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# **Noise Impact Study**

## **Proposed Residential Development**

### **7170 Goreway Drive,**

### **City of Mississauga, Ontario**

Prepared for:

2150745 Ontario Inc.  
1098 Peter Robertson Blvd, Unit 24,  
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Prepared by



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October 18, 2019

Project Number: 01700110

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## 1 Introduction & Summary

HGC Engineering was retained by 2150745 Ontario Inc. to conduct a noise impact study for a proposed residential development to be located at 7170 Goreway Drive, in Mississauga, Ontario. The proposed development will include three blocks of 3-storey townhouses and a private road. Lands to the east and south of the subject site are existing residential with some commercial uses on the east side of Goreway Drive. The study is required by the Municipality as part of the planning and approvals process, and has been updated to reflect the latest site plan, floor plans, and building elevations.

The primary sources of noise impacting the site were determined to be road traffic on Goreway Drive and air traffic. Relevant road traffic data was obtained from the City of Mississauga. The latest noise contours for the Lester B. Pearson International Airport were obtained. This data was used to predict future traffic sound levels at the locations of the proposed dwellings facades and in the outdoor amenity areas. The predicted sound levels were compared to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP) and the Municipality to develop noise control recommendations.

The sound level predictions indicate that future road and air traffic sound levels will exceed MECP guidelines at the proposed residential buildings. Since the site is located between NEF 30 and 35 noise contours (approximately NEF 31), central air conditioning is required to be included in the dwellings. Upgraded building constructions (windows, doors, walls and ceiling/roof constructions) are required for the proposed buildings. Associated acoustical requirements are specified in this report. Warning clauses are recommended to inform future residents of the road and air traffic noise impacts and the neighbouring commercial facilities.



## 2 Site Description & Noise Sources

The proposed residential development is located at 7170 Goreway Drive in the City of Mississauga, Ontario. Figure 1 shows an aerial photo illustrating the location of the subject site. A site plan prepared by Jardin Design Group Inc. dated September 26, 2019 and is shown in Figure 2. The proposed development will consist of three 3-storey townhouse blocks and a private road. The floor plans and building elevations (prepared by Jardin Design Group Inc. dated October 3<sup>rd</sup>, 2019) are attached in Appendix A.

A site visit was made by HGC Engineering personnel in December 2017 to make observations of the acoustic environment, and to identify the significant noise sources in the vicinity. The acoustical environment surrounding the site is urban in nature. The subject site is currently vacant.

Road traffic on Goreway Drive and air traffic were confirmed to be the primary sources of sound impacting the site. Goreway Drive is two lanes in each direction with a center turning lane. Lands to the north, west and south are existing residential. To the east of Goreway is a small 2-storey commercial plaza which includes A-One Food Centre, Cash Now, Next 2 Wireless and Pizza Depot. To the further south is a KFC and Taco Bell. A larger commercial plaza is located to the northeast of the site including a Fresh Co., Shoppers Drug Mart, and other retailers. Sounds from these facilities were not audible during the time of the site visit, and there were no other significant sources of stationary noise noted within 500 m of the subject site. The subject site is located in a Class 1 (urban) acoustical environment where the background sound is primarily made up of the sounds of road traffic and human activity (the urban hum).



### 3 Noise Level Criteria

#### 3.1 Road Traffic Noise

Guidelines for acceptable levels of road and air 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 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]**

Space	Daytime $L_{EQ}$ (16 hour) Road	Nighttime $L_{EQ}$ (8 hour) Road
Outdoor Living Areas	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, while nighttime refers to the 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. Balconies that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

The MECP guidelines allow the daytime sound levels in OLA 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 recommended to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible.

A central air conditioning system 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 systems with ducts sized to accommodate the future installation of air conditioning by the occupant 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.

### 3.2 Air Traffic Noise

Indoor sound limits due to air traffic are also defined in the MECP in publication NPC-300. The maximum allowable Noise Exposure Forecast (NEF) limits are summarized in Table II.

**Table II: Air Traffic Noise Criterion**

Area	Indoor NEF/NEP
Living/Dining Room (indoor)	5
Bedroom (indoor)	0

The living/dining/family rooms, dens and bedrooms of the proposed dwelling units are the sensitive receptor locations. Typically, washrooms and kitchens are considered noise insensitive areas. There are no outdoor noise criteria for aircraft noise because there is no effective means of mitigation.

For residential dwellings located between the NEF 25 and 30, the MECP requires that the dwelling be designed with the provision for central air conditioning. This requirement usually implies forced air heating systems with the ducts sized for future installation of central air conditioning. In addition, building components including windows, doors, walls and ceiling/roof must be designed to achieve the indoor sound level criteria. A warning clause is also required in property and tenancy agreements.

For residential dwellings located between the NEF 30 and 35, the MECP requires that central air conditioning is mandatory with warning clauses in the property and tenancy agreements. In addition,

building components including windows, doors, walls and ceiling/roof must be designed to achieve the indoor sound level criteria in Table II.

There are no specific requirements if the dwellings are located in the area where the NEF/NEP contours are less than 25.

## 4 Traffic Noise Assessment

### 4.1 Road Traffic Data

Road traffic information for Goreway Drive was obtained from the City of Mississauga, in the form of ultimate Average Annual Daily Traffic (AADT) values, and is provided in Appendix B. An ultimate AADT of 35 000 vehicles per day, along with a speed limit of 60 km/h, was applied to Goreway Drive. A commercial vehicle percentage of 3% was used in the analysis and was further split into 1.65% and 1.35% for medium and heavy trucks, respectively. Table III summarizes the traffic volume data used in this study.

**Table III: Ultimate Road Traffic Data**

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
<b>Goreway Drive</b> <i>(Ultimate)</i>	Daytime	30 555	520	425	31 500
	Nighttime	3 395	57	48	3 500
	<b>Total</b>	<b>33 950</b>	<b>577</b>	<b>473</b>	<b>35 000</b>

### 4.2 Road Traffic Noise Predictions

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

Prediction locations were chosen around the residential site to obtain a good representation of the future sound levels at the dwellings with exposure to the Goreway Drive. Future daytime sound levels in the outdoor amenity areas (optional rooftop terraces) were investigated to determine whether noise barriers will be necessary. Sound levels were predicted at the plane of the top storey

bedroom and/or living/dining room windows during daytime and nighttime hours to investigate ventilation requirements. The results of these predictions are summarized in Table IV.

The distance setback of the buildings indicated on the site plan was used in the analysis, along with an aerial photo to determine the distance to the major roadway. In accordance with MECP guidelines, Goreway Drive was divided into two segments (eastbound and westbound). The acoustic requirements may be subject to modifications if the site plan is changed significantly.

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

Prediction Location	Block No.	Description	Daytime - in OLA+ LEQ(16)	Daytime - at Façade LEQ(16)	Nighttime - at Façade LEQ(8)
[A]	1	East façade adjacent to Goreway Drive	59	65	59
[B]	2	East façade adjacent to Etude Drive	57	58	51
[C]	3	Interior Block	56	57	51

Note: + Optional rooftop terrace with minimum 1.07 m high solid parapet wall.

### 4.3 Air Traffic

The 2005 Composite Noise Contour Map for the Lester B. Pearson International Airport was obtained and is included as Figure 3. This Map indicated that the proposed site is located between the 30 and 35 NEF/NEP contour, approximately NEF 31.

The NEF contour map was used to determine the Acoustical Insulation Factors (AIF) required for the building components for the proposed dwellings. The MECP indoor noise criteria for aircraft traffic noise was used as a guideline.

### 4.4 Traffic Noise Recommendations

The predictions indicate that the future traffic sound levels will exceed MECP guidelines at the façades of the proposed residential buildings with exposure to Goreway Drive. The following discussion outlines recommendations for ventilation requirements and warning clauses to achieve the noise criteria stated in Table I.

#### 4.4.1 Outdoor Living Areas & Acoustic Barriers

The dwelling units include small balconies that are less than 4 m in depth. These balconies are not considered to be outdoor living areas and there are exempt from traffic noise assessment.

There are optional rooftop terraces that have portions that are larger than 4 m in depth. These rooftop terraces are considered to be outdoor living areas under MECP guidelines, and therefore require a traffic noise assessment. The predicted sound level in the rooftop terraces with exposure to Goreway Drive in Block 1 will be 59 dBA with a 1.07 m high solid parapet. The predicted sound level in the easterly rooftop terrace of Block B with exposure to Goreway Drive in Block 2 will be 57 dBA with a 1.07 m high solid parapet. The predicted sound level in easterly rooftop terrace of Block 3 will be 56 dBA with a 1.07 m high solid parapet.

