

Environmental Noise Assessment 1315 Silver Spear Road Development Mississauga, Ontario

Novus Reference No. 17-0173

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November 8, 2017

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1.0 INTRODUCTION

Novus Environmental Inc. (Novus) was retained by Starlight Investments to conduct an Environmental Noise Feasibility Assessment for the proposed residential development located at 1315 Silver Spear Road, in Mississauga, Ontario. This noise study is to be used to support a Zoning By-law Amendment (ZBA) application for the proposed development.

1.1 Focus of Report

In keeping with Region of Peel requirements, this report examines the potential for:

- Impacts of the environment on the proposed development;
- Impacts of the proposed development on the environment; and
- Impacts of the proposed development on itself.

1.2 Nature of the Subject Lands

The proposed development is located at 1315 Silver Spear Road, south of Burnhamthorpe Road and west of Dixie Road. The proposed site is currently occupied by a single deck parking structure. Directly surrounding the site is a 5-storey residential building to the south, an 8-storey apartment immediately southeast.

The proposed development consists of an 8-storey residential building with mechanical penthouse, built in place of the existing on-site parking deck.. The development also includes two levels of underground parking. The proposed development will front on to Burnhamthorpe Road.

A copy of the site plan, current floor plans, and elevations are included in **Appendix A**.

1.3 Nature of the Surroundings

Immediately surrounding the proposed development are high-rise residential buildings to the southeast and west, a public library and parking lot to the east and the existing high-rise apartment building located to the south and southwest. Beyond the immediate surroundings are single dwelling residential properties to the south and southwest. Commercial land uses are located along the east side of Dixie Road, north and south of Burnhamthorpe Road. A context plan is shown in **Figure 1**.

PART 1: IMPACTS OF THE ENVIRONMENT ON THE DEVELOPMENT

In assessing potential impacts of the environment on the proposed development, the focus of this report is to assess the potential for:

- 1) Roadway noise impacts on the development;
- 2) Stationary noise impacts from the surrounding industries on the development.

As there are no significant sources of vibration (railways, streetcars, etc.) located near the development, a vibration assessment is not required.

In addition, the proposed development is located outside of the Toronto Pearson NEF 25 Noise Contour. Therefore, an assessment of airport noise impacts is not required. A copy of the Toronto Pearson NEF contours, showing the location of the development is included in **Appendix B**.

2.0 Transportation Noise Impacts

2.1 Transportation Noise Sources

Transportation noise sources of interest with the potential to produce noise at the proposed development are:

- Roadway noise from Burnhamthorpe Road; and
- Roadway noise from Dixie Road.

The level of noise from these sources has been predicted, and this information has been used to identify façade, ventilation, and warning clause requirements.

2.2 Surface Transportation Noise Criteria

2.2.1 Ministry of the Environment Publication NPC-300

Noise Sensitive Developments

Ministry of the Environment and Climate Change (MOECC) Publication NPC-300 provides sound level criteria for noise sensitive developments. The applicable portions of NPC-300 are Part C – Land Use Planning and the associated definitions outlined in Part A – Background.

Table 1 to **Table 3** below summarize applicable surface transportation criteria limits.

Location Specific Criteria

Table 1 summarizes criteria in terms of energy equivalent sound exposure (L_{eq}) levels for specific noise-sensitive locations. Both outdoor and indoor locations are identified, with the focus of outdoor areas being amenity spaces. Indoor criteria vary with sensitivity of the space. As a result, sleep areas have more stringent criteria than Living / Dining room space.

Table 1: NPC-300 Sound Level Criteria for Road and Rail Noise

Type of Space	Time Period	Energy Equivalent Sound Exposure Level L_{eq} ^[5] (dBA)		Assessment Location
		Road	Rail ^[1]	
Outdoor Amenity Area	Daytime (0700-2300h)	55	55	Outdoors ^[2]
Living / Dining Room ^[3]	Daytime (0700-2300h)	45	40	Indoors ^[4]
	Nighttime (2300-0700h)	45	40	Indoors ^[4]
Sleeping Quarters	Daytime (0700-2300h)	45	40	Indoors ^[4]
	Nighttime (2300-0700h)	40	35	Indoors ^[4]

- Notes:
- [1] Whistle noise is excluded for OLA noise assessments, and included for Living / Dining Room and Sleeping Quarter assessments, where applicable.
 - [2] Road and Rail noise impacts are to be combined for assessment of OLA impacts.
 - [3] Residence area Dens, Hospitals, Nursing Homes, Schools, Daycares are also included. During the nighttime period, Schools and Daycares are excluded.
 - [4] An assessment of indoor noise levels is required only if the criteria in **Table 3** are exceeded.
 - [5] L_{eq} – the energy equivalent sound exposure level, integrated over the time period shown.

Ventilation and Warning Clauses

Table 2 summarizes requirements for ventilation where windows potentially would have to remain closed as a means of noise control. These requirements apply where the sound exposure levels found in **Table 2** exceed the guideline limits in **Table 1** for indoor spaces. Despite the implementation of ventilation measures where required, some occupants may choose not to use the ventilation means provided, and as such, warning clauses advising future occupants of the potential excess over the **Table 1** guideline limits are required.

Building Shell Requirements

Table 3 provides L_{eq} thresholds which, if exceeded, require the building shell and components (i.e., wall, windows) to be designed and selected accordingly to ensure that the **Table 1** indoor location criteria are met.

Table 2: NPC-300 Ventilation and Warning Clause Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} (dBA)		Ventilation and Warning Clause Requirements ^[2]
		Road	Rail ^[1]	
Outdoor Amenity Area	Daytime (0700-2300h)	56 to 60 incl.		Type A Warning Clause
		≤ 55		None
Plane of Window	Daytime (0700-2300h)	56 to 65 incl.		Forced Air Heating with provision to add air conditioning + Type C Warning Clause
		> 65		Central Air Conditioning + Type D Warning Clause
	Nighttime (2300-0700h)	51 to 60 incl.		Forced Air Heating with provision to add air conditioning + Type C Warning Clause
		> 60		Central Air Conditioning + Type D Warning Clause

Notes: [1] Whistle noise is excluded.

[2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements.

Table 3: NPC-300 Building Component Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} (dBA)		Component Requirements
		Road	Rail ^[1]	
Plane of Window	Daytime (0700-2300h)	> 65	> 60	Designed/ Selected to Meet Indoor Requirements ^[2]
	Nighttime (2300-0700h)	> 60	> 55	

Notes: [1] Including whistle noise.

[2] Building component requirements are assessed separately for Road and Railway, and combined for a resultant sound isolation parameter.

In summary, roadway noise impacts are to be predicted at the plane-of-window for the proposed development. Providing the plane-of-window sound levels exceed the daytime and nighttime sound levels indicated in **Table 3**, the determination of the building façade components is required for meeting the indoor sound level criteria outlined in **Table 1**. In addition, the ventilation requirements and warning clauses are determined, as outlined in **Table 2**, based on the plane-of-window noise levels.

2.2.2 Region of Peel

The Region of Peel guidelines include the General Guidelines for the Preparation of Acoustical Reports in the Region of Peel, dated November 2012 (ROP Guidelines). In general, the Region of Peel guidelines are consistent with the MOECC NPC-300 guidelines. Therefore, the guidelines have not been re-iterated again.

2.3 Traffic Data and Future Projections

2.3.1 Roadway Traffic Data

Road traffic volumes on arterial roads based on ultimate lane configuration was taken from the ROP Guidelines. **Table 4** summarizes the road traffic volumes used in the analysis.

Table 4: Summary of Road Traffic Data

Roadway Link	Future Volume ^[1] (AADT)	Day / Night Volume Split ^[2]		Commercial Traffic Breakdown ^[3]		Vehicle Speed (km/h)
		Daytime	Nighttime	% Med	% Heavy	
Burnhamthorpe Road	32,400	92	8	2.3%	2.0%	60
Dixie Road	48,100	92	8	2.3%	2.0%	60

Notes: [1] Traffic volumes on arterial roads in the urban areas includes predicted Ultimate Lane Configuration as provided by the Region of Peel.
[2] The Day/Night split was determined from historic data at Novus for urban areas.
[3] Commercial Traffic was taken from Novus historical data.

