

September 21, 2022

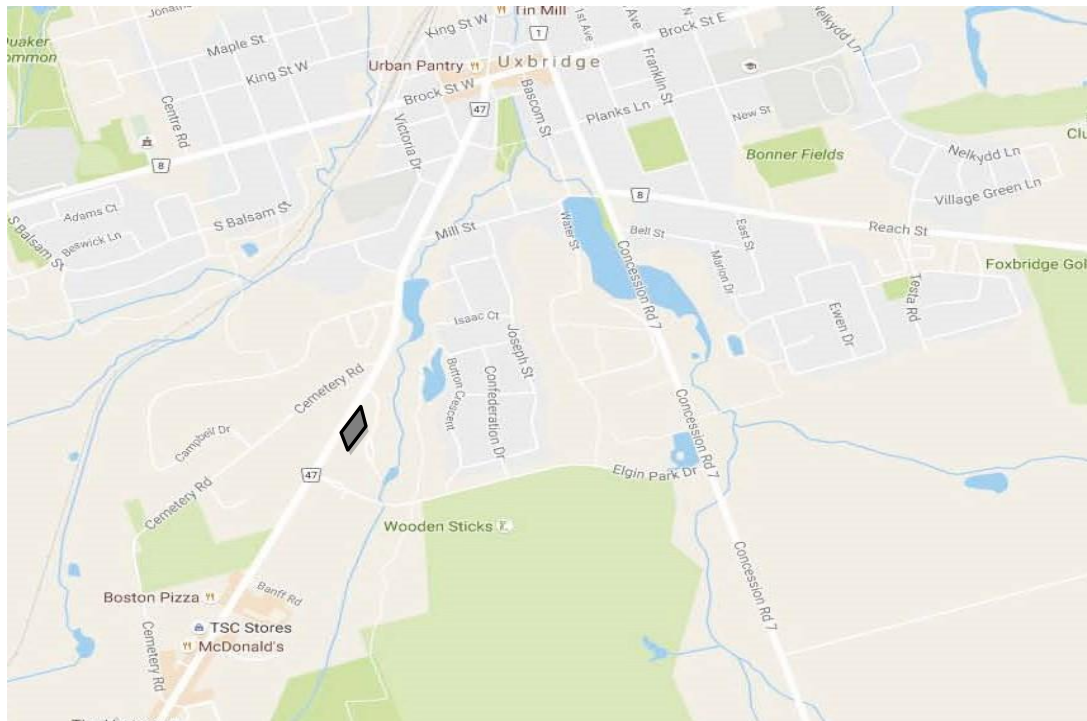
Regional Municipality of Durham
Development Department
605 Rossland Road
Whitby, Ontario L1N 6A3

**Re: Noise Impact Study - Revised
Proposed Residential Development
181 Toronto Street South
Part Lot 28, Concession 6
Township of Uxbridge
Project No. Y2102A**

INTRODUCTION

We are pleased to submit for your review a letter describing the results of our investigation of the noise environment for the above noted site based on the latest Conceptual Site Plan dated November 2021. The present report recommends noise abatement measures to meet the sound levels acceptable to the Regional of Durham, Township of Uxbridge and the Ministry of Environment.

The proposed development will be comprised of 2 townhouse building fronting Toronto Street. The surrounding land uses are existing and proposed residential developments. The location of the proposed residential development is further indicated by the key plan below.



NOISE SOURCES

The study addresses noise generated by vehicular traffic on Toronto Street (Durham Highway No.47) to the west in the Township of Uxbridge. Noise generated by all other roads are not expected to be significant due to low traffic volumes and distance separation.

Traffic volume information was obtained from the Planning Department of the Regional Municipality of Durham dated January 2021 and summarized in Table 1 below.

TABLE 1: TRAFFIC PARAMETERS FOR TORONTO ST (DURHAM HWY 47)	
Projected Annual Average Daily Traffic *	16,000
Percent Trucks	15%
Percent of Heavy and Medium trucks	80:20
Speed (km/hr)	50
Number of Lanes	2

* The projected traffic data provided by the Region of Durham.

The York-Durham Heritage Railway is located at approximately 500m from the proposed residential. The York-Durham Heritage Railway trains operate with limited seasonal services on the weekends and holidays only with a maximum of 4 trains per day, 2 locomotives and a maximum speed of 80 km/h. There are no GO transit trains and freight train pass-bys for this section of railway. Therefore, the noise impact from the railway is considered acoustically insignificant and railway warning clauses are not required.