For the roof terraces, a table of barrier heights is provided below, as requested by the City. The Planning department will select the required parapet height.

**Table V: Summary of Barrier Heights (m) Required to Meet Various Sound Levels**

Block No.	Desired Sound Level (dBA)				
	55	56	57	58	59
1	2	1.7	1.5	1.3	1.07
2	1.5	1.2	1.07	--	--
3	1.4	1.07	--	--	--

Parapets should be of solid construction and should shield the terrace area entirely from the roadway. The parapet should have a surface density of no less than 20 kg/m<sup>2</sup>. The walls may be constructed from a variety of materials such as wood, brick, pre-cast concrete or other concrete/wood composite systems provided that it is free of gaps or cracks within or below its extent.

#### 4.4.2 Indoor Living Areas & Ventilation Requirements

##### Inclusion of Central Air Conditioning

Since the site is located between the 30 to 35 NEF contours for Lester B. Pearson International Airport, central air conditioning is required for all the residential units so that windows may remain

closed. The guidelines also recommend warning clauses for the building. Window or through-the-wall air conditioning units are not recommended for any residential units because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall noise insulating properties of the envelope. 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, as applicable.

#### 4.4.3 Building Façade Constructions

Since the buildings are located between the 30 to 35 NEF/NEP contours for the Lester B. Pearson International Airport, air traffic noise must be considered in the building designs over the site. The site is located at approximately NEF 31. The acoustic insulation factors (AIF) required for road traffic and air traffic must be combined to obtain an overall AIF for the buildings. The required building components are selected based on the overall AIF value.

To do so, calculations were performed to determine the acoustical insulation factors to maintain indoor sound levels within MECP guidelines. The calculation methods were developed by the National Research Council (NRC). They are based on the predicted future sound levels at the building facades, and the area ratios of the facade components (walls, windows, ceiling/roof and doors) and the floor area of the adjacent room.

#### *Glazing Requirements*

Floor plans and building elevations prepared by Jardin Design Group Inc. dated October 3, 2019, provided in Appendix A, were reviewed to determine acoustical requirements for glazing. In general, the living/dining rooms have window to floor area ratios of 12%, dens have window to floor area ratios of 25%, and bedrooms have window to floor area ratios of 40%.

Based upon these ratios, it was determined that the glazing for the development must achieve a sound transmission class (STC) rating of at least 33 for bedrooms and STC of at least 29 for living/dining rooms and dens in order to achieve the target indoor sound level criteria due to road and air traffic. Awning windows, and swing or sliding doors to balconies should have tight seals sufficient to achieve similar acoustical performance ratings.



Sample window assemblies which may achieve the STC requirements are summarized in Table VI below. Note that acoustic performance varies with manufacturer’s construction details, and these are only guidelines to provide some indication of the type of glazing likely to be required. 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 Constructions Satisfying STC Requirements**

STC Requirement	Glazing Configuration (STC)
28 – 29	Any double glazed unit
30 – 31	3(13)3
32 – 33	4(10)4
34	4(19)4
35 – 36	6(10)4, 5(16)4
37	6(13)6, 6(20)5, 5(25)6
38	6(25)5, 6L(13)6

In Table VI, the numbers outside the parentheses indicate minimum pane thicknesses in millimetres and the number in parentheses indicates the minimum inter-pane gap in millimetres. “L” indicates a laminated pane. OBC indicates any glazing construction meeting the minimum requirements of the Ontario Building Code.

If the exterior wall construction, floor plans and window areas are changed significantly, an acoustical consultant should provide revised recommendations for the glazing constructions.

***Exterior Wall Construction***

The elevation drawings indicate brick or a masonry exterior wall with accents. This construction is acceptable.

***Exterior Doors***

Any insulated metal exterior door meeting OBC requirements will be sufficient to provide noise insulation. Patio doors have been included in the window area.

***Ceiling/Roof System***

A ceiling/roof construction consisting of a gypsum board, insulation batts, flat roof joists, beam construction and built up roofing would provide adequate sound insulation for the dwelling units.

**Table VII: Summary of Minimum Glazing Requirements**

Description	Space	Range of Window to Floor Area Ratios	STC	Sample Minimum Glazing Constructions
All facades of proposed building	Living/Dining/Den	12 - 25%	29	Any double glazed unit
	Bedroom	40%	33	4(10)4

Note: If these ratios are exceeded, HGC Engineering should be contacted for a revised recommendation.

**4.4.4 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 dwelling units with anticipated traffic sound level excesses.

Suggested wording for future dwellings with sound level excesses the MECP criteria is given below:

Type A:

Purchasers are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road and air traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels activities exceed the Municipality’s and the Ministry of the Environment and Climate Change’s noise criteria.

A suitable wording for future dwellings requiring central air conditioning systems is given below.

Type B:

Purchasers are advised that in order to achieve an acceptable indoor environment this unit has been equipped with a central air conditioning system, to allow the windows and doors to be kept closed, thereby ensuring that the indoor sounds levels meet the noise criteria of the Municipality and the Ministry of the Environment and Climate Change.

Suitable wording for the proposed building near commercial uses is given below.

Type C:

Purchasers are advised that sound levels due to the proximity of the adjacent commercial facilities, sound levels from the commercial 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.

## 5 Summary & Recommendations

The following list and Table VIII summarizes 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. Central air conditioning is required for all the proposed buildings.
2. Upgraded building and glazing constructions are required for the proposed buildings as noted in Section 4.4.3.
3. Warning clauses should be used to inform future residents of the traffic noise concerns and the neighbouring commercial facilities.



**Table VIII: Summary of Noise Control Requirements and Noise Warning Clauses**

Block No.	Acoustic Barrier	Ventilation Requirements*	Type of Warning Clause	Minimum Glazing Constructions**
1	+	Central A/C	A, B, C	LR/DR: STC-29 BR: STC-33
2	+	Central A/C	A, B, C	LR/DR: STC-29 BR: STC-33
3	+	Central A/C	A, B, C	LR/DR: STC-29 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

LR/DR – Living Room/Dining Room

BR – Bedroom

+ 1.07 m high solid parapet around optional roof terrace. See additional barrier heights in Section 4.4.1.

\*\* See Section 4.4.3.

## 5.1 Implementation

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

- 1) Prior to the issuance of occupancy permits for this development, the Municipality’s building inspector or a Professional Engineer qualified to perform acoustical engineer services in the Province of Ontario should certify that the noise control measures have been properly incorporated, installed and constructed.