2.4 Projected Sound Levels

Future road traffic sound levels at the proposed development were predicted using Cadna/A, a commercially available noise propagation modelling software. Roadways were modelled as line sources of sound, with sound emission rates calculated using the ORNAMENT algorithms, the road traffic noise model of the MOECC. These predictions were validated and are equivalent to those made using the MOECC’s ORNAMENT or STAMSON v5.04 road traffic noise models.

Sound levels were predicted along the facades of the proposed development using the “building evaluation” feature of Cadna/A. This feature allows for noise levels to be predicted across the entire façade of a structure.

2.4.1 Façade Sound Levels

The worst-case predicted façade sound levels are presented in **Table 5** for the daytime and night-time periods. Façade sound levels are shown in **Figures 2 and 3** for daytime and night-time periods, respectively.

Table 5: Summary of Predicted Transportation Façade Sound Levels

Building Section	Façade	Roadway Sound Levels	
		L _{eq} Day (dBA)	L _{eq} Night (dBA)
Proposed Development	N	69	61
	E	65	58
	S	58	50
	W	65	57

Notes: - the maximum predicted sound level for each façade is shown.

The façade roadway sound levels along the north façade (facing Burnhamthorpe Road) are predicted to exceed 65 dBA and 61 dBA nighttime during the daytime and night-time periods, respectively. Therefore, an assessment of building components is required.

2.4.2 Outdoor Amenity Areas

There are currently no Outdoor Amenity Areas included at the proposed development. Therefore an assessment of roadway impacts was not completed for the Outdoor Amenity Areas.

Private balconies are located at grade and on various facades of the proposed development, which are less than 4 m in depth. These private balconies were excluded from the assessment, since the MOECC minimum depth requirement of 4 m is not met.

2.5 Façade Recommendations

An assessment of building components is required for the north facade of the development, as shown in **Section 2.4.1**.

Indoor sound levels and required facade Sound Transmission Classes (STCs) were estimated using the procedures outlined in National Research Council Building Practice Note BPN-56. As the development floor plans are currently unavailable, in-room calculations were completed based on generic room and façade dimensions for high-rise/mid-rise residential buildings. A copy of the façade calculations are provided in **Appendix C**.

The North façade bedroom spaces, facing Burnhamthorpe Road, requires upgraded STC 31 glazing. It should be noted that corner units may require an increase of 3 STC points as these spaces may have noise contributions from two (2) exposed sides.

Windows conforming to the minimum structural requirements of the Ontario Building Code (STC 29 rating), are predicted to be adequate for all other facades of the Building.

Given the early stages of design, the acoustical requirements should be reviewed as part of the final design prior to the issuance of building permit drawings.

2.6 Ventilation and Warning Clause Requirements

The requirements regarding warning clauses are summarized in **Table 2**. Where required, the Warning Clauses must be included in all agreements of purchase and sale or lease, and all rental agreements.

Based on the predicted façade noise levels, mandatory air conditioning and a **Type D** Warning Clause will be required for the north façade. The **Type D** warning clause is below:

Type D Warning Clause

“This dwelling unit has been or will be fitted with a central air conditioning system which will enable occupants to keep windows closed if road and or air traffic noise interferes with the indoor activities.

Force air heating with a provision for air conditioning and a **Type C** Warning Clause is required for east, south and west facades. The **Type C** warning clause is below:

Type C Warning Clause

“This dwelling unit has been designed with the provision for adding central air conditioning at the occupant’s discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment and Climate Change.”

3.0 Stationary Source Noise Impacts

A site visit was completed on July 11, 2017 by Novus personnel to review the surrounding stationary noise sources.

The development is primarily surrounded by residential properties, with commercial land uses located along Dixie Road. There were no industries identified within a 1000 m radius of the development.

The surrounding area is dominated by roadway noise from Burnhamthorpe Road and Dixie Road, with no significant stationary noise audible at the development. Therefore, an assessment of surrounding stationary noise impacts was not completed.

PART 2: IMPACTS OF THE DEVELOPMENT ON THE SURROUNDING AREA

4.0 Impacts of the Development Mechanical Systems on Surrounding Properties

In terms of the noise environment of the area, it is expected that the project will have a negligible effect on the neighbouring properties. The traffic related to the proposed development will be small in relation to the traffic volumes within the area, and is not of concern with respect to noise impact.

Other possible sources of noise associated with the development with potentially adverse impacts on the surrounding neighbourhood are emergency generators and mechanical roof-top equipment. This equipment is required to meet MOECC Publication NPC-300 requirements at the closest off-site noise sensitive receptors.

Given the high ambient sound levels in the area and the fact that the systems will be designed to ensure that the applicable noise guideline are met at on-site receptors, off-site impacts are not anticipated.

Regardless, potential impacts should be assessed as part of the final building design. The criteria can be met at all surrounding and on-site receptors by the appropriate selection of mechanical equipment, by locating equipment with sufficient setback from noise sensitive locations, and by incorporating control measures (e.g., silencers) into the design.

It is recommended the mechanical systems be reviewed by an acoustical professional prior to final selection of equipment.

PART 3: IMPACTS OF THE DEVELOPMENT ON ITSELF

5.0 Outdoor Noise Impacts from Development Mechanical Systems

The building mechanical systems have not been designed at this time. Although no adverse impacts are expected, such equipment has the potential to result in noise impacts on residential spaces within the development. This equipment is required to meet MOECC Publication NPC-300 requirements at the facades of the noise sensitive spaces within the development. Therefore, the potential impacts should be assessed as part of the final building design. The criteria are expected to be met at all on-site receptors with the appropriate selection of mechanical equipment, by locating equipment to minimize noise impacts within the development, and by incorporating control measures (e.g., silencers) into the design.

It is recommended the mechanical systems be reviewed by an acoustical professional prior to final selection of equipment.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The potential for noise impacts on and from the proposed development have been assessed. Impacts of the environment on the development, the development on itself, and the development on the surrounding area have been considered. Based on the results of the study, the following conclusions have been reached:

6.1 Transportation Noise

- An assessment of roadway transportation noise impacts has been completed.
- Based on transportation façade sound levels, outlined in **Section 2.5**, the following glazing is required to meet the MOECC Publication NPC-300 Building Component Requirements:
 - North Façade Bedrooms – STC 31
 - All other facades – OBC (STC 29)
- The following Warning Clauses must be included in all agreements of purchase and sale or lease and all rental agreements, as outlined in **Section 2.6**, as follows:

Type D Warning Clause – north façade units

“This dwelling unit has been or will be fitted with a central air conditioning system which will enable occupants to keep windows closed if road and or air traffic noise interferes with the indoor activities.

Type C Warning Clause – all other units

“This dwelling unit has been designed with the provision for adding central air conditioning at the occupant’s discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment and Climate Change.”

6.2 Stationary Noise

- The development is primarily surrounded by residential and commercial uses, with no significant industries located within 1000 metre radius.
- During a site visit by Novus personnel, no significant stationary noise sources were identified. Therefore, a stationary noise assessment was not considered necessary and has not been completed.

6.3 Overall Assessment

- Impacts of the environment on the proposed development can be adequately controlled without upgrades to the building construction, and the ventilation and warning clause requirements detailed in **Part 1** of this report.
- Impacts of the proposed development are expected to meet the applicable guideline limits, and can be adequately controlled by following the design guidance outlined **Part 2** of this report.
- Impacts of the proposed development on itself can be adequately controlled by following the design guidance outlined in **Part 3** of this report.
- Given the early stages of design, the acoustical requirements should be reviewed as part of the final design prior to the issuance of building permit drawings.
- As the mechanical systems for the proposed development have not been designed at the time of this assessment, the acoustical requirements above should be confirmed by an Acoustical Consultant as part of the final building design.

7.0 REFERENCES

International Organization for Standardization, ISO 9613-2: *Acoustics – Attenuation of Sound During Propagation Outdoors Part 2: General Method of Calculation*, Geneva, Switzerland, 1996.

National Research Council, Building Practice Note 56: *Controlling Sound Transmission into Buildings*, Canada 1985.

Ontario Ministry of the Environment and Climate Change, 1989, Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT).

Ontario Ministry of the Environment and Climate Change, Publication NPC-300: *Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning*, 2013.

Ontario Ministry of the Environment (MOECC), 1996, STAMSON v5.03: Road, Rail and Rapid Transit Noise Prediction Model.