Sound levels were calculated using the Ministry of Environment's Stamson 5.04 computer-based noise prediction model and evaluated with the sound level criteria and warning clauses recommended by the Ministry of Environment. The analysis and warning clauses are included in this letter.

VENTILATION REQUIREMENTS

Based on the noise analysis, the daytime sound level for the proposed residential development fronting Toronto Street is expected to be 66.83 dBA and the night-time sound levels is expected to be 60.65 dBA.

Therefore, Mandatory air conditioning is required for all the proposed residential units fronting Toronto Street with the addition of Warning Clause Type D as the daytime sound levels are expected to be more than 65dBA and the night-time sound levels are expected to be more than 60dBA as per the MECP noise criteria.

Warning Clause Type D:

"This dwelling unit was fitted with a central air conditioner to allow the windows and exterior doors to remain closed, thereby achieving indoor sound levels within the limits recommended by the Ministry of Environment. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE Publication NPC-216, Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property)."

OUTDOOR MEASURES

The designated outdoor amenity areas for the buildings are the balconies above garages facing the laneway and away from Toronto Street. The sound level at the balconies outdoor amenity areas is expected to be between 55dBA and 60dBA in the absence of mitigative measures.

The outdoor sound level exceeds the 55dBA sound level limit but within the allowable 5dBA excess, below 60dBA.

Therefore, noise mitigation measures are not required. However, we recommend the following warning clause Type A to be incorporated into the Development Agreement for all parts/units:

Warning Clause Type A:

"Purchasers/tenants are advised that the sound levels due to increasing road traffic may continue to be of concern, occasionally interfering with the activities of the occupants as the noise levels may exceed the noise criteria of the Municipality and the Ministry of the Environment."

BUILDING COMPONENTS

Building components within the proposed development were investigated using the STC (Sound Transmission Class) method recommended by the M.E.C.P. Floor plans of the proposed building are provided by John G. Williams Limited Architect dated November 2021. In order to ensure acceptable daytime indoor sound level of 45dBA, the various building components must provide a STC rating of 31 for windows and a STC rating of 36 for the exterior wall construction and for night-time second storey sound level of 40dBA, the various building components must provide a STC rating of 28 for windows and a STC rating of 33 for exterior wall construction.

As per the architectural plans, the exterior walls of the Front Walls are expected to be brick veneer/Stone meeting an STC rating of 54. Since the exterior wall STC rating is higher, the window STC rating drops to below STC 30.

STC ratings of 30 or less for windows and STC ratings of 38 or less for exterior walls are standard Ontario Building Code (OBC) construction. Therefore, standard windows for all the residential units fronting Toronto Street and standard exterior wall construction for the sides and rear walls are sufficient.

STATIONARY NOISE SOURCES ASSESSMENT

Existing retail commercial buildings are located west and east of Toronto Street at 80m or more to the south and an existing 3 storey retirement home and apartment building are located at 70m to the south and 180m to the north, respectively.

Due to distance separation and the nature of the existing commercial developments and retirement/residential developments, the stationary noise sources are considered to be acoustically insignificant.

SUMMARY AND CONCLUSION

The summary of recommendations for ventilation, building components, outdoor control measures and warning clauses are included in Table 2:

TABLE 2: SUMMARY OF NOISE MITIGATION MEASURES				
LOCATION	VENTILATION REQUIREMENT	BUILDING COMPONENTS	OUTDOOR MITIGATION MEASURES	WARNING CLAUSES
Buildings 1 and 2 (All Units)	Mandatory air Conditioning	Front Walls: STC 54 Side/Rear Walls: OBC Windows: OBC	No	Type BA and D

* OBC: Ontario Building Code Standard.

This report has determined that sound levels acceptable to the Ministry of Environment, Township of Uxbridge and the Regional Municipality of Durham will be achieved using the abatement measures as described in this Noise Impact Study.