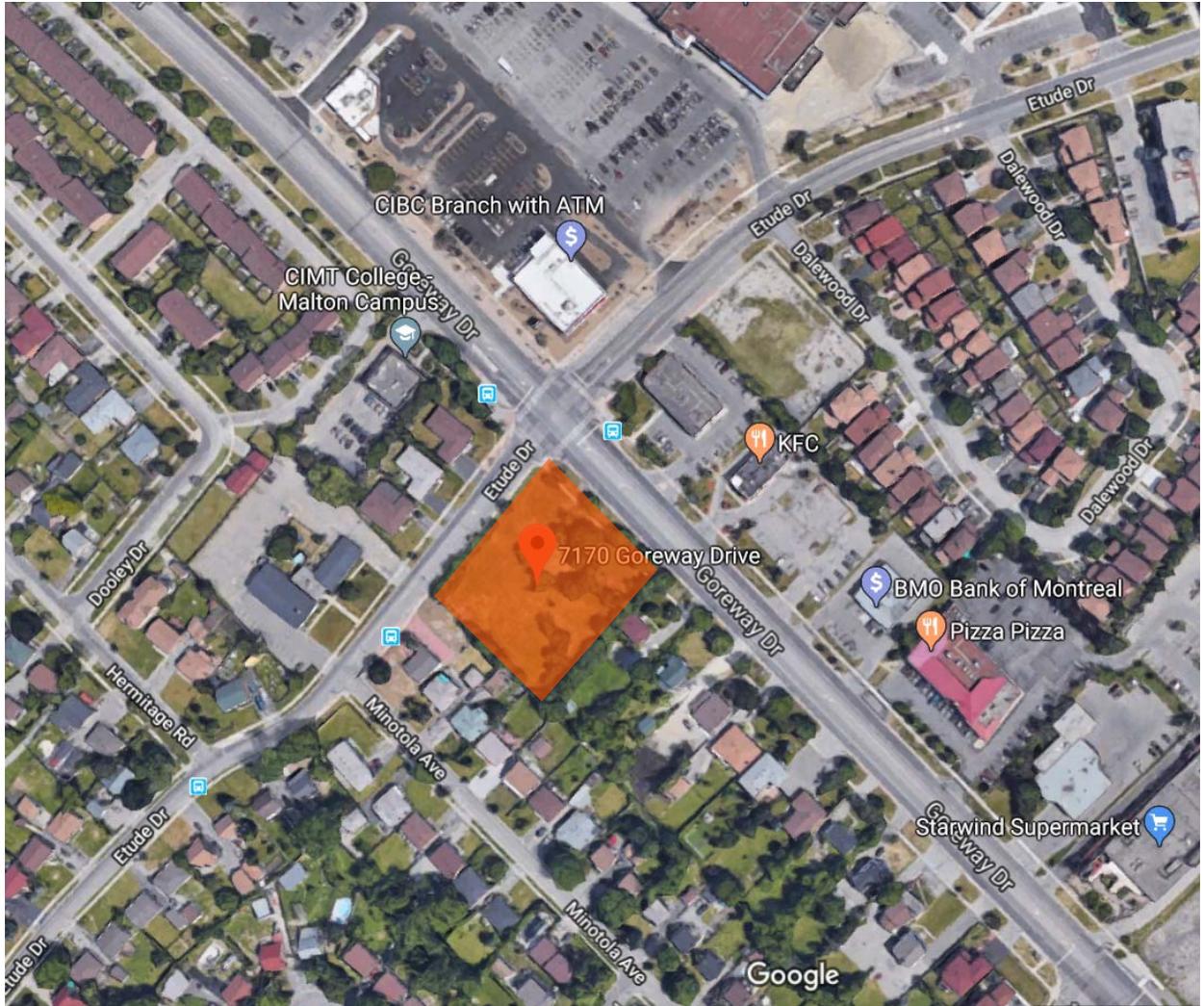
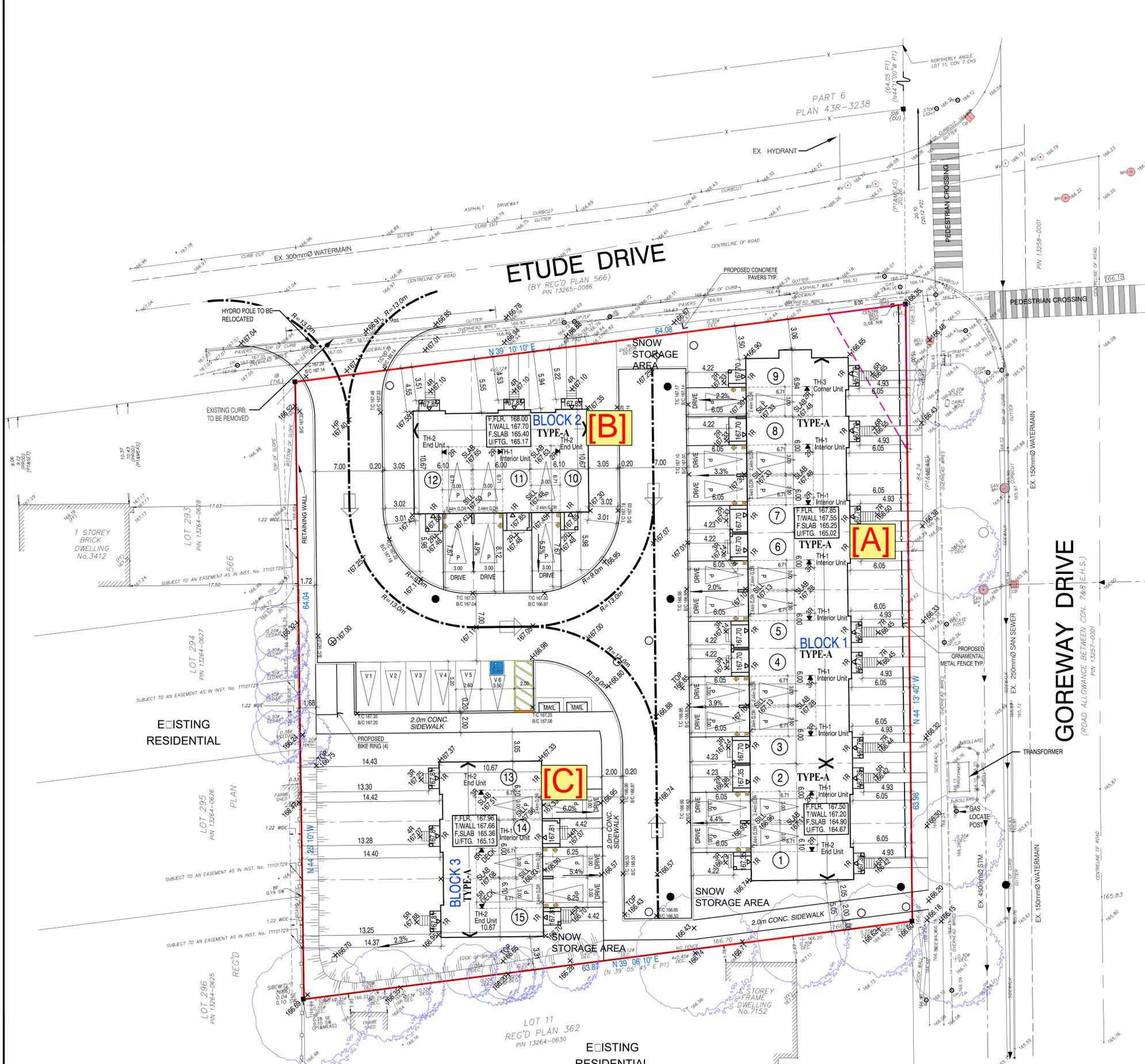


Figure 1 - Key Plan



### LOT SUMMARY

LOT CATEGORY	ENDS	INTERNAL	CORNER	TOTAL
5.0m x 30.2m lots (198') TYPE-A (Street Facing Townhouse)	5	9	1	15
<b>TOTAL</b>	<b>5</b>	<b>9</b>	<b>1</b>	<b>15</b>

### OVERALL SITE STATISTICS

<b>TOTAL SITE AREA</b>	4068.61 m <sup>2</sup> / (0.40686 Ha)
<b>TOTAL UNITS</b>	15 3 STORE UNITS

BLOCK	MODEL UNIT N.	MODEL T-PE	LOT FRONTAGE (m)	BUILDING HEIGHT (m)	BUILDING HEIGHT (m) (ROOF TERRACE)	UNIT G.F.A. (m <sup>2</sup> )	COVERAGE W/ PORCH (m <sup>2</sup> )	COVERAGE W/ PORCH (m <sup>2</sup> )	COVERAGE PERCENTAGE (%)	LOT AREA (m <sup>2</sup> )
BLOCK 1	1	TH-2 (End)	9.15	0.0	0.0	167.77	69.86	64.19	32.10	199.94
	2	TH-1 (Interior)	6.00	0.0	0.0	164.51	70.40	62.77	45.99	136.50
	3	TH-1 (Interior)	6.00	0.0	0.0	164.51	70.40	62.77	45.99	136.50
	4	TH-1 (Interior)	6.00	0.0	0.0	164.51	70.40	62.77	45.99	136.50
	5	TH-1 (Interior)	6.00	0.0	0.0	164.51	70.40	62.77	45.99	136.50
	6	TH-1 (Interior)	6.00	0.0	0.0	164.51	70.40	62.77	45.99	136.50
	7	TH-1 (Interior)	6.00	0.0	0.0	164.51	70.40	62.77	45.99	136.50
	8	TH-1 (Interior)	6.00	0.0	0.0	164.51	70.40	62.77	45.99	136.50
	9	TH-3 (Corner)	10.93	0.0	0.0	178.67	69.87	64.20	27.55	233.00
<b>TOTAL:</b>			<b>62.09 m</b>	<b>0.00 m</b>	<b>0.00 m</b>	<b>1498.01 m<sup>2</sup></b>	<b>632.53 m<sup>2</sup></b>	<b>567.78 m<sup>2</sup></b>	<b>42.40%</b>	<b>1388.44 m<sup>2</sup></b>
BLOCK 2	10	TH-2 (End)	9.15	0.0	0.0	167.77	69.86	64.19	29.89	214.75
	11	TH-1 (Interior)	6.00	0.0	0.0	164.51	70.40	62.77	42.88	146.38
	12	TH-2 (End)	9.15	0.0	0.0	167.77	69.86	64.19	32.40	198.12
	<b>TOTAL:</b>			<b>24.30 m</b>	<b>0.00 m</b>	<b>0.00 m</b>	<b>500.05 m<sup>2</sup></b>	<b>210.12 m<sup>2</sup></b>	<b>191.15 m<sup>2</sup></b>	<b>17.5%</b>
BLOCK 3	13	TH-2 (End)	9.15	0.0	0.0	167.77	69.86	64.19	22.38	286.76
	14	TH-1 (Interior)	6.00	0.0	0.0	164.51	70.40	62.77	33.41	187.90
	15	TH-2 (End)	9.15	0.0	0.0	167.77	69.86	64.19	19.48	259.51
<b>TOTAL:</b>			<b>24.30 m</b>	<b>0.00 m</b>	<b>0.00 m</b>	<b>500.05 m<sup>2</sup></b>	<b>210.12 m<sup>2</sup></b>	<b>191.15 m<sup>2</sup></b>	<b>25.1%</b>	<b>804.17 m<sup>2</sup></b>
<b>TOTAL AREAS:</b>						<b>2498.11 m<sup>2</sup></b>	<b>1052.77 m<sup>2</sup></b>	<b>950.08 m<sup>2</sup></b>	<b>26.13%</b>	<b>2751.86 m<sup>2</sup></b>