Region of Peel (ROP, 2012): *General Guidelines for the Preparation of Acoustical Reports in the Region of Peel*

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Figures

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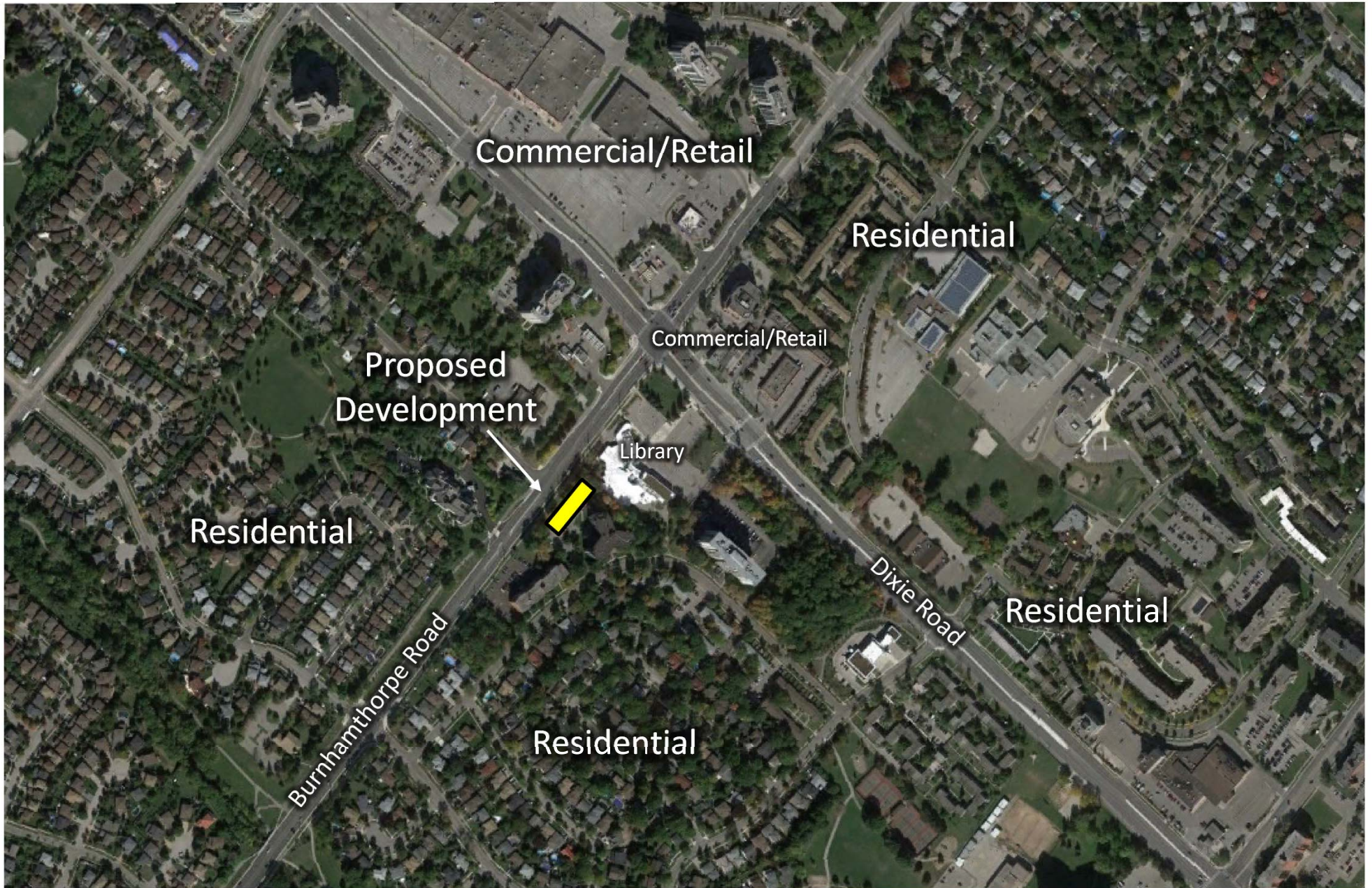


Figure No. **1**
Context Plan

1315 Silver Spear Road
Mississauga, Ontario



True
North

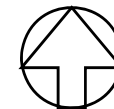
Scale: 1: 4,000
Date: 17/07/18
File No.: 17-0173
Drawn By: PKS

novus
ENVIRONMENTAL



Figure No. 2
Modelled Roadway Noise Impacts - Daytime

1315 Silver Spear Road
 Mississauga, Ontario



True
 North

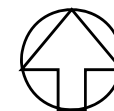
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 File No.: 17-0173
 Drawn By: PKS





Figure No. 3
Modelled Roadway Noise Impacts – Night-Time

1315 Silver Spear Road
 Mississauga, Ontario



True
 North

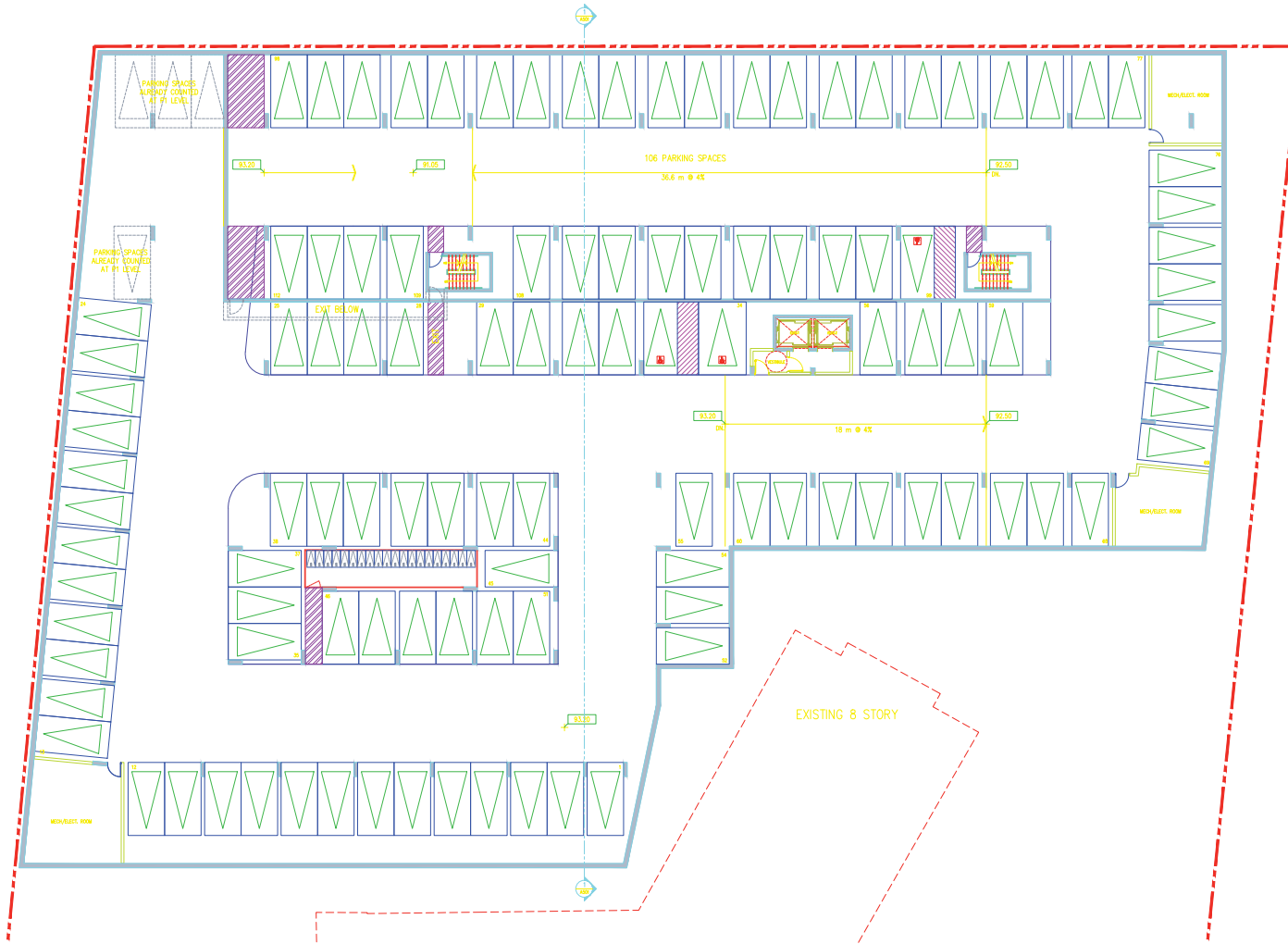
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 File No.: 17-0173
 Drawn By: PKS