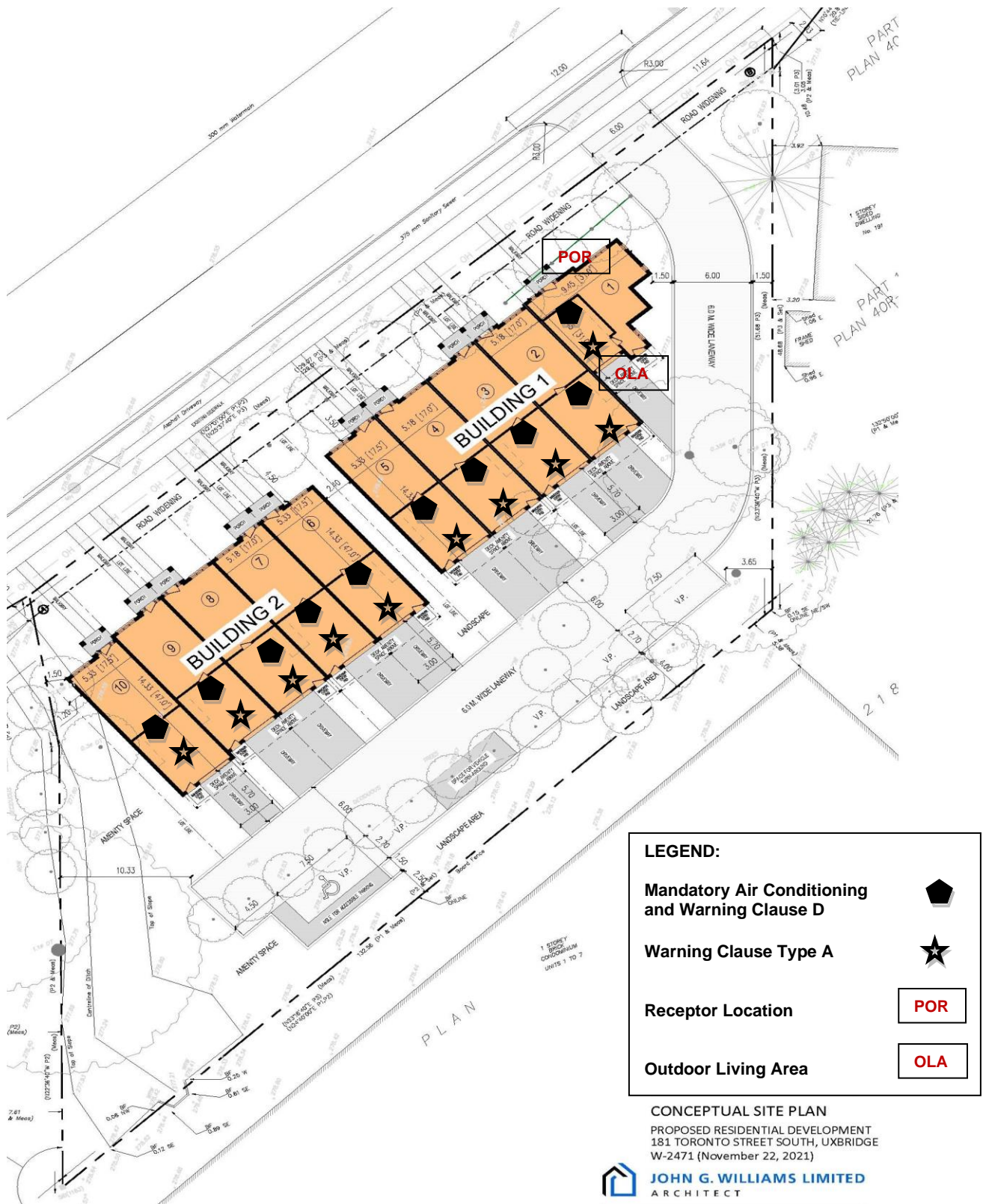
Should you have any questions regarding this report, please contact the undersigned.

