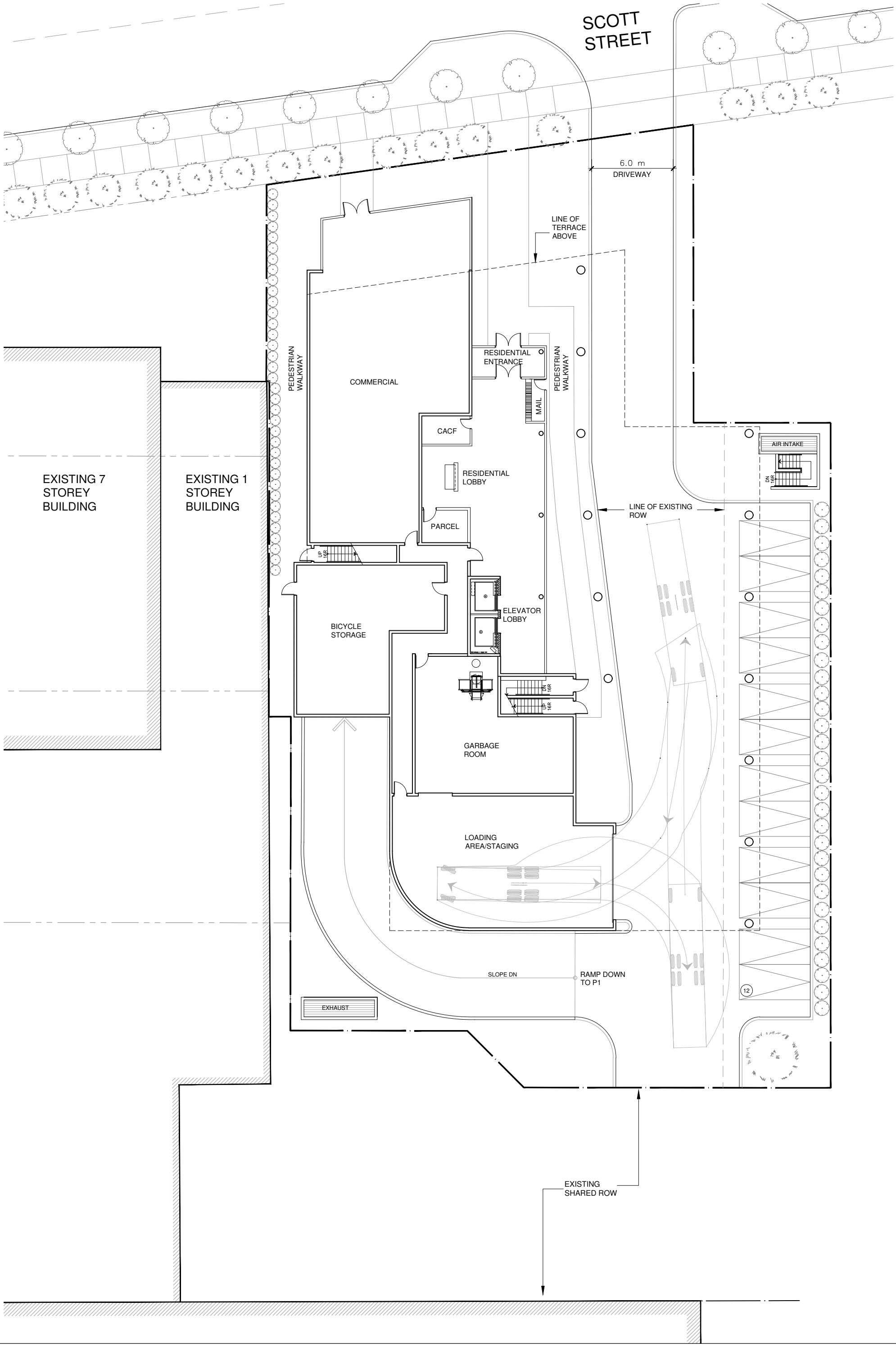
1546 SCOTT STREET
OTTAWA

P3

SCALE: 1:200

DATE: APRIL 20, 2021