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Appendix A

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P2 FL.		
FLOOR AREA	3677.37 m ²	39830.65 sq ft
SALEABLE FLOOR AREA	0	0

- notes:
- 6. issued for client review 05.11.17
 - 5. issued for client review 10.27.16
 - 4. pre-submission meeting 10.12.16
 - 3. issued for client review 10.06.16
 - 2. issued for client review 04.04.16
 - 1. pre-submission meeting 06.25.15
- revisions:

architectural team :
mark zwicker
morteza rasekhi

- planning: john d. rogers and associates inc.
- structural:
- electrical:
- mechanical:
- landscape:
- site services:

project:
1315 SILVER SPEAR RD.
MISSISSAUGA, ONTARIO

p2 plan

date: june 27, 2017
scale: 1:150
project: 14-40

drawn by: mfr
drawing number: A201



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P.L.L.		
FLOOR AREA	3949.04 m ²	42508.47 sq ft
SALEABLE FLOOR AREA	0	0

- 6. issued for client review 05.11.17
 - 5. issued for client review 10.27.16
 - 4. pre-submission meeting 10.12.16
 - 3. issued for client review 10.06.16
 - 2. issued for client review 04.04.16
 - 1. pre-submission meeting 06.25.15
- revisions:

architectural team :
mark zwicker
morteza rasekhi

planning:
john d. rogers and associates inc.
structural:
electrical:
mechanical:
landscape:
site services:

project:
1315 SILVER SPEAR RD.
MISSISSAUGA, ONTARIO

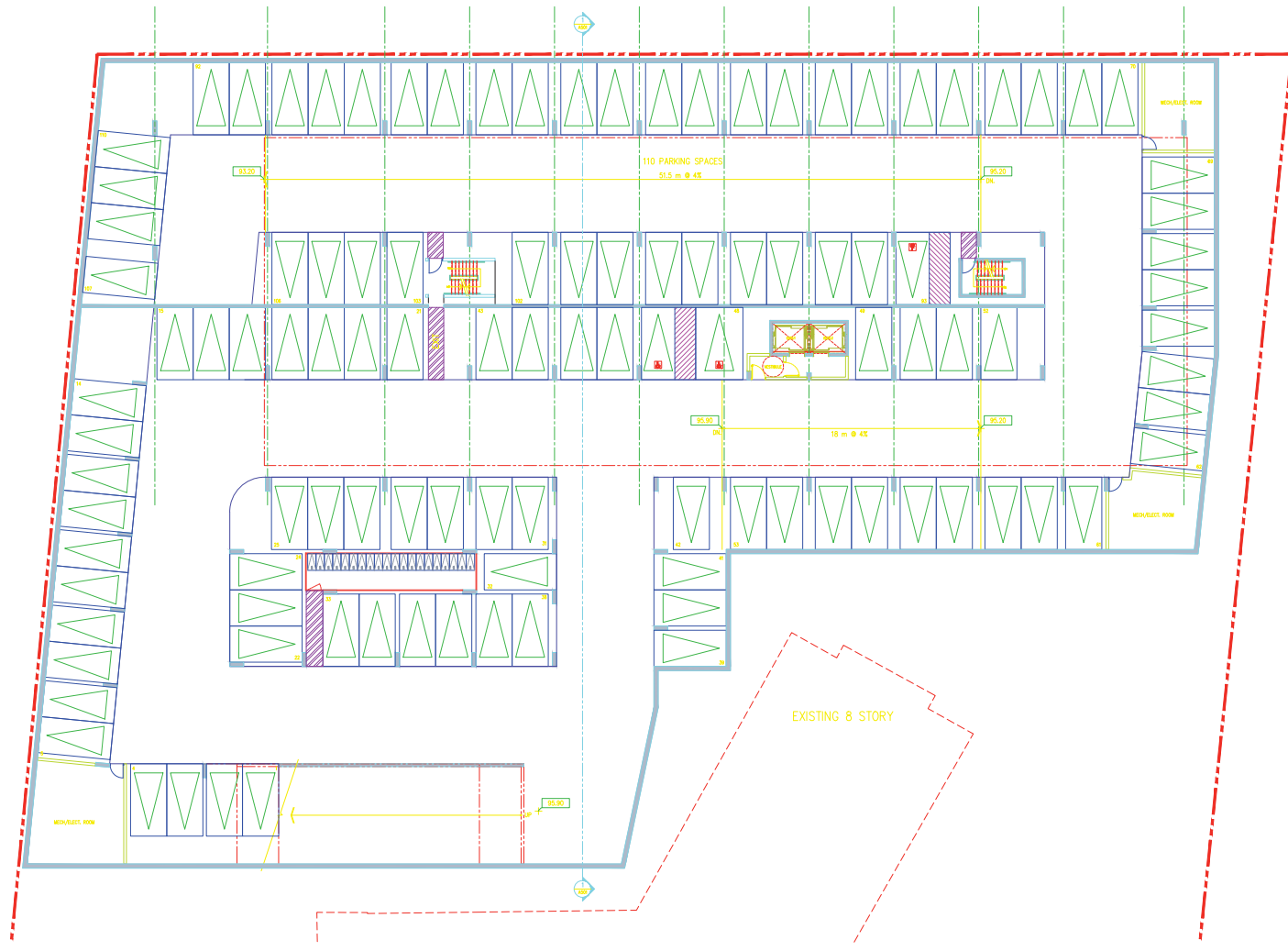
p1 plan

date:
1:150
14-40

date:
scale:
project:
drawn by:
drawing number:



A202



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	GR FL	
FLOOR AREA	1544.89 m ²	16228.06 ft ²
AMENITY	146.09 m ²	1572.49 ft ²
LEASEABLE FLOOR AREA	1094.12 m ²	11777.01 ft ²
PARKING AREA	0 m ²	0 ft ²

- 6. issued for client review 05.11.17
- 5. issued for client review 10.27.16
- 4. pre-submission review 10.12.16
- 3. issued for client review 10.06.16
- 2. issued for client review 04.04.16
- 1. pre-submission meeting 06.25.15

revisions:

architectural team :

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morteza rasekh

planning: john d. rogers and associates inc.

structural:

electrical:

mechanical:

landscape:

site services:

project: 1315 SILVER SPEAR RD.
mississauga, ontario

gr. fl. plan

date: june 27, 2017

scale: 1:150

14-40

project:

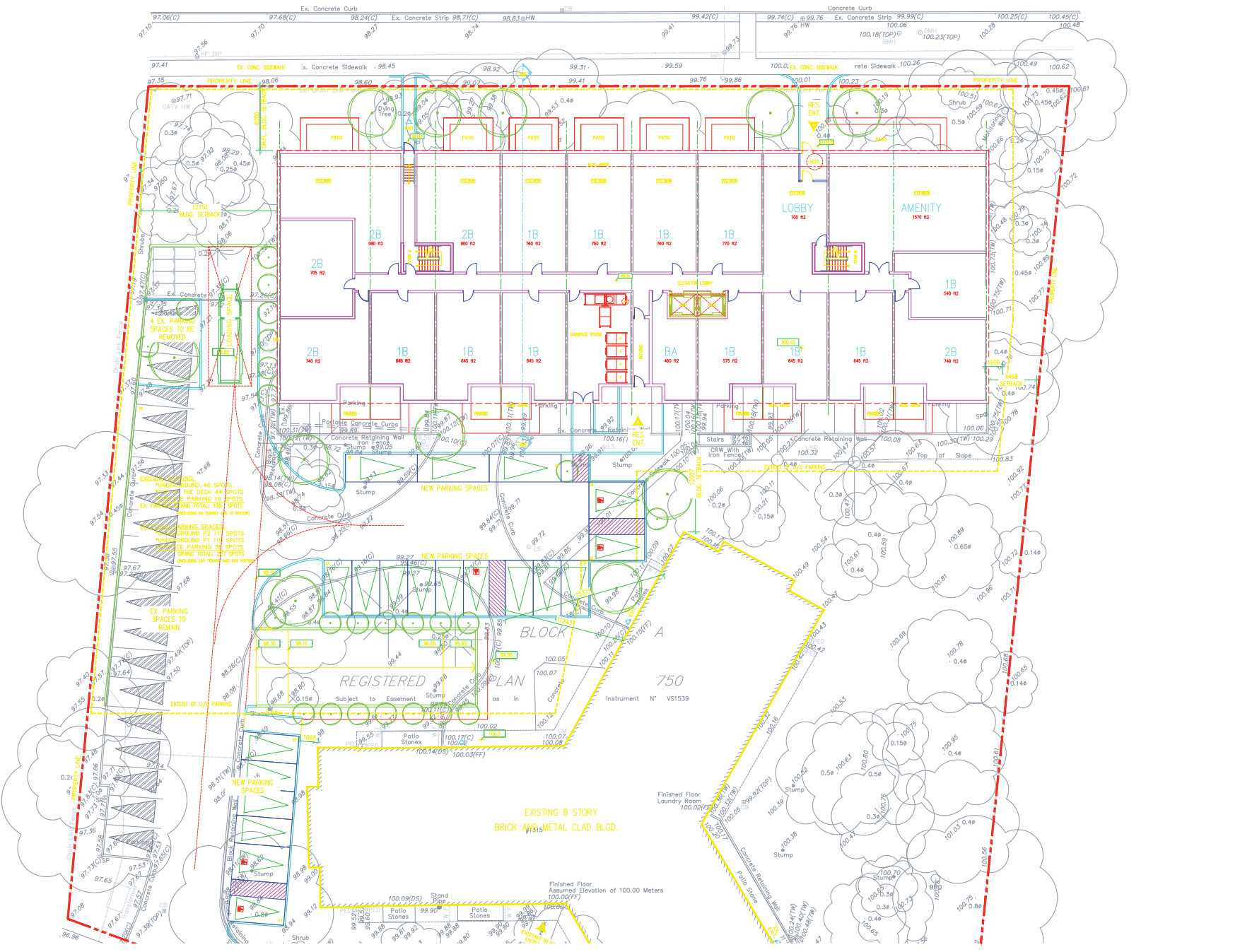
mr

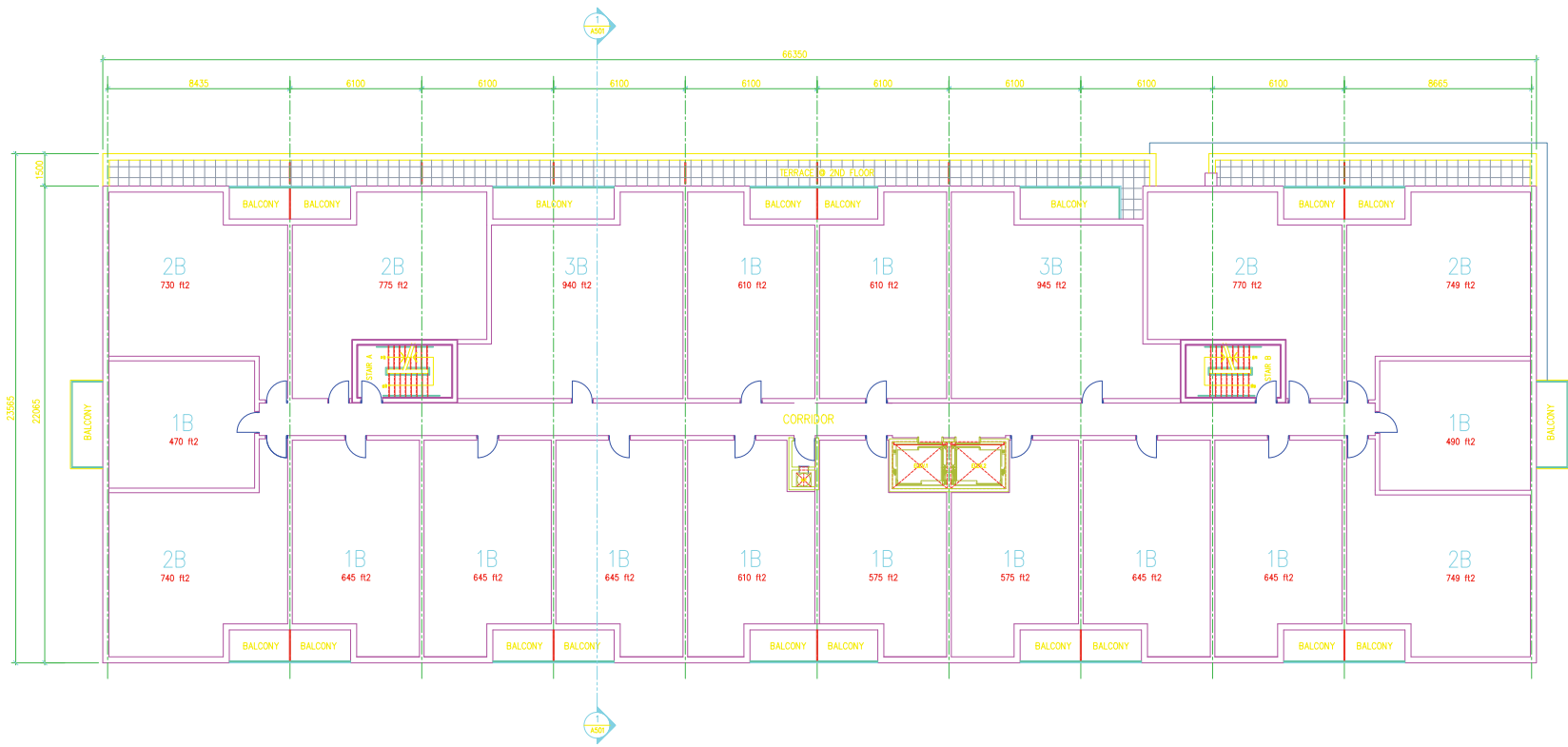
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Dimensions of openings or fixtures mentioned in electrical, mechanical, plumbing, and firework are indicated on architectural drawings. The contractor shall verify the actual dimensions of these openings and fixtures before construction. These items are not clearly shown will be located as directed by the architect.

These drawings are not to be used for construction unless noted below as "Issued for Construction".

All work to be carried out in accordance with the Code and Rules of the authorities having jurisdiction.

The Designer of these plans and specifications does not warrant or represent in any way that the construction of the project will be completed in accordance with the drawings and specifications. The contractor shall verify the actual dimensions of these openings and fixtures before construction. These items are not clearly shown will be located as directed by the architect.

notes:

2ND TO 4TH FL.		
FLOOR AREA	1377.48 m ²	14827.80 R2
LEASABLE FLOOR AREA	1281.15 m ²	13335.40 R2

- 6. issued for client review 05.11.17
- 5. issued for client review 10.27.16
- 4. pre-submission meeting 10.12.16
- 3. issued for client review 10.06.16
- 2. issued for client review 04.04.16
- 1. pre-submission meeting 06.25.15

revisions:

architectural team :

mark zwicker
mariea rosekhi

standing:
john d. rogers and associates inc.

structural:

electrical:

mechanical:

landscape:

site services:

project:
1315 SILVER SPEAR RD.
MISSISSAUGA, ONTARIO

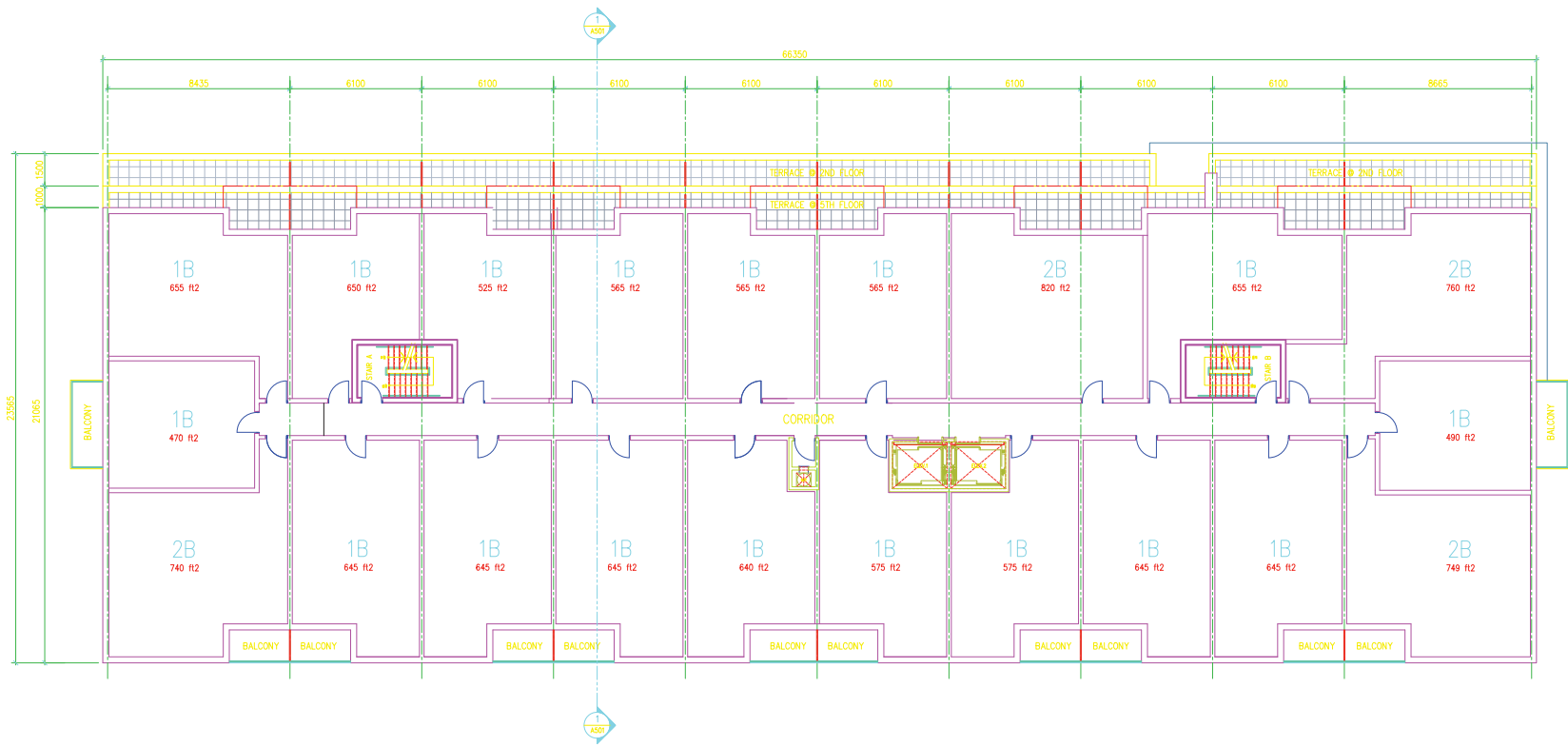
2nd - 4th fl. plan

June 27, 2017
1:100
14-40
mr

date:
scale:
project:
drawn by:
drawing number:



A302



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These Contract Documents are the property of the architect. The architect is not responsible for the construction of these documents. The contractor shall verify the accuracy of these documents. The architect will provide written graphic confirmation or supplementary information regarding the items of the Contract Documents. The architect will make Shop Drawings submitted by the Contractor for design confirmation only.

Nothing on this plan is to be used for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Positions of approved or proposed mechanical or electrical devices, fittings, and fixtures are indicated on architectural drawings. The locations shown on this architectural drawing govern over the locations on any electrical drawings. These items not clearly shown will be located as directed by the architect.

These drawings are not to be used for construction unless noted below as "Issued for Construction".

All work to be carried out in accordance with the Code and Rules of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation in any part about the accuracy of the information provided. The Designer is not responsible for any errors or omissions that may occur in the construction of these plans. The contractor shall verify the accuracy of these plans and shall be responsible for any errors or omissions that may occur in the construction of these plans.

notes:

5TH_and_6TH_FL.		
FLOOR AREA	1326.03 m ²	14273.72 ft ²
SHAKEABLE FLOOR AREA	1209.81 m ²	13032.71 ft ²

- 6. issued for client review 05.11.17
- 5. issued for client review 10.27.16
- 4. pre-submission meeting 10.12.16
- 3. issued for client review 10.06.16
- 2. issued for client review 04.04.16
- 1. pre-submission meeting 06.25.15

revisions:

architectural team :
mark zwicker
markeza rosekhi

- standing: JOHN G. ROGERS AND ASSOCIATES INC.
- structural:
- electrical:
- mechanical:
- landscape:
- site services:

project:
1315 SILVER SPEAR RD.
MISSISSAUGA, ONTARIO

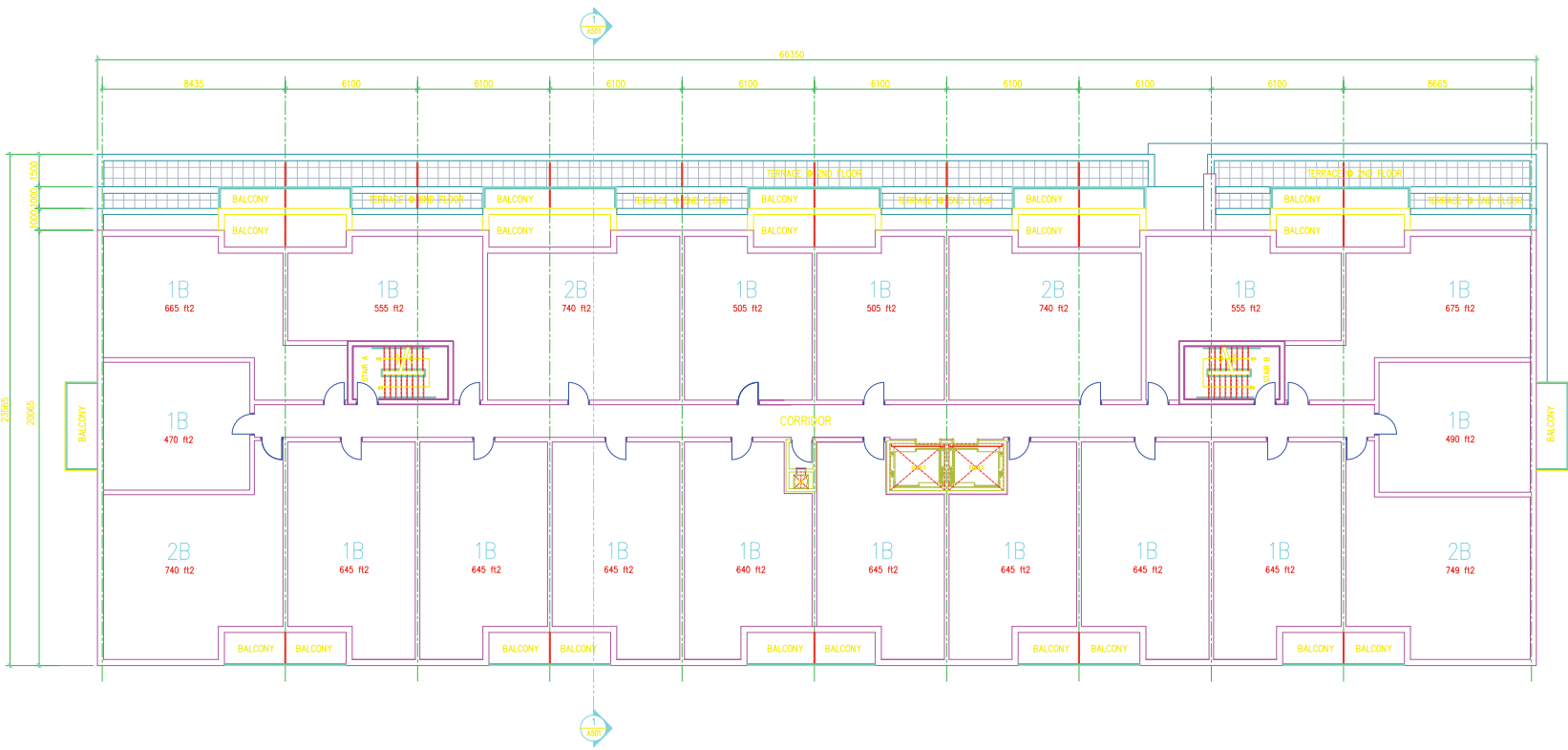
5th and 6th fl. plan

June 27, 2017
1:100
14-40
mr

date:
scale:
project:
drawn by:
drawing number:

North

A303



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Nothing on this plan is to be used for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Locations of approved or proposed mechanical or electrical devices, fittings, and fixtures are indicated on architectural drawings. The locations shown on the architectural drawings shall prevail over the locations on the electrical drawings. These items are not clearly shown will be located as directed by the architect.

These drawings are not to be used for construction unless noted below as "Issued for Construction".

All work is to be carried out in accordance with the Code and Rules of the authorities having jurisdiction.