Yours truly,

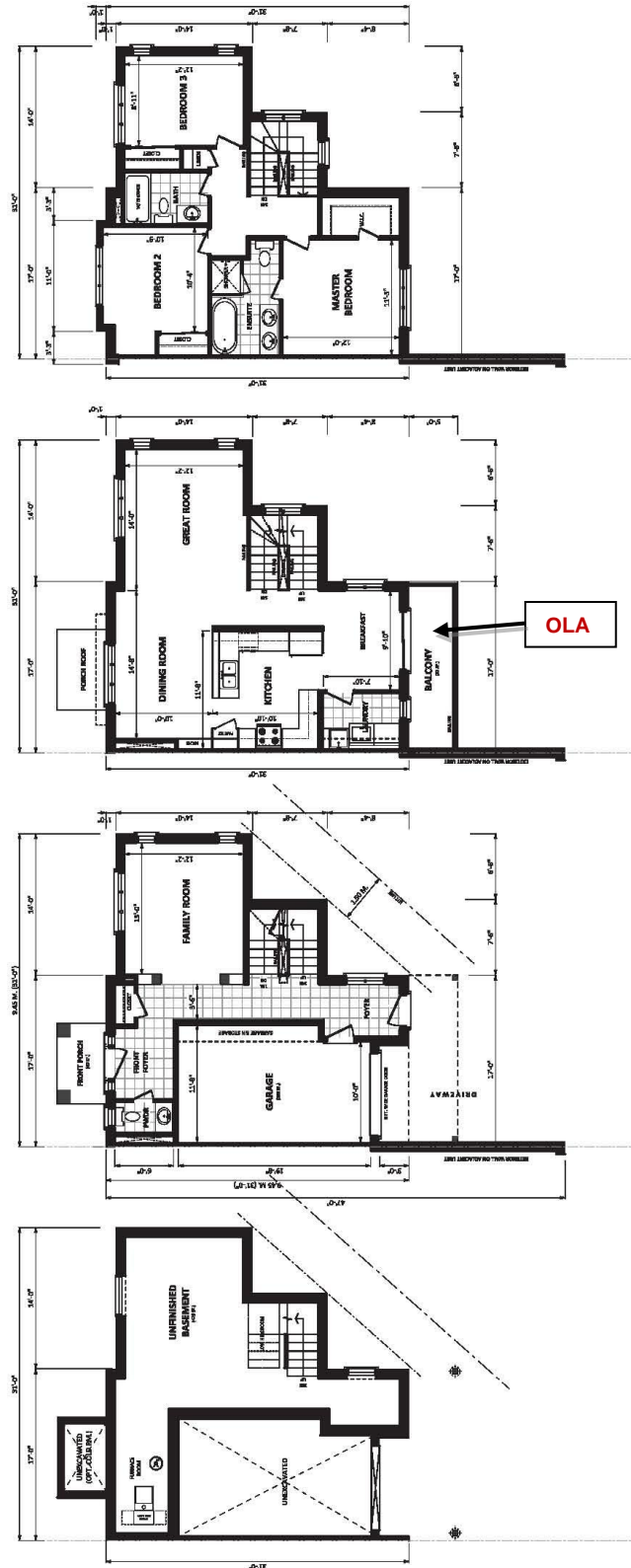
YCA ENGINEERING Limited

Hava Jouharchi, P.Eng.
Senior Project Engineer





**FIGURE 1 - 181 Toronto Street
 Proposed Residential Development
 NOISE MITIGATION MEASURES**

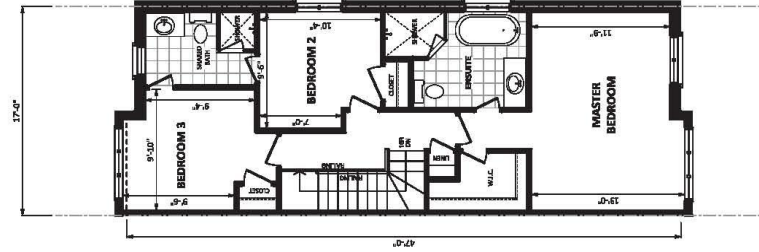


BASEMENT PLAN

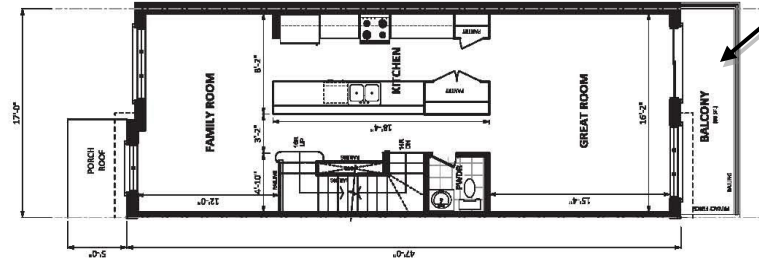
GROUND FLOOR PLAN
F.L. AREA = 513 S.F. (17.25 S.M.)