### PARKING

BLOCK 1, 2 & 3 (1 SPACE IN GARAGE AND 1 SPACE ON DRIVEWAY)	30 SPACES	30 SPACES
VISITORS PARKING (0.25 PER UNIT) (WITH 1 ACCESSIBLE SPACE)	6 SPACES	3.5 SPACES
<b>TOTAL</b>	<b>36 SPACES</b>	<b>33.5 SPACES</b>

**7170 GOREWAY DRIVE**  
**TOTAL SITE AREA: 4068.61 M<sup>2</sup> (0.40686 Ha)**

- BUILDING AREA:** Approx. 1052.77 m<sup>2</sup> ± =25.9%
- LANDSCAPED AREA / OPEN SPACE:** Approx. 1339.22 m<sup>2</sup> ± =32.9%
- HARD SURFACE AREA:** (Parking, Roadway & Walkways) Approx. 1676.62 m<sup>2</sup> ± =41.2%



- ### LEGEND
- STORM CONNECTION
  - SANITARY CONNECTION
  - WATER CONNECTION
  - HYDRO CONNECTION
  - DOUBLE CATCH BASIN
  - CATCH BASIN
  - STREET LIGHT
  - HYDRANT
  - TRANSFORMER
  - CABLE TV PEDESTAL
  - BELL PEDESTAL
  - ENTRANCE DOOR LOCATION
  - GARAGE DOOR LOCATION
  - COMMUNITY MAILBOX
  - ENGINEERED FILL LOT
  - VALVE AND CHAMBER
  - SANITARY MANHOLE
  - STORM MANHOLE
  - AIR-CONDITIONING UNIT
  - PROPOSED GRADE
  - EXISTING GRADE
  - PROPOSED SWALE GRADE
  - DOWNSPOUT LOCATION
  - TELECOM. JUNCTION BOX
  - PROPOSED BERM
  - SWALE DIRECTION
  - HYDRO METER
  - GAS METER
  - F.F.L. FINISHED FLOOR ELEVATION
  - T.WALL TOP OF FOUNDATION WALL
  - F.SLAB FIN. BASEMENT FLOOR SLAB
  - U.F.T.G. UNDERSIDE FOOTING ELEVATION

THE CONTRACTOR SHALL CHECK AND VERIFY ALL UTILITIES AND CONDITIONS ON SITE BEFORE PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO JARDIN DESIGN GROUP INC. PRIOR TO COMMENCEMENT OF WORK.  
 JARDIN DESIGN GROUP INC. IS NOT RESPONSIBLE FOR THE ACCURACY OF SURVEY, STRUCTURAL, OR ELECTRICAL INFORMATION SHOWN ON THESE DRAWINGS OR FOR CONSTRUCTION DRAWINGS PREPARED BY OTHERS OR FOR A LACK OF KNOWLEDGE OF THE EXISTING CONDITIONS OF THE SITE AND THE PROPERTY OF THE OWNER. THE DRAWING IS AN INSTRUMENT OF SERVICE AS PROVIDED BY AND IS THE PROPERTY OF JARDIN DESIGN GROUP INC. IT IS TO BE USED FOR THE PROJECT AND NOT BE REPRODUCED OR COPIED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN PERMISSION OF JARDIN DESIGN GROUP INC.

**SCALE 1:200**

0m 5m 10m

**PRELIMINARY**  
 NOT TO BE USED FOR CONSTRUCTION

**BENCHMARK**  
 Elevations are Geoidic and are Referenced to the Canadian Geoidic Datum Benchmark No. 446, having an Elevation of 162.25m.

16	
15	
14	
13	
12	
11	
10	
9	
8	
7	
6	
5	
4	
3	SEPT. 26, 2019 COORDINATED WITH ENCL. DRAWINGS & ISSUED FOR REVIEW
2	APR. 11, 2019 REVISED & ISSUED TO WESTON CONSULTING FOR REVIEW
1	JAN. 9, 2019 ISSUED TO WESTON CONSULTING FOR REVIEW
No.	DATE: WORK DESCRIPTION:

**jardin**  
 DESIGN GROUP INC  
 64 JARDIN DR., SUITE 3A  
 VAUGHAN ONT. L4K 3P3  
 TEL: 905 660-3377 FAX: 905 660-3713  
 EMAIL: info@jardindesign.ca

The undersigned has reviewed and takes responsibility for this design and has the qualifications and meets the requirements set out in the Ontario Building Code to be a designer

**QUALIFICATION INFORMATION**  
 Walter Boffer 21031  
 NAME SIGNATURE BCR  
**REGISTRATION INFORMATION**  
 Jardin design group inc. 27763  
 FIRM NAME BCR