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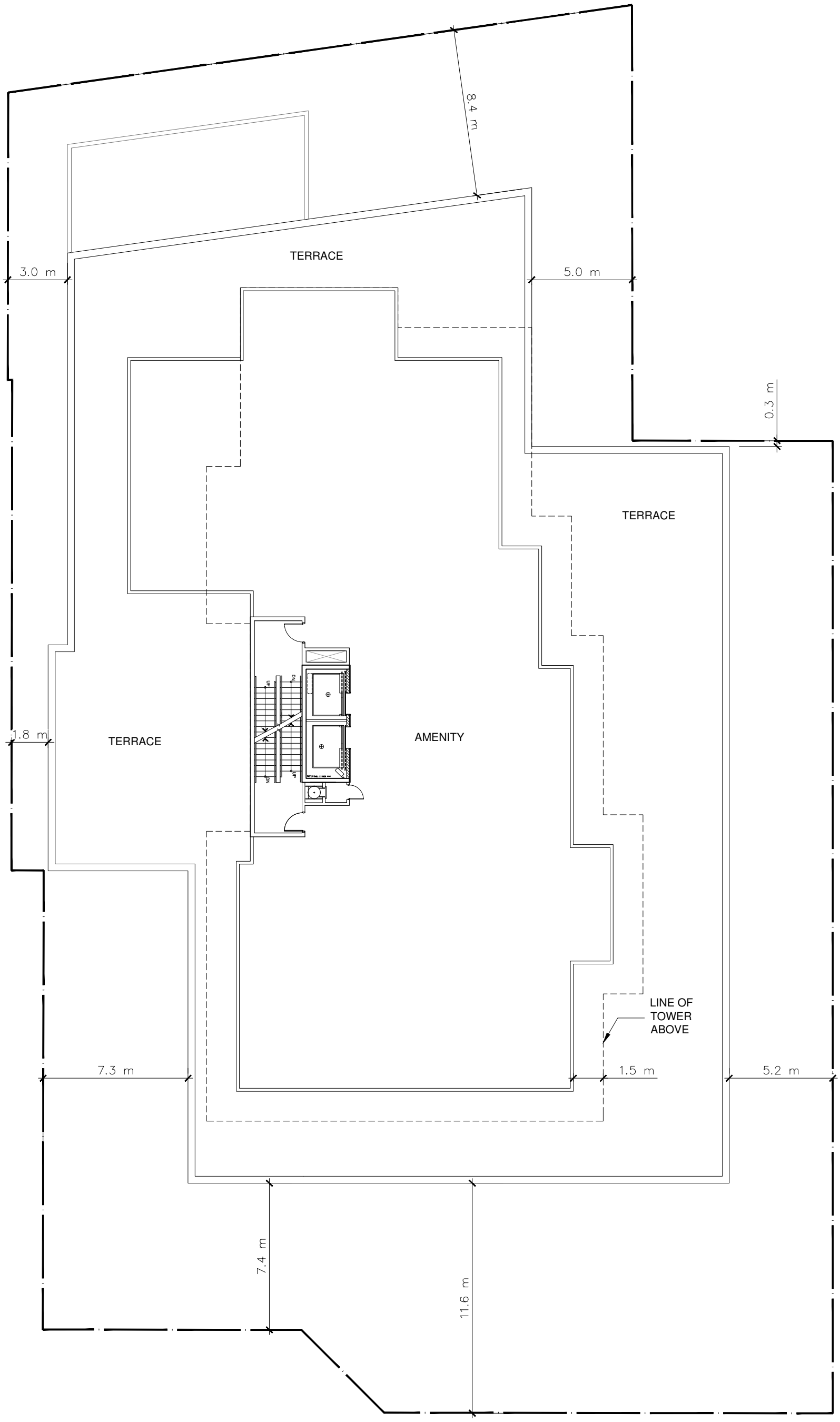
1546 SCOTT STREET
OTTAWA