MAIN FLOOR PLAN
F.L. AREA = 781 S.F. (22.55 S.M.)

THIRD FLOOR PLAN
F.L. AREA = 792 S.F. (23.28 S.M.)

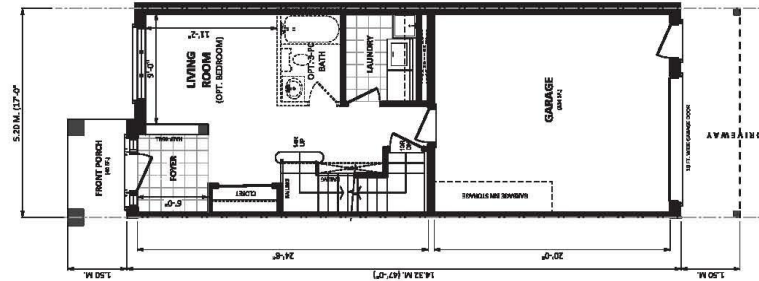


THIRD FLOOR PLAN
F.L.R. AREA = 834 S.F. (77.48 SM.)

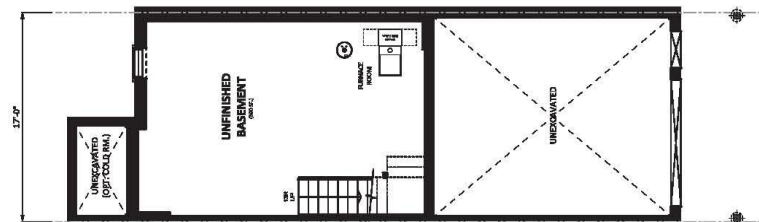


MAIN FLOOR PLAN
F.L.R. AREA = 836 S.F. (75.81 SM.)

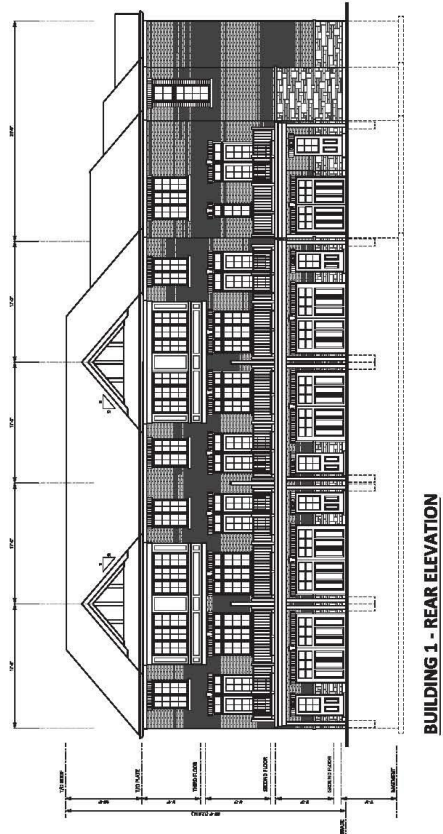
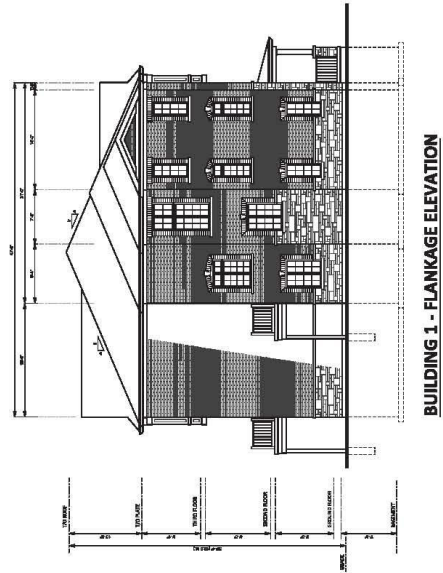
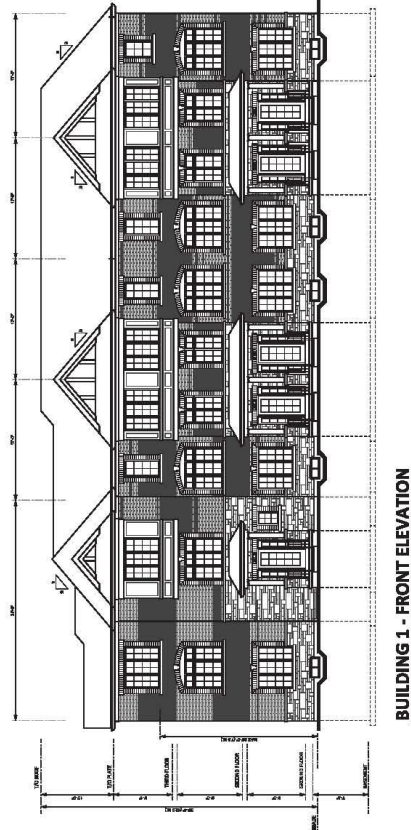
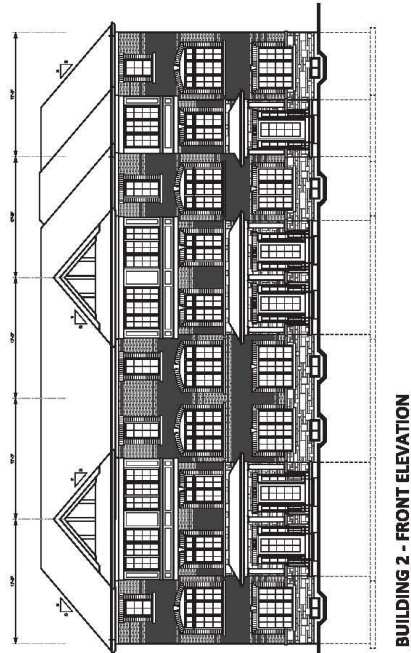
OLA