### SITE PLAN

7170 GOREWAY DRIVE  
 (CITY OF MISSISSAUGA)

TYPE	SP
SCALE	1:200
PROJ. NO.	17-18
No.	A-01a

**Figure 2: Site Plan Showing Prediction Locations**

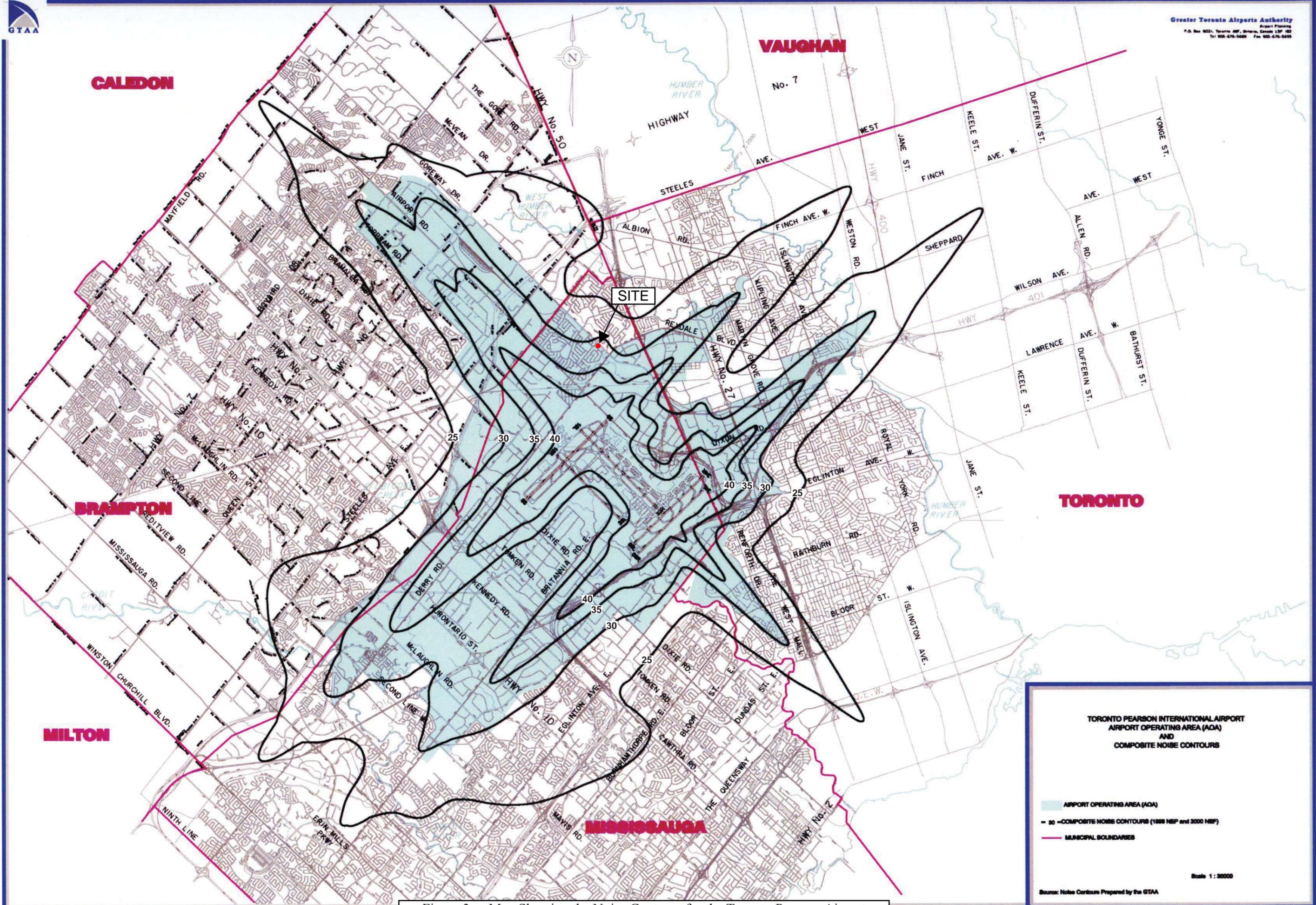
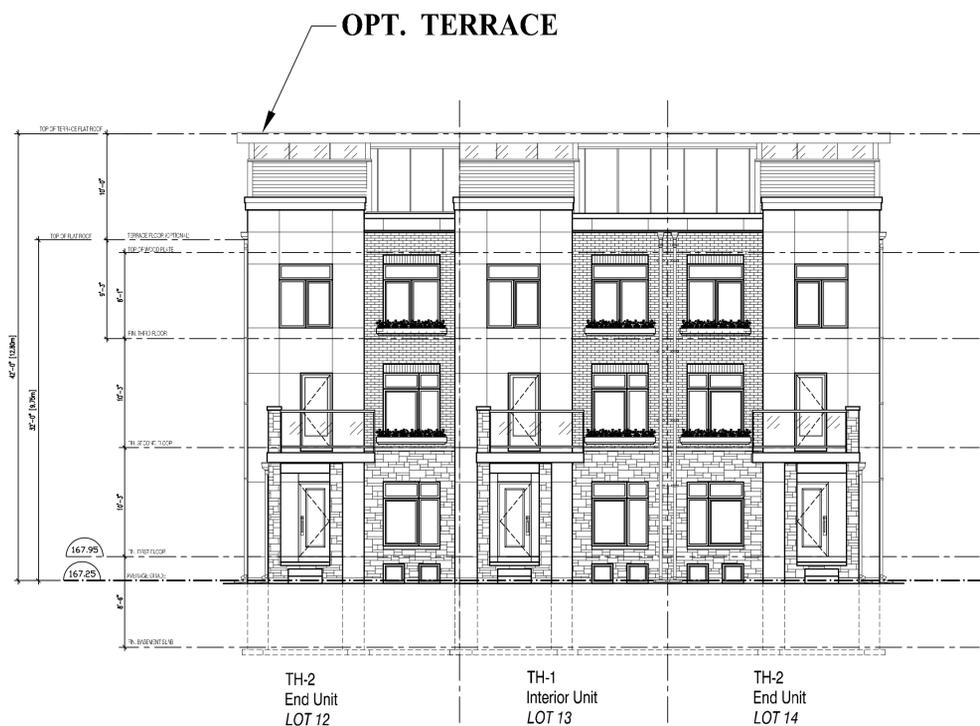


Figure 3 - Map Showing the Noise Contours for the Toronto Pearson Airport

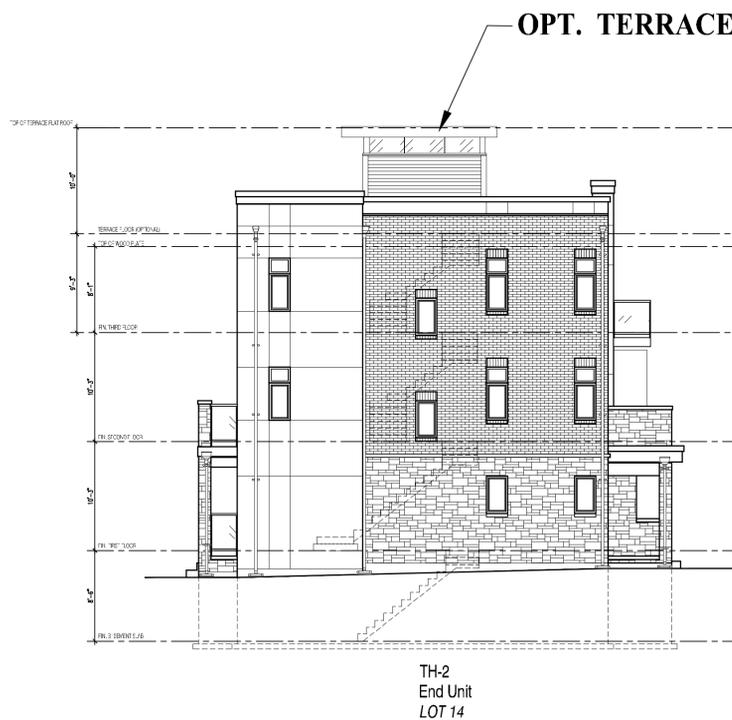
# **APPENDIX A**

Supporting Drawings

# GOREWAY DRIVE & ETUDE DRIVE MISSISSAUGA 6.0m 3 STOREY STREET FACING TOWNHOUSE



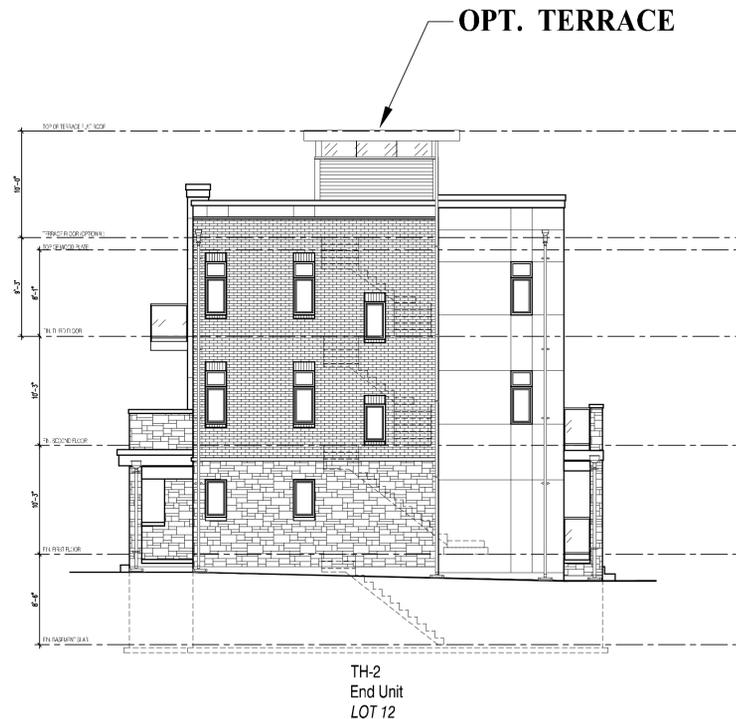
FRONT ELEVATION A  
BLOCK 3



SIDE ELEVATION A  
BLOCK 3



REAR ELEVATION A  
BLOCK 3



SIDE ELEVATION A  
BLOCK 3

NO.	DATE	WORK DESCRIPTION
1	NOV 15, 2017	ISSUED TO CLIENT FOR PERMITS
2	OCT 3, 2019	ISSUED TO CLIENT FOR PERMITS
3		
4		
5		
6		
7		
8		
9		
10		

**jardin**  
DESIGN GROUP INC  
25 JARDIN SQ. SUITE 204  
VAUGHAN ONT. L4C 3P3  
TEL: 905-650-3377 FAX: 905-650-3713  
EMAIL: INFO@JARDINDSG.COM

This document has been reviewed and takes responsibility for the design and for the qualifications and meets the requirements set out in the Ontario Building Code to be a Designer.  
QUALIFICATION INFORMATION:  
Required unless design is exempt under Division C, Subsection 1.2.3 of the building code.