F1

SCALE: 1:250

DATE: APRIL 20, 2021



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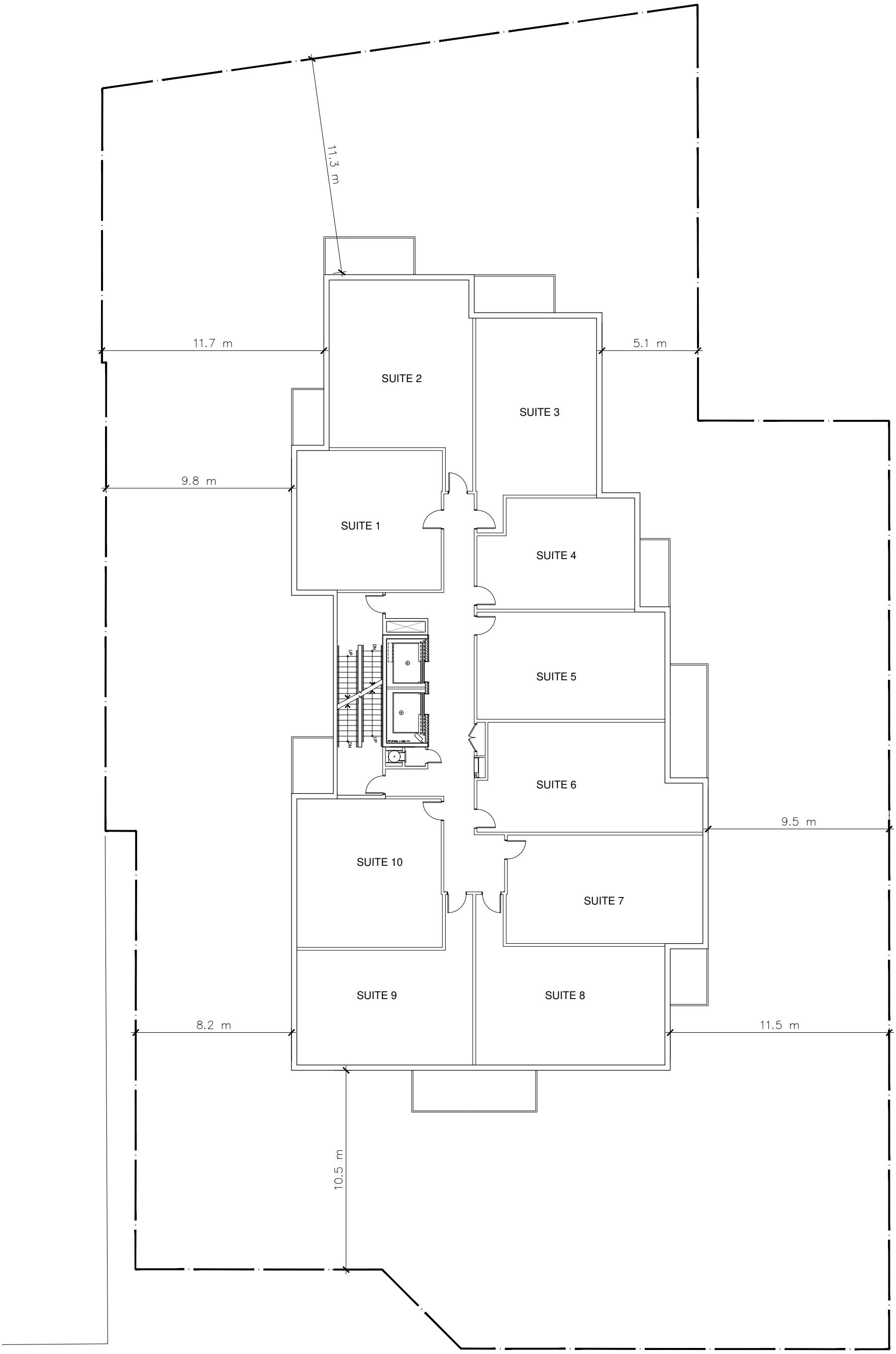
1546 SCOTT STREET
OTTAWA