GROUND FLOOR PLAN
F.L.R. AREA = 450 S.F. (41.81 SM.)



BASEMENT PLAN





Planning and Economic
Development Department

Planning Division

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Brian Bridgeman, MCIP, RPP
Commissioner of Planning and
Economic Development

The Regional Municipality of Durham

ROAD SEGMENT TRAFFIC FORECASTS FOR NOISE ANALYSES

This information is to be used as the basis for assessing the potential impacts of noise, generated by traffic on Provincial Highways and arterial roads, on proposed land uses that are sensitive (e.g., residential subdivisions). Arterial roads include existing and future Type A, B and C, as designated in the Durham Regional Official Plan.

Noise assessment reports recommend specific measures to be integrated into the design of sensitive developments to reduce road noise impacts to acceptable levels.

Provided For:

Name / Name of Firm: Hava Jouharchi, YCA Engineering Ltd.
Address: 9251 Yonge Street, Suite 8557
Richmond Hill, ON, L4C 9T3
Telephone: (416) 894-3213 Fax:

Location of Proposal:

North of Highway No. 47, west of Cemetery Road in Uxbridge

Municipality: Uxbridge

Lot(s):

Concession:

Durham Region File No. (if available):

Name of Property Owner (if available):

Date Request Received:

Monday, January 11, 2021

Received By: Victor Copetti

Date Forecast Sent:

Tuesday, January 12, 2021

Name of Road Segment	Forecasted AADT*	No. of Lanes	% of Trucks	Heavy : Medium Truck Ratio		Speed (km/h)
Highway 47 (west and east of Cemetery Road)	16,000	4	15	80	20	50
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0

* Average Annual Daily Traffic. Forecast based on ultimate development according to the Durham Regional Official Plan.

Tuesday, January 12, 2021

Page 1 of 1

STAMSON 5.0 SUMMARY REPORT Date: 23-03-2021 10:10:20
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
 Filename: lfw.te Time Period: Day/Night 16/8 hours
 Description: Front Wall (POR)

Road data, segment # 1: Highway 47 (day/night)

 Car traffic volume : 12240/1360 veh/TimePeriod *
 Medium truck volume : 432/48 veh/TimePeriod *
 Heavy truck volume : 1728/192 veh/TimePeriod *
 Posted speed limit : 50 km/h
 Road gradient : 2 %
 Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 16000
 Percentage of Annual Growth : 0.00
 Number of Years of Growth : 0.00
 Medium Truck % of Total Volume : 3.00
 Heavy Truck % of Total Volume : 12.00
 Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Highway 47 (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 : 25.00 / 25.00 m
 Receiver height : 1.50 / 4.50 m
 Topography : 1 (Flat/gentle slope; no barrier)

Result summary (day)