Water Butler	21031	EX-1
NAME	REGISTRATION INFORMATION	
	Required unless design is exempt under Division C, Subsection 1.2.4 of the building code	
Jardin design group inc.	27768	EX-1
DESIGNER		

**BLOCK ELEVATIONS**

WESTON CONSULTING  
7170 GORE ROAD (MISSISSAUGA)

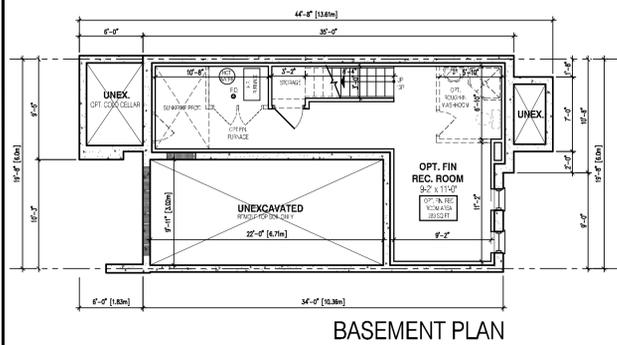
T	AREA	----
SCALE	1/8" = 1'-0"	
DATE	17-18	5





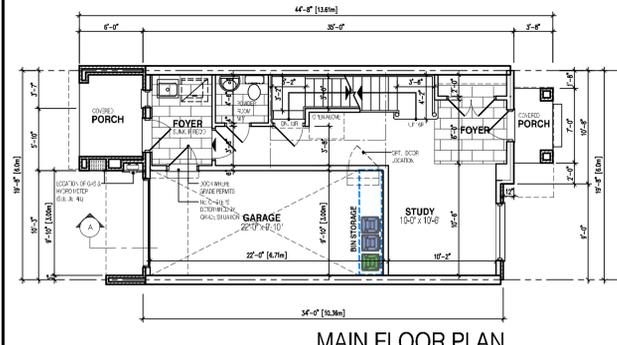
# TOWNHOUSE INTERIOR LOT (TH-1)

6.0m 3 STOREY STREET FACING TOWNHOUSE



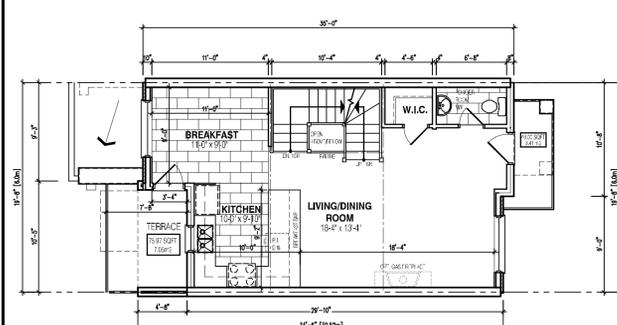
BASEMENT PLAN

AREA CALCULATIONS TH-1	
FINISHED BASEMENT AREA	= 0 SQ. FT.
GROUND FLOOR AREA	= 446.9 SQ. FT.
SECOND FLOOR AREA	= 639.4 SQ. FT.
THIRD FLOOR AREA	= 684.5 SQ. FT.
<b>TOTAL FLOOR AREA</b>	<b>= 1770.80 SQ. FT.</b>
	<b>= 164.51 m<sup>2</sup></b>
ADD ALL OPEN AREAS	= 16.70 SQ. FT.
ADD FIN. BASEMENT AREA	= 0 SQ. FT.
<b>GROSS FLOOR AREA</b>	<b>= 1787.50 SQ. FT.</b>
	<b>= 166.06 m<sup>2</sup></b>
GROUND FLOOR COVERAGE	= 443.3 SQ. FT.
GARAGE COVERAGE / AREA	= 232.3 SQ. FT.
PORCH COVERAGE / AREA	= 82.2 SQ. FT.
COVERAGE W/O PORCH	= 675.60 SQ. FT.
	<b>= 62.77 m<sup>2</sup></b>
COVERAGE W/ PORCH	= 757.80 SQ. FT.
	<b>= 70.40 m<sup>2</sup></b>

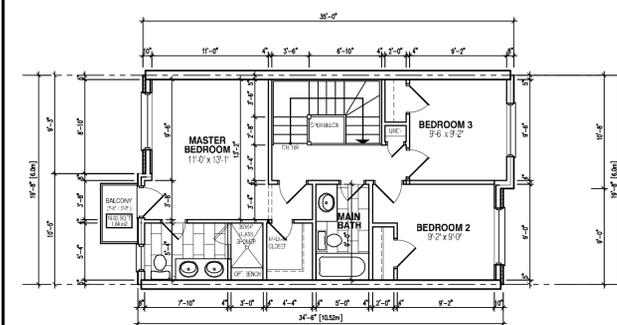


MAIN FLOOR PLAN

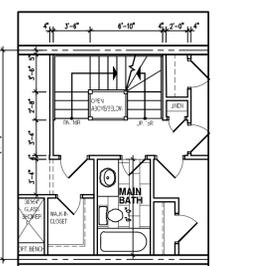
AREA CALCULATIONS TH-1 (W/ ROOF TOP TERRACE)	
FINISHED BASEMENT AREA	= 0 SQ. FT.
GROUND FLOOR AREA	= 446.9 SQ. FT.
SECOND FLOOR AREA	= 639.4 SQ. FT.
THIRD FLOOR AREA	= 684.5 SQ. FT.
TERRACE FLOOR AREA	= 292.98 SQ. FT.
<b>TOTAL FLOOR AREA</b>	<b>= 2063.78 SQ. FT.</b>
	<b>= 191.73 m<sup>2</sup></b>
ADD ALL OPEN AREAS	= 25 SQ. FT.
ADD FIN. BASEMENT AREA	= 279.6 SQ. FT.
<b>GROSS FLOOR AREA</b>	<b>= 2368.38 SQ. FT.</b>
	<b>= 220.03 m<sup>2</sup></b>
GROUND FLOOR COVERAGE	= 443.3 SQ. FT.
GARAGE COVERAGE / AREA	= 232.3 SQ. FT.
PORCH COVERAGE / AREA	= 82.2 SQ. FT.
COVERAGE W/O PORCH	= 675.60 SQ. FT.
	<b>= 62.77 m<sup>2</sup></b>
COVERAGE W/ PORCH	= 757.80 SQ. FT.
	<b>= 70.40 m<sup>2</sup></b>



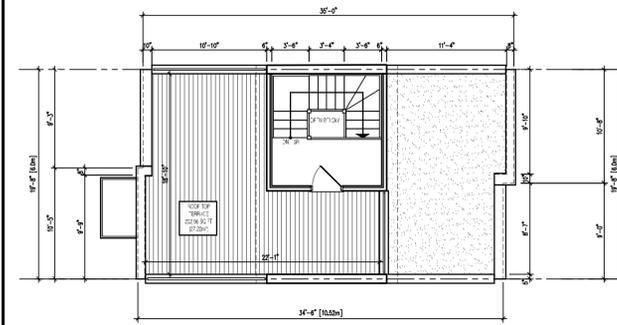
SECOND FLOOR PLAN



THIRD FLOOR PLAN



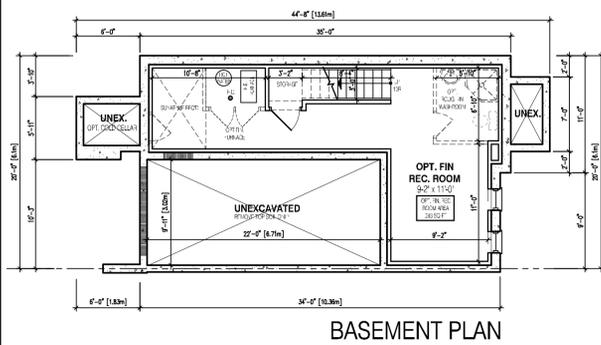
PARTIAL THIRD FLOOR PLAN FOR OPT. ROOF TOP TERRACE



OPT. ROOFTOP TERRACE PLAN

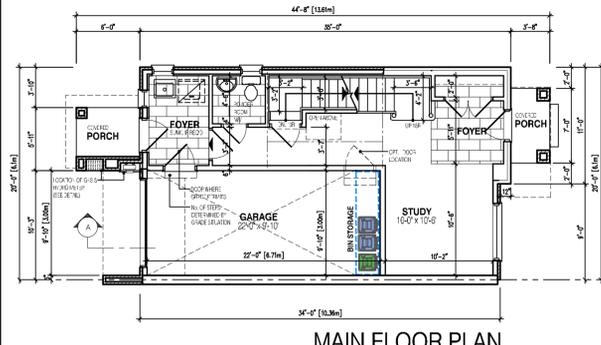
# TOWNHOUSE END LOT (TH-2)