F2

SCALE: 1:200

DATE: APRIL 20, 2021



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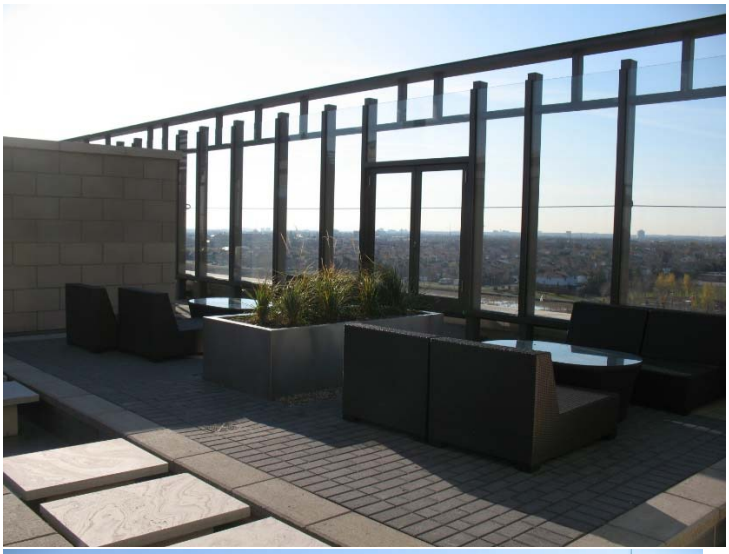
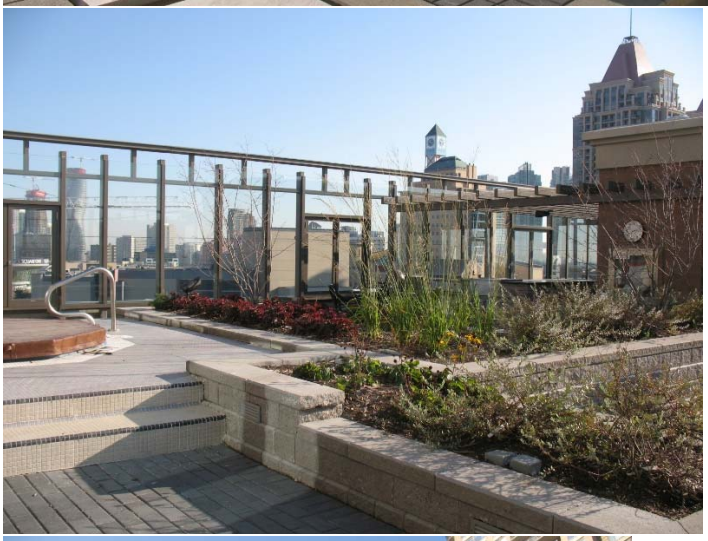
1546 SCOTT STREET
OTTAWA

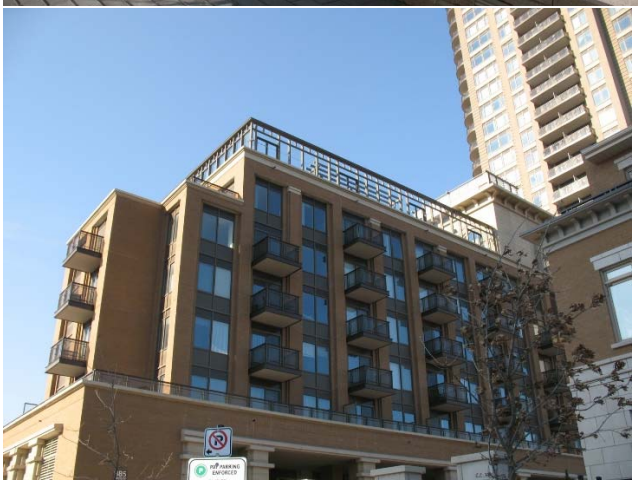
F3-F25 PLAN

SCALE: 1:200

DATE: APRIL 20, 2021







Sample Glass Parapets for Rooftop Terrace in Mississauga