	! source !	Road !	Total
	! height !	Leq !	Leq
	! (m) !	(dBA) !	(dBA)
1.Highway 47	! 1.86 !	66.83 !	66.83
Total			66.83 dBA

Result summary (night)

	! source !	Road !	Total
	! height !	Leq !	Leq
	! (m) !	(dBA) !	(dBA)
1.Highway 47	! 1.86 !	60.65 !	60.65
Total			60.65 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.83
 (NIGHT): 60.65

STAMSON 5.0 SUMMARY REPORT Date: 24-11-2021 14:35:17
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT
 Filename: lola.te Time Period: Day/Night 16/8 hours
 Description: OLA

Road data, segment # 1: Highway 47 (day/night)

```
-----
Car traffic volume : 12240/1360 veh/TimePeriod *
Medium truck volume : 432/48 veh/TimePeriod *
Heavy truck volume : 1728/192 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)
* Refers to calculated road volumes based on the following input:
  24 hr Traffic Volume (AADT or SADT): 16000
  Percentage of Annual Growth : 0.00
  Number of Years of Growth : 0.00
  Medium Truck % of Total Volume : 3.00
  Heavy Truck % of Total Volume : 12.00
  Day (16 hrs) % of Total Volume : 90.00
```

Data for Segment # 1: Highway 47 (day/night)

```
-----
Angle1 Angle2 : -90.00 deg -45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -45.00 deg
Barrier height : 0.00 m
Barrier receiver distance : 4.50 / 4.50 m
Source elevation : 279.40 m
Receiver elevation : 281.00 m
Barrier elevation : 281.00 m
```

Data for Segment # 2: Highway 47 (day/night)

```
-----
Angle1 Angle2 : 45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 42.00 / 42.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : 45.00 deg Angle2 : 90.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 5.00 / 5.00 m
Source elevation : 279.40 m
Receiver elevation : 281.00 m
Barrier elevation : 281.00 m
```

Result summary (day)

```
-----
! source ! Road ! Total
! height ! Leq ! Leq
! (m) ! (dBA) ! (dBA)
-----+-----+-----+-----
1.Highway 47 ! 1.86 ! 55.55 ! 55.55 *
2.Highway 47 ! 1.86 ! 48.59 ! 48.59
-----+-----+-----+-----
Total 56.35 dBA
```

MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS

ENVIRONMENTAL NOISE GUIDELINE

Stationary and Transportation Sources - Approval and Planning Publication NPC-300

August 2013

Day-time Outdoor Sound Level Limit

Table C-1 gives the equivalent sound level (L_{eq}) limit for designated Outdoor Living Areas. The limit applies to the entire day-time period from 07:00 to 23:00.

TABLE C-1
Sound Level Limit for Outdoor Living Areas
Road and Rail

Time Period	$L_{eq}(16)$ (dBA)
16 hr, 07:00 - 23:00	55

Indoor Sound Level Limit

Table C-2 gives the equivalent sound level (L_{eq}) limits and the applicable time periods for the indicated types of indoor space. The specified sound level criteria are minimum requirements and apply to the indicated indoor spaces with the windows and doors closed.

TABLE C-2
Indoor Sound Level Limits (Road and Rail)

Type of Space	Time Period	L_{eq} (Time Period) (dBA)	
		Road	Rail
Living/dining, den areas of residences, nursing/retirement homes, hospitals, schools, day-care centers, etc.	07:00-23:00	45	40
Living/dining areas of residences, nursing/retirement homes, hospitals, etc. (except schools or daycare centres)	23:00 - 07:00	45	40
Sleeping quarters	07:00-23:00	45	40
Sleeping quarters	23:00 - 07:00	40	35

SUPPLEMENTARY NOISE LIMITS

Indoor limits for transportation sources applicable to noise sensitive land uses are specified in Table C-2 and Table C-9.