6.0m 3 STOREY STREET FACING TOWNHOUSE



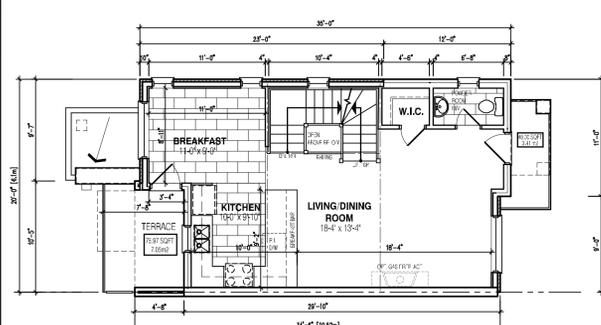
BASEMENT PLAN

AREA CALCULATIONS TH-2	
FINISHED BASEMENT AREA	= 0 SQ. FT.
GROUND FLOOR AREA	= 458.7 SQ. FT.
SECOND FLOOR AREA	= 651 SQ. FT.
THIRD FLOOR AREA	= 696.2 SQ. FT.
<b>TOTAL FLOOR AREA</b>	<b>= 1805.90 SQ. FT.</b>
	<b>= 167.77 m<sup>2</sup></b>
ADD ALL OPEN AREAS	= 16.70 SQ. FT.
ADD FIN. BASEMENT AREA	= 274.8 SQ. FT.
<b>GROSS FLOOR AREA</b>	<b>= 2097.40 SQ. FT.</b>
	<b>= 194.85 m<sup>2</sup></b>
GROUND FLOOR COVERAGE	= 454.9 SQ. FT.
GARAGE COVERAGE / AREA	= 236 SQ. FT.
PORCH COVERAGE / AREA	= 61.1 SQ. FT.
COVERAGE W/O PORCH	= 690.90 SQ. FT.
	<b>= 64.19 m<sup>2</sup></b>
COVERAGE W/ PORCH	= 752.00 SQ. FT.
	<b>= 69.86 m<sup>2</sup></b>

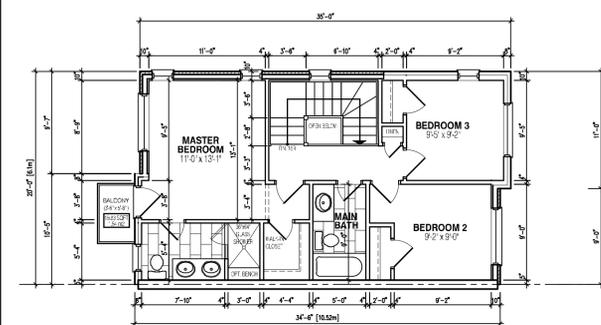


MAIN FLOOR PLAN

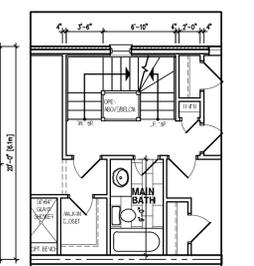
AREA CALCULATIONS TH-2 (W/ ROOF TOP TERRACE)	
FINISHED BASEMENT AREA	= 0 SQ. FT.
GROUND FLOOR AREA	= 458.7 SQ. FT.
SECOND FLOOR AREA	= 651 SQ. FT.
THIRD FLOOR AREA	= 696.2 SQ. FT.
TERRACE FLOOR AREA	= 292.08 SQ. FT.
<b>TOTAL FLOOR AREA</b>	<b>= 2097.98 SQ. FT.</b>
	<b>= 194.91 m<sup>2</sup></b>
ADD ALL OPEN AREAS	= 16.70 SQ. FT.
ADD FIN. BASEMENT AREA	= 274.8 SQ. FT.
<b>GROSS FLOOR AREA</b>	<b>= 2389.48 SQ. FT.</b>
	<b>= 221.99 m<sup>2</sup></b>
GROUND FLOOR COVERAGE	= 454.9 SQ. FT.
GARAGE COVERAGE / AREA	= 232.3 SQ. FT.
PORCH COVERAGE / AREA	= 61.1 SQ. FT.
COVERAGE W/O PORCH	= 687.20 SQ. FT.
	<b>= 63.84 m<sup>2</sup></b>
COVERAGE W/ PORCH	= 748.30 SQ. FT.
	<b>= 69.52 m<sup>2</sup></b>



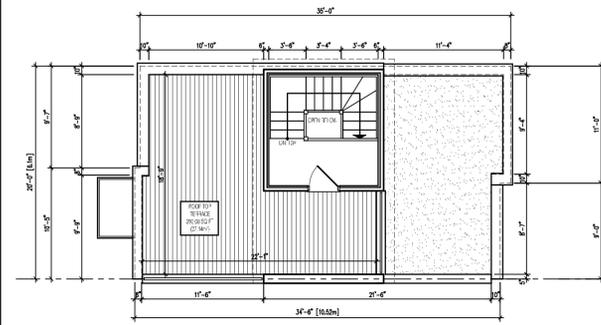
SECOND FLOOR PLAN



THIRD FLOOR PLAN



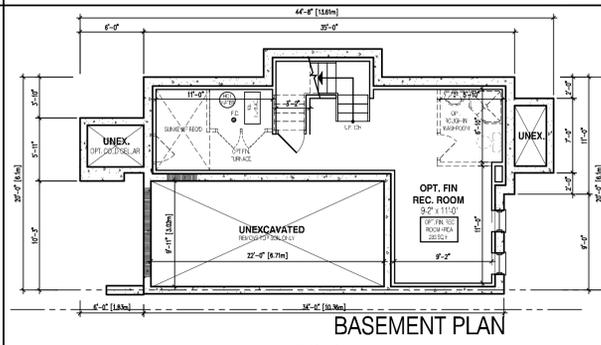
PARTIAL THIRD FLOOR PLAN FOR OPT. ROOF TOP TERRACE



OPT. ROOFTOP TERRACE PLAN

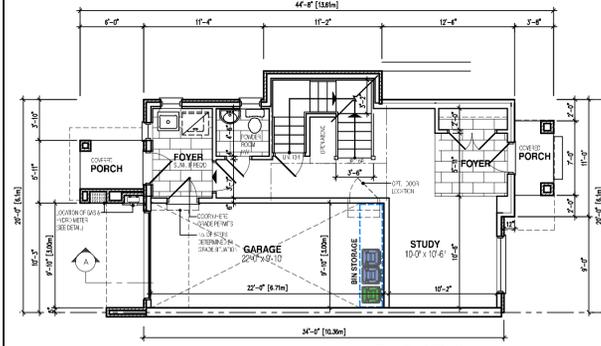
# TOWNHOUSE CORNER LOT (TH-3)

6.0m 3 STOREY STREET FACING TOWNHOUSE



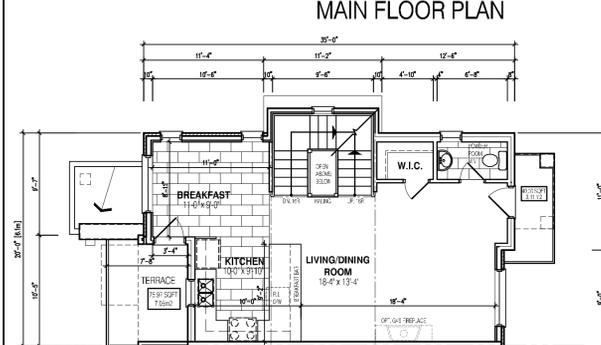
BASEMENT PLAN

AREA CALCULATIONS TH-3	
FINISHED BASEMENT AREA	= 0 SQ. FT.
GROUND FLOOR AREA	= 489.05 SQ. FT.
SECOND FLOOR AREA	= 681.35 SQ. FT.
THIRD FLOOR AREA	= 726.54 SQ. FT.
<b>TOTAL FLOOR AREA</b>	<b>= 1896.94 SQ. FT.</b>
	<b>= 176.23 m<sup>2</sup></b>
ADD ALL OPEN AREAS	= 20.87 SQ. FT.
ADD FIN. BASEMENT AREA	= 301.1 SQ. FT.
<b>GROSS FLOOR AREA</b>	<b>= 2218.91 SQ. FT.</b>
	<b>= 206.14 m<sup>2</sup></b>
GROUND FLOOR COVERAGE	= 446.15 SQ. FT.
GARAGE COVERAGE / AREA	= 236.1 SQ. FT.
PORCH COVERAGE / AREA	= 61.1 SQ. FT.
COVERAGE W/O PORCH	= 682.25 SQ. FT.
	<b>= 63.38 m<sup>2</sup></b>
COVERAGE W/ PORCH	= 743.35 SQ. FT.
	<b>= 69.06 m<sup>2</sup></b>