The Designer of these plans and specifications gives no warranty or representation, in any part, about the accuracy of the information provided. The Designer is not responsible for the accuracy of the information provided. The Designer is not responsible for the accuracy of the information provided. The Designer is not responsible for the accuracy of the information provided.

notes:

7th_and_10th_FL		
FLOOR AREA	1265.92 m ²	13626.89 ft ²
USABLE FLOOR AREA	1149.70 m ²	12375.68 ft ²

- 6. issued for client review 05.11.17
- 5. issued for client review 10.27.16
- 4. pre-submission meeting 10.12.16
- 3. issued for client review 10.06.16
- 2. issued for client review 04.04.16
- 1. pre-submission meeting 06.25.15

revisions:

architectural team :
 mark zwicker
 markeza rosekhi

- standing: JOHN D. ROGERS AND ASSOCIATES INC.
- structural:
- electrical:
- mechanical:
- landscape:
- site services:

project:
 1315 SILVER SPEAR RD.
 MISSISSAUGA, ONTARIO

7th and 8th fl. plan

June 27, 2017
 1:100
 14-40
 mr

date:
 scale:
 project:
 drawn by:
 drawing number:

North

A304



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These Contract Documents are the property of the architect. The architect does not accept responsibility for the construction of these drawings by the contractor. Any errors or omissions in these drawings will be the responsibility of the contractor. The architect will make such drawings as are required for the construction of the building as shown on these drawings. The contractor is responsible for the design of the building and for the design of the building.

Drawings are not to be used for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Portions of approved or obtained mechanical or electrical, heating, piping, and fixtures are indicated on architectural drawings. The contractor shall verify the mechanical, electrical, piping, and fixtures are installed as shown on these drawings. These items are not shown on these drawings and shall be verified by the architect.

These drawings are not to be used for construction unless noted here as "Issued for Construction".

All work is to be carried out in accordance with the Code and Rules of the authorities having jurisdiction.

The Designer of these plans and specifications does so without any responsibility for any errors or omissions in the drawings or specifications. The contractor shall verify the accuracy of the drawings and specifications and shall be responsible for any errors or omissions in the drawings and specifications.

notes:

- | | |
|-----------------------------|----------|
| 6. issued for client review | 05.11.17 |
| 5. issued for client review | 10.27.16 |
| 4. pre-submission meeting | 10.12.16 |
| 3. issued for client review | 10.06.16 |
| 2. issued for client review | 04.04.16 |
| 1. pre-submission meeting | 06.25.15 |
- revisions:

architectural team :
 mark zwicker
 mariea rosekhi

standing:
 john d. rogers and associates inc.
 structural:
 electrical:
 mechanical:
 landscape:
 site services:

project:
 1315 SILVER SPEAR RD.
 MISSISSAUGA, ONTARIO

north elevation

date:
 1:125
 14-40
 mr

dotc:
 scale:
 project:
 drawn by:
 checked by:
 date:

A401



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These Contract Documents are the property of the architect. The architect does not accept responsibility for the construction of these drawings by the contractor. Any errors or omissions in these drawings, all provide written/printed confirmation or supplementary information regarding the scope of the Contract Documents. The architect will make any changes to the drawings as requested by the contractor for design confirmation only.

Drawings are not to be used for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Portions of approved or obtained mechanical or electrical notices, filings, and returns are indicated on architectural drawings. The contractor shall verify the mechanical, electrical, and plumbing notices and returns are indicated on architectural drawings. These items are not to be construed as a guarantee of accuracy. These items are not to be construed as a guarantee of accuracy. These items are not to be construed as a guarantee of accuracy.

These drawings are not to be used for construction unless noted below as "Issued for Construction".

All work to be carried out in accordance with the Code and Rules of the authorities having jurisdiction.

The Designer of these plans and specifications does not warrant or represent in any way that the construction of the project will be completed in accordance with the specifications and drawings. The contractor shall verify the accuracy of the specifications and drawings. The contractor shall verify the accuracy of the specifications and drawings. The contractor shall verify the accuracy of the specifications and drawings.

notes:

- 6. issued for client review 05.11.17
- 5. issued for client review 10.27.16
- 4. pre-submission meeting 10.12.16
- 3. issued for client review 10.06.16
- 2. issued for client review 04.04.16
- 1. pre-submission meeting 06.25.15

revisions:

architectural team :
 mark zwicker
 mariea rosekhi

drafting: rogers and associates inc.
 structural:
 electrical:
 mechanical:
 landscape:
 site services:

project:
 1315 SILVER SPEAR RD.
 mississauga, ontario

south elevation

date: june 27.2017
 scale: 1:125
 project: 14-40
 drawn by: mr
 checked by:
 number:

A402



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These Contract Documents are the property of the architect. The architect shall be responsible for the interpretation of these documents by the contractor. Any written approval by the architect will provide written/graphic confirmation or supplementary information separate from the Contract Documents. The architect will make final drawings submitted by the Contractor for design confirmation only.

Drawings are not to be used for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Positions of openings or fixtures mentioned in electrical, mechanical, plumbing, and firework are indicated on architectural drawings. The location of any fire, electrical, mechanical, plumbing, or firework shall be located as directed by the architect.

These drawings are not to be used for construction unless noted below as "Issued for Construction".

All work to be carried out in accordance with the Code and Rules of the authorities having jurisdiction.

The Designer of these plans and specifications does so without any responsibility for any errors or omissions, or for the construction of the work shown hereon. The Designer shall not be held liable for any errors or omissions, or for the construction of the work shown hereon.

notes:

- 6. issued for client review 05.11.17
- 5. issued for client review 10.27.16
- 4. pre-submission meeting 10.12.16
- 3. issued for client review 10.06.16
- 2. issued for client review 04.04.16
- 1. pre-submission meeting 06.25.15

revisions:

architectural team :
 mark zwicker
 mariea rosekhi

standing:
 john d. rogers and associates inc.

structural:

electrical:

mechanical:

landscape:

site services:

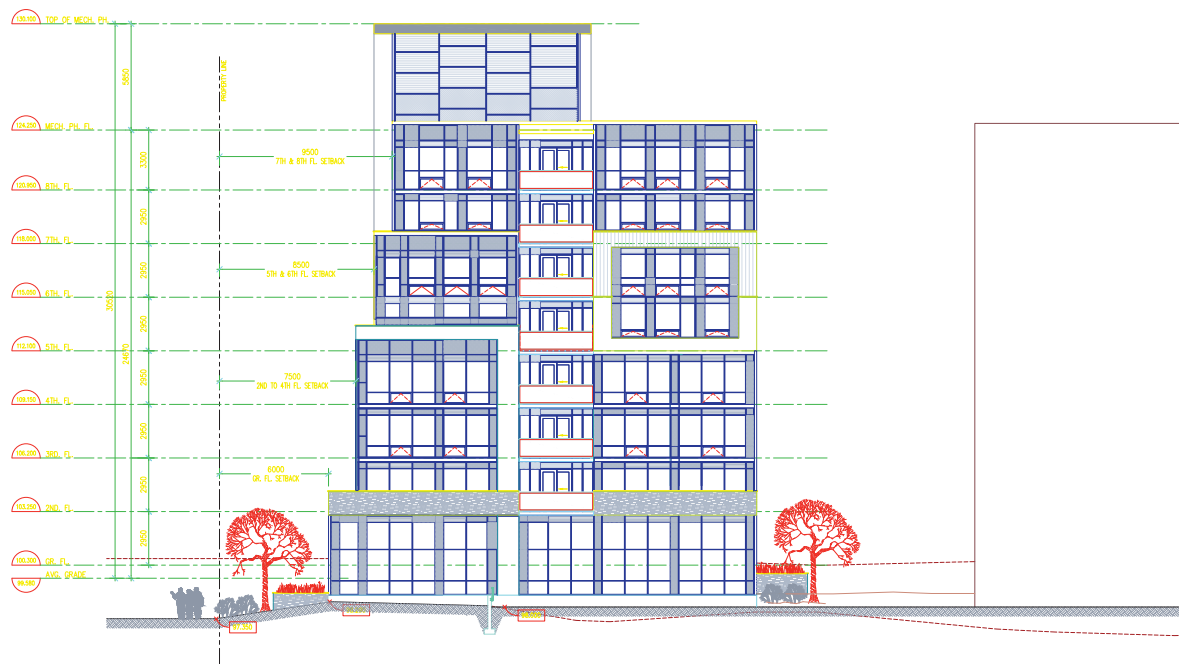
project:
 1315 SILVER SPEAR RD.
 mississauga, ontario

east elevation

date:
 1:125
 14-40

scale:
 project:
 drawn by:
 drawing number:

A403



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Nothing is to be used for construction. Contractor to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the architect before commencing work.