TABLE C-9
Indoor Sound Level Limits (Road and Rail)

Type of Space	Time Period	L _{eq} (Time Period) (dBA)	
		Road	Rail
General offices, reception areas, retail stores, etc.	16 hours between 07:00-23:00	50	45
Living/dining areas of residences, hospitals, schools, nursing/retirement, homes day-care centers, theatres, place of worship, libraries, individual or semi-private offices, conference rooms, reading rooms etc.	16 hours between 07:00-23:00	45	40
Sleeping quarters of hotels/motels	8 hours between 23:00 - 07:00	45	40
Sleeping quarters of residences, hospitals, nursing/retirement homes etc	8 hours between 23:00 - 07:00	40	35

SUMMARY OF MINIMUM NOISE CONTROL AND VENTILATION REQUIREMENTS FOR ROAD AND RAIL NOISE

TABLE 1
COMBINATION OF ROAD AND RAIL NOISE, DAY-TIME (0700 - 2300)
OUTDOOR, VENTILATION AND WARNING CLAUSE REQUIREMENTS

ASSESSMENT LOCATION	L _{eq} (16 hr) (dBA)	VENTILATION REQUIREMENTS	OUTDOOR CONTROL MEASURES	WARNING CLAUSE
OUTDOOR LIVING AREA (OLA)	Less than or equal to 55 dBA	N/A	None required	Not required
	Greater than 55 dBA to less than or equal to 60 dBA	N/A	Control measures (barriers) not required but should be considered	Required if resultant L _{eq} exceeds 55 dBA Type A
	Greater than 60 dBA	N/A	Control measures (barriers) required to reduce the L _{eq} below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible	Required if resultant L _{eq} exceeds 55 dBA Type B
PLANE OF LIVING ROOM WINDOW	Greater than 50 dBA to less than or equal to 55 dBA	None required	N/A	Not required
	Greater than 55 dBA to less than or equal to 65 dBA	Forced air heating with provision for central air conditioning	N/A	Required Type C
	Greater than 65 dBA	Central air conditioning	N/A	Required Type D

TABLE 2
COMBINATION OF ROAD AND RAIL NOISE, NIGHT-TIME (2300 - 0700)
VENTILATION AND WARNING CLAUSE REQUIREMENTS

ASSESSMENT LOCATION	L _{eq} (8hr) (dBA)	VENTILATION REQUIREMENTS	WARNING CLAUSE
PLANE OF BEDROOM WINDOW	Greater than 50 dBA to less or equal to 60 dBA	Forced air heating with provision for central air conditioning	Required Type C
	Greater than 60 dBA	Central air conditioning	Required Type D

TABLE 3
ROAD AND RAIL NOISE, DAY-TIME (0700 - 2300)
BUILDING COMPONENT REQUIREMENTS

ASSESSMENT LOCATION		<i>L_{eq}</i> (16 hr)	BUILDING COMPONENT REQUIREMENTS
PLANE OF LIVING ROOM WINDOW	R	Less than or equal to 65 dBA	Building compliant with the Ontario Building Code
	O		
	A	Greater than 65 dBA	Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria
	D		
	R	Less than or equal to 60 dBA	Building compliant with the Ontario Building Code
	A		
	I	Greater than 60 dBA	Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria
	L		

TABLE 4
ROAD AND RAIL NOISE, NIGHT-TIME (2300-0700)
BUILDING COMPONENT REQUIREMENTS

ASSESSMENT LOCATION		<i>L_{eq}</i> (8 hr)	BUILDING COMPONENT REQUIREMENTS
PLANE OF BEDROOM WINDOW	R	Less than or equal to 60 dBA	Building compliant with the Ontario Building Code
	O		
	A	Greater than 65 dBA	Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria
	D		
	R	Less than or equal to 60 dBA	Building compliant with the Ontario Building Code
	A		
	I	Greater than 60 dBA	Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria
	L		

TABLE 5
FACADE REQUIREMENT FOR RAIL NOISE ONLY - 24 HOURS

ASSESSMENT LOCATION	DISTANCE TO RAILWAY (m)	<i>L_{eq}</i> (24 hr) (dBA)	NOISE CONTROL REQUIREMENT
PLANE OF BEDROOM WINDOW	Less than 100 m	Less than or equal to 60 dBA	No additional requirement
		Greater than 60 dBA	Brick veneer or acoustically equivalent
	Greater than 100 m	Less than or equal to 60 dBA	No additional requirement
		Greater than 60 dBA	No additional requirement

TABLE B- 1
Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq dBA)
Outdoor Points of Reception

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00-19:00	50	50	45	55
19:00 -23:00	50	45	40	55

TABLE B- 2
Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq dBA)
Plane of Window of Noise Sensitive Spaces

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00-19:00	50	50	45	60
19:00 -23:00	50	50	40	60
23:00-07:00	45	45	40	55