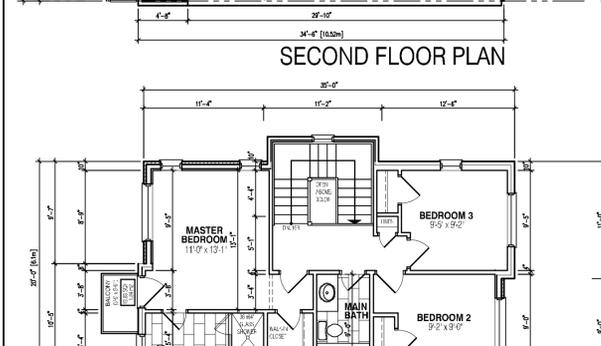


MAIN FLOOR PLAN

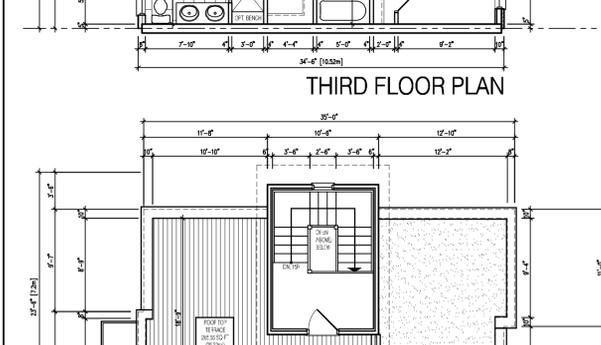
AREA CALCULATIONS TH-3 (W/ ROOF TOP TERRACE)	
FINISHED BASEMENT AREA	= 0 SQ. FT.
GROUND FLOOR AREA	= 489.05 SQ. FT.
SECOND FLOOR AREA	= 681.35 SQ. FT.
THIRD FLOOR AREA	= 726.54 SQ. FT.
TERRACE FLOOR AREA	= 213.70 SQ. FT.
<b>TOTAL FLOOR AREA</b>	<b>= 2110.64 SQ. FT.</b>
	<b>= 196.08 m<sup>2</sup></b>
ADD ALL OPEN AREAS	= 31.31 SQ. FT.
ADD FIN. BASEMENT AREA	= 301.1 SQ. FT.
<b>GROSS FLOOR AREA</b>	<b>= 2443.05 SQ. FT.</b>
	<b>= 226.97 m<sup>2</sup></b>
GROUND FLOOR COVERAGE	= 446.15 SQ. FT.
GARAGE COVERAGE / AREA	= 232.3 SQ. FT.
PORCH COVERAGE / AREA	= 61.1 SQ. FT.
COVERAGE W/O PORCH	= 678.45 SQ. FT.
	<b>= 63.03 m<sup>2</sup></b>
COVERAGE W/ PORCH	= 739.55 SQ. FT.
	<b>= 68.71 m<sup>2</sup></b>



SECOND FLOOR PLAN



THIRD FLOOR PLAN



OPT. ROOFTOP TERRACE PLAN

3 STOREY TOWNS

PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

NO.	DATE	WORK DESCRIPTION
1	NOV. 1, 2017	ISSUED TO CLIENT FOR REVIEW OF SPA SUBMISSION
2	OCT. 5, 2019	ISSUED TO CLIENT FOR REVIEW

**jardin**  
DESIGN GROUP INC  
24 JARDIN DR. SUITE 204  
WILLOWDALE ONT. L2Y 3P3  
TEL: 905-650-3377 FAX: 905-650-3713  
EMAIL: INFO@JARDINDG.COM

The undersigned has reviewed and takes responsibility for the design and for the qualifications and meets the requirements set out in the Ontario Building Code to be a Designer.

QUALIFICATION INFORMATION  
Required unless design is exempt under Division C, Subsection 1.2.3 of the building code

Walter Botter 21031  
NAME  
REGISTERED INFORMATION  
Required unless design is exempt under Division C, Subsection 1.2.4 of the building code  
jardin design group inc. 27768  
FIRM NAME

FLOOR PLANS

WESTON CONSULTING  
7170 GORE ROAD (MISSISSAUGA)

TITLE: \_\_\_\_\_  
SCALE: 1/8" = 1'-0"  
DATE: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
PROJECT NO.: \_\_\_\_\_  
SHEET NO.: A-02

## **APPENDIX B**

Road Traffic Information

Date: 17-Sep-15

# NOISE REPORT FOR PROPOSED DEVELOPMENT

## REQUESTED BY:



Name: Victor Garcia

Company: HGC Engineering

Fax#: ( ) - 0

Location: Goreway Drive at Etude Drive

## PREPARED BY:

Name: Michael Long x 3016

Tel#: (905) 615-3200

Look Up ID#: 346

## ON SITE TRAFFIC DATA

Specific	Street Names			
	Goreway Drive			
<b>AADT:</b>	35,000			
<b># of Lanes:</b>	5 lanes			
<b>% Trucks:</b>	3%			
<b>Medium/Heavy Trucks Ratio:</b>	55/45			
<b>Day/Night Traffic Split:</b>	90/10			
<b>Posted Speed Limit:</b>	60 kph			
<b>Gradient of Road:</b>	<2%			
<b>Ultimate R O W:</b>	35m			

## Comments:

Ultimate Traffic Data Only

## **APPENDIX C**

Sample Stanson 5.04 Output

Filename: a.te Time Period: Day/Night 16/8 hours  
Description: Block 1, Daytime and nighttime sound levels, east facade  
adjacent to Goreway Driver, prediction location [A]

Road data, segment # 1: Goreway S (day/night)

-----  
Car traffic volume : 15278/1698 veh/TimePeriod \*  
Medium truck volume : 260/29 veh/TimePeriod \*  
Heavy truck volume : 213/24 veh/TimePeriod \*  
Posted speed limit : 60 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): 17500  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 1.65  
Heavy Truck % of Total Volume : 1.35  
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Goreway S (day/night)

-----  
Angle1 Angle2 : -90.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 22.00 / 22.00 m  
Receiver height : 7.70 / 7.70 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Road data, segment # 2: Goreway N (day/night)

-----  
Car traffic volume : 15278/1698 veh/TimePeriod \*  
Medium truck volume : 260/29 veh/TimePeriod \*  
Heavy truck volume : 213/24 veh/TimePeriod \*  
Posted speed limit : 60 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): 17500  
Percentage of Annual Growth : 0.00  
Number of Years of Growth : 0.00  
Medium Truck % of Total Volume : 1.65



ACOUSTICS



NOISE



VIBRATION

Heavy Truck % of Total Volume : 1.35  
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Goreway N (day/night)

-----  
Angle1 Angle2 : -90.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 31.00 / 31.00 m  
Receiver height : 7.70 / 7.70 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Results segment # 1: Goreway S (day)

-----  
Source height = 1.08 m

ROAD (0.00 + 63.32 + 0.00) = 63.32 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----  
-90 90 0.49 66.94 0.00 -2.47 -1.15 0.00 0.00 0.00 63.32  
-----

Segment Leq : 63.32 dBA

Results segment # 2: Goreway N (day)

-----  
Source height = 1.08 m

ROAD (0.00 + 61.11 + 0.00) = 61.11 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----  
-90 90 0.49 66.94 0.00 -4.69 -1.15 0.00 0.00 0.00 61.11  
-----

Segment Leq : 61.11 dBA

Total Leq All Segments: 65.36 dBA

Results segment # 1: Goreway S (night)

-----  
Source height = 1.08 m

ROAD (0.00 + 56.81 + 0.00) = 56.81 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----  
-90 90 0.49 60.44 0.00 -2.47 -1.15 0.00 0.00 0.00 56.81  
-----



ACOUSTICS



NOISE



VIBRATION

-----  
Segment Leq : 56.81 dBA

Results segment # 2: Goreway N (night)  
-----

Source height = 1.08 m

ROAD (0.00 + 54.60 + 0.00) = 54.60 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-----  
-90 90 0.49 60.44 0.00 -4.69 -1.15 0.00 0.00 0.00 54.60  
-----

Segment Leq : 54.60 dBA

Total Leq All Segments: 58.85 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.36  
(NIGHT): 58.85



ACOUSTICS



NOISE



VIBRATION