Portions of approved or revised mechanical or electrical systems, fittings, and fixtures are indicated on architectural drawings. The location of any fire, electrical, mechanical, or plumbing systems shall be indicated as directed by the architect.

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notes:

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 - 4. pre-submission meeting 10.12.16
 - 3. issued for client review 10.06.16
 - 2. issued for client review 04.04.16
 - 1. pre-submission meeting 06.25.15
- revisions:

architectural team :

mark zwicker
marieze rosekhi

standing:
john d. rogers and associates inc.

structural:
electrical:
mechanical:
landscape:
site services:

project:
1315 SILVER SPEAR RD.
MISSISSAUGA, ONTARIO

west elevation

date:
june 27.2017

scale:
1:125

project:
14-40

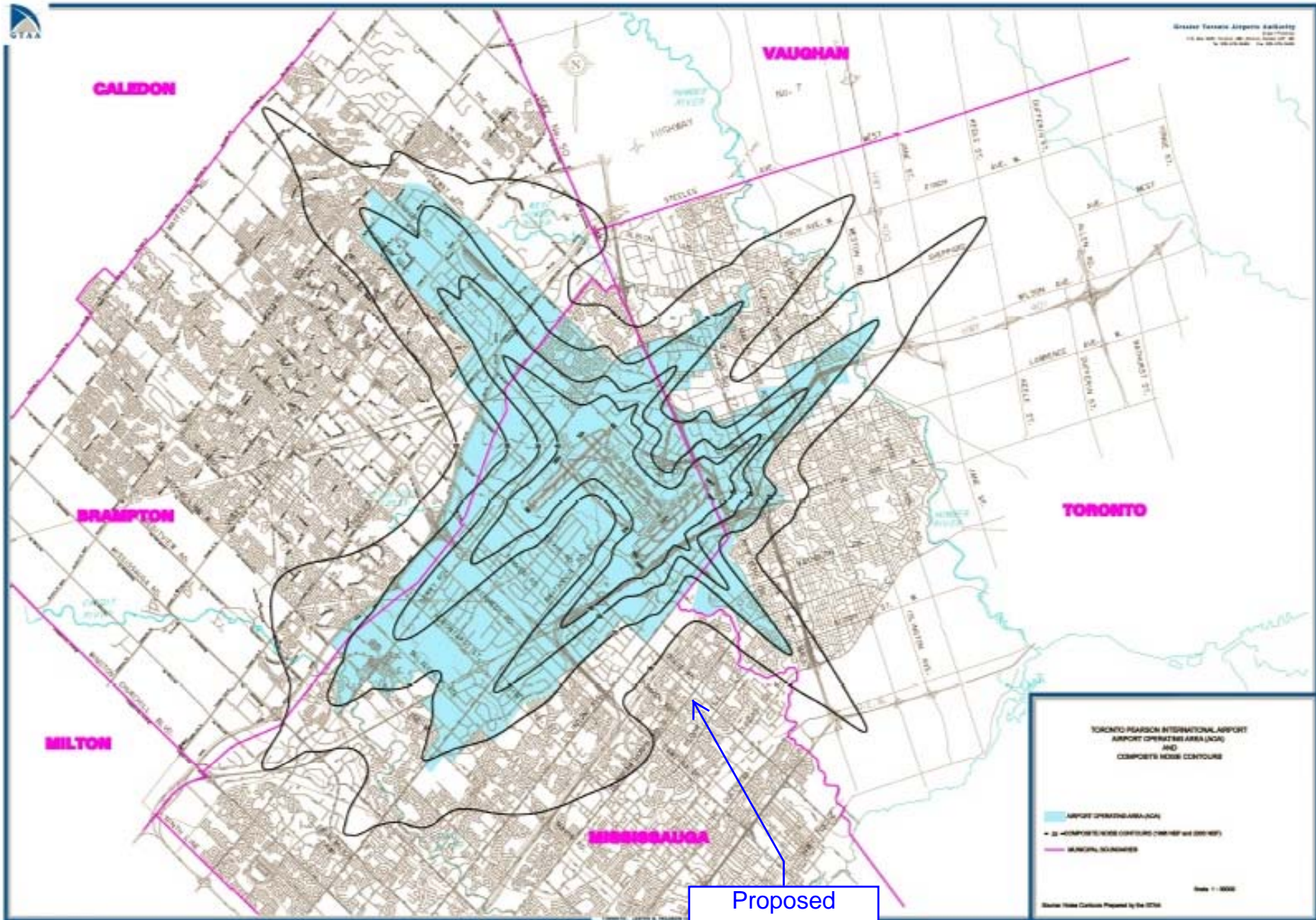
drawn by:
mr

drawing number:
A404

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Appendix B

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for 2-sided printing purposes



Noise Exposure Forecast

Transport Canada has developed a Noise Exposure Forecast (NEF) model to calculate long-term aircraft noise exposure based on forecasted flights, and the assessed level of noise annoyance in those areas. Contour lines are drawn on a map connecting points of equal noise impact representing 25, 30, 35 and 40 NEF. It is important to remember that the NEF contour does not measure decibel levels for individual flights, but is a cumulative noise value of overall forecasted flights, and noise annoyance.

Airport Operating Area

The GTAA has established the Toronto Pearson Airport Operating Area (AOA), which uses well-defined natural and manmade boundaries to approximate the 30 NEF contour on the ground. Surrounding municipalities have included this operating area in their Official Plans and have approved associated policies that limit incompatible land uses within these areas.

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Appendix C

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BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer)

ROADWAY

Receptor ID	Receptor Description	Sound Levels				Room / Façade Inputs								Source Inputs			Veneer - Component 1					Glazing - Component 2								
		Façade Sound Level: (dBA)	Free - field Correction: (dBA)	Required Indoor Sound Level: (dBA)	Required Noise Reduction: (dBA)	Glazing as % of Wall Area	Exposed Wall Height (m)	Exposed Wall Length (m)	Room Depth (m)	Total Floor Area (m ²)	Veneer Wall Area (m ²)	Glazing Wall Area (m ²)	Veneer as % of Floor Area: (%)	Glazing as % of Floor Area: (%)	Room Absorption:	Incident Sound Angle: (deg)	Angle Correction Factor:	Spectrum type:	Assumed Veneer STC	Component Category:	Room Correction	Frequency Correction	Sound Energy Correction	% Total Transmitted Energy (%)	Component Category:	Room Correction	Frequency Correction	% Total Transmitted Energy (%)	Sound Energy Correction	Require Glazing STC
DAYTIME																														
N_LvRmKitch	North Façade - Living Room/Kitchen	69	3	45	27	80%	2.7	4.0	6.0	24.0	2.2	8.6	9	36	Intermediate	0 - 90	0	D. mixed road traffic, distant aircraft	41	D. sealed thick window, or exterior wall, or roof/ceiling	-10	7	17	5	C. sealed thin window, or openable thick window	-3	4	95	0	28
N_Bedrm	North Façade - Bedroom	69	3	45	27	80%	2.7	3.0	3.0	9.0	1.6	6.5	18	72	Intermediate	0 - 90	0	D. mixed road traffic, distant aircraft	41	D. sealed thick window, or exterior wall, or roof/ceiling	-7	7	14	5	C. sealed thin window, or openable thick window	0	4	95	0	31
NIGHT-TIME																														
N_LvRmKitch	North Façade - Living Room/Kitchen	61	3	45	19	80%	2.7	4.0	6.0	24.0	2.2	8.6	9	36	Intermediate	0 - 90	0	D. mixed road traffic, distant aircraft	41	D. sealed thick window, or exterior wall, or roof/ceiling	-10	7	25	5	C. sealed thin window, or openable thick window	-3	4	95	0	20
N_Bedrm	North Façade - Bedroom	61	3	40	24	80%	2.7	3.0	3.0	9.0	1.6	6.5	18	72	Intermediate	0 - 90	0	D. mixed road traffic, distant aircraft	41	D. sealed thick window, or exterior wall, or roof/ceiling	-7	7	17	5	C. sealed thin window, or openable thick window	0	4	95	0	28

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